# CITY OF BLOOMINGTON
# COMMISSION ON SUSTAINABILITY

## MEETING PACKET

**McCloskey Conference Room — City Hall**
**Tuesday, January 13, 2026, 6:00 p.m.**

**Or virtually at:**
**https://bloomington.zoom.us/j/84327085962?pwd=naI8LVmKZSoinPUHbXuw3h7oqMyi5g.1**

**Meeting ID: 843 2708 5962**
**Passcode: 034238**

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# CITY OF BLOOMINGTON
## COMMISSION ON SUSTAINABILITY

# NOTICE AND AGENDA

**Tuesday, January 13, 2026, 6:00 p.m.**
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Meeting ID: 843 2708 5962 | Passcode: 034238

***Note:*** *Agenda item times are approximate and subject to change*

**Commission on Sustainability Members**

| Seat | Commissioner | Appointed By | Term |
|---|---|---|---|
| C- 1 | Tara Dunderdale | City Council | 1 Feb 2025 — 31 Jan 2027 |
| C-2 | Justin Vasel | City Council | 1 Feb 2025 — 31 Jan 2027 |
| C-3 | Matt Austin | City Council | 1 Feb 2024 – 31 Jan 2026 |
| C-4 | Zero Rose | City Council | 1 Feb 2024 — 31 Jan 2026 |
| C-5 | Zach Ammerman | City Council | 1 Feb 2024 — 31 Jan 2026 |
| C-Ex | Dave Rollo | City Council | Appointed 10 Jan 2024 |
| IU | Quentin Gilly | IU Office of Sustainability | Appointed 21 Nov 2024 |
| MCC | Ross Carlson | Monroe County Commissioners | Appointed 24 Nov 2025 |
| M-1 | Alex Jorck | Mayor | 1 Feb 2024 – 31 Jan 2026 |
| M-2 | Jami Scholl | Mayor | 1 Feb 2024 – 31 Jan 2026 |
| M-4 | Chenghuai Xu | Mayor | 1 Feb 2025 — 31 Jan 2027 |
| M-5 | Annalise Janke | Mayor | 1 Feb 2024 – 31 Jan 2026 |
| M-6 | Diana Ogrodowski | Mayor | 1 Feb 2025 — 31 Jan 2027 |

**1. Call to Order** — **6:00 pm**

**2. Roll Call**

**3. Approval of Agenda**

**4. Approval of Minutes: December 9, 2025**

**5. Public Comment** — **6:05 pm** (10m)
*up to 3 minutes per person*

**6. Reports from Commissioners** — **6:15 pm** (20m)
- A. Chair (Justin Vasel) — 6:15 pm (10m)
- B. Waste Management Working Group (Matt Austin) — 6:25 pm (5m)
- C. Council Ex-Officio (Dave Rollo) — 6:30 pm (5m)

**7. Discussion of Topics Not the Subject of Resolutions** — **6:35 pm** (40m)
- A. Ad-hoc Committee: Dissolution — 6:35 pm (5m)
- B. Counting Miles: methods for estimating transportation-related GHG emissions (Zach Ammerman; Expert Guest: Wes DiSivestro) — 6:40 pm (30m)

**8. Resolutions for Second Reading and Discussion** — **7:10 pm** (0m)
N/A

**9. Resolutions for First Reading and Discussion** — **7:10 pm** (5m)
- A. Resolution 2026-01

**10. Report from Staff Liaison** (Shawn Miya) — **7:15 pm** (10m)

| | | |
|---|---|---|
| **11.** | **Member Announcements** | **7:25 pm** (0m) |
| **12.** | **New Business** | **7:25 pm** (0m) |
| **13.** | **Adjournment** | **by 7:30 pm** |

Next Regular Meeting: February 10, 2026 at 6 pm

*As a quorum of the Commission or its committees may be present, this gathering constitutes a meeting under the Indiana Open Door Law (I.C. § 5-14-1.5). For that reason, this statement provides notice that this meeting will occur and is open for the public to attend, observe, and record what transpires.*

FOR APPROVAL

CITY OF BLOOMINGTON
COMMISSION ON SUSTAINABILITY

# Minutes

**Tuesday, December 09,2025 6:00pm**

**McCloskey Conference Room — City Hall**

1. **Call to Order:** Chair called the meeting to order at 6:00 pm
2. **Roll Call:**

**Members**

| Commissioner | Present | Virtual | Note |
|---|---|---|---|
| Tara Dunderdale | ☑ | ☐ | |
| Justin Vasel | ☑ | ☐ | |
| Matt Austin | ☑ | ☐ | |
| Dave Rollo | ☑ | ☐ | |
| Quentin Gilly | ☑ | ☐ | |
| Alex Jorck | ☑ | ☐ | |
| Jami Scholl | ☑ | ☐ | |
| Annalise Janke | ☐ | ☐ | |
| Diana Ogrodowski | ☐ | ☐ | |
| Chenghuai Xu | ☑ | ☐ | |
| Zero Rose | ☐ | ☐ | |
| Zach Ammerman | ☑ | ☐ | |
| Ross Carlson | ☑ | ☐ | |

**VACANT**

CITY OF BLOOMINGTON
COMMISSION ON SUSTAINABILITY

**City Staff**

Shawn Miya

Jolie Perry

3. **Approval of Agenda**

**ACTION:** Matt Austin moved to Approve the agenda. Councilmember Rollo seconded. Motion Passed with a unanimous Voice vote.

4. **Approval of Minutes: Nov 18, 2025**

   **ACTION: Jami moved to approve the minutes with necessary corrections to grammar and spelling.**

   **Motion passes with a voice vote of 9-0-1**

5. **Approval of Minutes: Nov 18, 2025**

   **ACTION:**

6. **Public Comment - No public comment**

7. **Reports from Commissioners**

   a. **A. Chair (Justin Vasel) - two new commissioners joining, Zach Ammerman and Ross Carlson. Evan Nix has resigned. Introductions from new commissioners.**

      i. **2026 meeting schedule will be 2nd Tuesday of the month and tentative work sessions on off weeks. Officer elections will be held at March meeting.**

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COMMISSION ON SUSTAINABILITY

ii. Justin shared news and updates from the commission and larger sustainability community. In 2026 the commission may review the chicken flock resolution passed earlier this year to draft sample ordinance for council as a follow up.

iii. Tara will reach out to Grandview Hills sustainable neighborhood grant representative to invite to present at the January meeting.

iv. WIll likely dissolve the sustainability ad hoc committee at the next meeting because the scope and membership as changed. Will redefine scope in early 2026.

v. The library hours have changed so if working sessions will continue to be held at the library the time will need to change or we will need to find another location.

vi. New member handbook should be available in draft in early January. Bylaws reform will  be revisited in 2026.

vii. Chair plans to bring a resolution in early 2026 on city's response to food access.

viii. Capstone at the O'Neill school is set for spring 2026.

ix. News from the city on issues related to the commission's mission.

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COMMISSION ON SUSTAINABILITY

x. **The commission will aim to pay attention to the budget process timeline to identify any areas the commission may want to put forward resolutions. The UDO is also in revision in 2026 and if our resolutions have relevance to UDO. Two major developments, Hopewell and Summit may be of interest to the commission.**

b. **B. Waste Management Working Group (Matt Austin) - The Citizens Advisory Committee with the waste reduction district needs members. Interested people can apply at the waste reduction district website.**

c. **C. Council Ex-Officio (Dave Rollo)**

**Council has a work session with the redevelopment commission which oversees properties owned by the city. The property will be the Bungar Robinson property near the convention center and whether the city will donate it to the hotelier. Council is largely opposed of the property being given as a donation but rather to be sold. It was purchased with TIF funds. 8 of 9 councilors have opposed it. Because the land has been parcelled into 2 parcels each worth less than $5,00,000 the Redevelopment Commission can make the decision without council approval. Deliberation session will follow**

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on outcome based budgeting looking at specific outcomes in city plans. The public is welcome at both sessions.

8. Discussion of Topics Not the Subject of Resolutions
    a. Climate Action Plan Implementation Update (Shawn Miya) - Shawn shared what ESD has worked on since the July 2024 presentation to council.

Tara moved to advance to agenda item 8c. Councilmember Rollo seconded. Motion passed with a unanimous voice vote.

    b. B. Counting Miles: methods for estimating transportation-related GHG emissions (Zach Ammerman)
    c. C. 2026 Priority Planning Process (Justin Vasel) -
        i. The commission has made progress in several priority areas for 2025. Considering different processes for working sessions in 2026. Justin will share a survey with commissions about preferences.

9. Resolutions for Second Reading and Discussion
    a. N/A
10. Resolutions for First Reading and Discussion
    a. N/A
11. Report from Staff Liaison

N/A

CITY OF BLOOMINGTON
COMMISSION ON SUSTAINABILITY

12. **Member Announcements**

    **N/A**

13. **New Business**

    **N/A**

14. **Adjournment - at 7:30 pm**

CITY OF BLOOMINGTON
COMMISSION ON SUSTAINABILITY

Sponsor:
Justin Vasel

Passed X-Y-Z

**RESOLUTION 2026-01**

**TO APPLAUD THE CITY'S RESPONSE TO THE 2025 LAPSE IN FEDERAL FUNDING OF SNAP BENEFITS**

WHEREAS, community resilience—the capacity to anticipate, withstand, and recover from disruptions—is a critical component of sustainability; and

WHEREAS, the federal government shutdown in late 2025 led to a lapse in appropriations for the USDA's Supplemental Nutrition Assistance Program (SNAP), threatening food access for more than 16,000 individuals within the Hoosier Hills Food Bank's six-county service area, including Monroe County; and

WHEREAS, on November 3, 2025, the City of Bloomington provided $46,000 in emergency funding to Hoosier Hills Food Bank to help sustain food access for residents across south-central Indiana, enabling the food bank to purchase and distribute approximately 330,000 pounds of food—the equivalent of 275,000 meals—through its mobile pantries and 84 partner agencies; and

WHEREAS, materials included in the Bloomington Common Council's November 5, 2025 meeting packet shared critical resources for finding food and contributing to mutual aid efforts, and called upon residents, businesses, civic groups, and neighborhood associations to join in a "Bloomington Food Resilience Effort" by committing to regular food bank donations, organizing mutual aid networks, volunteering consistently, amplifying local needs through social, professional, and faith-based platforms, and staying informed and connected; and

WHEREAS, the meeting packet also included a letter to Mayor Thomson expressing support for additional emergency appropriations to meet rising community needs, including potential use of the Jack Hopkins Social Services Fund.

NOW THEREFORE, BE IT HEREBY RESOLVED BY THE BLOOMINGTON COMMISSION ON SUSTAINABILITY, THAT:

SECTION 1. The Commission applauds Mayor Kerry Thomson and the Administration for acting swiftly to provide emergency funding to Hoosier Hills Food Bank in response to the federal government shutdown.

SECTION 2. The Commission applauds the Common Council for directing affected residents to critical food access resources and for encouraging those with means to support local food assistance organizations through donations, volunteering, and mutual aid.

SECTION 3. The Commission recognizes that local action in times of federal disruption exemplifies the community resilience essential to a sustainable Bloomington.

PASSED AND ADOPTED by the Bloomington Commission on Sustainability upon this ____ day of _____, 2026.

_____

JUSTIN VASEL, Chair
Bloomington Commission on Sustainability

CITY OF BLOOMINGTON
COMMISSION ON SUSTAINABILITY

# Chair Report

## January 13, 2026

Justin Vasel

# BCOS Organization Chart

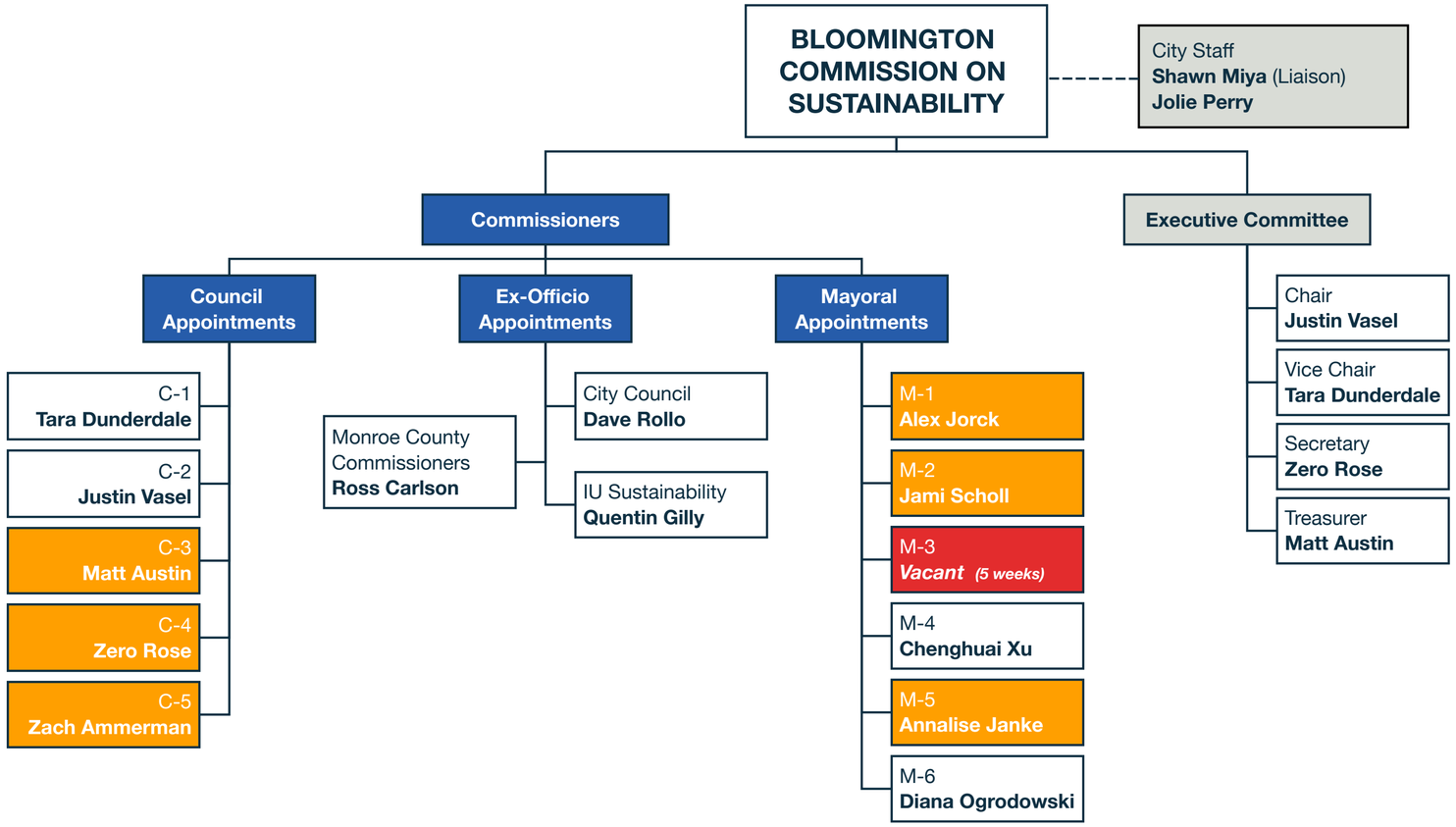
## As of January 13, 2026

## Current State

- One vacancy
- Current quorum threshold: **7** / 13

## Farewells

- **Zero Rose** (June 2024 – Jan 2026)
- **Jami Scholl** (Feb 2024 – Jan 2026)
- **Annalise Janke** (Jun 2005 – Jan 2026)



# News & Updates

## From the Commission and beyond

**Updates are in bold**

### Ongoing / Recent

- Resolution 2026-01 — first reading today, second reading Feb
- BCOS Resolution 2025-04 (Name Change)
  - Suggestion that formal ordinance be prepared by Committee on Council Processes (Title 2 overhaul in 2026)
  - **New leadership; will reach out**
- BCOS Resolution 2025-01 (Poultry Flock Sizing) — need to follow up
- Sustainable Energy Utility Feasibility Study (O'Neill Capstone)
  - **Begins this week; Alex and Justin will attend first class**
  - **Feb 12: Work plan finalized**
  - **April 28: Final report**
- 2025 Annual Report — **Draft & comment matrix this month; discuss/approve Feb**
- Bloomington Energy Works www.bloomingtonenergyworks.com
  - BCOS has agreed to support this initiative
  - Program includes free energy audits for owners of large commercial/nonprofit/academic buildings and access to low-cost capital for upgrades
- **WRDMC Compost Bin & Rain Barrel Sale** wastereductiondistrictorders.com
  - **ESD is a collaborator**
  - **Order deadline: April 15, 2026. Pickup dates April 24 and 25**
- Local Food Resilience Strategy: will continue to refine in 2026
- Grant project reports
  - CanopyBloomington (WGG) — **February**
  - Grandview Hills Pollinator Gardens (SNG) — **February**
  - TerraCycle 2.0 (SNG) — March?
- Sustainability Forums: more on the way
- MCPL hours change — Only open until 7pm on Tuesday; may need new location for work sessions

### Upcoming

- **BCOS Strategic Planning Retreat — February (Tentative)**
  - **Fill out scheduling survey here: https://forms.gle/cVMbZa7DeTiLUyFi9**
  - **Targeting a full Saturday in late Jan or Feb**
  - **Logistical details are being worked**
- Officer elections — March meeting
- BCOS Commissioner Handbook — targeting a draft in February
- Bylaws Reform — first half of 2026

### Around the City

- **Council elected new leadership**
  - **President: Asare**
  - **Vice President: Zulich**
  - **Parliamentarian: Daily**

### Tracking

- 2027 City Budget
- 2026 UDO Revision Process
- Hopewell Development
- Summit District
- **Indiana General Assembly 2026 Legislative Session Bills (by subject)**
  - **Economic Development**
  - **Energy**
  - **Environment**
  - **Health**
  - **Social Services**
  - **Utilities**
  - **Zoning & Planning**
  - **All Bills**

# Officer Elections 2026

## Rules & Requirements

| | Rule | Description |
|---|---|---|
| Bloomington Municipal Code | **BMC § 2.08.020(9)** Officers | Each board, commission and council shall elect a chairperson, secretary, treasurer, and such other officers as may be necessary. Such entity may appoint a non-member to serve as secretary. |
| Bloomington Municipal Code | **BMC § 2.08.020(10)** Duties of the Secretary | The secretary of each board, commission or council shall keep for every meeting written minutes in which the results of any vote are recorded and, when appropriate, specific findings of facts and conclusions are set forth. |
| BCOS Bylaws Article II (Officers) | **BCOS Bylaws II.1** Officer Election | Officers shall be elected by vote of the commission members annually at the Annual Meeting [March] by a majority of the current membership of the Commission.<br>It shall be the right of the Commission to decide annually on the Structure of the Executive Office(s).<br>The Commission will decide by vote at each annual election whether to elect officers as Co-Chair or Chair and Vice Chair. |
| BCOS Bylaws Article II (Officers) | **BCOS Bylaws II.2** Officer Eligibility | All officers shall be members of the Commission and no member shall hold more than one office at a time. |
| BCOS Bylaws Article II (Officers) | **BCOS Bylaws II.3** Officer Term | Officers shall be elected to serve until the next Annual Meeting.<br>Their terms of office shall begin at the close of the meeting at which they are elected.<br>Officers may serve more than one term.<br>Officers shall deliver to their successors all accounts, papers, records, and other Commission property within two weeks of their expired term. |

# Officer Elections 2026

## Types of Officers & Duties

| Officer | Duties |
|---|---|
| **Chairperson** | • Prepare the agenda for all meetings<br>• Preside over all meetings (except when she/he designates VC)<br>• Distribute agenda and related documents no less than 48h prior to meeting<br>• Organize and submit the Commission's Annual Report in coordination with other members of the Executive Committee |
| **Co-Chairs** | • Newly-elected Co-Chairs shall decide how to divide responsibilities enumerated for the Chair and Vice Chair. All responsibilities must be explicitly assigned to an individual, and the list of responsibilities shall be presented in written format to the Commission by the next regular meeting |
| **Vice-Chairperson** | • Serve as Chairperson in their absence<br>• Perform duties that may be delegated by Chairperson<br>• Aid Chairperson on request<br>• Post notice of vacancies of the Commission's Advisory Committee positions and the requirements thereof<br>• Perform such other duties applicable to the office as prescribed by the parliamentary authority adopted by the Commission<br>• In absence of Secretary, serve as or appoint a Member to serve as Secretary |
| **Secretary**<br>per BMC § 2.08.020(10) | • Keep, for every meeting, written minutes in which the results of any vote are recorded and, when appropriate, specific findings of facts and conclusions are set forth. |
| **Treasurer** | • Facilitate the preparation of the annual budget as required by BMC § 2.08.020(13)<br>• Facilitate the efforts of commission members to identify funding sources in order to execute the strategic goals of the commission |

# Officer Elections 2026

## Nominations & Process — We can vote to finalize at Feb meeting

### Q1: Which structure do we want?

OPTION 1: Chair / Vice Chair

OPTION 2: Co-Chairs

### Q2: How should the nomination process work?

Ground Rules:

- Nominations can be made ahead of time or during the election
- Nominations can be made by any commissioner
- Only commissioners can make nominations
- Commissioners may nominate themselves

Nominations submitted before election meeting:

1. Nominee is informed and asked if willing to stand for election
2. During election, Chair announces willing nominees & asks for any others

OPTION: Candidate statements (either written or verbal)

### Q3: How should the election process work?

Ground Rules:

- Electing an officer requires a majority vote of current commission membership

OPTION: “Unstructured”

- Nominations are called for and announced for all positions.
- Commissioners may then move to approve any particular nominee for a given position, or to approve a slate of nominees to multiple positions.

OPTION: “Sequential”

- Elections happen in order: Chair, VC, Secretary, Treasurer.
- For each election, nominations are called for and announced for that position.
- Commissioners may then move to approve any particular nominee for that position.

OPTION: “Sequential Ballot”

- Elections happen in order: Chair, VC, Secretary, Treasurer.
- For each election, nominations are called for and announced for that position.
- Ballots are distributed to Commissioners and votes are tallied by Secretary (or designee). Note: ODL does not allow secret votes.

# Resources

## For Commissioners

- **Websites**
  - BCOS Homepage
  - BCOS OnBoard page
- **Commission Documents**
  - BCOS 2024 Annual Report
  - BCOS Bylaws
  - BCOS SOPs
- **Working Group Grants**
  - Standard Operating Procedure (SOP)
  - Application Template
- **Templates**
  - BCOS Resolution Template
- **Bloomington Policy Documents**
  - Municipal Code (BMC)
  - Climate Action Plan (CAP)
  - Comprehensive Plan
  - Unified Developer Ordinance (UDO)

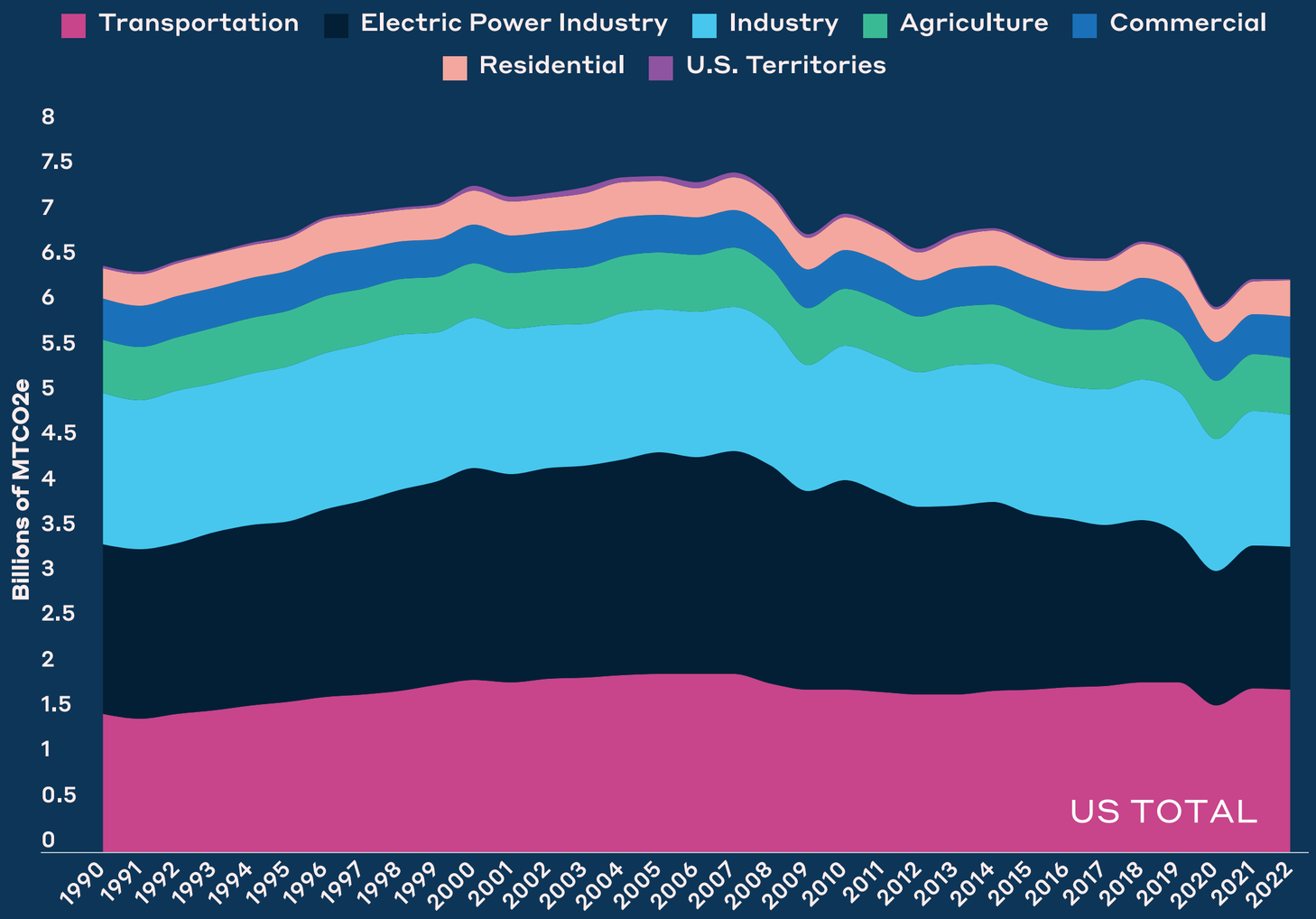
# Counting Miles

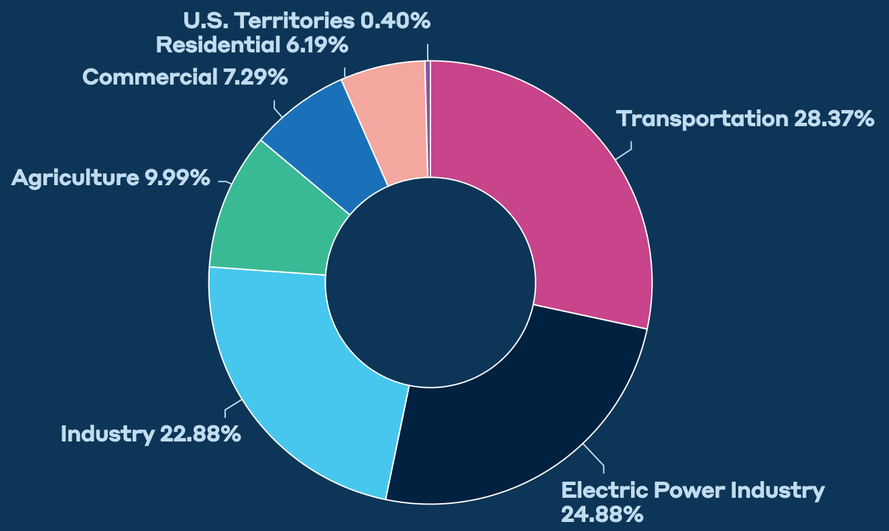
Methods of Measuring Greenhouse Gas Emissions from Transportation and its Impact on Bloomington's Climate Baseline

# Greenhouse Gas Emissions from Transportation

## BACKGROUND: TRANSPORTATION IS THE #1 SOURCE OF GHG EMISSIONS NATIONWIDE

ESTIMATED GHG EMISSIONS BY SECTOR – Billions of $MTCO_2e$



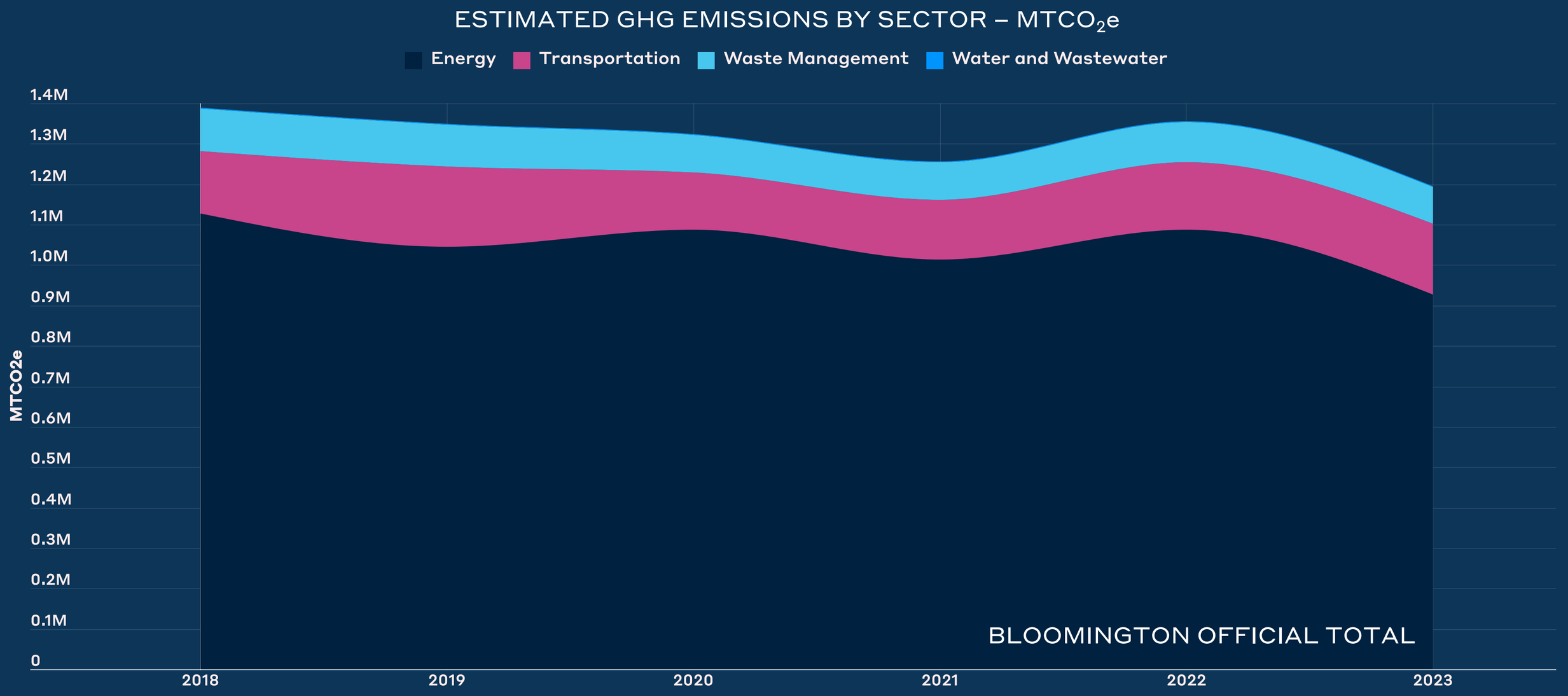




The largest single source of emissions is fossil fuel combustion from transportation, with 27.6% of overall emissions. **The single sub-category of emissions from fuel use in transportation is larger than the entire electricity, industry, agriculture, commercial, or residential sectors of the U.S. economy.**

Data: EPA Inventory of GHG Emissions and Sinks 1990-2022

# Greenhouse Gas Emissions from Transportation

## BLOOMINGTON'S CURRENT BASELINE




Data - Bloomington Climate Action Dashboard

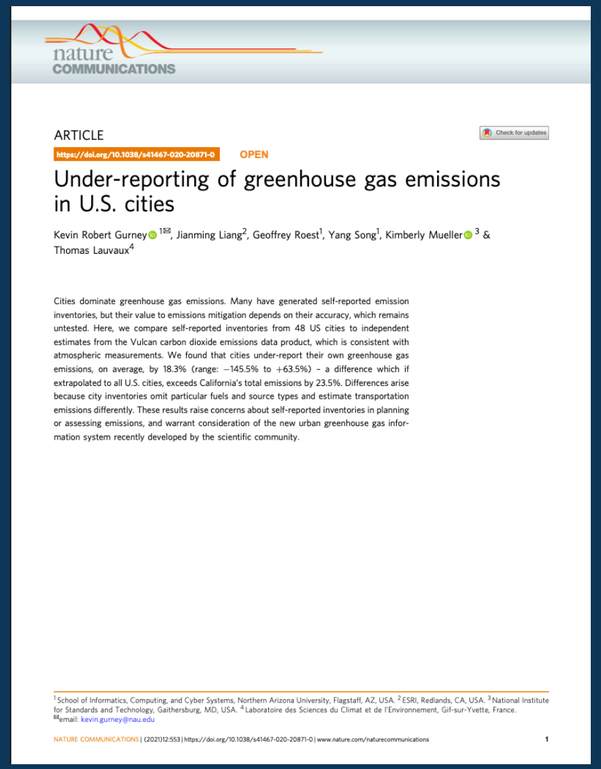
# Greenhouse Gas Emissions from Transportation

## BACKGROUND: The systematic under-reporting of GHG emissions

A 2021 study in Nature Communications of 48 major U.S. cities found that municipalities **systematically under-report greenhouse gas emissions** by an average of 18.3%

If extrapolated out to all US cities, the authors estimate that **the total amount of under-reported emissions in the U.S. would total 23.5% more than the entire state of California**'s GHG emissions.

Specifically cited as one of the major reasons for systematic undercounting of municipal emissions: **Different methods for estimating transportation emissions**



nature COMMUNICATIONS

ARTICLE

Check for updates

https://doi.org/10.1038/s41467-020-20871-0 OPEN

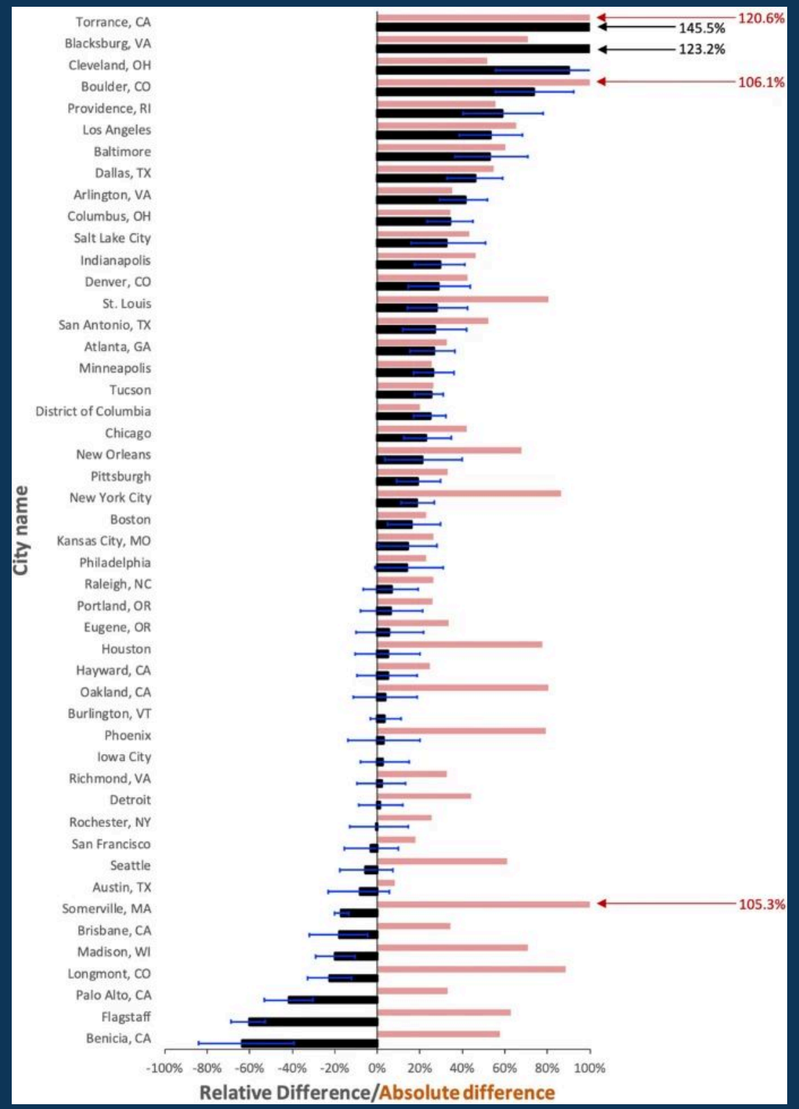
Under-reporting of greenhouse gas emissions in U.S. cities

Kevin Robert Gurney[1,2✉], Jianming Liang[2], Geoffrey Roest[1], Yang Song[1], Kimberly Mueller[3] & Thomas Lauvaux[4]

Cities dominate greenhouse gas emissions. Many have generated self-reported emission inventories, but their value to emissions mitigation depends on their accuracy, which remains untested. Here, we compare self-reported inventories from 48 US cities to independent estimates from the Vulcan carbon dioxide emissions data product, which is consistent with atmospheric measurements. We found that cities under-report their own greenhouse gas emissions, on average, by 18.3% (range: −145.5% to +63.5%) - a difference which if extrapolated to all U.S. cities, exceeds California's total emissions by 23.5%. Differences arise because city inventories omit particular fuels and source types and estimate transportation emissions differently. These results raise concerns about self-reported inventories in planning or assessing emissions, and warrant consideration of the new urban greenhouse gas information system recently developed by the scientific community.

[1] School of Informatics, Computing, and Cyber Systems, Northern Arizona University, Flagstaff, AZ, USA. [2] ESRI, Redlands, CA, USA. [3] National Institute for Standards and Technology, Gaithersburg, MD, USA. [4] Laboratoire des Sciences du Climat et de l'Environnement, Gif-sur-Yvette, France. ✉email: kevin.gurney@nau.edu





# Greenhouse Gas Emissions from Transportation

## HOW ARE GHG EMISSIONS CALCULATED FROM TRANSPORTATION?

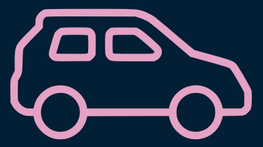
In cities like Bloomington, **personal vehicles are by far the largest source of emissions for transportation** (and the largest single source overall from any category in the United States). **Cars make up the vast majority of transportation emissions in Bloomington.**

There are several methods for calculating emissions from ground transportation, the most common is a **"bottom-up" approach** that starts with a count of the number of **vehicle miles travelled (VMT)** in a given jurisdiction

### BASIC EXPLANATION OF VMT CALCULATION METHOD

BOTTOM-UP VMT METHOD (most common in U.S.)

PROCESS STARTS WITH VMT



**Vehicle Miles Travelled (VMT)**

Total number of miles travelled by vehicles in a given area over a given period of time.

**Vehicle Classes**

Estimate of different types of vehicles (light, medium and heavy duty, commercial vs. personal vehicles, etc.)

**Fuel Types**

Estimates of different types of fuel used based on vehicle classes estimate (diesel vs. E85 vs. regular unleaded gasoline, factoring in hybrid vehicles, etc.)


**$CO_2e$ emissions**

$MTCO_2$ equivalent

(VERY SIMPLIFIED DIAGRAM)

# Greenhouse Gas Emissions from Transportation

## DIFFERENT METHODS OF CALCULATING VMT

### IN-BOUNDARY VMT ONLY

CITY OF BLOOMINGTON
CURRENT SYSTEM

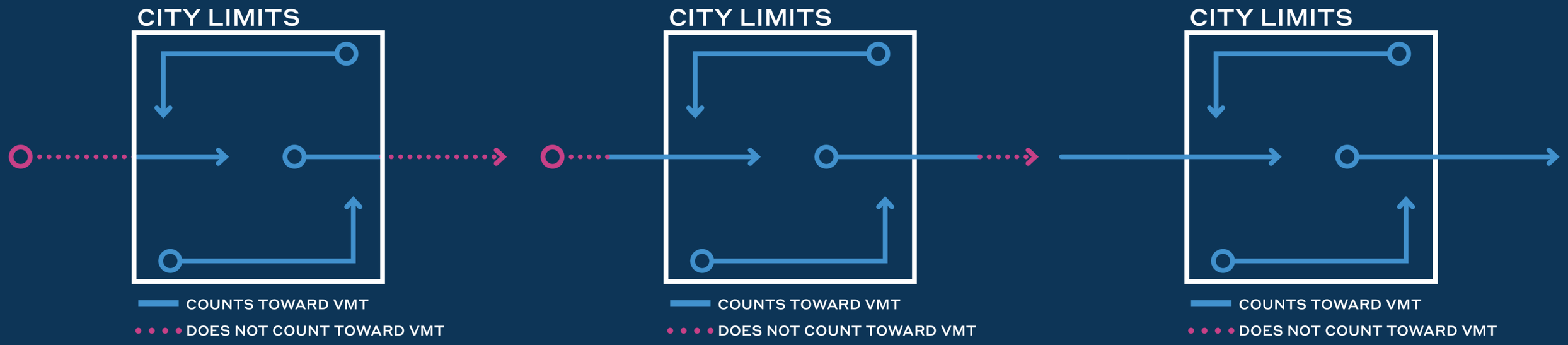
### GPC PROTOCOL

Induced traffic model

GREENHOUSE GAS PROTOCOL FOR
CITIES INDUCED TRAFFIC COMPLIANT

### FULL VMT

FOR INFORMATION




Only trips within city limits are counted

(SIMPLIFIED DIAGRAM)

100% of In-boundary and 50% of transboundary trips counted, pass-through trips excluded

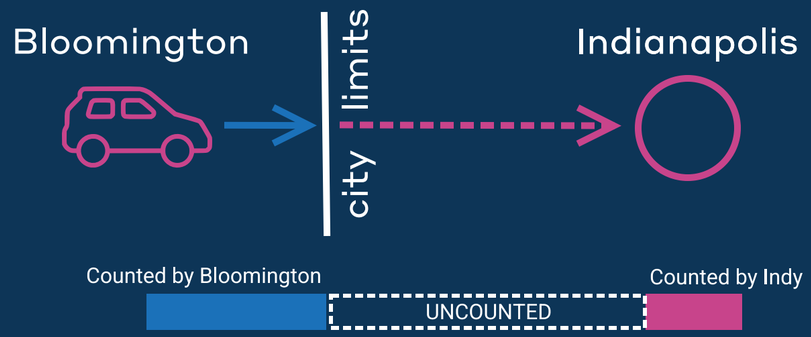
Total trip is counted for all vehicles starting or ending their trip within the city

# Greenhouse Gas Emissions from Transportation

## DIFFERENT METHODS OF CALCULATING VMT: EXAMPLE

Example: Someone who commutes every day to Indianapolis (roughly 13% of Bloomington's workforce)

### IN-BOUNDARY VMT ONLY

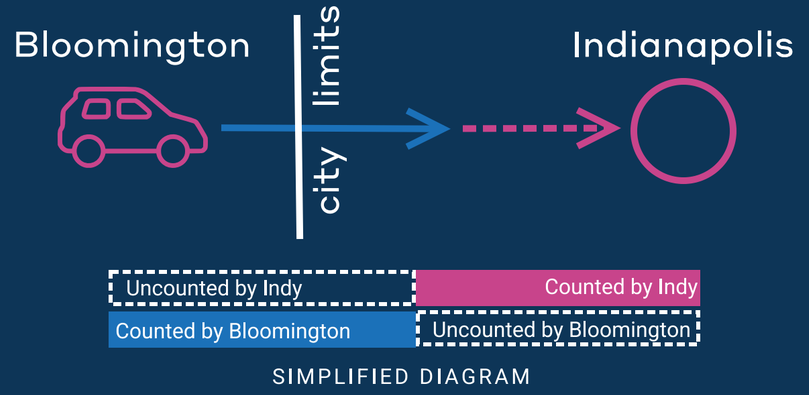



**Only the portion within Bloomington is counted**

Significant portion of the trip is uncounted by either city

### GPC PROTOCOL

Induced traffic model

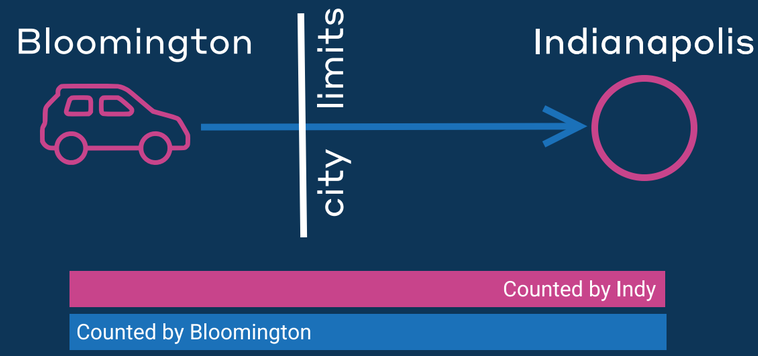



SIMPLIFIED DIAGRAM

**In-boundary trips and 50% of transboundary trips counted**

Less of the trip is uncounted or double-counted, accounts for traffic induced by the city

### FULL VMT




ENTIRE TRIP DOUBLE-COUNTED

**The entire trip is counted 100% by both Bloomington and Indy**

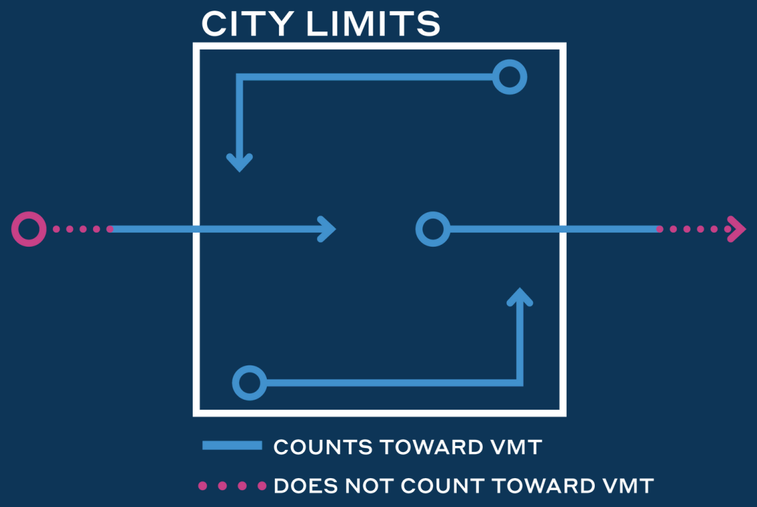
The entire trip is counted by both cities

# Greenhouse Gas Emissions from Transportation

## WHAT IS THE GPC PROTOCOL?

**GPC PROTOCOL**

GREENHOUSE GAS PROTOCOL FOR CITIES **INDUCED ACTIVITY COMPLIANT**




100% of In-boundary and 50% of transboundary trips counted, pass-through trips excluded


- Developed by WRI, C40 Cities, and ICLEI
- Released in 2014, updated since
- Gold standard for municipal greenhouse gas inventories,
- Adoption by municipalities is growing
- **Standardizes inventories for easier apples-to-apples comparisons**

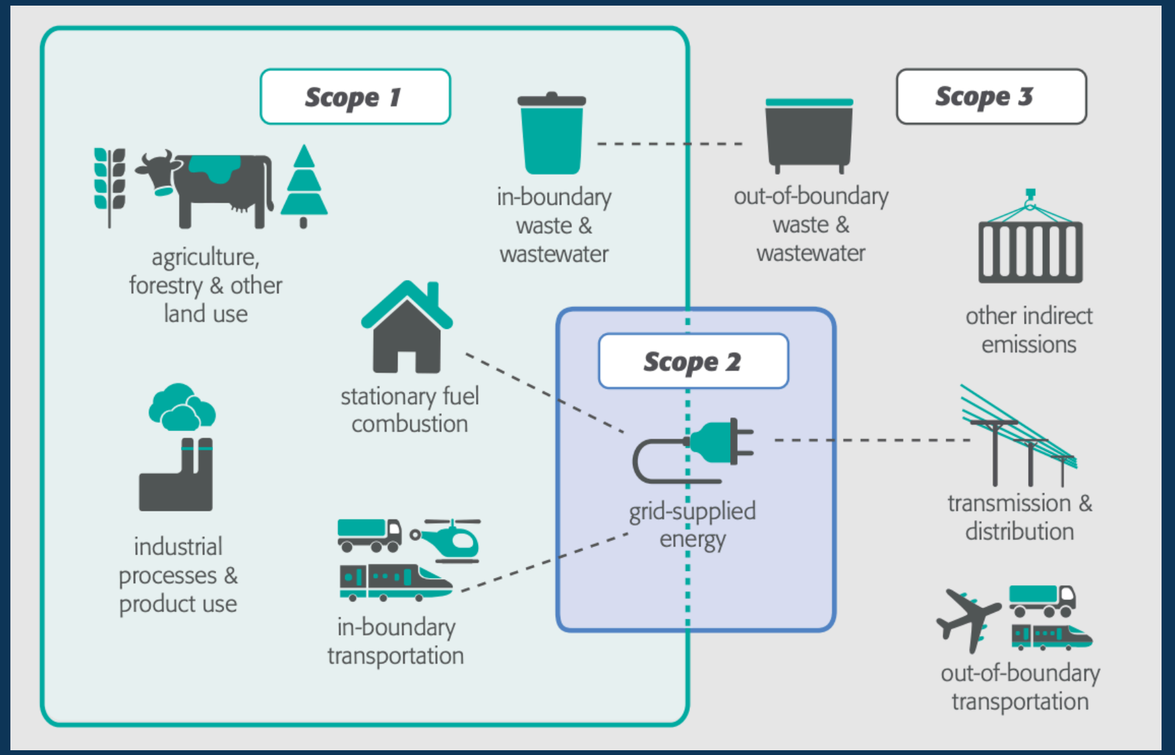
*Bloomington uses this overall method, but not the recommended induced transportation calculation for VMT (more info on next slide)*

# Greenhouse Gas Emissions from Transportation

## WHAT IS THE GPC PROTOCOL?

The GPC divides emissions into three Scopes:

| Scope | Description |
|---|---|
| **Scope 1** | GHG emissions from sources located **within the city boundary** |
| **Scope 2** | GHG emissions occurring as a **consequence of the use** of grid-supplied electricity, heat, steam and/or cooling **within the city boundary** |
| **Scope 3** | All other GHG emissions that **occur outside of the city boundary as a result of activities taking place within the city boundary.** |




*"BASIC+ involves additional data collection and calculation processes, requiring emissions from IPPU, emissions and removals from AFOLU, and emissions from* ***transboundary transportation. Where these sources are significant and relevant for a city, the city should aim to report according to BASIC+.***"
*—Global Protocol for Community-Scale Greenhouse Gas Emission Inventories*

The GPC includes two reporting levels, BASIC and the more robust BASIC+. **BASIC+ calls for accounting for emissions *induced by the city*** in addition to direct emissions that occur within the city (Scope 3). **Our current transportation inventory does not meet this requirement for on-road transportation, but does for almost all other categories in all other sectors** (except railways and a few other very small categories). **This compounds the undercounting issue.**

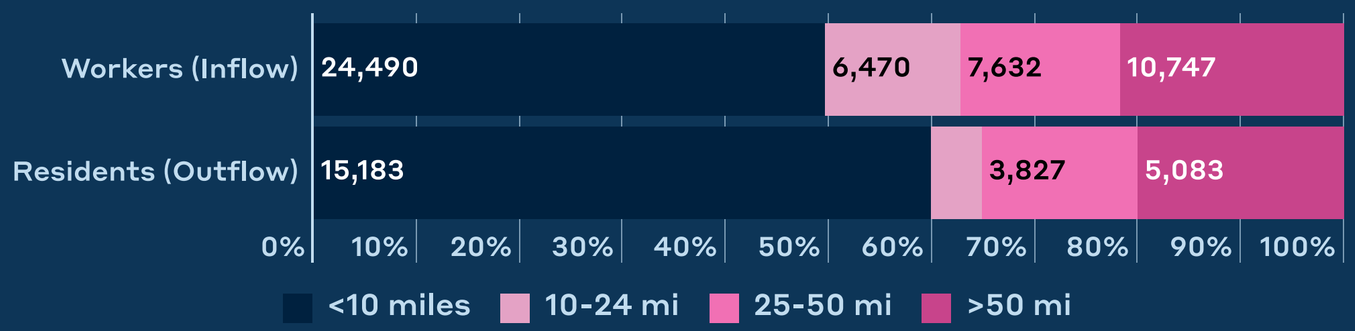
# Greenhouse Gas Emissions from Transportation

## ESTIMATING SCALE OF INDUCED TRAFFIC FROM COMMUTE DATA

Gives an idea of the scale of commutes that may be counted or uncounted. (NB: Ann Arbor uses this data in its calculation of Trans-Boundary VMT, ICLEI lists Census data of this type as a potential source of VMT estimates, either as the primary source in the absence of detailed VMT estimates, or a complementary one)

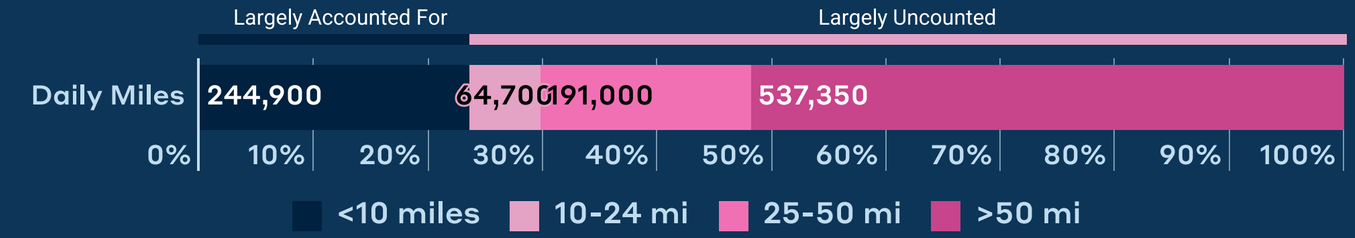
More than 1 out of 5 workers in Bloomington commute more than 50 miles to their job every day (the highest rate in the state among Ind.'s 10 largest cities). Less than half commute under 10 miles.

### BLOOMINGTON WORKFORCE BY COMMUTE DISTANCE

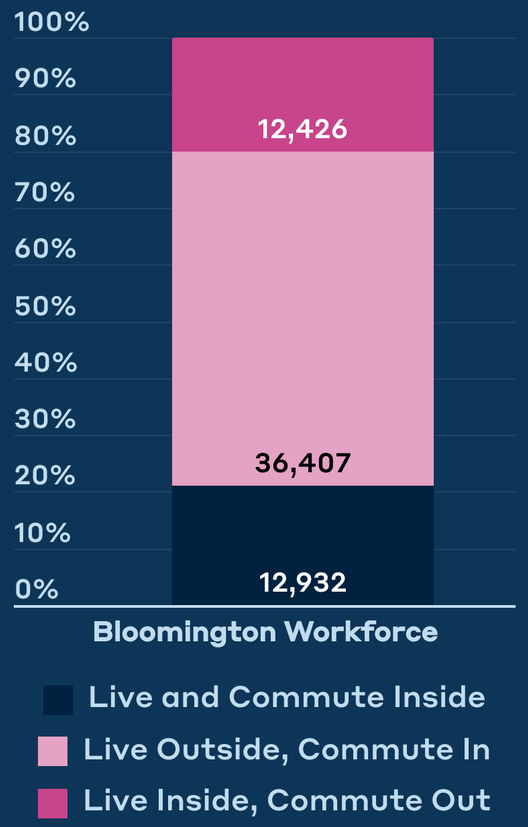



### BASELINE EST. NUMBER OF DAILY MILES (Workers)

(very conservative estimate)




### BLOOMINGTON COMMUTE PATTERNS



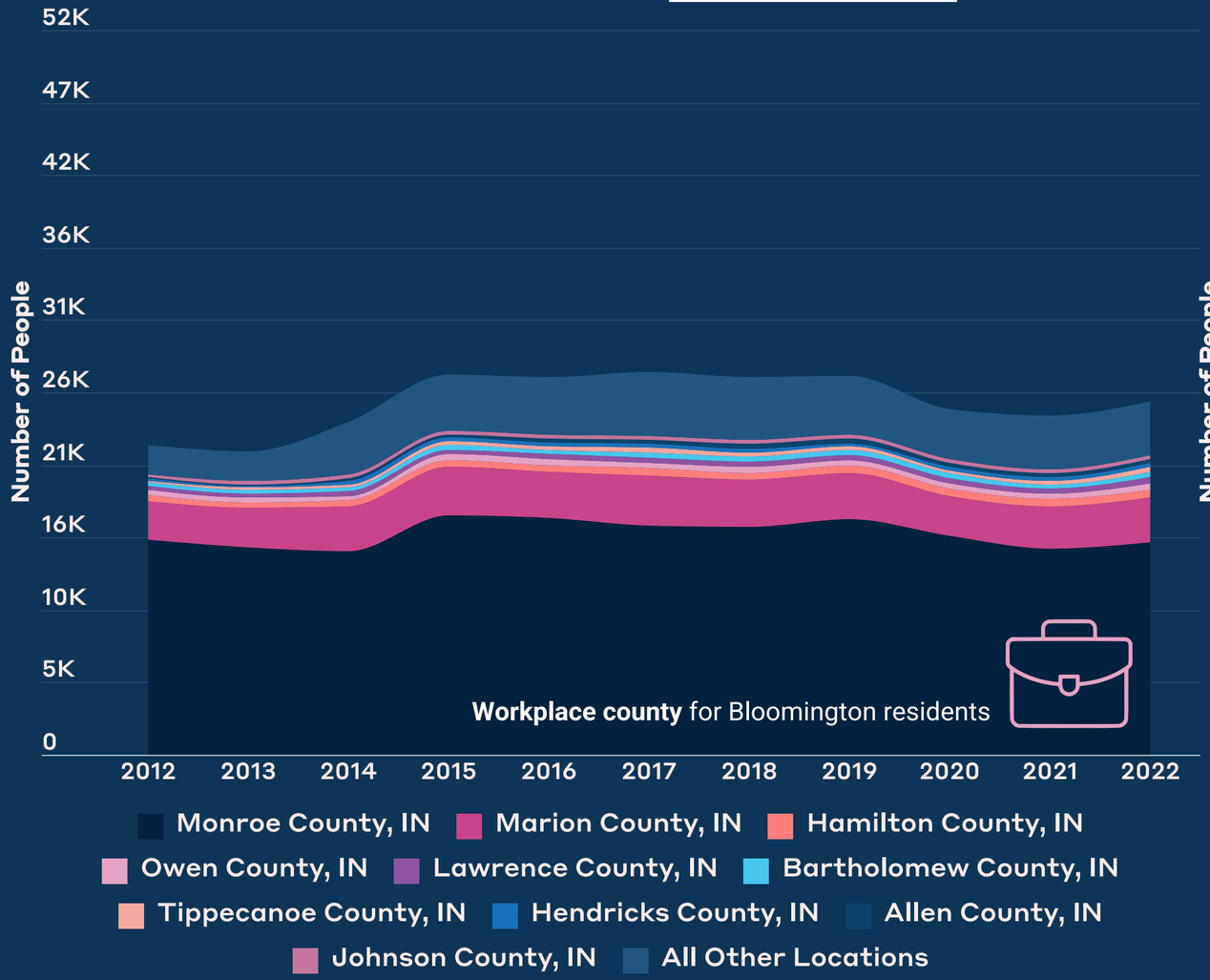

According to the Census Bureau, in 2022, around 80% of commuters in the city's workforce either live outside of Bloomington and commute into the city or live inside of Bloomington and commute out. These miles aren't being fully counted under current methods.

Data - Census Bureau

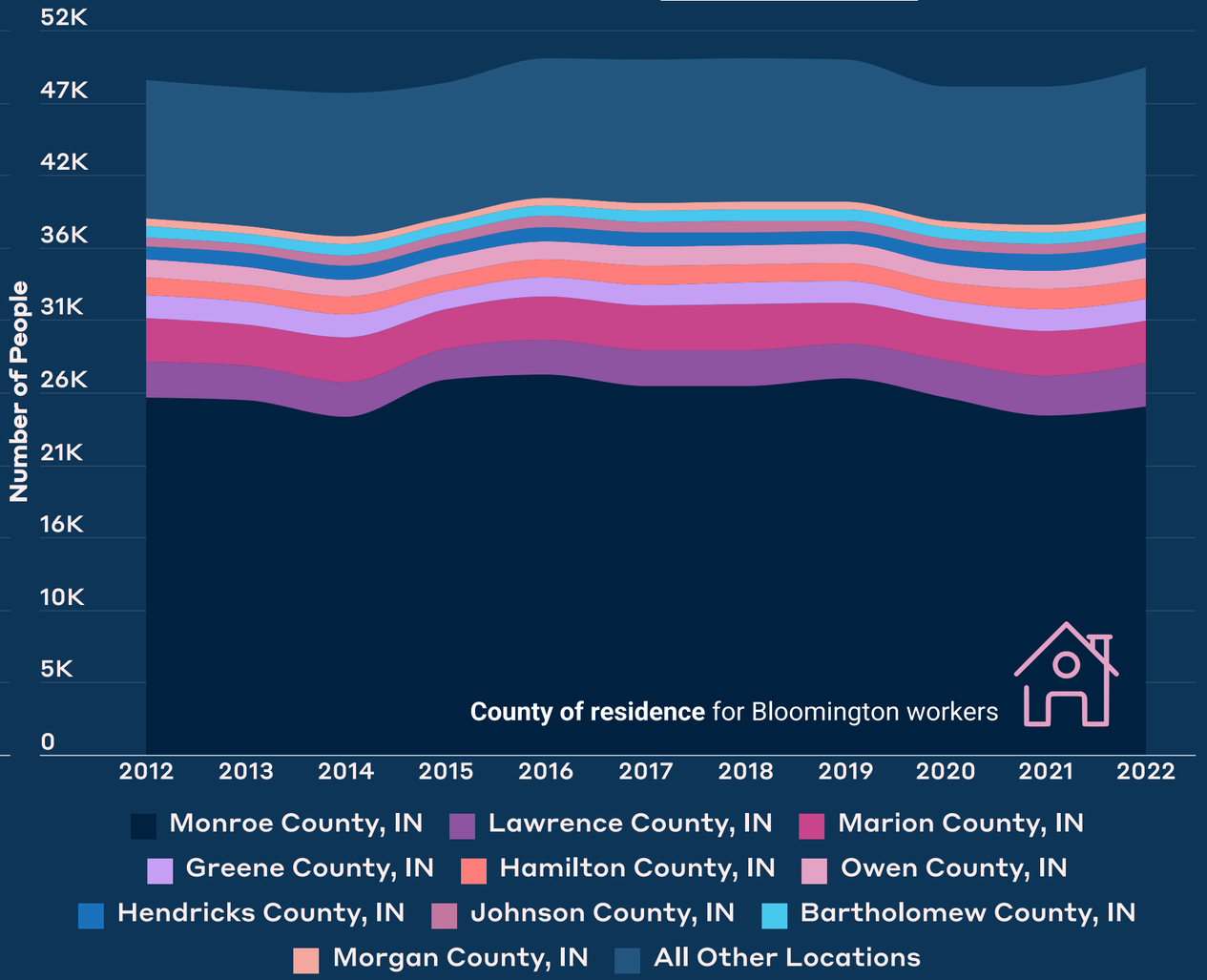
# Greenhouse Gas Emissions from Transportation

## ESTIMATING SCALE OF INDUCED TRAFFIC FROM COMMUTE DATA

### BLOOMINGTON RESIDENTS BY COUNTY OF WORKPLACE




### BLOOMINGTON WORKERS BY COUNTY OF RESIDENCE




Data - All Workers, Census Bureau

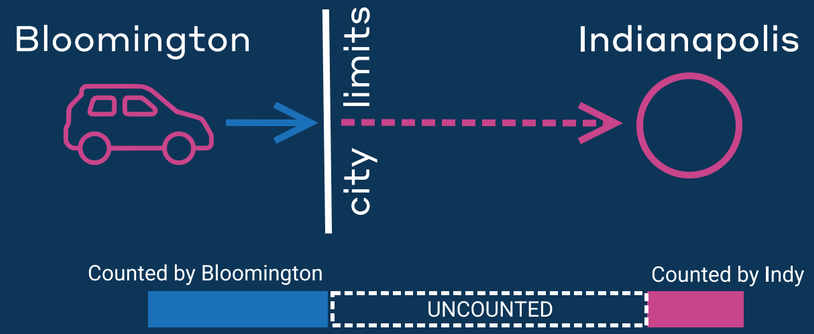
# Greenhouse Gas Emissions from Transportation

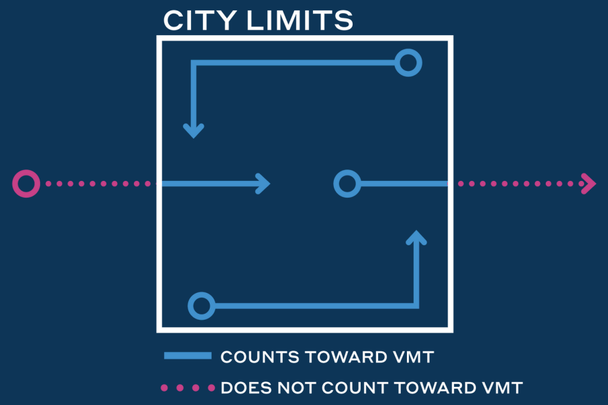
## ESTIMATING SCALE OF INDUCED TRAFFIC FROM COMMUTE DATA

### REMINDER

**IN-BOUNDARY VMT ONLY**

CITY OF BLOOMINGTON
CURRENT SYSTEM

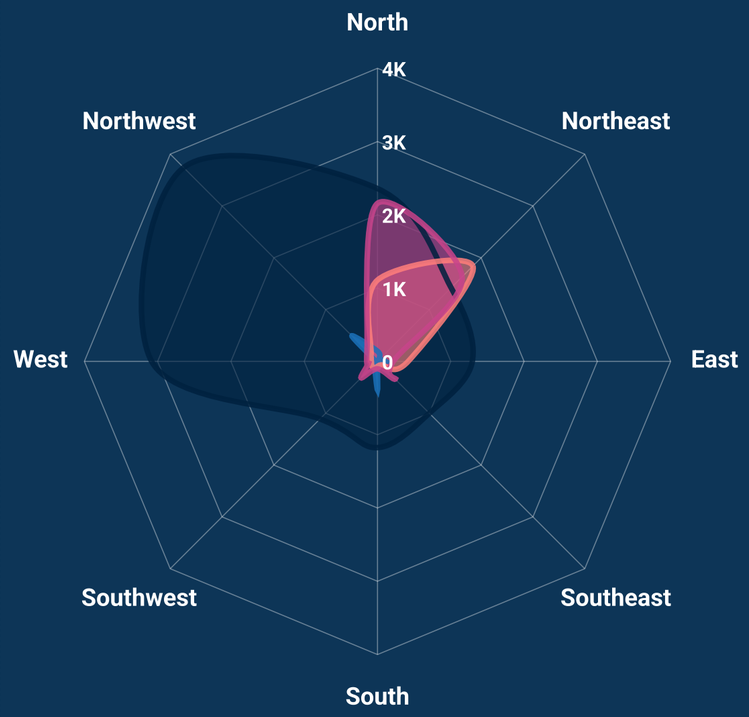



### COMMUTE DIRECTION AND DISTANCE FROM WORKPLACE

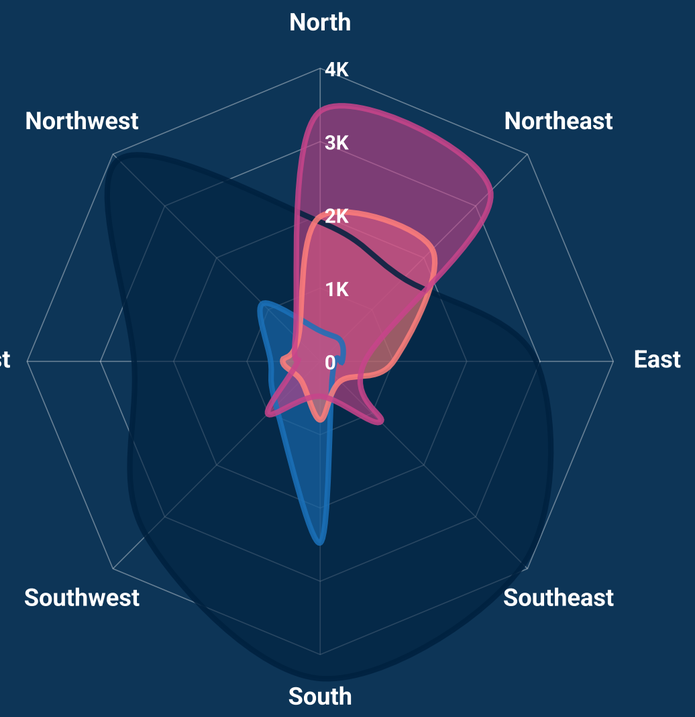
**Outflow**

People who **live in Bloomington**,
distance and direction from home to workplace




**Inflow**

People who **work in Bloomington**,
distance and direction from home to workplace




Data - 2022 Census Bureau

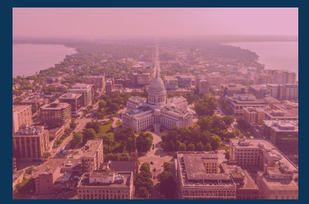
# Greenhouse Gas Emissions from Transportation

## HOW PEER CITIES MEASURE VMT FOR GHG INVENTORIES


**BOULDER, CO**
**Induced Traffic**
In- and transboundary


**ANN ARBOR, MI**
**Induced Traffic**
In- and transboundary


**FAYETTEVILLE, AR**
**Induced Traffic**
In- and transboundary



**MADISON, WI**
**Induced Traffic**
In- and transboundary

**LAWRENCE, KS**
**Induced Traffic**
In- and transboundary


**AMES, IA**
**Induced Traffic**
In- and transboundary

**COLUMBIA, MO**
**Induced Traffic**
In- and transboundary


**LOUISVILLE, KY**
**Induced Traffic**
In- and transboundary


**BERKELEY, CA**
**Induced Traffic**
In- and transboundary

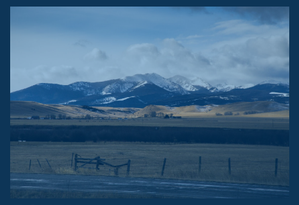
**REDLANDS, CA**
**Induced Traffic**
In- and transboundary

**SOUTH BEND, IN**
**Induced Traffic**
In- and transboundary

**FORT COLLINS, CO**
**Induced Traffic**
In- and transboundary

**Induced Traffic**
(GPC Scope 3: In- and Trans-boundary VMT)

**BLOOMINGTON**
**In-boundary only**



**BOZEMAN, MT**
**In-boundary only**

**CHARLOTTESVILLE, VA***
**In-boundary only**
(Overall odd methodology, not completely clear)

**EVANSVILLE, IN**
**In-boundary only**

**In-boundary only**

| City | Method |
|---|---|
| Boulder, CO* | In- and Transboundary |
| Fort Collins, CO | In- and Transboundary |
| Ann Arbor, MI* | In- and Transboundary |
| Bloomington, IN | In-Boundary Only |
| Lawrence, KS | In- and Transboundary |
| Ames, IA* | In- and Transboundary |
| *Durham, NC* | *Unclear* |
| *Burlington, VT* | *Other - Uses Top-Down Fossil Fuel Sales Method* |
| Charlottesville, VA | In-Boundary Only *(*Not completely clear)* |
| Fayetteville, AR | In- and Transboundary |
| Bozeman, MT | In-Boundary Only |
| Madison, WI | In- and Transboundary |
| Columbia, MO | In- and Transboundary |
| Louisville, KY* | In- and Transboundary |
| Evansville, IN | In-Boundary Only |
| Berkeley, CA* | In- and Transboundary |
| Redlands, CA | In- and Transboundary |
| *Chapel Hill, NC* | *Unclear* |

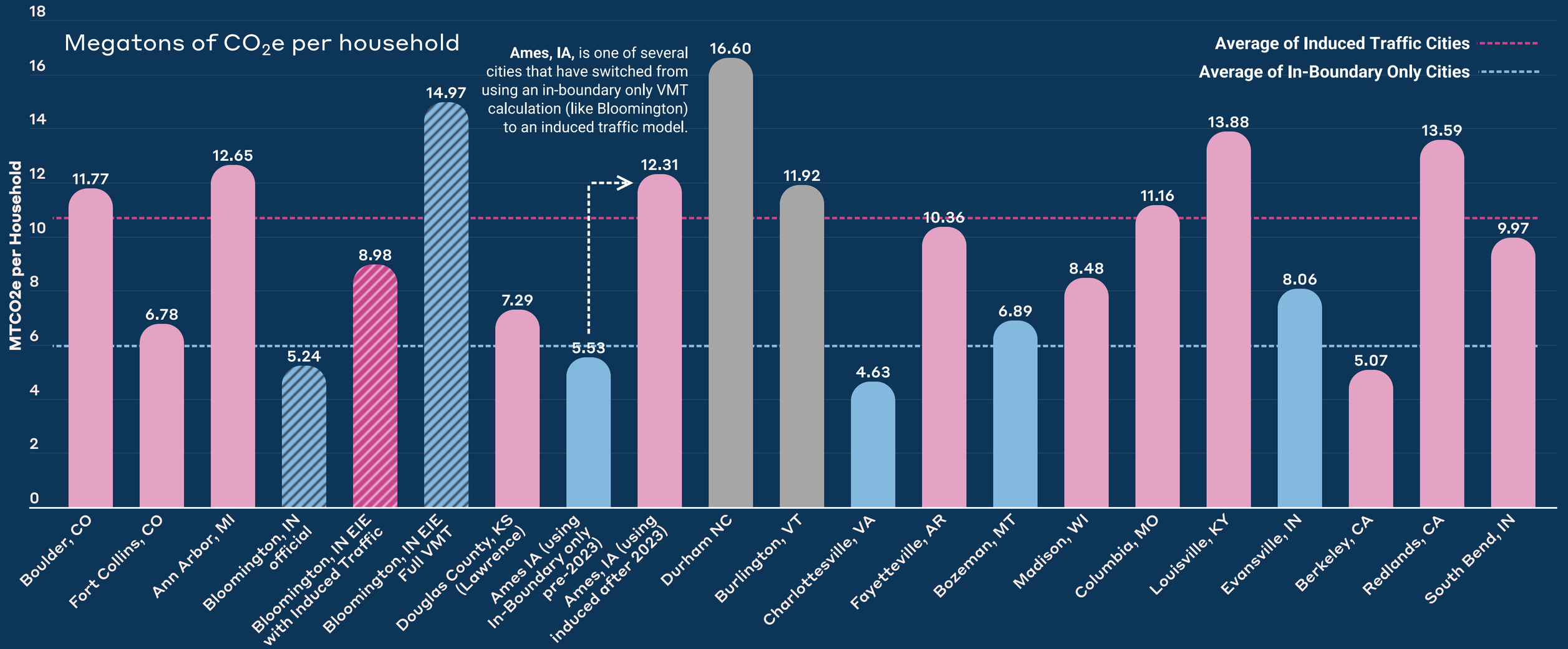
* YEAR

**Cities that have switched from an In-boundary Only VMT calculation to an Induced Traffic model**

# Greenhouse Gas Emissions from Transportation

## COMPARING TO PEER CITIES

### GHG EMISSIONS PER HOUSEHOLD FROM TRANSPORTATION FOR BLOOMINGTON AND SELECTED PEER CITIES




Data - Bloomington Climate Action Dashboard, Individual city dashboards, Google EIE, Census Bureau

# Greenhouse Gas Emissions from Transportation

## GLOBAL CITIES MEASURING INDUCED TRAFFIC

### GLOBAL CITIES MEASURING INDUCED TRAFFIC (SCOPE 3 TRANS-BOUNDARY)

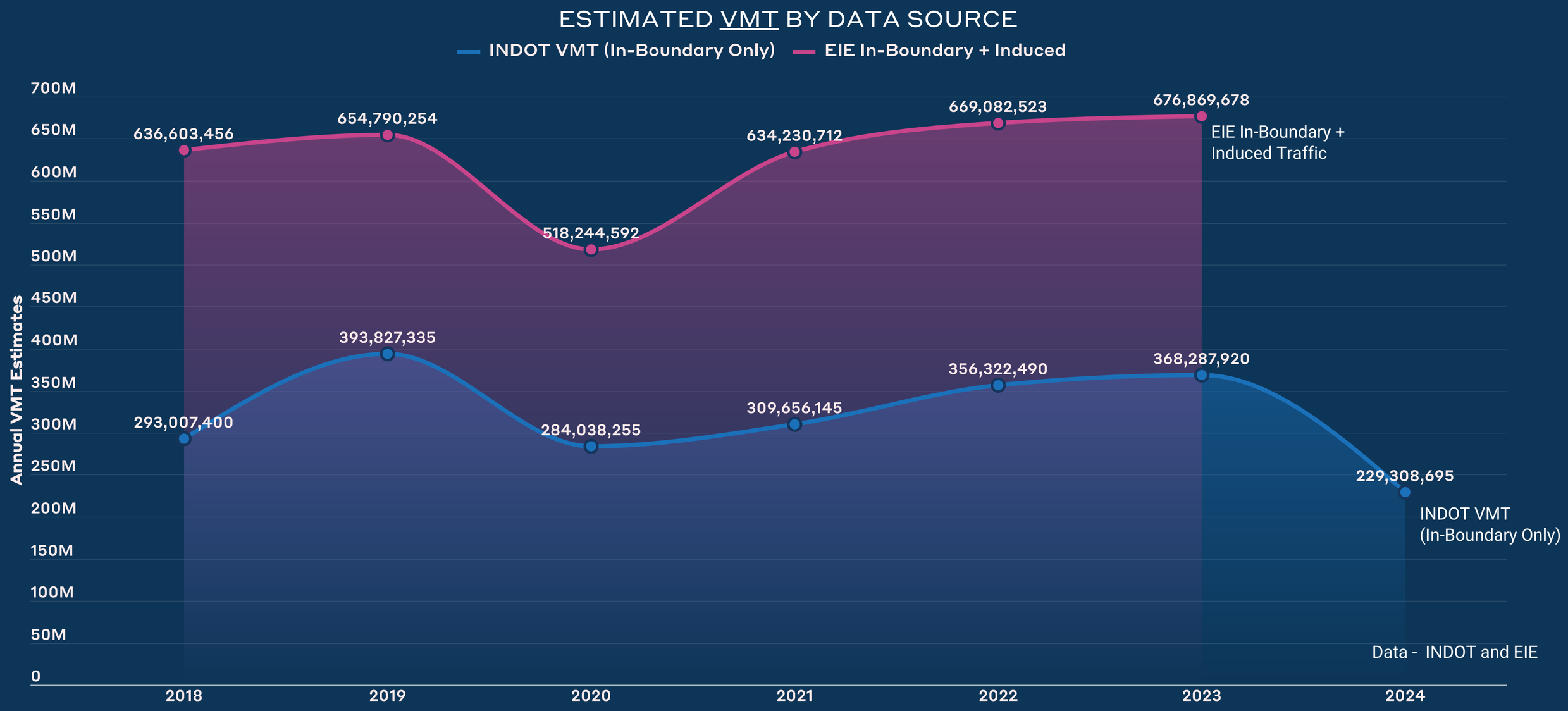
NON-EXHAUSTIVE LIST FROM CITIES SELF-REPORTING THEIR EMISSIONS INVENTORY TO THE CLIMATE DISCLOSURE PROJECT

| Jurisdiction Name | Country |
|---|---|
| City of Adelaide | Australia |
| City of Akureyri | Iceland |
| Greater Amman Municipality | Jordan |
| City of Ann Arbor, MI | United States of America |
| Municipality of Athens | Greece |
| Auckland Council | New Zealand |
| Municipalidad de Belén | Costa Rica |
| West Midlands Combined Authority | United Kingdom of Great Britain and Northern Ireland |
| Birmingham City Council | United Kingdom of Great Britain and Northern Ireland |
| Blacktown City Council | Australia |
| City of Boulder, CO | United States of America |
| Town of Bridgewater, NS | Canada |
| Bristol City Council | United Kingdom of Great Britain and Northern Ireland |
| Bursa Metropolitan Municipality | Turkey |
| Byron Shire Council | Australia |
| Can Tho City | Viet Nam |
| Alcaldia Distrital de Cartagena de Indias | Colombia |
| City of Manchester | United Kingdom of Great Britain and Northern Ireland |
| City of Melbourne | Australia |
| City of Nanaimo, BC | Canada |

Climate Disclosure Project 2023 Citywide Emissions Dataset

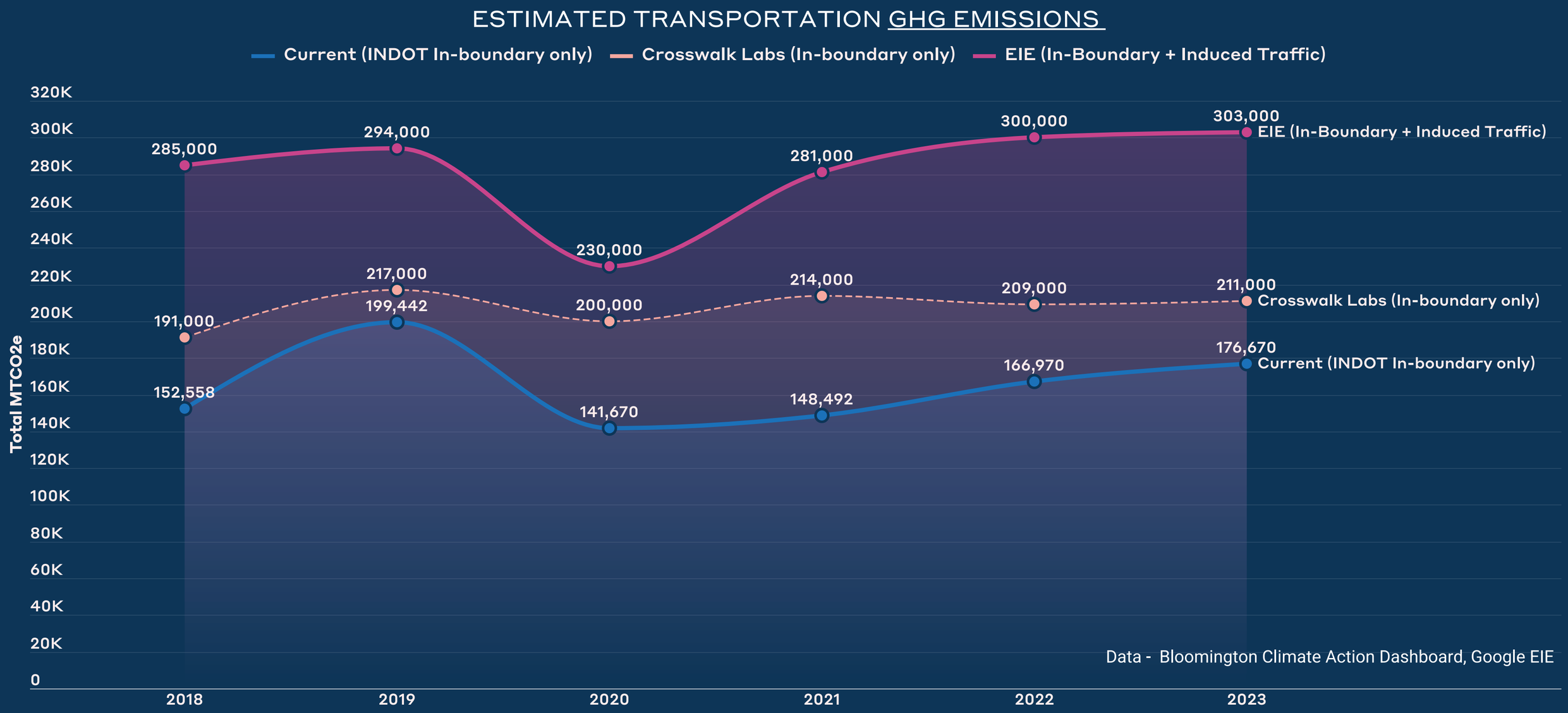
# Greenhouse Gas Emissions from Transportation

## COMPARING VMT FROM INDOT AND EIE



# Greenhouse Gas Emissions from Transportation

## COMPARING EMISSIONS TO OFFICIAL COUNT

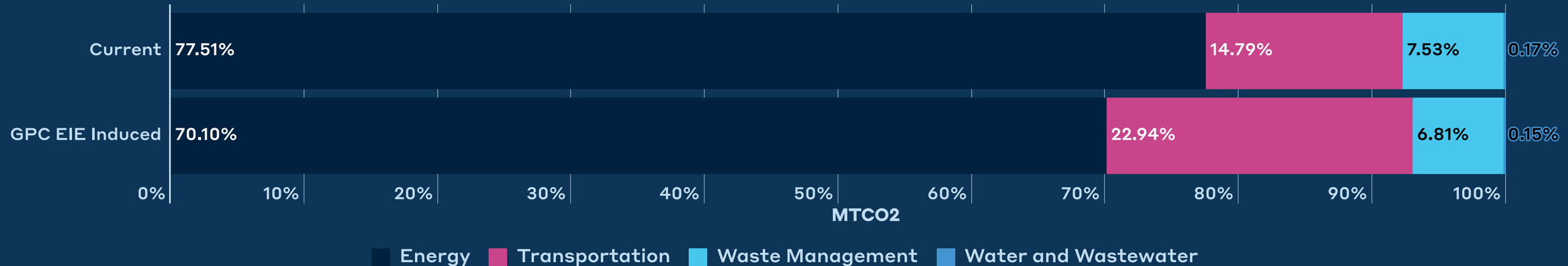


# Greenhouse Gas Emissions from Transportation

## DIFFERENCE IN INVENTORIED EMISSIONS BY VMT METHOD

BLOOMINGTON - TOTAL EMISSIONS BY SECTOR (MT $CO_2$)


BLOOMINGTON - PERCENT OF EMISSIONS BY SECTOR




Data - Bloomington Climate Action Dashboard, Google EIE

# Greenhouse Gas Emissions from Transportation

## DATA SOURCES AND THEIR ISSUES

The data to calculate GPC-Compliant Induced Traffic VMT for Bloomington is now freely available and accessible by anyone on Google's **Environmental Insights Explorer (EIE)** with no barriers to access

EIE uses real-time data from Google Maps users to estimate VMT with an algorithm, EIE's dataset is massive and dramatically more granular in comparison to most public data sources.

*Among the peer cities looked at, EIE is being used as the main source of transportation emissions data in **Boulder**, CO, **Madison**, WI, **Berkeley**, CA, and **Lawrence**, KS. **Athens**, Greece is also using it exclusively, and **Seattle**, WA; **Austin**, TX; **San Jose**, CA; **Hartford**, CT; and **Pittsburgh**, PA also use it in some capacity. This is a non-exhaustive list.*

---

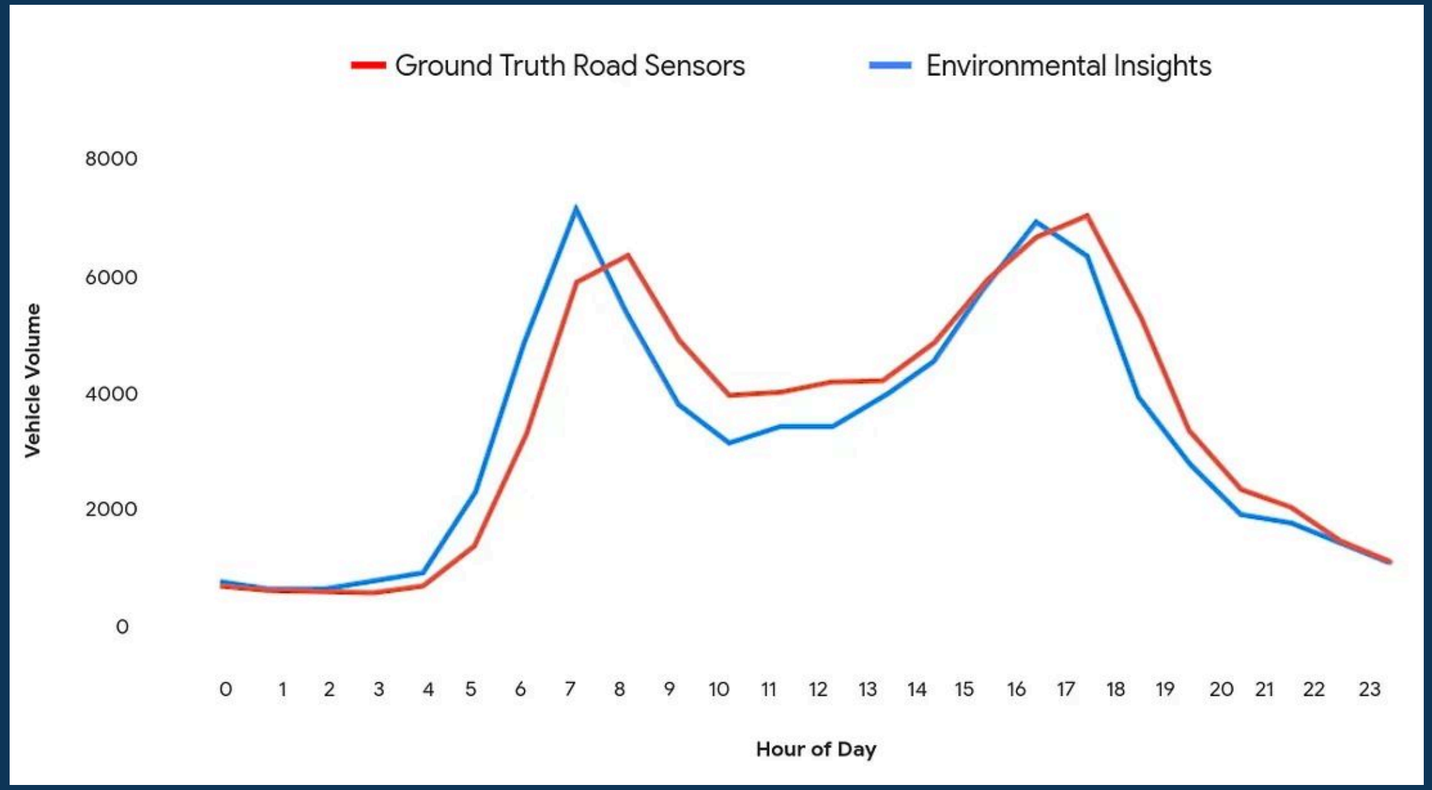
## BOTTOM LINE:

Public data with clearer methodology would be preferable (INDOT) if it allowed for calculating VMT that included induced traffic, but it isn't granular enough to do so, and so leads to undercounting of GHG emissions from transportation

# Greenhouse Gas Emissions from Transportation

## ENVIRONMENTAL INSIGHTS EXPLORER

While EIE doesn't give a full A-Z methodology (which is a valid criticism), Google has conducted ground truthing comparisons of their data with real-life road counts at multiple points in several cities **and found a 0.9 correlation (very high) between their estimates and direct road sensing (going up to 0.99 for some areas)**




Among the cities looked at, Boulder , Madison, Berkeley, and Lawrence all use EIE data

- Traditional approaches to measuring traffic in a city may include: collecting road sensor data from a selection of roads and then applying a local or regional model to it; estimates based on fuel purchased within the city boundary; or downscaled values from regional averages. EIE's underlying data is most similar to GPS data providers and consists of users who have opted in to location services, such as Google Maps, or smartphone users who have Location History enabled. We then apply a number of anonymization and privacy filters to the data, aggregate all trips over the course of the year, and scale the data to the entire city population.
- We have completed a vehicle count comparison between EIE and road sensor data at a number of intersections in the city of Mountain View, CA and Boulder, CO. We found on average, a greater than 0.90 positive Pearson correlation between the road sensor counts and Google's estimations of vehicle volume. This indicates that the sampling of Google trips is a consistent subset of real world vehicle volume, with the added benefits of trip distance/duration data and global scale applicability. In other words, Google data can be a sufficient alternative to road sensors, such as pneumatic tubes. Furthermore, the aggregate scaled vehicle counts of EIE were found to be within an average of 15% of the road sensor data. We expect this value to improve over time as we refine the algorithms used to scale from observed trips to that of the real world population. See comparisons of our data.

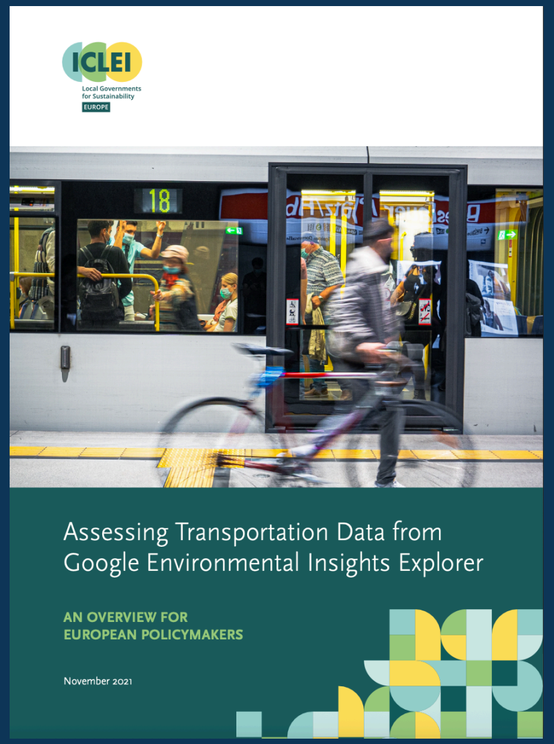
Partial methodology here...

...and here

# Greenhouse Gas Emissions from Transportation

## ENVIRONMENTAL INSIGHTS EXPLORER

ICLEI - Local Governments for Sustainability issued a report outlining the use of EIE data for GHG Inventories for European Union policymakers. See report (link to overview here)




*"Google EIE proves to be a promising tool that can support cities' ambitions to reduce emissions in the transport sector and to promote sustainable urban mobility. ICLEI Europe recommends that cities and regions that have challenges in developing their GHG inventory and/or lack mobility data try EIE.* ***Cities with existing inventories are also encouraged to report on EIE, if applicable, to allow for easier comparisons across cities and to foster a more peer-to-peer experience."***

- **Cities tend to use detailed but infrequent and non-periodic surveys to collect local mobility data to inform their transport reporting**. There are differences, for example, in the years that surveys are undertaken and the understanding of trips by different modes (namely multiple modes for one trip). Furthermore, limitations in current practices were identified in discussions with cities, such as the ability to collect data for those who are not residents in a particular city, and may not be surveyed but travel within the city's boundaries. This makes it challenging to define precise conclusions and compare results.

  EIE mobility data, on the other hand, has the advantage of being able to provide detailed trip data for resident and non-resident activity on an annual basis.

Detailed technical assessment by ICLEI Europe here (49 pages)

# Greenhouse Gas Emissions from Transportation

## ENVIRONMENTAL INSIGHTS EXPLORER - DETRACTORS

EIE is not without its detractors, an article in Urban Studies in 2025 by Koch and Beyer is highly critical, although *primarily on a philosophical basis*, and did not directly challenge the overall technical accuracy or potential applications of the EIE

### Main critiques from Koch and Beyer article:

1. EIE **increases reliance on big tech**, representing what they call a "tech-down" approach to governance and exacerbating existing power imbalances between local government and large corporations *(**very** valid! I largely agree with this critique)*
2. EIE may **undercount users without cell phones** in mode-split calculations *(in a city like Bloomington where the overwhelming percent of trips are by car, this is less of an issue, and can be worked around by not using EIE data exclusively for mode split calculations -- there are other public sources of mode split data)*
3. Cities **cannot alter EIE's indicators themselves** *(although they can tweak the parameters of the indicators to fit local needs. I found this argument to be a bit silly)*
4. EIE is likely **less accurate in Global South** contexts *(undercounting things like tuk-tuks or rickshaws - very valid for Global South cities but not for Bloomington)*

*Special Issue: Google, a major stakeholder in local governance?*

Urban Studies

*Urban Studies*
2025, Vol. 62(13) 2633–2651

DOI: 10.1177/00420980251340280
journals.sagepub.com/home/usj
Sage

**A gift from heaven: Google's Environmental Insights Explorer and its tech-down approach to monitor urban sustainability beyond local contexts**

**Florian Koch**
University of Applied Sciences HTW Berlin, Germany

**Sarah Beyer**
University of Applied Sciences HTW Berlin, Germany

Sarah Beyer is also affiliated with University of Münster, Germany.

**Abstract**
Google's Environmental Insights Explorer (EIE) exemplifies a tech-down approach by leveraging proprietary data, machine learning and artificial intelligence to analyse urban greenhouse gas emissions, solar potential and tree canopy coverage. While framed as a tool for cities to assess and improve sustainability, the EIE often overlooks localised contexts and depends on opaque data generation processes that follow commercial interests. This study evaluates the EIE's data assemblage through critical urban data studies, focusing on its technical and contextual stacks. It critiques the EIE's lack of transparency, dependence on proprietary data and marginalisation of local expertise. Despite its promise, the EIE raises significant concerns about power imbalances, data validity and urban governance implications. Cities utilising the EIE must reconcile its global standardisation with specific local needs, navigating a complex landscape shaped by Google's corporate interests. The findings highlight the need for a more inclusive, context-specific approach to urban sustainability metrics that balances innovative data use with transparency and equitable stakeholder engagement. The EIE demonstrates how sustainability indicators and data are defined through a technology-driven process shaped by a private company, while neglecting local knowledge and narratives. This process – referred to as a tech-down approach – differs from both bottom-up and top-down methods of sustainability indicator selection, as well as from data philanthropy initiatives by private companies, due to its exclusive reliance on corporate data and its global scope. This study urges critical reflection on the broader implications of tech-driven urban monitoring tools like the EIE.

**Corresponding author:**
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Email: Florian.Koch@htw-berlin.de

# Greenhouse Gas Emissions from Transportation

## FINAL THOUGHTS

- Our current method of calculating transportation emissions is **likely undercounting transportation** as it does not account for traffic induced by the city, which Census data suggests is substantial
- **Public or opensource data sources are preferable.** We should explore if there are viable alternative methods to EIE that would allow for counting induced traffic without reliance on Big Tech data
- If an alternative is not available, **Google's EIE provides a viable, immediately accessible and free alternative method that is compliant with the GPC protocol, accounts for induced traffic** and is already in use by a variety of larger and peer cities. There are also other private sources of data that we could explore (*Streetlight Data, ICLEI ClearPath*, *Crosswalk Labs, Replica, VisionEval,* etc.) but some of these can have high costs.
- Because we are counting induced emissions from essentially all other categories except transportation, **we are further compounding the transportation undercounting issue**.

## BOTTOM LINE

**We should consider at the least including EIE data that accounts for induced traffic in VMT calculations into our GHG inventory alongside INDOT VMT counts.**