

**03**

# **Planet**

Creating a Green  
and Healthy  
Environment

# PLANET

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## Creating a Green and Healthy Environment



*After a generation of soot filled skies, we as a city recognized that the quality of our environment impacts not only the economic prosperity of our neighborhoods, but the health of those that call Pittsburgh home.*

*-- Pittsburgh State of Sustainability Report  
(2017-2018)*

Much like the rest of the world, Pittsburgh is experiencing the effects of climate change. Extreme weather in the form of severe winter storms, longer and hotter summers, and increased precipitation has given residents a glimpse of what is to come if action is not taken to curb climate change now. In 2008, the City of Pittsburgh developed its first Climate Action Plan (CAP), with plans to regularly update it. Version 3.0 of the CAP, released in 2018, is the version referenced

in this report. The plan calls for coordinated, concentrated, and comprehensive carbon mitigation action to reduce the severity of regional impacts and prepare for a post-carbon economy.

Pittsburgh is preparing, not only for climate change, but for other environmental challenges. Flooding, landslides, and industrial pollution threaten the health and safety of residents. Historically, low-income and non-White Pittsburghers have had to bear a disproportionate burden of adverse environmental impacts.

Specific challenges related to air and water quality in Pittsburgh threaten to slow its economic rebirth. Potential future residents may be reluctant to move to Pittsburgh to take new jobs, and existing residents may consider moving away, if they have concerns about the potential harmful impacts to the health of them and their families from poor air and water quality. These challenges must be addressed head-on and holistically.



## Citywide Climate Action Goals



**PITTSBURGH'S NEIGHBORHOODS ARE WELL-POSITIONED FOR THE NEW CLEAN ECONOMY.** Walkable street grids, street trees, and a plentiful supply of existing buildings are ready to be adapted for the needs of the 21st century. However, they need a reliable supply of safe drinking water and clean air to provide the basis for their future prosperity.

In order to achieve its ambitious climate action goals, Pittsburghers will need to make major changes to many aspects of daily life. From the buildings we live and work in, to the energy that powers our industries, to the way we choose to get around, sweeping change will be necessary to make climate action a reality.

In order for Pittsburgh to clean up its air, secure access to safe drinking water, and achieve its climate goals, it will need for local industry to switch from fossil fuels to renewable energy. People currently employed in fossil fuel-related industries will need access to re-training and support to ensure a just transition away from fossil fuels and into the new clean economy sectors of the 21st century.

Pittsburgh's Climate Action Plan (CAP) lays out strategies through which Pittsburgh can reduce greenhouse gas emissions. The goal is to lessen

Pittsburgh's contribution to global climate change, and increase environmental quality for all Pittsburghers.

The CAP lays out an ambitious roadmap to lower emissions and energy use in the near future. In order to meet these goals, strong policies and programs will need to be put into place to guide people. The CAP calls for the development of a comprehensive plan, which will serve as a framework for the City to plan for efficient and sustainable development.

### Citywide Climate Action Plan Goals

- Zero waste
- 50% energy & water use reduction
- 50% transportation emission reduction
- 50% greenhouse gas emissions reduction by 2030 (80% reduction by 2050)



## Air Quality

**Though Pittsburgh’s air is much cleaner today than it was in Carnegie’s time, it is by no means clean.** Pittsburgh’s air is currently rated 7th worst overall in the country<sup>1</sup> for year-round particle pollution (Annual PM<sub>2.5</sub>),<sup>2</sup> and its levels of ozone and fine particles (PM<sub>2.5</sub>) have increased from 2018 to 2019. According to the American Lung Association’s 2019 State of the Air report,<sup>3</sup> the City ranks nationally amongst cities with the most polluted air.

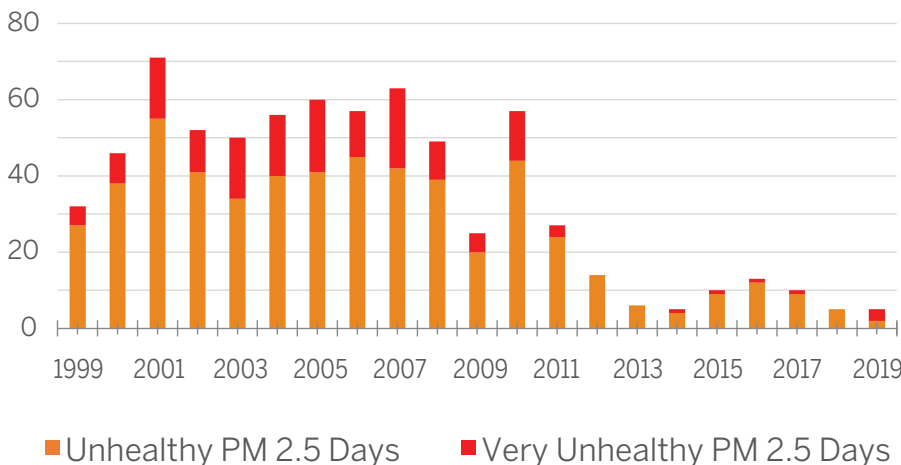
**PM<sub>2.5</sub> pollution is made of very small particles that often come from industrial sources like coalfired power plants and diesel emissions.**

These particles are so small that they can lodge deep in the lungs and cause respiratory or cardiovascular issues like asthma and heart attack.

**Pittsburgh-area industry is still the largest single source of air pollution negatively affecting the health of Pittsburghers.** Coke plants and steel foundaries are leading contributors to air pollution, both in Allegheny County and within the City of Pittsburgh.

While the number of unhealthy air quality inventory days for particulate matter has been falling over the past couple of decades, Pittsburgh’s air quality still receives a failing grade from the American Lung Association’s annual State of the Air report, in particular for excessive concentrations of ground-level ozone and particle pollution. Orange days are those that are unhealthy for sensitive groups; red are unhealthy days for everybody.

Number of Unhealthy AQI Days for PM 2.5 Allegheny County, PA



**Pittsburgh is ranked among the most polluted cities in the U.S. for short-term and year round particle pollution (PM2.5).**

Source: U.S. Environmental Protection Agency, Air Quality System Data Mart.

<sup>1</sup> The Pittsburgh Post-Gazette. *Pittsburgh region’s air quality gets an F grade.* 2019. [www.post-gazette.com/local/2019/04/24/Pittsburgh-regional-air-quality-gets-failing-grades-again/stories/201904230099](http://www.post-gazette.com/local/2019/04/24/Pittsburgh-regional-air-quality-gets-failing-grades-again/stories/201904230099)

<sup>2</sup> New York State Department of Health. *Fine Particles (PM 2.5) Questions and Answers.* 2018. [www.health.ny.gov/environmental/indoors/air/pm2\\_5.htm](http://www.health.ny.gov/environmental/indoors/air/pm2_5.htm)

<sup>3</sup> American Lung Association. *State of the Air Report.* 2019. [www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2019-full.pdf](http://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2019-full.pdf)



## Water Quality



**PITTSBURGH'S WATER IS DRAWN FROM THE ALLEGHENY RIVER.** Any pollutant that enters the river must be treated and removed from the water before it can be distributed to Pittsburghers.

**Pittsburgh has faced major issues with water quality in the past decade.** The majority of these issues stem from an increased concentration of lead in the city's drinking water supply, due to corrosion of lead pipes. While the level of lead currently in the water supply is below the EPA limit of 15 ppm, no level of lead in water is safe for human consumption.

Due to aging infrastructure, Pittsburgh's drinking water system is strained and loses at least one quarter of its water to pipe leaks or bursts. Additionally, Pittsburgh still has lead pipes in service to distribute drinking water<sup>1</sup>. The Pittsburgh Water & Sewer Authority (PWSA) has begun using its public safety powers to replace both public and private water pipes containing lead. The City expects to finish this endeavor by 2026 at a cost of close to \$400 million.<sup>2</sup>

Pittsburgh draws its drinking water from the Allegheny River. Contaminants can come from storm sewers, release of contaminants from industrial processes, combined sewer overflow (CSO) events, release of petroleum products from pipeline ruptures, or stormwater runoff from land and paved areas adjacent to the river.

CSO events happen when sewers that carry both sewage and storm water fill beyond capacity and discharge excess flow into rivers and streams. Meeting these challenges will require both improvements in water quality and reductions in water demand. PWSA is currently working to develop a \$750 million green infrastructure plan to reduce runoff and stop neighborhood flooding, potentially using innovative practices such as stormwater parklets to detain runoff water.

<sup>1</sup> City of Pittsburgh. *OnePGH Resilience Strategy*. 2018. [www.pittsburghpa.gov/onepgh/index.html](http://www.pittsburghpa.gov/onepgh/index.html)

<sup>2</sup> National Public Radio. *Pittsburgh Faces Hurdles In Removing Lead From Drinking Water*. 2017. [www.npr.org/2017/09/03/548255845/pittsburgh-faces-hurdles-in-removing-lead-from-drinking-water](http://www.npr.org/2017/09/03/548255845/pittsburgh-faces-hurdles-in-removing-lead-from-drinking-water)



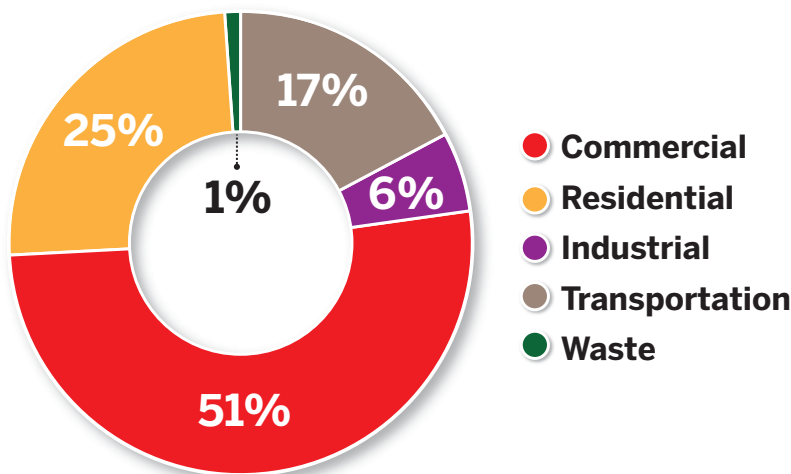
## Greenhouse Gas (GHG) Emission Reduction

In Pittsburgh, the vast majority of greenhouse gas (GHG) emissions are the result of building energy use and transportation. Driving on our roads is responsible for 17% of our GHG emissions while the energy we use to heat our homes and power our economy contributes roughly 81% of all GHG emissions.<sup>1</sup> If we are to meaningfully reduce our carbon footprint, we will need to reduce emissions from these sectors.

The comprehensive plan has a role to play in our GHG reduction goals. By providing a vision and policy guidance for land use, it can help promote more energy efficient building types and land use patterns to reduce the GHG impact of the buildings sector.

Vehicle Miles Traveled (VMT) is a common way to measure how much people drive and the amount of carbon emissions attributed to transportation. While VMT per capita declined in Pittsburgh between 2003 and 2013, we still have a long way to go to meet our climate action goals. The comprehensive plan also has a role to play in addressing GHG emission from transportation. By providing policy guidance on where to grow and how to invest in infrastructure, it can provide needed guidance toward a low carbon future. This decline, while positive news, is nowhere near matching the level needed to match climate action goals for VMT reduction.

**PITTSBURGH CITYWIDE GREENHOUSE GAS EMISSIONS BY SECTOR (2013)<sup>1</sup>**



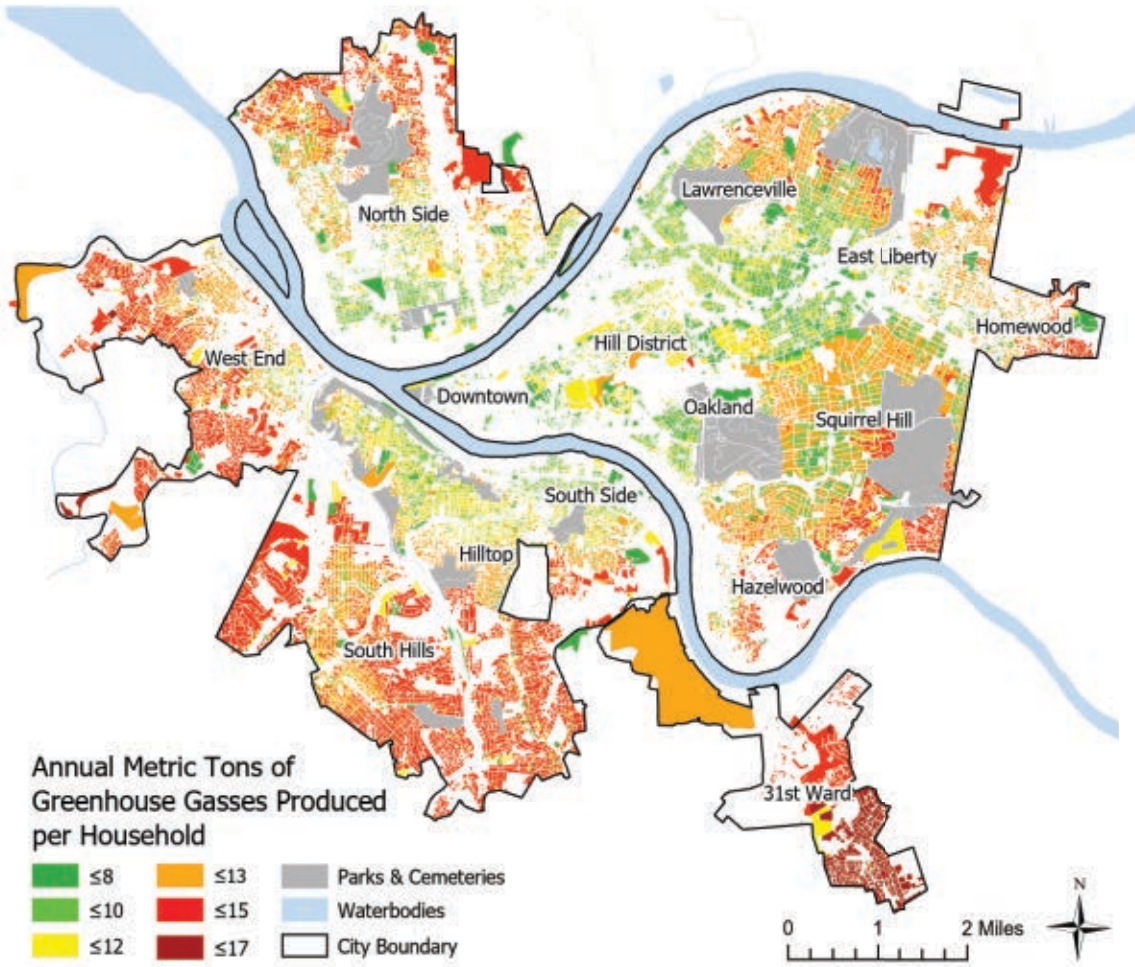
**Changes in land use patterns through the comprehensive plan process can be part of the solution to reducing emissions.**

**GHG EMISSIONS BY SECTOR.** The CAP provides an important benchmark by measuring emissions sub-sectors most responsible for current GHG production. ForgingPGH could influence outcomes across all five categories through land use and transportation policy.

<sup>1</sup> City of Pittsburgh Climate Action Plan Version 3.0



## Land Use and Greenhouse Gas Emissions



### GHG EMISSIONS PER HOUSEHOLD BY RESIDENCE LOCATION.

Areas with a combination of attached homes, transit service, and neighborhood amenities within walking distance (in green), have lower emissions than single family neighborhoods (in red), where an automobile is required to make most regular trips.<sup>1</sup>

As the map above shows, neighborhoods that are compact, walkable, and well connected are also the areas of Pittsburgh that produce the fewest greenhouse gas emissions. This is no accident. These areas of Pittsburgh developed before automobile ownership was common. As a result, they are walkable by design. This means that residents who live in these areas tend to drive less and use less energy overall.

Through ForgingPGH, we can articulate our vision for how and where we want future development to occur. By concentrating growth in these areas and allowing other areas to become more like them, we can ensure that future workers and residents accomplish more of their daily tasks without needing to drive.

<sup>1</sup> GHG emissions for this map are modeled residential building + transportation emissions per household by location of residence, and thus do not reflect ambient/non-point emissions (for example, emissions along transportation corridors from diesel vehicles). Source: UrbanFootprint



## Environmental Hazard Risk

Pittsburgh is defined by its topography and natural features. As the city developed, neighborhoods grew in and around hills, streams, and rivers with little regard for natural hazards such as flooding and landslides.

This explains why today 36% of the city’s land area contains buildings on slopes of 25% or greater; over 12% of the jobs in the city are in buildings that sit on ground that may be susceptible to landslides; and why over 15% of the industrial-sector jobs in the city are in buildings located within FEMA-identified 100-year flood zones.

The Pennsylvania Department of Environmental Protection (DEP) predicts climate change will increase the frequency of major flood events in the winter and spring, due to more intense rainfall and earlier snow melts caused by warmer temperatures.<sup>1</sup>

As climate change threatens to increase the frequency of rain storms and flooding in the Pittsburgh region, the areas of our city that are located in flood and landslide-prone areas will be at even greater risk.

With the ForgingPGH comprehensive plan, we have an opportunity to start a conversation about how to make our neighborhoods more resilient to climate change. Whether we focus more resources on infrastructure to mitigate the impact of floods and landslides or choose to restrict future development in these areas is a decision we need to make together. One thing is certain: if we choose to do nothing, many of our city’s most vulnerable residents stand to lose the most from the impacts of climate change.

### At least 6% of Pittsburgh parcels are at risk for more than one of these hazards.

*Source: City of Pittsburgh, Allegheny County Tax Assessor, Federal Emergency Management Agency*

**4% of All Land**  
 1% of Residential Land  
 6% of Employment Land



**Flood Risk**

**36% of All Land**  
 29% of Residential Land  
 27% of Employment Land



**Steep Slope**

**8% of All Land**  
 10% of Residential Land  
 12% of Employment Land

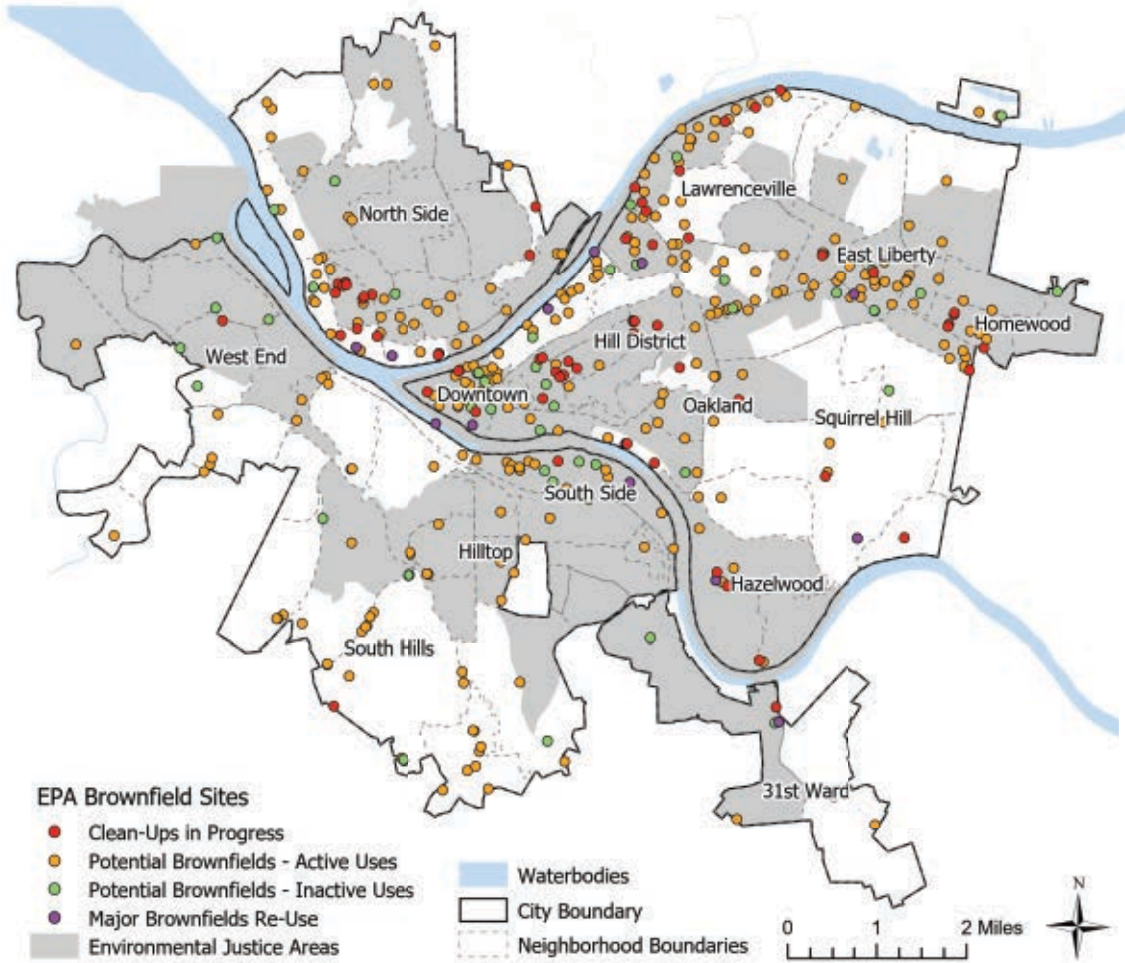


**Landslide Risk**

<sup>1</sup> Pennsylvania Department of Environmental Protection. *What Climate Change Means for Pennsylvania*. 2016 <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-pa.pdf>



# Brownfields



## PITTSBURGH'S POTENTIAL BROWNFIELD SITES AND ENVIRONMENTAL JUSTICE AREAS.

Historically, low-income and non-White Pittsburghers have had to bear a disproportionate burden of adverse environmental impacts.

Source: U.S. Environmental Protection Agency, ACRES Database.

**Pittsburgh's many brownfields are a reminder of its industrial past**, and their repurposing now is a sign of the city's transformation. Brownfields, polluted sites that used to house mills, smelters, and other industrial uses, are now research parks, shopping centers, and housing. Though Pittsburgh has made tremendous progress in reinventing these sites, there is much work to be done. As the map above shows, there are hundreds of potential brownfields scattered throughout the city, some of which continue to operate today.

The legacy of industry in Pittsburgh extends beyond these sites to the working class neighborhoods that grew up around them. Today, many of these neighborhoods are classified by the Environmental Protection Agency (EPA) as Environmental Justice Areas. This means they are home to low-income or minority populations who potentially experience disproportionate environmental harms. The next phase of environmental cleanup in Pittsburgh will need to consider the presence of such communities when considering where and how to invest.