

Transportation Impacts on the County's Environment

1. How many miles of roadways in Calvert County?

688 miles of county, state, and municipal roadways as of 2015.

[Fact-Sheet-on-Transportation-2017 \(calvertcountymd.gov\)](#)

2. What are the major arterial highways in the county?

MD 2/4 and MD 4 are the only major highways that run the full length of Calvert County. The other major arterials are MD 2 that extends north from Sunderland into Anne Arundel County and MD 231 that extends west from Prince Frederick over the Patuxent River and into Charles County.

3. What is the most recent information on traffic volume along MD 4 and MD 2/4?

In 2018, average traffic counts were 24,721 vehicles/day (vpd) south of Lusby; 26,671 vpd north of Lusby; 41,101 vpd in Prince Frederick; 39,091 vpd north of Huntingtown; and 31,831 vpd north of Dunkirk

[Calvert County Transportation Plan](#)

4. What's the current traffic situation along MD 231 in Calvert County?

In 2018, the count was 20,571 average vehicles/day one mile west of MD 2/4 and 11,831 average vehicles/day at the bridge over the Patuxent River.

[Maryland Traffic Volume Maps](#)

5. How do motor vehicles adversely impact human health?

- The most obvious impacts are vehicular collisions on roadways that result in injuries and deaths to drivers and passengers, and costly damages to vehicles.
- Motor vehicle exhausts emit gases, heavy metals, hydrocarbons, and particulate matter that pollute the air and damage human health. Toxic air pollutants are associated with cancer, cardiovascular disease, respiratory ailment, and neurological damage. Carbon monoxide (CO) can be deadly. Nitrogen dioxide (NO₂) mix with volatile organic compounds to increase ground-level ozone (O₃) concentrations that can reduce lung function, affects the respiratory immune defense system, and increases the risk of other respiratory problems. Particulate emissions from vehicle exhaust and tire abrasion on roadways also degrade air

quality and can cause respiratory problems, skin irritation, eye inflammation, and various allergies.

- Motor vehicles, especially where traffic volume is very high, increase background noise levels. Long-term exposure to noise levels about 75 decibels (dB) seriously damages hearing, can affect physiological and psychological well-being, and increase the risk of cardiovascular diseases. Ambient traffic-associated noise in urban areas can also decrease property values.
- High levels of traffic congestion and long-distance commuting in heavy traffic volume can have detrimental effects on mental and physical health. Stressed and frustrated motorists stuck in traffic jams can express 'road rage', a term that originated in the U.S. in 1987.1988, and can be manifested by aggressive and unsafe driving, altercations, assaults, and collisions. Daily highway commuting in heavy traffic is associated with elevated blood pressure and cholesterol levels, heavier body weight, a higher tendency toward depression, and lower sleep quality in some motorists. The stress of sitting in traffic is also associated with higher crime rates, including domestic violence, in Los Angeles, CA.

For more information, go to:

[*4.2 – Transportation and the Environment | The Geography of Transport Systems*](#)

[*\(transportgeography.org\)*](#)

[*Transportation and Public Health | Annual Review of Public Health \(annualreviews.org\)*](#)

[*Why Traffic Jams Are Bad for Your Health - WSJ*<https://theconversation.com/the-stress-of-sitting-in-traffic-can-lead-to-more-crime-72323>](#)

[*Stress, pollution, fatigue: How traffic jams affect your health \(qmanetwork.com\)*](#)

[*The relationship between traffic congestion, driver stress and direct versus indirect coping behaviours: Ergonomics: Vol 40, No 3 \(tandfonline.com\)*](#)

[*Traffic congestion, driver stress, and driver aggression - Hennessy - 1999 - Aggressive Behavior - Wiley Online Library*](#)

[*Road Rage Experience and Behavior: Vehicle, Exposure, and Driver Factors: Traffic Injury Prevention: Vol 5, No 4 \(tandfonline.com\)*](#)

[*Commuting Is Bad for Your Body and Health | Time*](#)

[*Traffic congestion - Wikipedia*](#)

6. What are the impacts of motor vehicles on the environment?

- Global Warming/Climate Change: Motor vehicles release millions of tons of gases into the atmosphere every year, including carbon dioxide (CO₂) and methane (CH₄) that are responsible for global warming, climate change, and sea level rise. About 15% of global

CO₂ emissions come from the transportation sector, including cars and trucks on Calvert County roadways. Nitrous oxides (NO_x) from vehicle exhausts are involved in depleting the stratospheric ozone (O₃) layer which screens the earth's surface from ultraviolet radiation. Heavy traffic volume that leads to traffic jams, increased idling, and more acceleration elevate, even further, gas emissions that contribute to the environmental problems described above.

- Acid Rain: Emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) from vehicle exhausts form sulfuric acid and nitric acid in the atmosphere and fall to earth as acid rain, leading to detrimental effects of surface waters, forests, and agricultural crop yields.
- Soil Quality: Soil contamination can occur from spills of toxic materials being transported in motor vehicle on roadways and from fuel, engine oil, transmission fluid, etc. leaking from vehicles and washed off roadways onto roadside soils. De-icing salts are also washed off roadways and can degrade soil quality.
- Biodiversity: Transportation also adversely impacts plants and animals. Land consumed for roadway networks and the need for construction materials to build and repair roadways can lead to deforestation. Many roadway routes require the destruction of wetlands. The need to maintain rights-of-way, roadway shoulders and median strips can restrict the growth of native plants and animals, and often lead to increased competition from invasive non-natives. Multi-lane highways built through wilderness areas can degrade the habitats of many species and hamper seasonal movements of many animals. The wash-off of toxic metals and de-icing salts can severely impact frogs, salamanders, turtles, fish, and other aquatic animals.

For more information, go to:

[The Geography of Transport Systems \(transportgeography.org\)](http://transportgeography.org)

[Impacts of Traffic and Rainfall Characteristics on Heavy Metals Build-up and Wash-off from Urban Roads | Environmental Science & Technology \(acs.org\)](http://acs.org)

[Toxicity of road salt to Nova Scotia amphibians – Science Direct](http://Science Direct)