

Regional Planning and Research

Creating Tools for Climate Change Mitigation in our Region

05/1/2019

Committee of the Whole



Sustainability



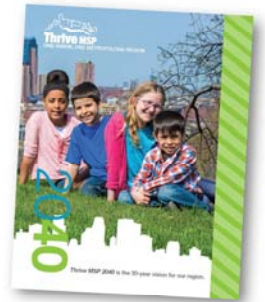
“Providing leadership, information, and technical assistance to support local governments’ consideration of climate change mitigation, adaptation, and resilience”.

Climate and Regional Planning

- Guide the orderly and economical development of the region
- Built environment as the primary contributor to climate change
 - Energy use in our buildings
 - Travel behaviors as a result of our development patterns
- Already experiencing climate change impacts in our region to which we need to adapt

Building in Resilience Land Use Policy

Promote sensitive land use and development patterns to contribute toward achieving Minnesota’s adopted greenhouse gas emission goals at the regional scale, and to develop local resilience to the impacts of climate change.



More information on [f](#) [t](#) [l](#) [i](#) [n](#)

Calming the Storm: Localized Flooding in the Twin Cities Region

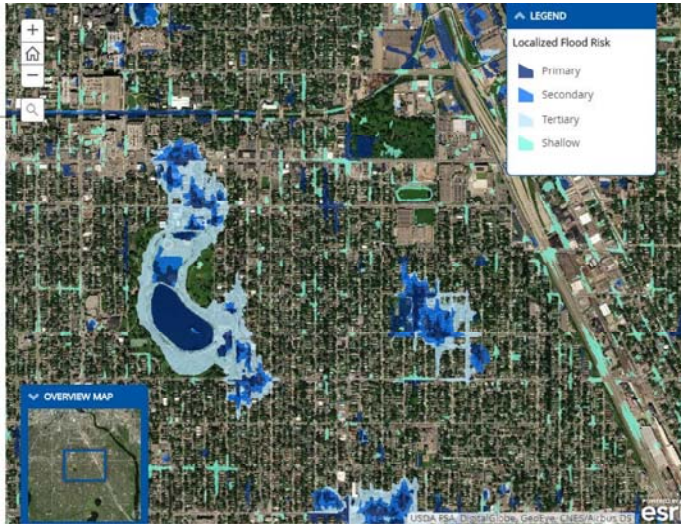
Mapping Localized Flood Risk

What is the Localized Flood Map Layer?

Our [Localized Flood Map For Climate Vulnerability Screening](#) was created using remote sensing data which determines the topography of the earth. The elevation information forms the basis for our localized flood map to determine areas that may experience localized flooding during short, high intensity rain events. An [interactive version of the map](#), similar to the map displayed to the right, is available on our CVA website.

How is localized flooding categorized?

Potential flood areas are categorized into three Flood Impact Zones (FIZ): Primary,



Our climate is changing
Climate change is already occurring in Minnesota and its impacts are affecting our state's environment, economy, and communities.

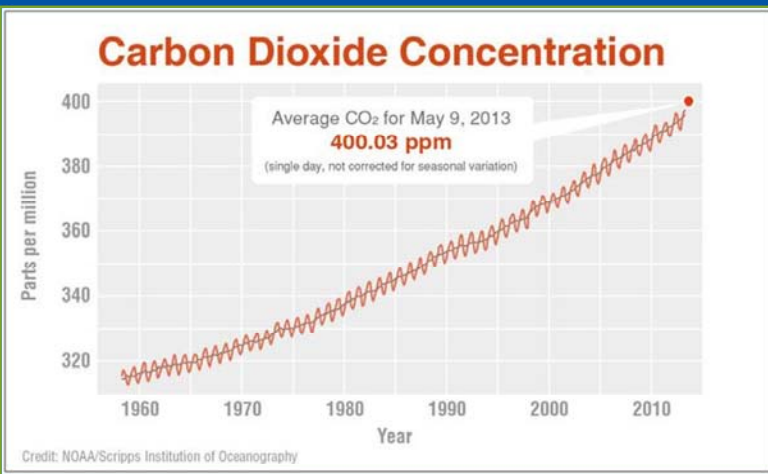
How we're adapting
Minnesota is taking many steps to increase climate adaptation in our state, including a wide range of planning, assessment, and implementation efforts.

Planning for the future
State agencies have developed five statewide climate adaptation indicators to help track Minnesota's progress in climate adaptation.



Metro Climate Stats





Humans releasing greenhouse gas into the atmosphere are responsible for climate change

Climate change could cost Minnesotans billions

Hsiang, Solomon, et al. "Estimating economic damage from climate change in the United States." *Science* 356.6345 (2017): 1362-1369.



METROPOLITAN COUNCIL



Estimates suggest that cities are responsible for 75 percent of global CO2 emissions, with transport and buildings being among the largest contributors.

United Nations
Environmental Panel



Challenges



Technical expertise required



Expensive



Staff time



Uncertainty

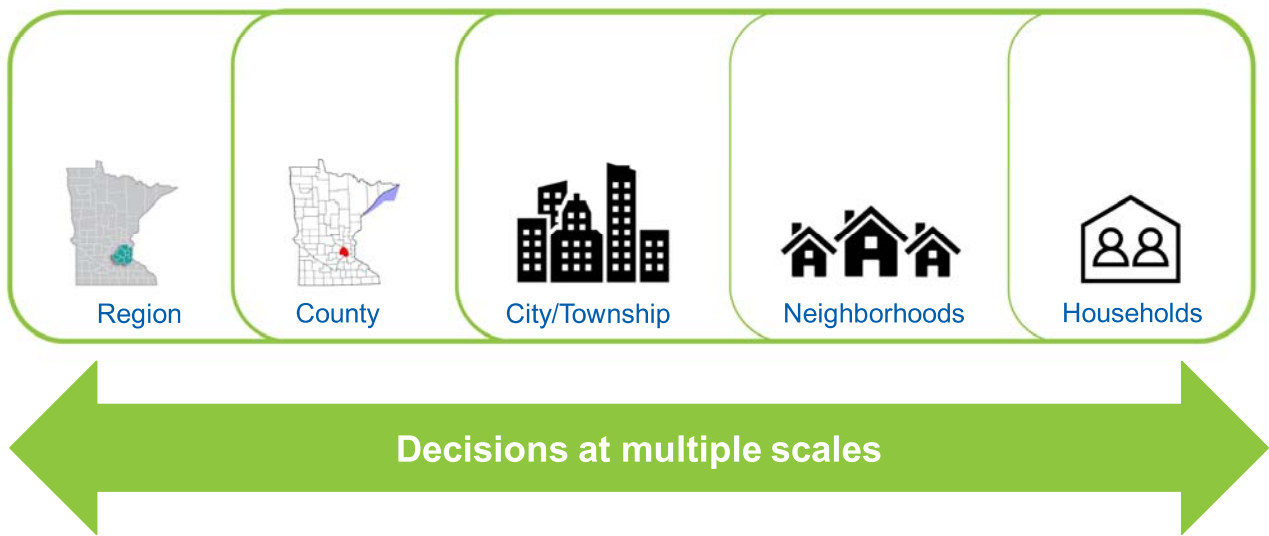
Metro Climate Stats



Inventory



Scenario Planning



Greenhouse emissions planning occurs at multiple scales



Greenhouse reduction solutions occur at multiple scales



INVENTORY

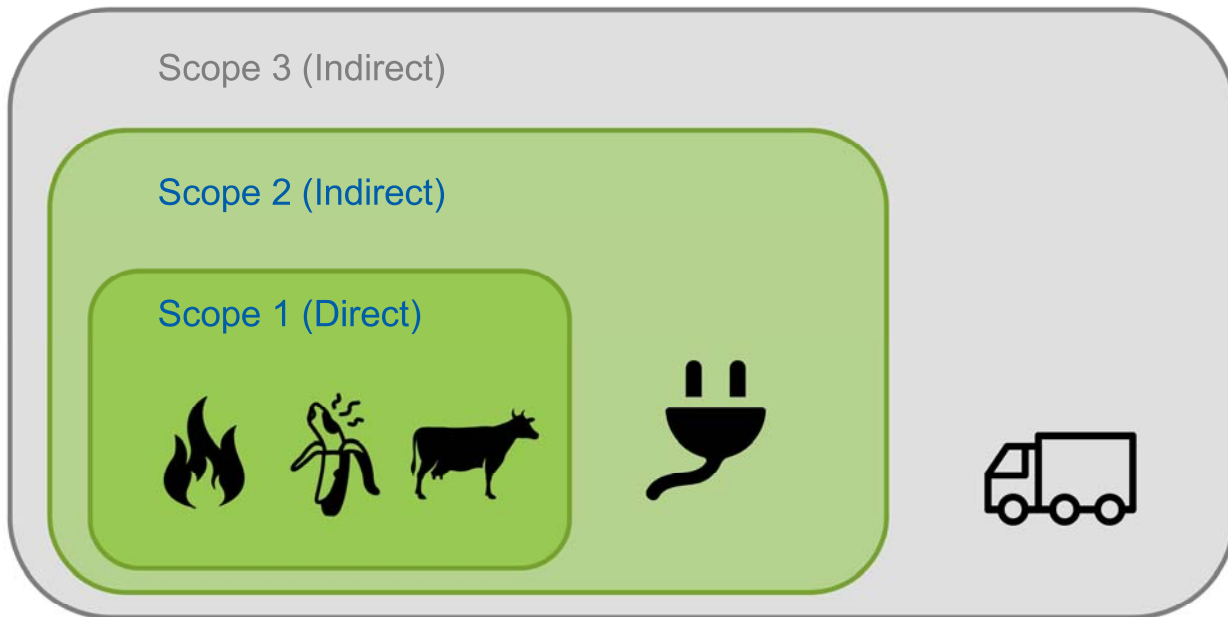
INVENTORY

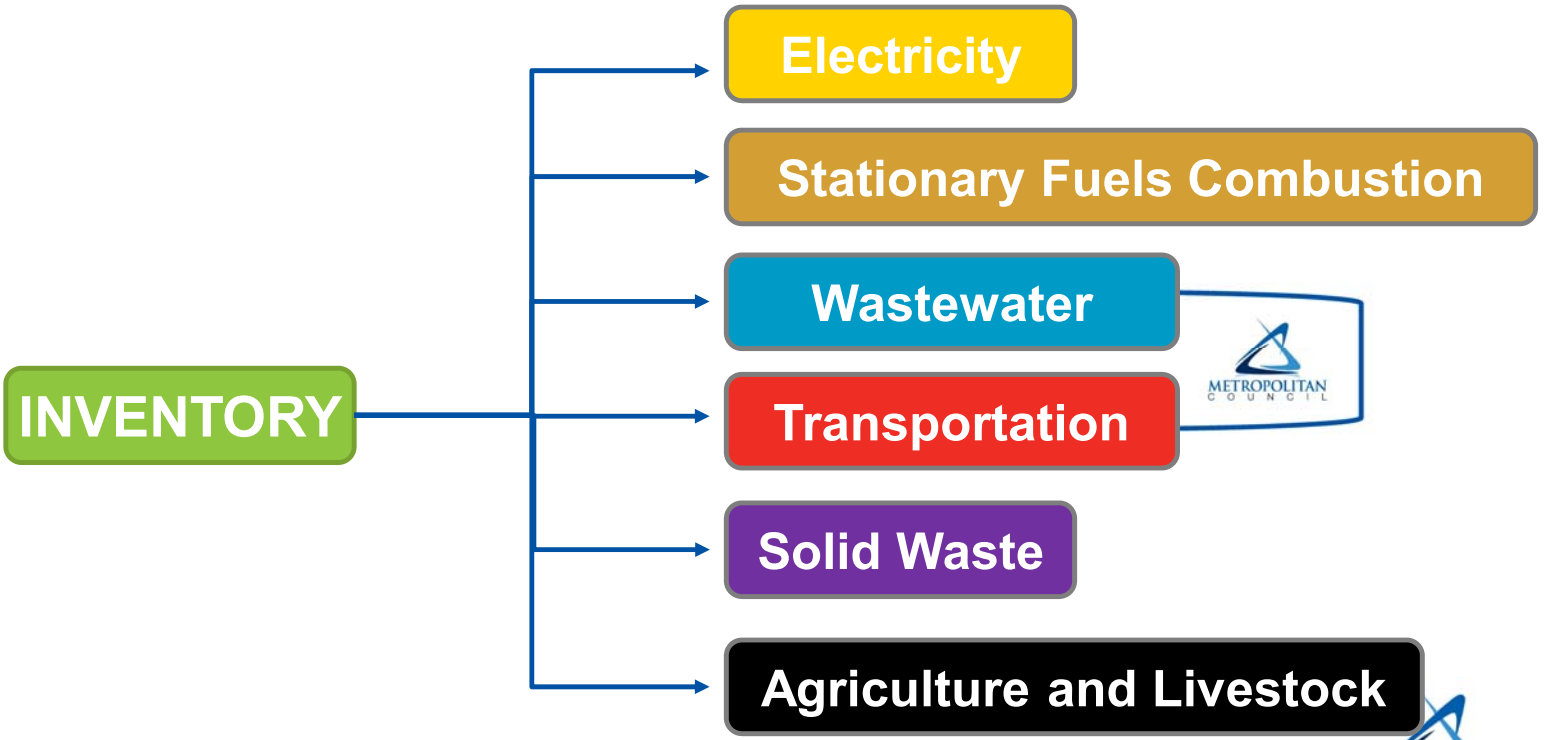


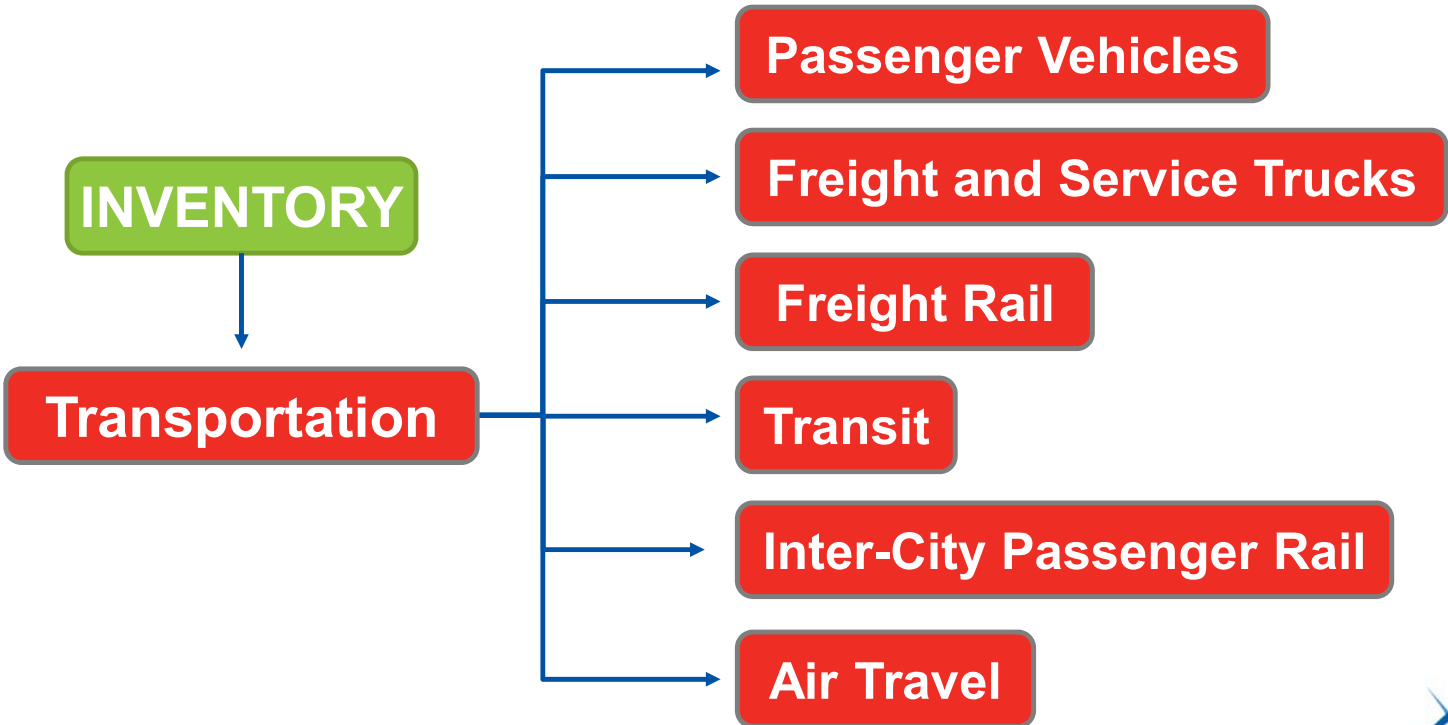
Identifying sources of greenhouse gas emissions at the community level

Quantifying the greenhouse gas emissions

INVENTORY



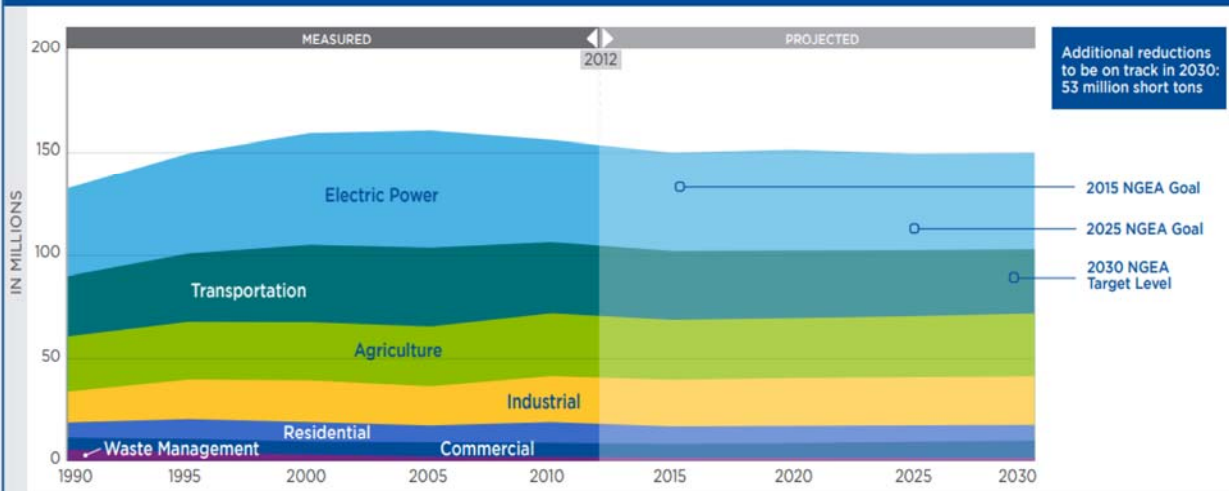






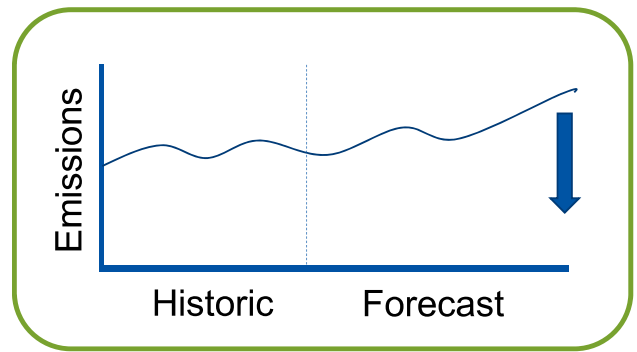
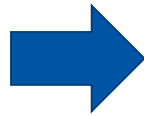
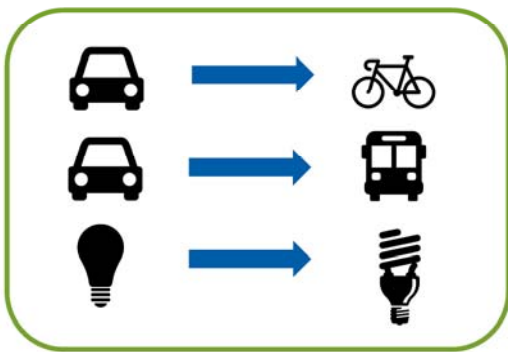
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Greenhouse Gas Emissions by Sector (CO₂-e short tons)



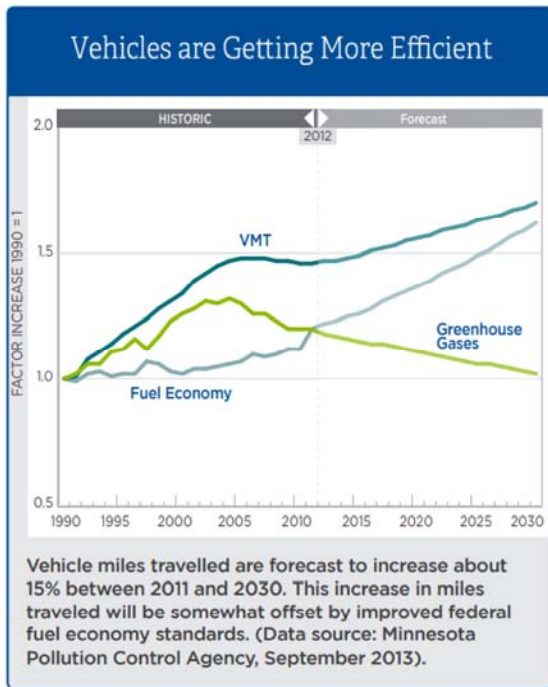
Historic greenhouse gas emissions (1990-2011) and projected emissions (2012-2030) are shown by economic sector. To be on track in 2030 for meeting Next Generation Energy Act Goals, an additional 53 million CO₂-equivalent short tons (CO₂-e) a year need to be reduced beyond business as usual. (Data source: Minnesota Pollution Control Agency, September 2013).

SCENARIO PLANNING



Meeting our Next Generation Act Goals

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MPRnews Sections Members More

Transportation, agriculture edge out electricity as Minnesota's largest emissions sources

Elizabeth Dunbar · Jan 5, 2019 Business

Exhaust flows out of the tailpipe of a vehicle. Vehicle emissions are one of the main causes of greenhouse gases in the atmosphere. Joe Raedeke | Getty Images 2007

LISTEN What's keeping Minnesota from reaching its climate goals?
Jan 9, 2019
8min 9sec

Minnesota is still failing to meet its goals aimed at addressing climate change, and it's transportation and agriculture — not coal — that are holding us back, according to a biennial emissions report by the Minnesota Pollution Control Agency released this week.

The 2007 Next Generation Energy Act, which passed with bipartisan support, set a goal to reduce greenhouse gas emissions from 2005 levels across Minnesota's economic sectors 15 percent by 2015, 30 percent by 2025 and 80 percent by 2050.

According to the MPCA report, Minnesota's emissions have gone down 12 percent through 2016, the latest year for which emissions data are available.

"Emissions from the electricity generation sector were down nearly 30 percent in 2016. We've not met our reduction goals, but we've made progress."

SCENARIO PLANNING

Bike lanes?

Transit?

Compact communities?

Electrifying vehicles?

Advanced biofuels?





Database



User Interface

Metro Climate Stats

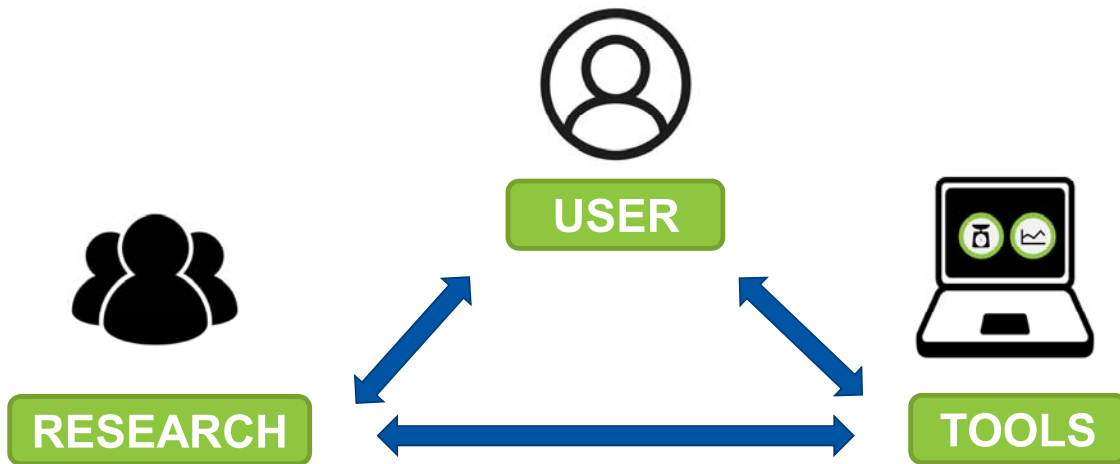


DATABASE

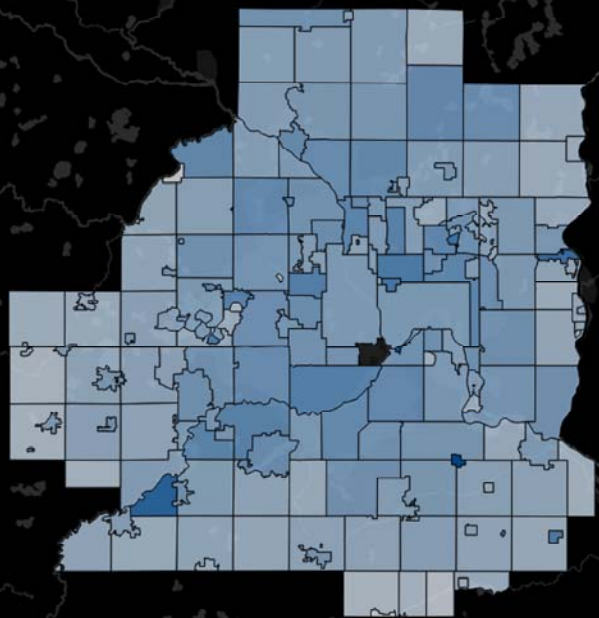


USER INTERFACE

USER INTERFACE



Passenger Vehicle Carbon Dioxide Emissions



Region-wide, there were an estimated **4.3** metric tons of CO2 alone emitted per person in 2018.

The national average is 4.6 metric tons of CO2 per passenger vehicle, **0.3** tons more than the region.



CO2 (metric tons)
0.1



Normalization
per capita

Metropolitan Council population,
employment estimates, 2017
EPA, March 2018,
StreetLight Data, 2018

Contributors



Interesting Links

- [Delaware Valley Energy and GHG Emissions Profiles](#)
- [2015 Chicago Regional Greenhouse Gas Emissions Inventory](#)
- [CoolClimate Maps by University of California, Berkeley](#)

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