

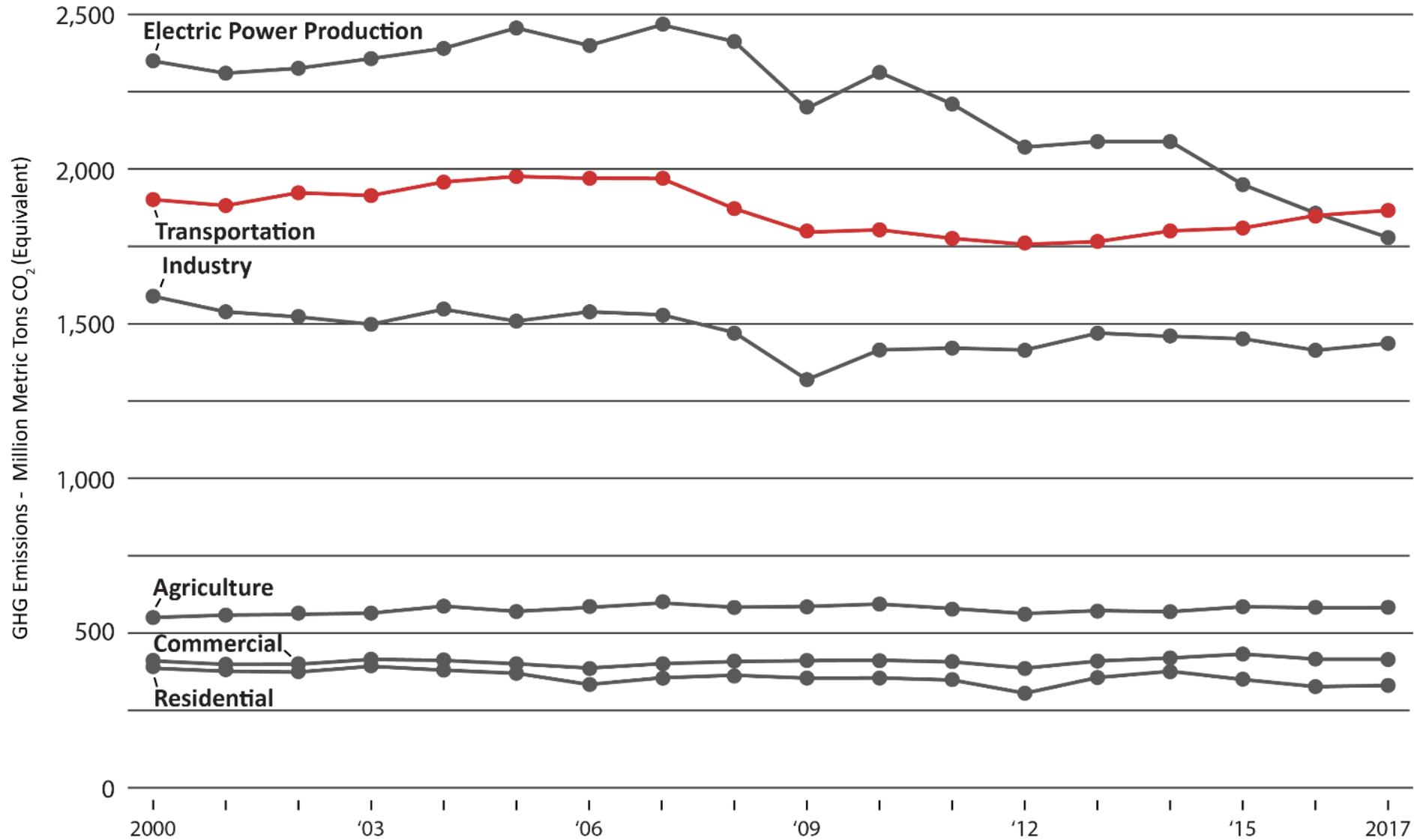
# Transportation Solutions to Climate Change

Walking, biking, and public transportation and the fight against climate change



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# U.S. Greenhouse Gas Emissions by Sector (2000-2017)



Source: U.S. Environmental Protection Agency: U.S. Inventory of Greenhouse Gas Emissions and Sinks, 2019 - Table ES-6

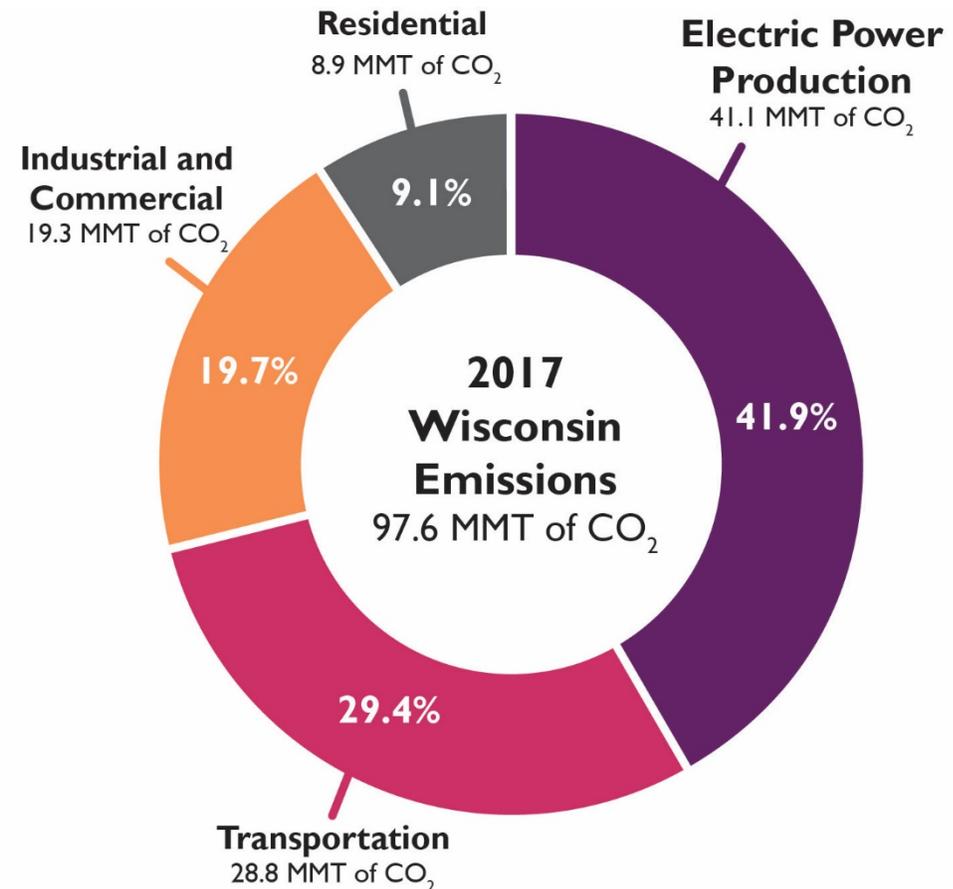
# Wisconsin Transportation Solutions

Transportation emissions have remained stubbornly stable in Wisconsin for decades:

- 2000 – 29.5 million metric tons of CO<sub>2</sub>
- 2010 – 29.2 million metric tons of CO<sub>2</sub>
- 2017 – 28.8 million metric tons of CO<sub>2</sub>

Solution will require:

- Electric Vehicles (EVs)
- Active Transportation (Walking & Biking, etc.)
- Public Transportation (Transit & Passenger Rail)

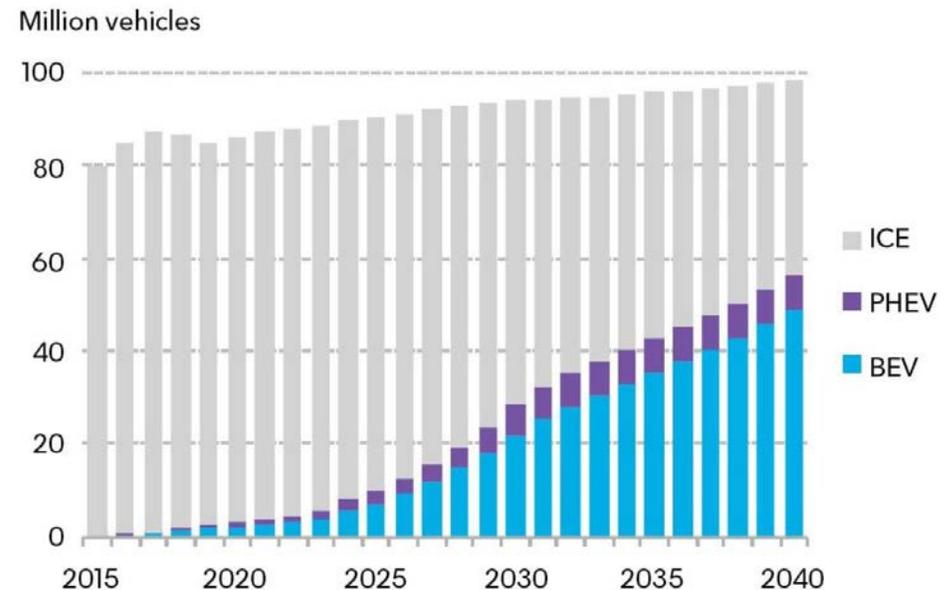


# Need for Walking, Biking, and Transit

EVs are an important solution for reducing transportation-related carbon emissions, but:

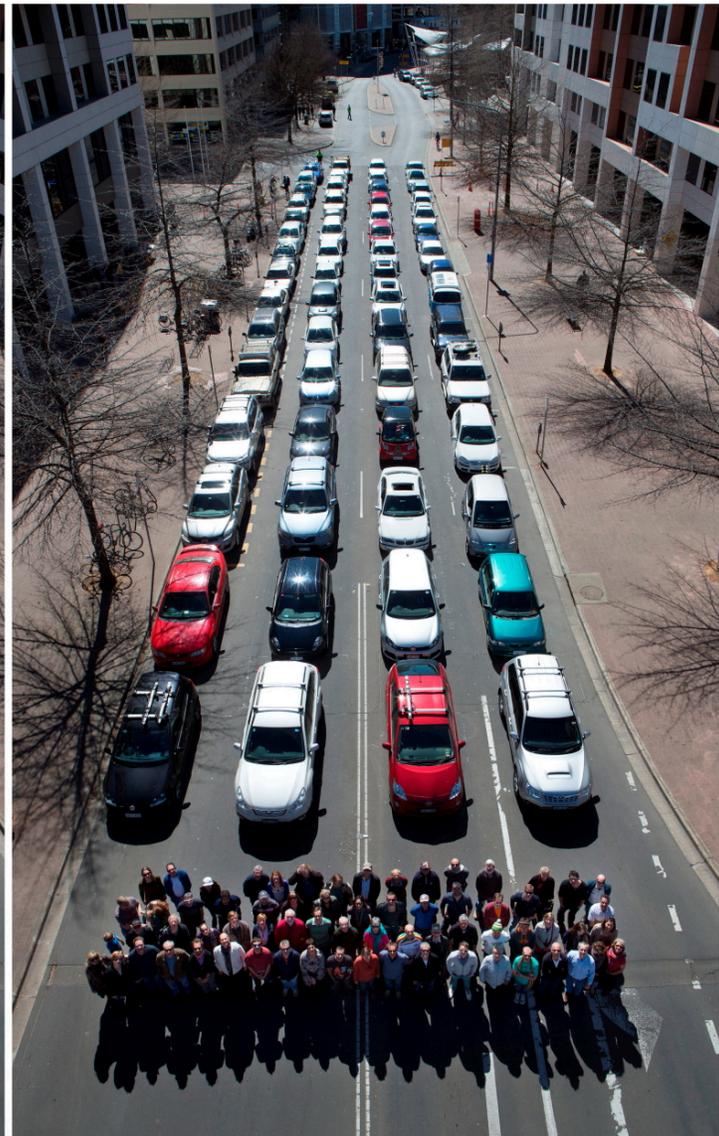
- A lack of public charging infrastructure will slow the advancement of EVs
- It will take decades to phase out “Internal Combustion Engines” (ICE) with EVs
- EVs still rely on a carbon-intensive power grid
- EVs will not solve other intrinsic problems with our transportation system including equity issues for those who do not, or cannot, own a personal vehicle

Global long-term passenger vehicle sales by drivetrain



By 2040, expect 57% of all U.S. passenger vehicle sales to be electric.

Source: [Bloomberg, New Energy Finance](#)



Amount of roadway space required to move 69 people (1 bus, 69 bikes, 60 cars)

Source: [We Ride Australia](http://www.werideaustralia.com)

# Active Transportation (Walking & Biking)

One study on active transportation found that:

- 21% of vehicle trips travel less than one mile
- 24% of vehicle trips travel between one and three miles

Potential for reductions:

- A one mile trip could be accomplished by walking twenty minutes or less
- A three mile trip could be accomplished by bicycle in twenty minutes or less



Sources:

1. <https://nhts.ornl.gov/vehicle-trips>
2. <https://www.sciencedirect.com/science/article/pii/S0965856417316117#f0015>

# Public Transportation (Transit & Passenger Rail)

Residents of transit-rich neighborhoods drive 10 to 30% fewer miles

- To make a transit-rich neighborhood, there needs to be a commitment to expanding and improving service

Electric buses have the potential to make public transit another form of zero-emission transportation

Intercity passenger rail emits an estimated 40% fewer CO<sub>2</sub> emissions per mile than automobile travel



Sources:

1. <https://www.vtpi.org/landtravel.pdf>
2. <https://wisconsin.gov/Documents/projects/multimodal/rail/plan-chap11.pdf>

# Policy Solutions



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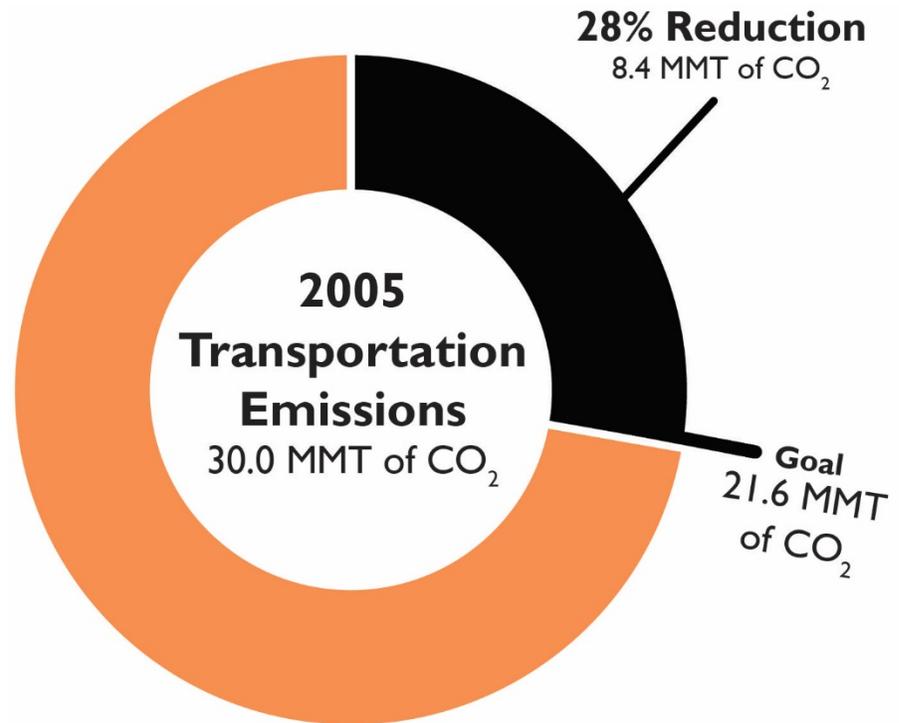
# Emission Reductions

The Paris climate agreement requires participants to **reduce overall emissions 28% from their 2005 level by 2025.**

In Wisconsin the goal is to reduce transportation emissions to **21.6 MMT of CO<sub>2</sub>.**

To achieve this reduction, we must:

- Promote transportation alternatives
- Enhance transit support
- Use a carbon-audit system

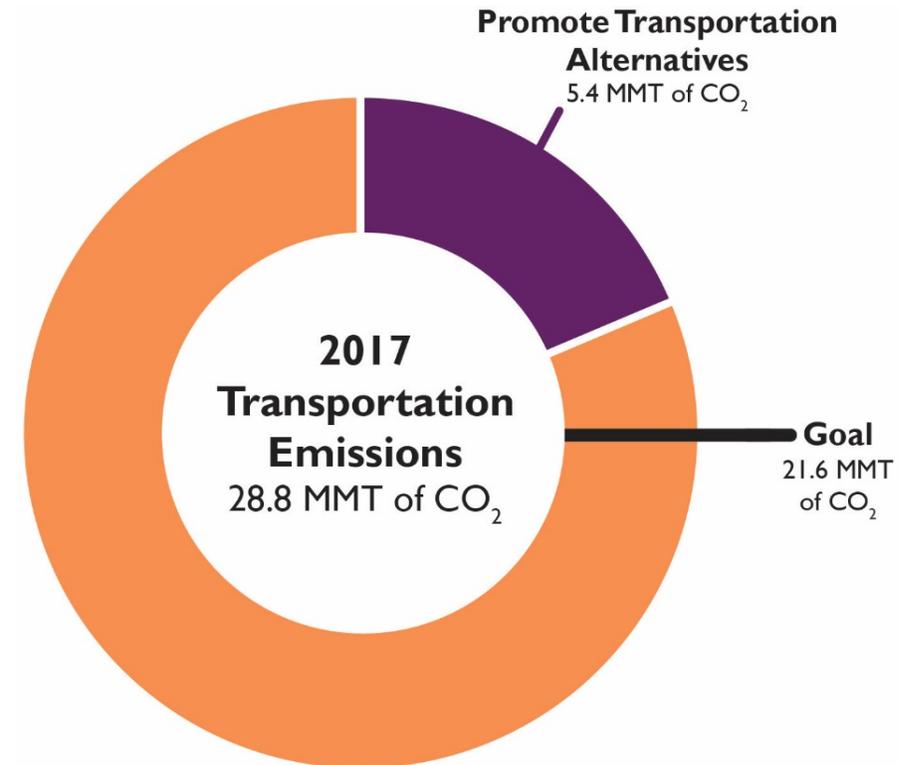


Source:

1. [Wisconsin Strategy for Reducing Global Warming – Final Report, July 2008](#)

# Promote Transportation Alternatives

- Implement “Complete Streets” policy
- Implement “Fix-it-first” policy
- Promote smart growth development



Source:

1. [Wisconsin Strategy for Reducing Global Warming – Final Report, July 2008](#)

# Complete Streets Program

## Re-implement a complete streets program

- This policy promoted safety features for pedestrians, bicyclists, and transit on roadway projects that receive state funding
- In 2009, the Wisconsin State Legislature passed a complete streets program, but it was repealed in 2015

## Restore eminent domain acquisition for pedestrian and bike trails

- Repealed in 2017

## Dedicate money to walking and biking infrastructure

- There is no state-level funding for walking and biking infrastructure. State funding for the Transportation Alternatives Program would remedy this issue

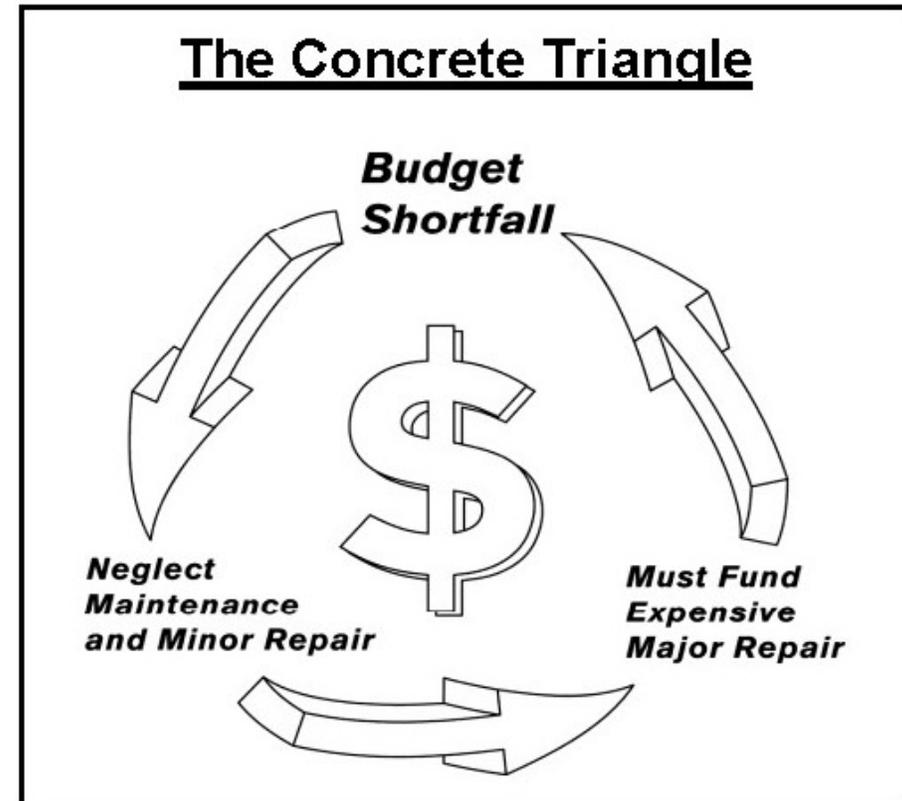


Photo: [Elements of Protected Intersections \(MassDOT\)](#)

# Fix-it-First Policy

## Implement a strong “Fix-it-First” policy

- This policy gives funding priority to rehabilitation of existing infrastructure
- New lane-miles are considered only after existing infrastructure is in good repair
- Fix-it-first attempts to lower statewide infrastructure costs
  - The cost to repair local roads increases substantially as a road ages.
  - If maintenance measures are not taken, water reaches the roadway foundation, shortening the time before more expensive repair or full reconstruction is needed.
- Policy would free up funding for walking, biking, and transit programs



Source: [1000 Friends of Wisconsin – Fix-it-First Report.](#)

# Smart Growth Development

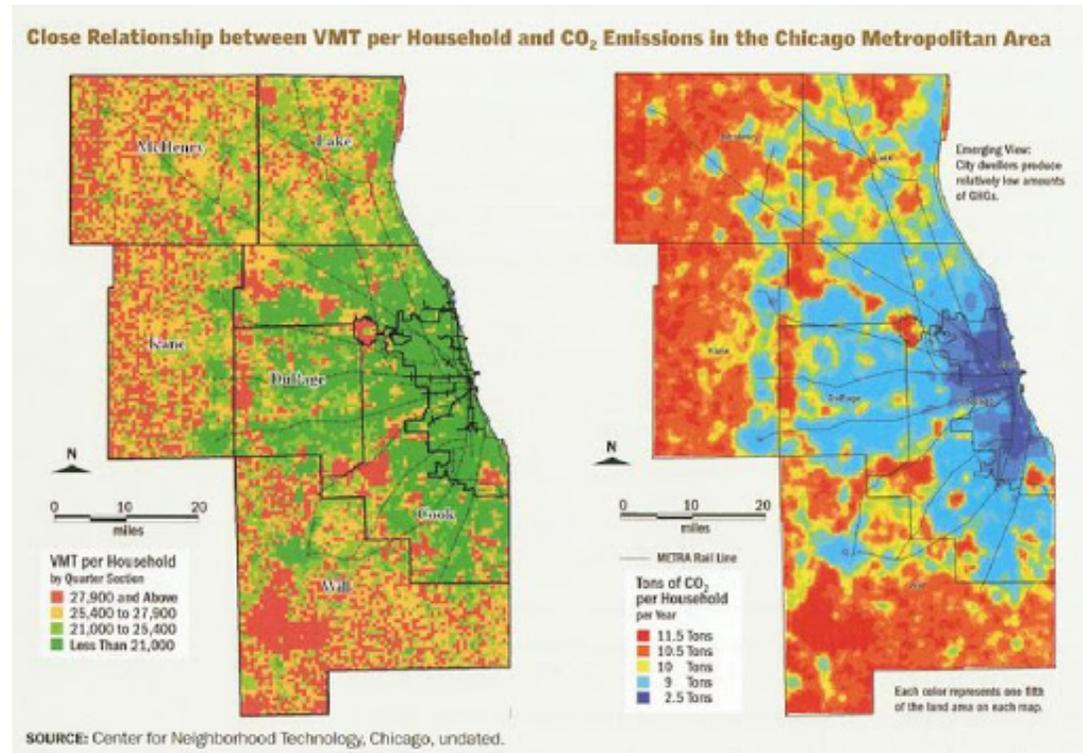
## Encourage development patterns that are compatible with walking, biking, and transit

- Where people live has a huge impact on their carbon emissions
- Policies should not make driving more expensive or less convenient

## WisDOT policies should include:

- Reinstating funds for comprehensive planning and promoting neighborhood design that encourages walking, biking, and transit
- Working with Metropolitan Planning Organizations and local governments to promote walking, biking, and transit

## Give economic development priority to infill and redevelopment projects

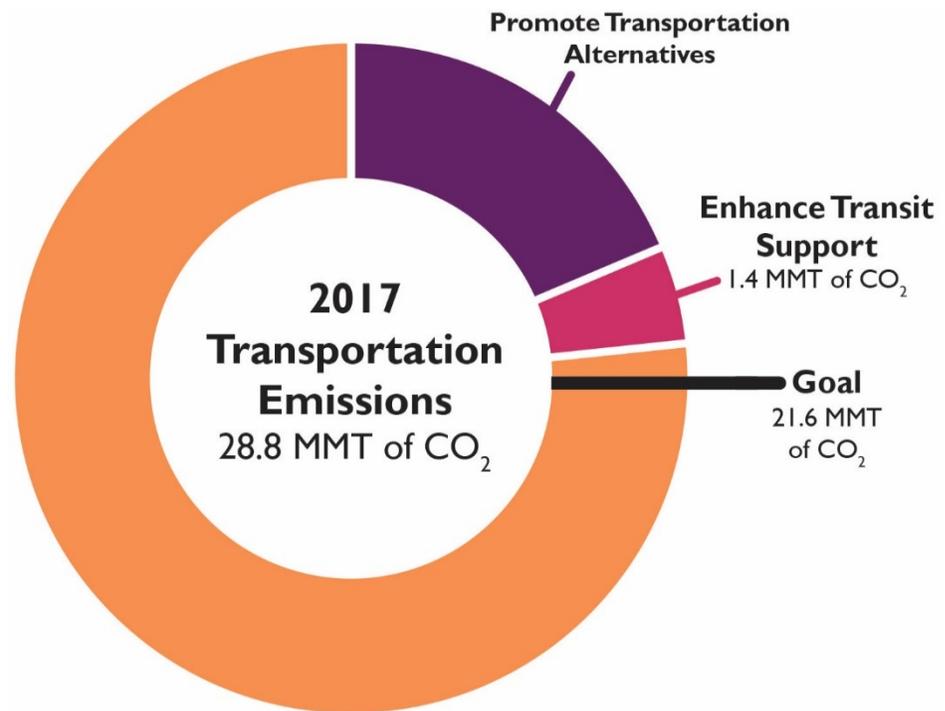


*This map of Chicagoland shows the connection between driving, suburban development, and increased carbon emissions. Those with transportation options (walking, biking, and transit) produce significantly less carbon emissions.*

*Source: [Center for Neighborhood Technology, Chicago](#)*

# Enhance Transit Support

- Pass Regional Transit Authority (RTA) enabling legislation
- Increase State mass transit aids
- Promote intercity passenger rail
- Create a transit trust fund
- Work with major employers to reduce vehicle use for commuter travel



Source:

1. [Wisconsin Strategy for Reducing Global Warming – Final Report, July 2008](#)

# Public Transit

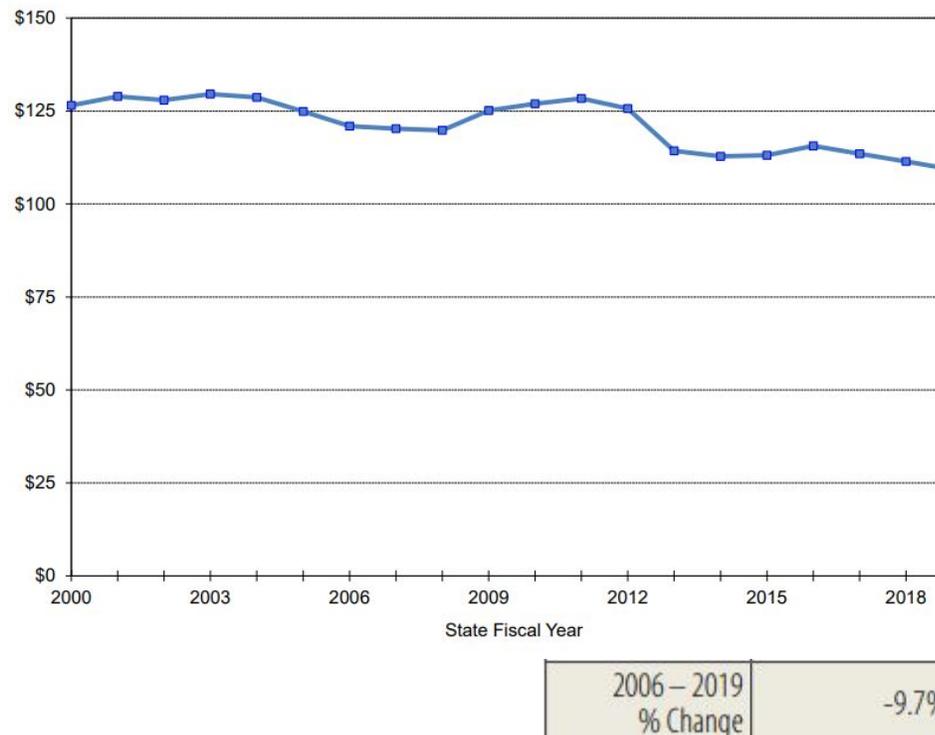
## Pass RTA-enabling legislation

- This policy allows local governments to pass a ½ cent sales tax to fund regional transit

## Increase State transit aids

- Transit is currently funded by federal, state, local funding, and farebox recovery
- State aid is currently 9.7% lower than it was in 2006 when adjusted for inflation
- This has led to major route cuts and decreased frequency, which in turn has led to lower ridership as the system becomes less efficient

F-33: Transit Aids, State Funds (constant 2017 dollars, millions)



Source: [WisDOT, 2018-2019 Budget Trends](#)

# Passenger Rail

## Promote intercity passenger rail

- Establish higher speed rail links
- Connect Chicago, Milwaukee, Madison, and Minneapolis through frequent passenger rail service
- Consider other corridors including the Fox Valley, Rock County, and Eau Claire

## Create a transit trust fund

- Limited State funding makes commuter rail options almost impossible
- \$250M over 20 years in revolving GO bonds would make commuter rail projects in Madison, and between Milwaukee-Racine-Kenosha competitive for federal funds

Map 6-5: Wisconsin 2030 Potential Intercity Passenger Rail System



Source: [WisDOT, Wisconsin Rail Plan 2030](#)

# Commuter Trip Reduction

## Work with major employers to reduce vehicle use for commuter travel to:

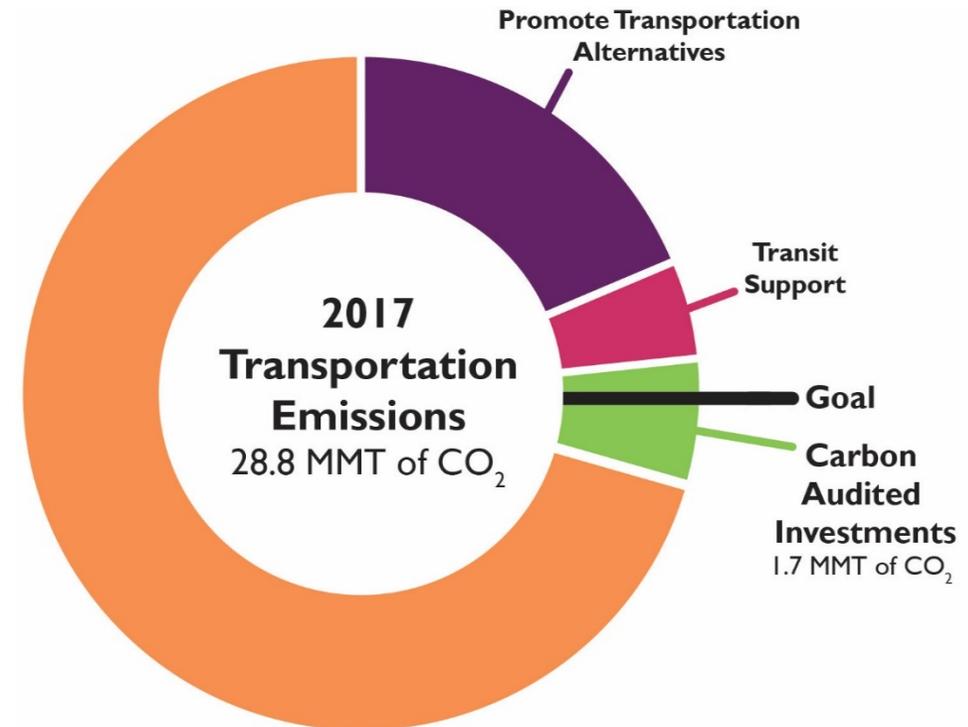
- Provide incentives for alternative modes
  - Subsidized bus passes
  - Bicycle parking areas
  - Priority parking for carpooling or car share
- Make a wide range of commuting options available
- Create programs that inform employees of commuting options, services, and incentives



# Carbon Audited Investment

## Require carbon audit for all state funded transportation projects

- This policy reviews the carbon footprint for all WisDOT Environmental Impact Statements (EIS)
- Information should include the lifecycle GHG emissions for infrastructure
- The audit is intended to inform and promote energy-efficient transportation infrastructure choices



Source:

1. [Wisconsin Strategy for Reducing Global Warming – Final Report, July 2008](#)

# Questions?

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