

ENVIRONMENTAL HEALTH AND RESILIENCE

Montgomery County has been a leader in the adoption of forward-thinking policies that emphasize land preservation for resource conservation and agriculture, protection of our streams, forests, specimen trees, wetlands, and reduction of greenhouse gas emissions.

Much of our success has resulted from the long-range vision cast in our General Plan. The “Wedges and Corridors” concept of development has focused most development along our major transportation corridors and created the large Agricultural Reserve that provides critical environmental services, such as watershed protection, habitat preservation, biodiversity conservation, and the protection of forests and open spaces that filter air and water pollution and sequester and store carbon.

However, climate change has exacerbated existing environmental challenges, and it requires us to refocus our planning framework on sustainability and resilience. This is all the more important because communities with larger populations of people of color and low-income communities are more vulnerable to the worst impacts of climate change due to past and present patterns of discrimination.

Building Resiliency and Sustainability

Thrive Montgomery builds on the “Wedges and Corridors” concept and refines and updates the corridor growth strategy to reflect Montgomery County’s status as a mature, 21st century jurisdiction. This pattern of growth is the primary way that Montgomery County can effectively address climate change.

Thrive supports the well-established “smart growth” strategy of creating dense, compact development with mixed uses, served by transportation infrastructure and design approaches that encourage walking and biking and transit use, concentrated in areas where existing infrastructure can support additional development while minimizing environmental impacts. This land use pattern can reduce driving, which will reduce emissions from the operation of internal combustion engines now and reduce demand on the power grid in the future as more of our power for both building use and transportation will be supplied by clean, renewable energy sources. These kinds of compact, mixed-use communities are also becoming more desirable places for people to live and creation of these types of communities strengthens our economic competitiveness.

Of course, not even the most progressive transportation planning and growth strategies will be able to resolve every environmental challenge facing the county. Thrive Montgomery 2050 builds on the tradition of robust conservation and protection of the natural environment, continuing to prioritize protection of air and water quality and preservation of the County’s biological diversity as key elements of its environmental vision. Climate change adds new concerns to be addressed in each of these areas. In response to our growing understanding of human impacts on the

environment and the role of our history in creating an inequitable society, Thrive Montgomery 2050 emphasizes three aspects of environmental stewardship and performance: mitigating and adapting to climate change, focusing on environmental justice, and protecting and improving human health.

- Climate change: Thrive Montgomery's recommendations are designed to reduce greenhouse gas emissions, help the County adapt to the effects of climate change impacts that are already evident and growing worse, and improve the County's ability to bounce back from major disruptions. The most significant proposals to address climate change include:
 - Air Quality: Most air pollution in Montgomery County is produced by the burning of fossil fuels. Rising temperatures can exacerbate the effect of this pollution by increasing ground-level ozone generation, among other things. Strategies for reducing air pollution and improving air quality overlap with Thrive's recommendations on climate change mitigation, adaptation, and resilience.
 - Water Quality, Flooding, and Drinking Water Supply: Climate change adds new concerns around water quality, flooding, and the supply of potable water. More severe storms interspersed with more frequent droughts make management of Montgomery County's watersheds imperative both to reduce flooding and to protect our water supply. Thrive Montgomery 2050's smart growth strategies such as compact development will protect the large watersheds and aquifers in the Agricultural Reserve and promote opportunities to improve stormwater management and green infrastructure in redevelopment projects. Opportunities for additional off-river water supplies for the region should also be explored.
 - Biological diversity: Worldwide concern is growing over the continuing loss of biological diversity, with most species extinctions resulting from habitat damage. The decline of species diversity is exacerbated by the changing climate. Most of Montgomery County's critical habitats are either within existing parks or in the Agricultural Reserve. Thrive Montgomery 2050 focuses new growth in existing development nodes and corridors, preserving habitat in stream valley parks, regional parks, and outlying areas of the County. Recommendations for parks and forests renew our commitment to environmental stewardship, including support for biodiversity through habitat management practices such as the control of invasive species.
- Environmental justice: Thrive Montgomery 2050 recommends examining land use decisions to identify vulnerable communities that have become receiving areas for unwanted and potentially harmful land uses, and that have not received equitable investments in environmentally beneficial green infrastructure.
- Human health: Thrive Montgomery 2050 promotes policies that reflect the growing body of research demonstrating the physical and mental health benefits of reducing air pollution and extreme heat and providing facilities and opportunities for walking and biking. In addition,

stronger support for active recreation can facilitate social interaction and community-building while improving physical health.

To address these issues, Thrive Montgomery prioritizes policies and practices that address climate mitigation, adaptation, and creation of community resilience. It facilitates the transition to renewable energy generation, distributed energy systems, modernization of the power grid, and energy conservation. It recommends incorporating green infrastructure into our urban areas, paying particular attention to our equity focus areas. It supports improvements in our organic waste management systems, including food waste composting and other natural solutions to address climate change. The plan also anticipates the need to improve the resilience of public and private infrastructure to withstand more severe weather and protect us from the effects of environmental degradation. These recommendations appear throughout the plan and are consistent with the County’s Climate Action Plan.

Key Aspects of Thrive’s Focus on Environmental Resilience

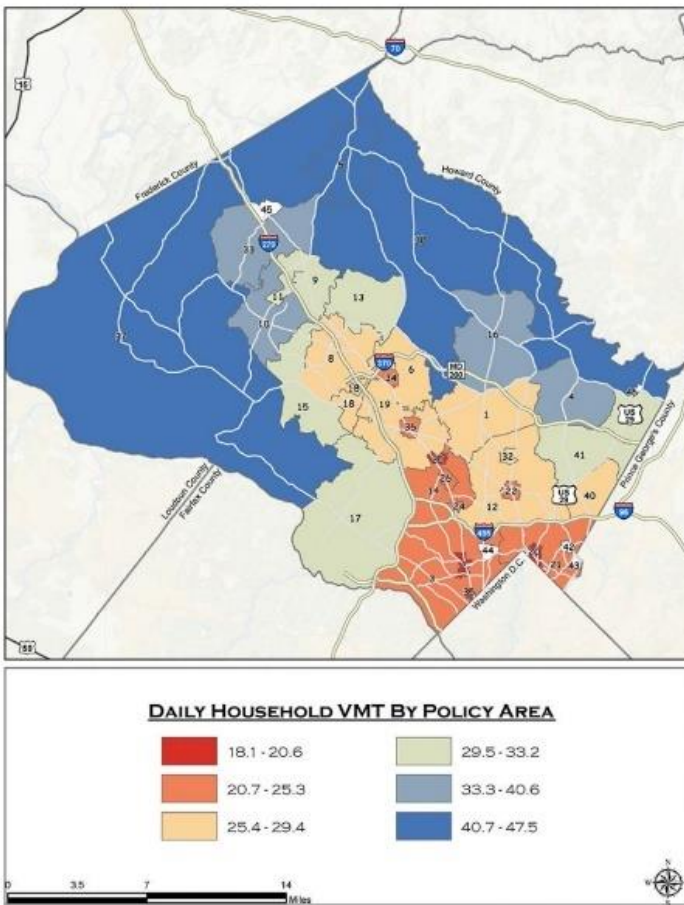
Reducing sprawl, which degrades air and water quality, is a central theme of Thrive. The chart below compares the environmental impact of different development patterns: (1) the least compact – low density sprawl, (2) a more compact footprint (typically mixed-use) and (3) the most compact form, usually associated with large cities. The data shows that a starting point for improving the environmental performance of the built environment is compact form – that is, keeping our growth footprint from spreading outward.

Comparing neighborhoods

	Urban High density - public access	Compact Mixed use - multifamily	Sprawl Low density - single family
Annual Carbon Emissions Average for a household’s transportation and heating in Bay area.	6 metric tons	10 metric tons	21 metric tons
Land Consumption Net area for 100 units of housing.	2 acres	7 acres	30 acres
Household VMT Average per house based on odometer readings.	7,300 miles/year	12,200 miles/year	30,000 miles/year
Walk Score Measures walkable proximity of local commercial destinations. 100 points represents best access.	98	74	46

Source: Peter Calthorpe, "Urbanism in the Age of Climate Change," 2013 • [Get the data](#) • Created with [Datawrapper](#)

Thrive urges a reorientation of public and private investment around walkable, bikeable, transit-oriented development. Focused growth and a mix of uses reduces driving even in places not served by high quality transit. As shown in the chart below, people who live closest to Metrorail stations drive much less than people who live farther away. These areas, shown in dark red, are within walking distance to high-quality transit service as well as numerous services and establishments. More surprisingly, perhaps, is the fact that households in the orange areas inside the Beltway and up the I-270 corridor also generate relatively low vehicle miles traveled (VMT), even though they are not in a central business district or located next to a Metro station. People who live in these areas are not within walking distance of Metrorail and most are unlikely to feel that they can give up their cars – but most of their daily needs are just a short drive away because of a robust mix of uses in these communities. As a result, people in these areas drive more than people who live within walking distance of Metrorail but far less than people who live farther away from major centers of activity.



The intended result of Thrive’s focus on compact growth and complete communities is to reduce vehicle miles traveled (VMT) and to meet environmental goals. Even with conversions to electric cars, driving puts strains on our infrastructure and potentially on our electric grid – which will need to accommodate more building energy use as structures move away from using natural gas.

Other environmental resilience recommendations in Thrive flow from this focus on compact growth and complete communities. For example, new compact development along corridors that provides modern stormwater management allows for a continued emphasis on open space preservation elsewhere in the County. This combination of improved stormwater management through redevelopment with green infrastructure and public investment along with continued protection of stream valleys and larger watersheds in our parks and in the Agricultural Reserve creates a comprehensive approach to protecting the County's water resources. Thrive also includes urban design recommendations that will promote site and building energy efficiency and adaptations for combatting urban heat island effect.

As noted above, parks serve an environmental function through protection of open space and natural resources. They also contribute to physical and mental health by providing facilities and opportunities for walking, biking and other forms of active recreation. Stronger support for active recreation can facilitate social interaction and community-building while improving physical health.

Relationship Between the Climate Action Plan and Thrive Montgomery 2050

Thrive Montgomery 2050 was drafted in parallel with the county's 2021 Climate Action Plan (CAP). Thrive Montgomery 2050 is a high-level land use document that focuses on long-range planning and policies to guide the physical development of the county, while the CAP recommends specific near-term actions to eliminate greenhouse gas emissions by 2035 and to mitigate or adapt to the effects of increased heat and flooding, high winds, and drought. Thrive Montgomery 2050 incorporates a wide range of recommendations related to climate change and its connection to land use, transportation, and parks. The Planning and Parks Departments will implement recommendations in the CAP that are within the scope of the M-NCPPC's responsibilities. Together these plans constitute a comprehensive approach to climate change at the local level. Specific strategies, recommendations, and performance measures to implement the sustainability and resilience goals of Thrive Montgomery are contained in each chapter.

Conclusion: A Comprehensive and Coordinated Approach to a Sustainable Future

The environmental challenges facing our county are driven by many factors, some local and some that stretch far beyond our borders and control. Thrive Montgomery 2050 is a land use document and is clear eyed about what this discipline can do to mitigate the effects of climate change. Accommodating growth in compact, transit-served developments, using redevelopment and infill to upgrade the environmental performance of buildings and sites, and mixing and collocating uses in Complete Communities along with increased support for walking, biking, and transit are among the most powerful strategies at our disposal.

The approach recommended by this plan also will enable the county to preserve parks and large tracts of land in the Agricultural Reserve that provide critical environmental services, including

habitat preservation, watershed and water supply protection, air and water quality improvement, and carbon sequestration and storage. This pattern of development, first established in the original “Wedges and Corridors” plan, continues to provide a strong framework for addressing climate change and fostering environmental resilience.

The interconnection of land use, transportation, climate change/sustainability, and equity requires us to develop a comprehensive and coordinated approach to growth instead of the more compartmentalized way of approaching each topic. The nature of the severe and changing climate impacts that are becoming more prevalent and may grow worse will require a shared understanding among all decisionmakers of the overlap between land use, transportation, housing, parks, and the environment that is necessary for a comprehensive and well-coordinated approach to achieving our environmental sustainability and resilience goals.