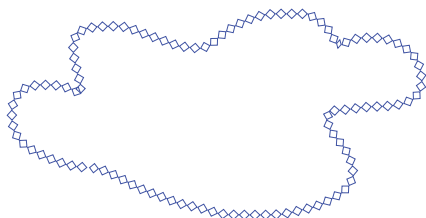
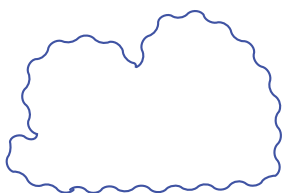
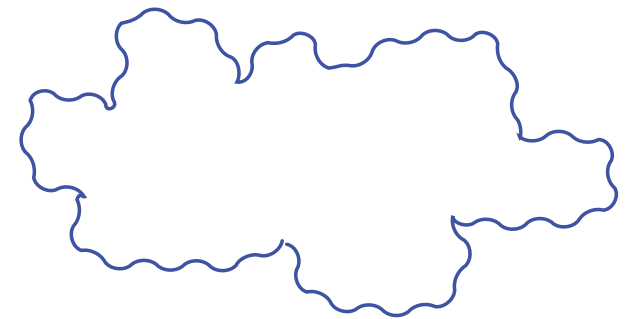
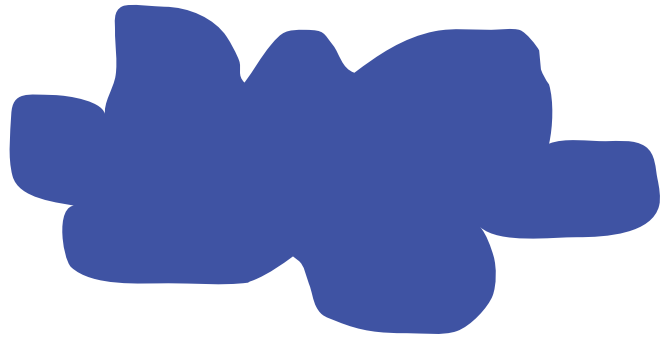
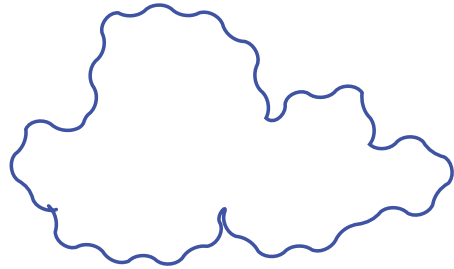
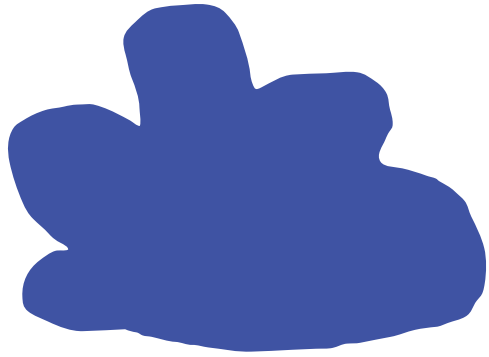


# HEALTHY AIR GUIDE



Prepared by Yale Urban Design Workshop  
for the Dwight Healthy and Just Neighborhood Project



## What is this guide?

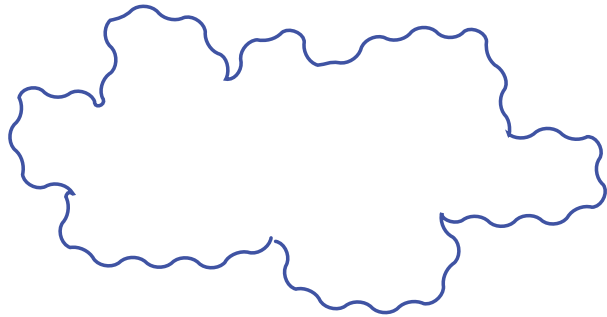
This guide provides some information about terms and ideas related to air quality. As part of the Dwight Healthy and Just Neighborhood Project we are producing information to help the neighborhood understand what the quality of the air is, and what to do about it in the short-term and long-term. Check out the live air quality on the neighborhood website [dwrightneighborhood.info](http://dwrightneighborhood.info) and find out more about the project!

## What is air quality?

Imagine you're outside playing your favorite game. When the air quality is good, you can see clearly, breathe easily, and the sky looks bright and clear. This usually means there is less air pollution. But when the air quality is not so good, it's like someone added a bit of fog to your day. The air might look a little hazy, and it might even be harder to take deep breaths. Sometimes, you might even notice that it's harder to see far away because there's more stuff floating around in the air, like dust or pollution. Sometimes you might not even realize either way! So, good air quality is like a clear, clean breeze, while bad air quality is like trying to see through a misty window.

## What is air pollution?

Air pollution is when the air around us becomes very dirty. You know how sometimes you see smoke coming out of a chimney or cars leaving behind smelly fumes? That's part of air pollution. It's when there's stuff in the air that's not good for us to breathe in. These things are tiny particles or gases from things like cars, factories, or even when people burn things like wood or trash. So, if there is air pollution is present the air quality isn't as clean and fresh as we'd like it to be.



## Where does air pollution come from?

Some stays in one place:

- Gas stations
- Factories
- Power plants
- Fires
- Construction sites
- Dry cleaners

Some moves around:

- Cars, trucks, and buses
- Lawn mowers and leaf blowers
- Airplanes

## Can you think of a time when buildings were difficult to see from a distance?

When far away things are less easy to make out, the air conditions are smoggy. Smog is caused by ground level pollution that can come from vehicles. This is just one type of pollution found in Dwight. We can identify many pollution sources around the neighborhood, some of which we probably pass by every day.

But, other times, the most serious air pollution can come from sources that aren't even close to Dwight! Consider wildfire smoke, which can travel from thousands of miles away and affect our air and health here in Dwight.



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## Is the air always clean indoors?

Think again! Sometimes, when outdoor air quality is very bad, the pollution can also affect the air inside your home or place of work too. Indoor Air Quality, or IAQ for short, refers to how clean the air is inside and around buildings, especially concerning the health of the people who occupy the building. Things you might not realize can negatively affect the air quality in your home:

- Home appliances that burn fuel
- Too much moisture that can create mold
- Smoking tobacco indoors
- Building materials

## How do I know if the air quality is bad?

Your senses are a great place to start! Often, you will be able to smell smoke or see a haze in the air, which is a sign that the air is polluted. But, even though our senses can give us a general idea of the air quality on some days, sometimes it can be hard to tell whether the air quality is good or bad that day. Many of the chemical and dust particles that cause bad air quality are so small they are impossible to see with your eyes! There can be days when the air is unhealthy to breathe in, but you can't tell just by looking outdoors. For this reason, it's important to always check air quality monitors – even when you think the air is clean!

# How is air pollution measured?

The air quality is measured on a scale called the Air Quality Index, or AQI for short. AQI tells us how good or bad the air is using numbers, colors, and words.

The AQI uses numbers from 0 to 500, which tells us the levels of five air pollutants that are unsafe for people to breathe. The higher the number, the more polluted the air is. Each number of the index is associated with a color on the spectrum from green to maroon. Six colors that go from green (best air quality) to yellow to orange to red to purple to maroon (worst air quality) are used to describe the air.

**Green** means clean! A number below 100 indicates healthy air quality.

**Red** or **Purple** means the air is more polluted! On days measuring more than 100, the air can be bad for you to breathe.



## So, I looked online and the air quality is unhealthy today. What now?

If you are able, stay indoors! It is especially important for groups with compromised health, such as the elderly, children, and people with heart & lung disease to limit time outdoors on days with an AQI in the unhealthy category.

- Limit strenuous physical activity outside
- Keep your windows and doors closed as much as possible, using fans for air ventilation instead
- If you have one, run an air purifier indoors
- Pay attention to how you feel – coughing, wheezing, pain when breathing, or chest tightness can indicate more serious heart and lung problems

If you have to be outside to get to and from work, to go to school or to run errands... Then wearing an N95 mask is the best way to protect your lungs from bad air quality! These masks can be purchased at most local pharmacies and grocery stores. If you don't have access to an N95, wearing some form of a face covering such as a scarf or surgical mask is better than nothing.

# Stay informed!

A step by step to check air quality in the Dwight neighborhood:

1. Go to [dwrightneighborhood.cargo.site](http://dwrightneighborhood.cargo.site)
2. Click “Live Air Quality”.
3. Look at the colored bubbles.  
They represent the location of an air quality monitor. They tell you how good or bad the air quality is through a color and a number. Greener colors and lower numbers mean there is less pollution in the air. Yellow, red and purple colors and higher numbers mean there is more pollution in the air.
4. Make sure to pay close attention to any bubble that is close to where you will be outside that day!
5. Compare the number to the AQI scale, and double check if you, your relatives, or your neighbors are at risk of health effects based on the pollution level.



## Asbestos

Asbestos is a material that was used in buildings a long time ago. It's made up of tiny fibers that are really strong and fireproof. Builders used to think it was a great material because it could help keep buildings safe from fires and make them stronger. But later, people found out that breathing in those tiny fibers could be really bad for our health.



## Air Quality Index (AQI)

The U.S. Air Quality Index, or AQI for short, is the Environmental Protection Agency's tool for daily air quality reporting of five common pollutants. The unit-less AQI scale ranges from 0-500, with higher levels indicating greater air pollution and resulting health risk. AQI is broken down into six color-coded categories according to public health standards for air quality, which indicate the groups affected at each air quality threshold. An AQI value below 100 indicates acceptable air quality, while values above 100 correspond to unhealthy pollution levels that affect sensitive groups first, and the whole population as the AQI approaches hazardous levels.



An air quality monitoring network (AQMN) is a system composed of sensors fixed at multiple locations across a region which provide current air quality data in the form of AQI values. Data from an AQMN inform the public of the status of air pollution in specific areas, which can alert people to the risks of exposure to unhealthy levels of particulate matter at a given time. Compared over time, sensor data serves to display regional air quality trends and identify areas experiencing more severe pollution levels.



Carbon Monoxide is a gas that is made when things like cars, stoves, or heaters burn fuel. It can be harmful and make us feel sick if we breathe in too much of it. We can't see or smell carbon monoxide, but it's important to know about it because it can be dangerous. Detectors in our homes can tell us if there's too much carbon monoxide around.



The Clear Air Act is a US Federal act to protect the health and welfare of the population by controlling air pollution. It was passed in 1963. Current regulations are mostly based on the 1970 version of the act. The Clean Air Act establishes national ambient air quality standards (NAAQs) for several types of pollutants, which sets the maximum concentration of the pollutant that can be experienced for preservation of human health.



Pollutants for which the national ambient air quality standard has been set by the EPA. The list of criteria pollutants includes ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, PM10, and PM2.5.

## Environmental justice

Environmental justice is about making sure everyone, no matter where they live or what they look like, gets treated fairly when it comes to the environment. It's making sure that everyone has clean air to breathe, clean water to drink, and safe places to play, no matter if they're rich or poor, or what color their skin is. Sometimes, certain communities might have more pollution or dirty water, and that's not fair. Environmental justice is about making things right and making sure that everyone's environment is safe and healthy. Environmental justice also involves making sure there is equal access to the decision-making process for environmental issues that affect communities, like Dwight!

## Environmental justice community

In Connecticut, a community deemed a distressed municipality, or defined census block groups where 30% of the population is living below 200% of the federal poverty level.

## Emissions

Emissions are the things that come out of cars, trucks, factories, and other things that use fuel. When these things work, they release stuff into the air, like smoke or gases.

## Environmental Protection Agency (EPA)

The EPA, or Environmental Protection Agency, is the federal agency responsible for air quality regulation.

## Greenhouse gas (GHG)

GHG, or greenhouse gas, refers to a type of gas present in Earth's atmosphere that allows visible light to pass through and warm earth but reflects infrared light from Earth's surface back out, causing Earth's temperatures to rise. This greenhouse effect comes from the gases acting like glass in a greenhouse, keeping heat in.



## Indoor Air Quality (IAQ)

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## Lead

Lead is a heavy metal element that is toxic to humans if ingested or inhaled, and can cause brain damage in high concentrations. Its use in paints and gasoline has been limited by federal regulations since the 1970s.



## NOx

A group of gases composed of nitrogen and oxygen atoms that contribute to acid rain and smog; caused by burning fossil fuels such as coal and gasoline.



## Non-point sources

Also known as area sources, nonpoint sources are a category of activities or facilities such as gas stations or dry cleaners that release small amounts of pollutants that when added together create significant emissions.



## Ozone

A molecule made up of three oxygen atoms. In high concentrations, ozone blocks harmful rays of sun from reaching the Earth's surface. Ground-level ozone forms smog from chemical reactions that occur in the presence of sunlight.



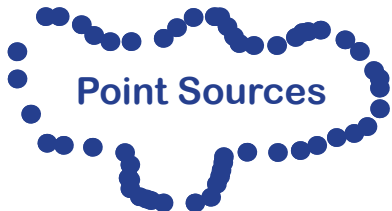
## PM 10

Fine particulate matter that can enter human lungs, with a diameter measuring 10 microns or less



## PM 2.5

Fine particulate matter that can enter human lungs, measuring less than or equal to 2.5 micrometers in diameter – about 30 times smaller than the average human hair. PM 2.5 presents the greatest health risk of ultrafine particles, as these particles can enter deep into the lungs as well as the bloodstream. PM 2.5 is also responsible for hazy air that is more difficult to see through because of a high level of pollutants in the air.



## Point Sources

Large emission sources that stay still in one place and that release pollutants in amounts above standards for what is considered healthy to breathe in.



## PurpleAir

The company that produces air quality sensors used by the Dwight Healthy and Just Project and other community science projects that record local air quality data for the public and residents to view.



## Sensitive Groups

People with respiratory issues (e.g. asthma, emphysema, bronchitis) or the elderly, who are more vulnerable to heart disease, lung disease, and breathing problems being made worse by air pollution.



## Smog

Also known as haze, a mixture of air pollutants, made up primarily of ground-level ozone (O<sub>3</sub>), that chemically react to form smog.



## Sulfur Dioxide

Gas produced by burning coal in power plants and industrial processes. Sulfur dioxide is a component of the chemical process that produces acid rain.



## Visibility

The degree to which a scenic view or distance of clear visibility (the ability to see colors and details in distant views) is degraded by man-made pollutants;



## Volatile Organic Compounds

VOC, or volatile organic compounds, are chemical compounds that come from human and natural causes and because of their composition and physical properties, can condense into a solid or evaporate at normal atmospheric conditions of temperature and pressure.



**We would love you to get involved  
with the Dwight Healthy and Just  
neighborhood project!**

**Check out the website to  
get in touch!**

**[dwrightneighborhood.info](http://dwrightneighborhood.info)**

**Greater Dwight Development Corporation and  
Yale Urban Design Workshop**