Percent of Households with Zero Vehicles

This EnviroAtlas national demographics map estimates zero-vehicle households as a percentage of all households for each U.S. Census block group in 2010. The word vehicle refers to privately-owned motor vehicles.

Why are zero-vehicle households important?

In an auto-centric society, successfully living and working without a vehicle depends on a number of associated factors such as the size of the community, locations of jobs, and availability of mass transit. A recent study by the Brookings Institute found that in 100 of the largest U.S. metropolitan areas, 7.5 million households do not have access to a private vehicle. A small percentage of these households, in middle- to high-income brackets, have voluntarily given up their vehicles, because they live in neighborhoods where driving is not necessary—urban centers with easy access through walking, bicycling, or mass transit to high-skill jobs, retail services, health care, and recreation. However, the majority of urban residents without vehicles live in low income neighborhoods in urban centers.

A national average of 69% of working-age residents live in metropolitan areas with access to mass transit. Continued progress in improving and extending transit networks into uncovered metro areas, including suburbs, will help to connect more working-age zero-car residents with employment. In addition, expanded transit helps reduce auto emissions that contribute to respiratory health risks and climate change.

Mixed use development is a city planning strategy that can minimize travel distances and improve access to jobs, services, and recreation. Planning strategies for compact neighborhoods promote housing in job-rich areas and new employment centers in dense residential zones. Land use diversity allows people to drive less if they choose. Communities that pursue compact growth patterns and mixed use development facilitate workplace accessibility by automobile, transit, biking, and walking.

How can I use this information?

Identifying the percentage of zero-car households in neighborhoods can be helpful in a number of different urban planning contexts, particularly when considered alongside other built-environment metrics such as residential density, employment density, and street connectivity. In U.S. communities where living without a vehicle is not a viable option, neighborhoods with a high percentage of zero car households warrant special attention. In the short-term, these neighborhoods may benefit from targeted pedestrian infrastructure improvements to improve safety in key locations. They may also benefit from programs that seek to

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bring services directly to communities in need (e.g., mobile libraries and community health clinics or farmers’ markets).

This data layer also provides insights into neighborhoods where households are choosing the zero vehicle option voluntarily. These may be areas with mixed land uses or the critical mass to support new services such as car and bike share systems that can help to provide additional mobility on demand to residents and visitors.

The variable, Percentage of Zero-Car Households, is often used as an input variable in transportation models that estimate trip generation, vehicle miles traveled, transit mode share, walking, and bicycle trips. This data layer may be compared to other EnviroAtlas demographic and Smart Location data layers. For select communities, users can overlay EnviroAtlas community land cover maps that show impervious surfaces, street trees, and other common land cover at 1-meter resolution.

**How were the data for this map created?**
The 2010 American Community Survey (ACS) 5-year estimate provides sample-based counts of occupied households with no vehicles by census block group. The ACS statistics are relative, meaning the sampling is ongoing throughout the year. Percent auto ownership fields were calculated as the share of all households having zero cars with respect to total households reported in the ACS table. EPA obtained total households from the 2010 Census in order to calculate percentage of households without a vehicle. More details about this metric, Pct_AO0, are available in the demographics section of the Smart Location Database User Guide.

**What are the limitations of these data?**
American Community Survey estimates for block groups can have high margins of error. This indicator is most useful for drawing attention to regional patterns or specific neighborhoods that would benefit from further study.

**How can I access these data?**
EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. This data layer is incorporated into a larger EPA data product called the Smart Location Database. The Smart Location Database is a nationwide geographic data resource for measuring location efficiency. Most attributes are available for every census block group in the United States.

**Where can I get more information?**
A selection of resources on the relationships between transportation choices and environmental quality is listed below. EPA’s Smart Growth Program provides tools, resources, and technical assistance to communities seeking to pursue compact and mixed-use development strategies to create vibrant, walkable neighborhoods while protecting public health and the environment. For information on how city planning strategies may affect human health, visit the Eco-Health Relationship Browser. For additional information on the data creation process, access the metadata for the data layer from the drop down menu on the interactive map layer list. To ask specific questions about this data layer, please contact the EnviroAtlas Team.

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**Selected Publications**