

DECEMBER 2018

How Does Your Daily Commute Contribute to Greenhouse Gas Emissions?

In the U.S., the largest share of greenhouse gas (GHG) emissions are created by transportation (28.5%).¹ Greenhouse gases are chemicals that absorb infrared radiation and trap heat, thus making the planet warmer.¹ The most important GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O); however, many others exist.² Human activities have led to an increase in GHG emissions since the pre-industrial era, with the vast majority of emissions stemming from the burning of fossil fuels.¹

In FY18, daily commuting to and from the NIH totaled approximately 212,844,000 (212 million) miles and accounted for an estimated 61,000 metric tons of GHG emissions. To offset these emissions, we would require a U.S. forest roughly 1.6 times the size of the District of Columbia!³ However, there is much we can individually do to reduce GHG emissions, starting with changing our transportation method. A few of the various modes of travel are mass transportation (such as metro systems, vanpools, commuter buses and trains), passenger vehicles, biking and walking.

Of the miles travelled from commuting in FY18, roughly 43% were from mass transportation methods and 57% were from passenger vehicles. Walking and biking were excluded from these totals since they create virtually zero direct GHG emissions. Whereas mass transportation methods were associated with nearly half of commuter miles, they accounted for only 19% of GHG emissions (compared to the 81% of GHG emissions for passenger vehicles). The larger number of occupants make mass transportation modes very efficient when considering the GHG emissions per mile *per passenger*. The chart below shows the efficiency of multiple modes of transportation in the context of CO₂ emissions.

Mode of Transportation	Pounds of CO ₂ per Passenger Mile ²
Passenger Vehicle (Single Occupant)	0.96
MTA Commuter Bus	0.68
Washington, D.C. Metro Rail	0.35
Van Pool	0.22

Gasoline-powered single occupancy vehicles are among the least efficient transportation methods for your daily commute. Alternative fuel vehicles, such as electric and hybrid vehicles, offer superior GHG emission efficiency over gasoline models, however the easiest method for decreasing GHG emissions is by choosing forms of mass transportation.⁴ Those that live close to their NIH campus can consider walking or biking,

while everyone else should consider carpools/vanpools, buses, trains and metro systems whenever possible. Biking to work and the advantages it provides were discussed in detail in the [May 2018 issue](#) of NIH Green Zone Newsletter.

The Division of Amenities and Transportation Services (DATS) assists NIH Staff with many transportation options. Vanpools and carpools are supported through the [NIH Rideshare Program](#), which features a free vanpool matching service. There is also the [NIH Transhare Program](#), which provides subsidies for using modes of mass transportation. Please visit the [DATS Commuter Info webpage](#) if you are interested in their programs.

You could also opt to simply eliminate your daily commute! The NIH provides teleworking options for many employees, which supports work/life wellness, continuity of operations and reduction of traffic and GHG emissions. Please visit the [NIH page on Telework Information](#) for further details.

We hope you will consider adopting one or more of the options mentioned above for transportation alternatives. Together we can succeed in decreasing GHG emissions both at the NIH and in our personal lives!

TAKE ACTION



How Does Online Shopping Influence the Environment?

For many of us, the holiday season coincides with the heaviest shopping period of the entire year. In the year 2018, that shopping likely includes online purchases. Read inside to learn about the potential impacts of online shopping on the environment and discover what you can do to help!

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Join the NIH Community in the giving spirit by contributing to the 2018 NIH Combined Federal Campaign (CFC). Learn about the many easy ways to donate to the charity of your choice, including charities that prioritize environmental stewardship!

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NEMS TRAINING

Did you know? Approximately 81% of the GHG associated with NIH commuting were from passenger vehicles. Many of these vehicles only contained a single occupant, which is one of the least efficient modes of travel when considering GHG emissions. To learn more about GHG emissions at the NIH, please visit the [NEMS Training webpage](#) to view a short (20 minute) NIH environmental awareness training video.