

environment

HOW THE INTERCONNECTION OF NATURAL AND BUILT ENVIRONMENTS SHAPES OUR WORLD

The environment of an urban region consists of natural ecosystems and the many human-made, built systems that interact with natural landscapes. In Houston, the choices we make about the native prairies, waterways, and forests are connected to those we make about our homes, our businesses, and our infrastructure networks.



Access to affordable and safe mobility is a central need for every Houstonian. Every day we move across our region to access jobs, education, recreation, and to meet fundamental needs. In Houston, transportation infrastructure is shaped by and caters to the car. The reach of our public transit systems is inadequate, with just 38% of households in Harris County and fewer than 5% of households in Montgomery and Fort Bend Counties being within a quarter mile of a public transit stop. Driving alone, Houston's most popular form of commuting, has significant environmental and health impacts for individuals and society. Fuel-inefficient cars also threaten environmental sustainability and contribute to greenhouse gas emissions.¹ Driving-related emissions for households living in location-efficient urban neighborhoods are half or less of what they are for households in the least-efficient, car-dependent neighborhoods.² In addition, our streets and highways are dangerous for all users. Across the three-county area the crash rate for incidents involving pedestrians and people on bikes is double the state rate.

Further, not every Houstonian has equal access to the current car-dependent system. Over 100,000 households across the three counties simply don't have any vehicles. Among working families, the majority of household

income is spent on housing and transportation. Building an effective transportation system with multi-modal options, including investments in safe pedestrian and bike infrastructure, can contribute to the success of the local economy, minimize congestion, reduce transportation costs, and ease environmental pollution.^{3, 4}

Continued growth and urbanization is also putting pressure on natural environments via pollution, greenhouse gas emissions, and the depletion of natural resources.⁵ The three-county area is losing valuable natural and undeveloped land cover. Agricultural, wetland, and forest land uses have all declined as urbanization continues to expand. This loss not only reduces natural flood control mechanisms, but also removes valuable ecosystems and recreational opportunities. Our air and water quality feel the effects of our industrialized economy and car dependence. The region is the 9th worst for ozone pollution and the amount of particulate matter in the air remains higher than the state and national averages.⁶ Similarly, local waterways are contaminated at alarming rates.

Houston's location, topography, and local climate also make us particularly vulnerable to climate change and extreme weather conditions such as flooding, storms, and hurricanes, which occur at greater intensities and with more regularity. One potentially under-recognized challenge for Houston is the urban heat island effect.⁷ With temperatures rising, urban areas are holding heat for longer, causing energy usage to skyrocket, and compounding greenhouse gas emissions challenges. Climate change is bringing unforeseen and severe negative outcomes to the region and putting the lives of Houstonians, the health of our natural environments, and the functioning of our economy at risk.⁸ Embracing greater use and development of clean energy and investing in more environmentally sustainable transportation systems will help protect natural resources and lower Houston's contributions to global climate change.

The more we understand the choices we all make about our daily lives, our built environment, and our economy, the better we can balance the need for positive growth and the conservation of irreplaceable natural resources.

7 Subtopics of Environment



URBAN MOBILITY

94.7%

owned at least one vehicle

Vehicle ownership in the Houston area grew steadily from 2010 to 2017.

TRAFFIC

\$1,490
per automobile

The annual cost of congestion for Houston drivers exceeds that of other major Texas cities.

COMMUTING

30 min.
one way

Houston drivers had higher-than-average commute times in 2017.

WATER QUALITY

60%
of water streams
are contaminated



across the three-county area, considered impaired due to bacterial contamination.

EXPLORE ALL SEVEN SUBTOPICS FURTHER ON OUR WEBSITE.

NATURAL RESOURCES

14% → 32%
developed land

The amount of developed land in Montgomery County more than doubled between 2001 and 2018.

AIR QUALITY

 **high ozone days**

Between 2010 and 2016, the number of **high ozone days in Harris County** **dropped** from 34 to 17 per year. However, Houston still does not meet EPA ozone standards.

CLIMATE CHANGE AND CLEAN ENERGY

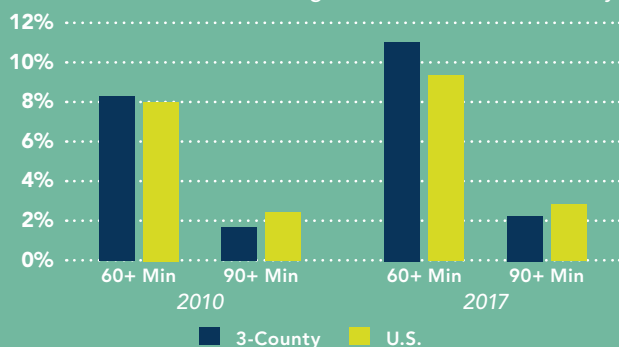


17% renewable energy sources

As of 2018, 17% of energy generated in Texas came from renewable sources, up from just 0.6% in 2001.

COMMUTING

Percent of Workers Commuting 60+ & 90+ Minutes One Way





In particular, nearly 18% of Montgomery residents spend an hour commuting to work one way.

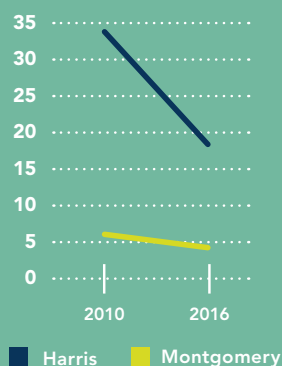
Research has shown that longer commutes can lead to reductions in health and happiness.

Trend over time:  Compared to nation: 

DRINKING WATER VIOLATIONS

Across the three-county area, there were **1,717 drinking water violations** out of 1,878 active facilities in 2018.



Trend over time:  Compared to nation: 



OZONE

Days with Ozone Levels Above EPA Standards

Despite decreasing days where ozone levels are above EPA standards, the **Houston area still doesn't meet EPA ozone standards, and decreases have largely leveled off.**

Trend over time:  Compared to nation: 





HEAT VULNERABILITY

Total Days in 2016 Surpassing 95°F



Fort Bend = 75
Harris = 68
Montgomery = 73

Projections indicate an increase to 100+ days a year by 2050 for all three counties.

Trend over time:  Compared to nation: 

PUBLIC TRANSIT

Less than 5% of households in Fort Bend and Montgomery Counties are within a quarter mile of a public transit stop. 38.2% of Harris County households are within a quarter mile of a public transit stop.

Trend over time:  Compared to nation: 



LEGENDS

LOCATIONS: **FB** Fort Bend **H** Harris **M** Montgomery

COMPARISONS:  Better  Worse  Same  No Info

See page 30-33 of 2019 Summary Report for references and data sources.