

CLEARING THE AIR

District's Air Quality Monitoring Program

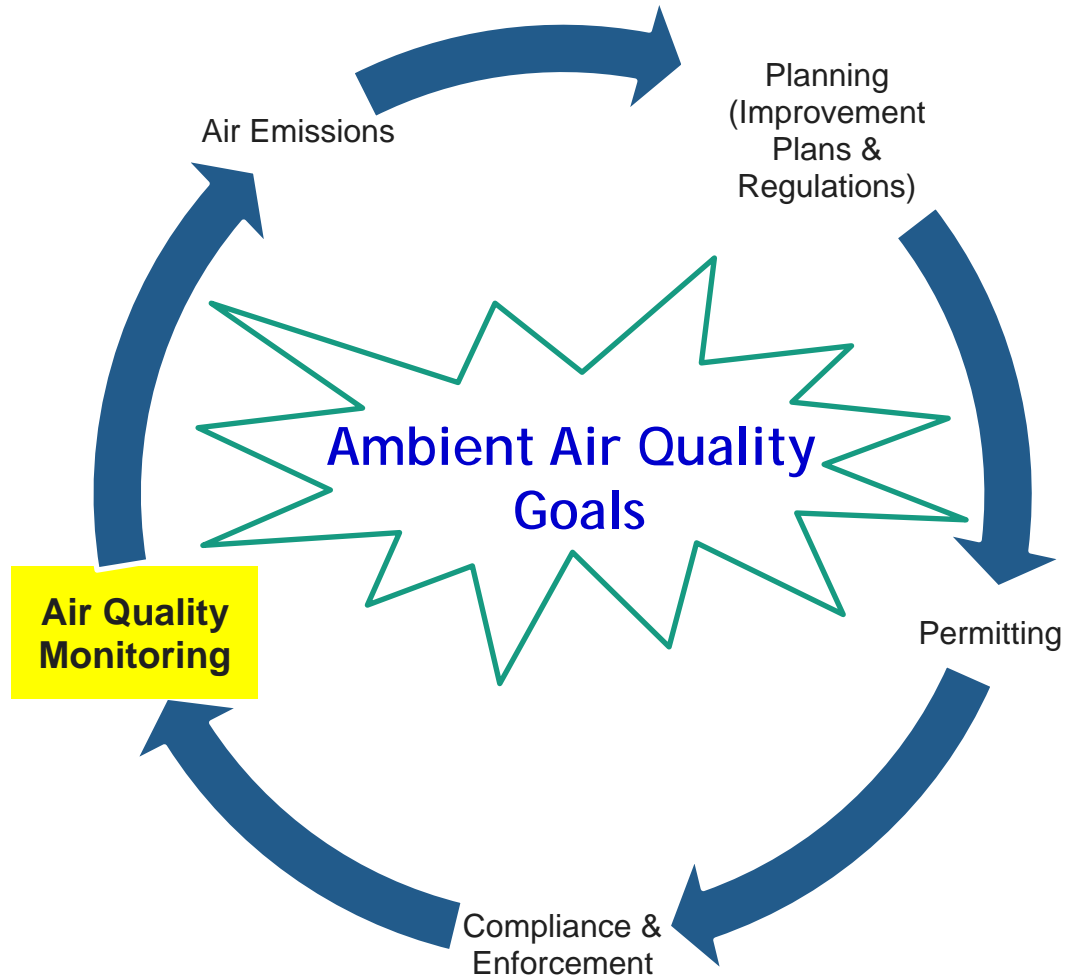
Clearing the Air Workshop #2: May 25, 2021



GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

TAG THIS PRESENTATION @DOEE_DC

Air Quality Program



Why monitor ambient air quality?

- Public health protection
 - air quality levels vs. national standards
- Identify air pollution sources
- Develop air pollution controls
- Science and research
- Public outreach/Education

Why monitor...?

Air monitoring data applications:

- ▶ Attainment status and trends
- ▶ Health risk assessment and ecosystem impacts
- ▶ Develop/evaluate emission control strategies
- ▶ Source-receptor relationships
- ▶ Models development/evaluation

DOEE Authority and Limitations:

- ▶ Clean Air Act mandates
- ▶ Federal grant funded

What is the Focus?



SIX pollutants monitored nationwide:

- 1.) Carbon Monoxide (CO)
- 2.) Sulfur Dioxide (SO₂)
- 3.) Nitrogen Dioxide (NO₂)
- 4.) Particulate Matter (PM₁₀ & PM_{2.5})
- 5.) Ground-Level Ozone (O₃)
- 6.) Lead (Pb)

EPA established National Ambient Air Quality Standards for these SIX “criteria” air pollutants

When did air monitoring begin in District?

- 14 cities dust-fall measurement study 1931-1933
- 10 cities SO₂ & ozone study 1953-1954
- National Air Sampling Network 1953-1959
- Continuous Air Monitoring Program 1962/1963-
 - First continuous measurement program- ozone, SO₂, NO₂, NO, CO, total oxidants, total hydrocarbons
 - 7 cities- DC, New Orleans, Chicago, Philadelphia, Cincinnati, San Francisco, and Los Angeles



District's CAMP station

What do we have in District's Monitoring Program?

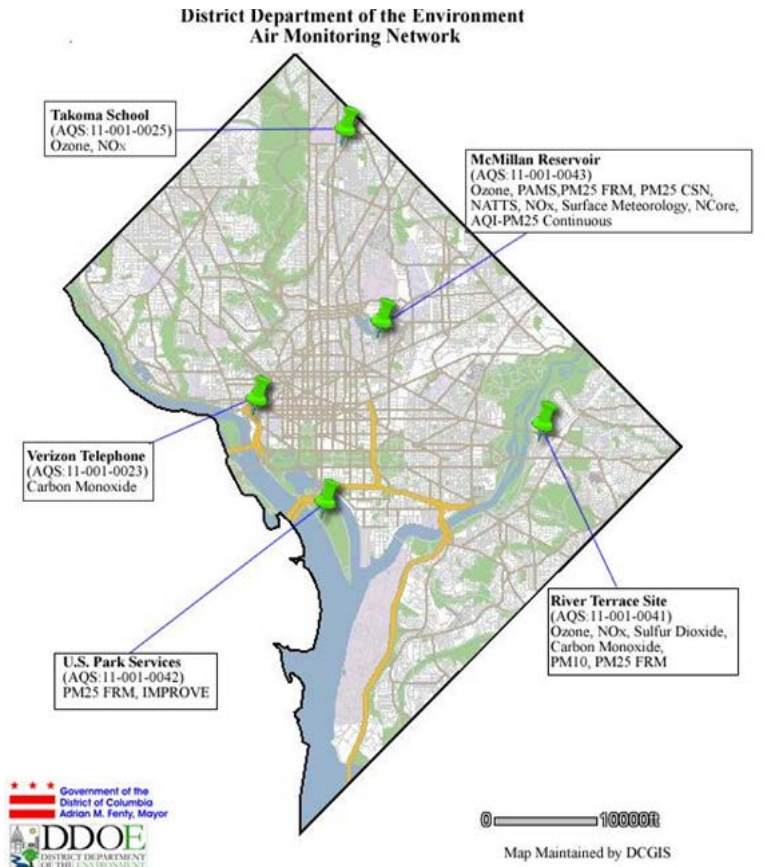
- ▶ **Criteria air pollutant network**
 - Continuous real-time measurements for Five pollutants- CO, SO₂, NO₂, O₃ and PM_{2.5} & PM₁₀
 - Must use federal methods and analyzers

- ▶ **Specialized networks (research grade)**
 - Ozone precursor pollutants
 - PM_{2.5} chemical species
 - Air toxics - National Air Toxics Trends Station
 - National Core (trace-level CO & SO₂, PMcoarse)
 - Near-road exposure
 - Meteorology

Round the year 24/7 measurements

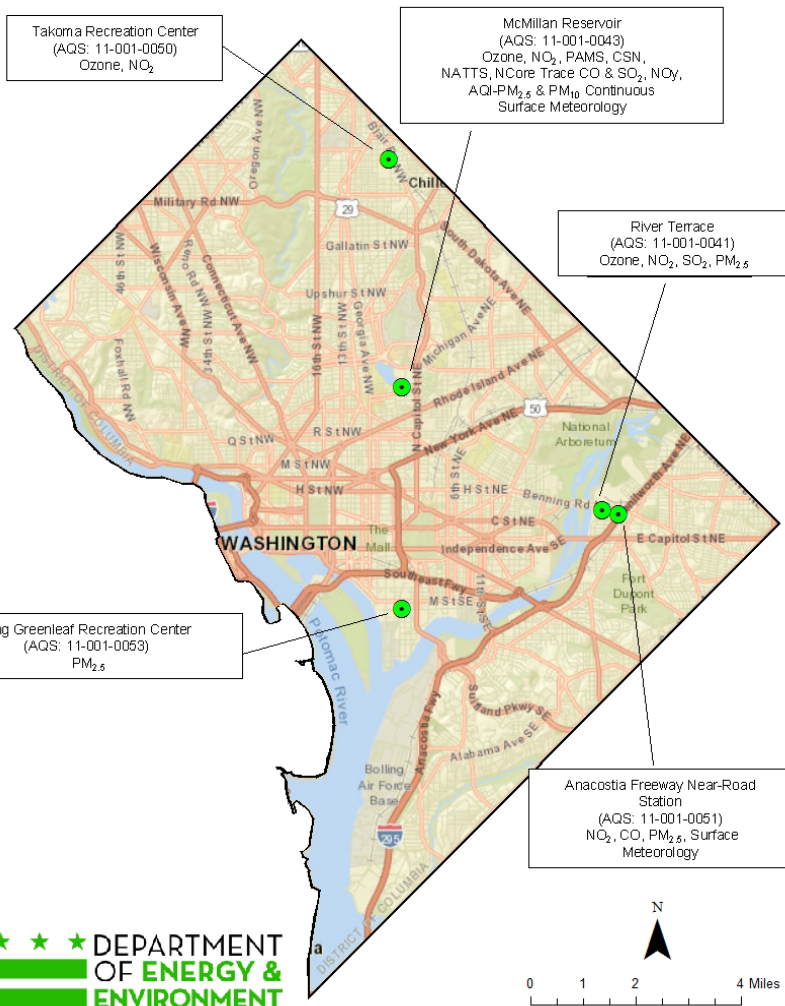
Where are District's Monitoring Stations?

District's Air Monitoring Network in 2010



Site Name	Street Address	Location Setting
River Terrace School	405 Anacostia Ave, NE	Urban / EJ Community
McMillan Reservoir	2500 First St NW	Urban
Takoma School	Piney Branch Rd NW	Urban
Verizon-Downtown	L St & 21 st St NW	Urban
Haines Point NPS	1100 Ohio Dr. NW	Urban

Where are District's Monitoring Stations?



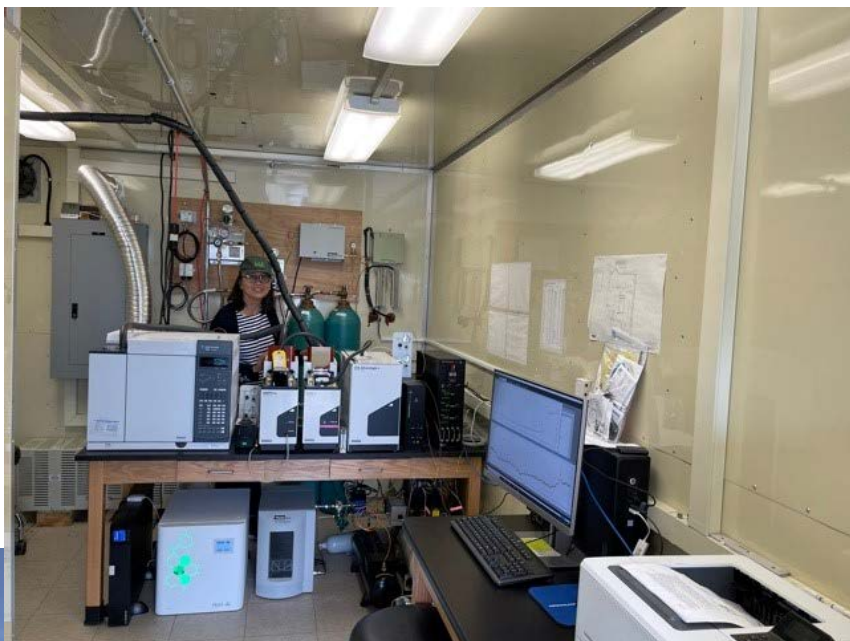
Site Name	Street Address	Location Setting
River Terrace Education Center	405 Anacostia Ave NE	Urban / EJ community
I-295 Near-Road Station	Benning Rd NE @ I-295 On-ramp	Urban / EJ community
King Greenleaf Rec Center	201 N St SW	Urban / EJ community
McMillan Reservoir	2500 First St NW	Urban
Takoma Rec Center	301 Van Buren St NW	Urban

District's Air Monitoring Network in 2020

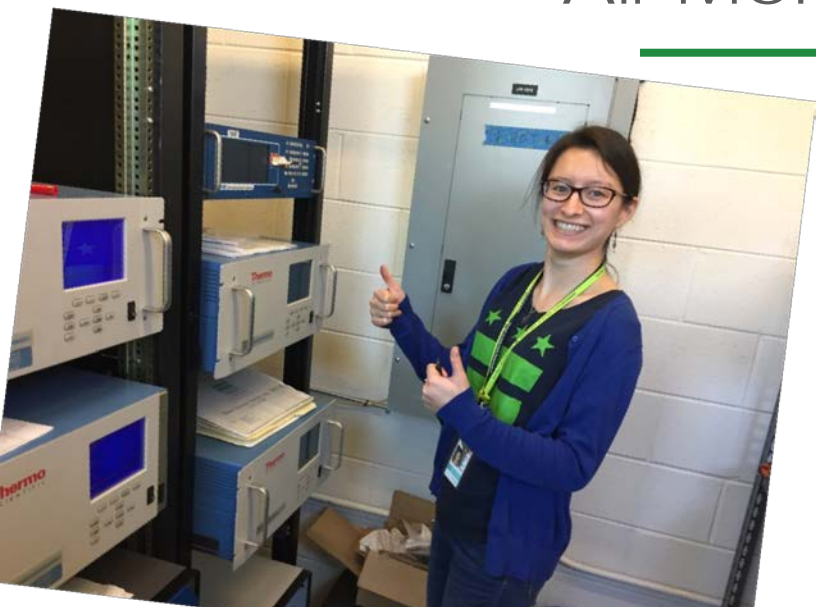
Air Monitoring Stations



Air Monitoring Stations



Air Monitoring Stations



Where to find Air Quality Data?

District's ambient air data in public databases

Real-time Data:

EPA's AirNow- <https://www.airnow.gov/>

Metro Washington Council of Governments (MWCOCG)
<http://www.mwcog.org/environment/air/forecast/>

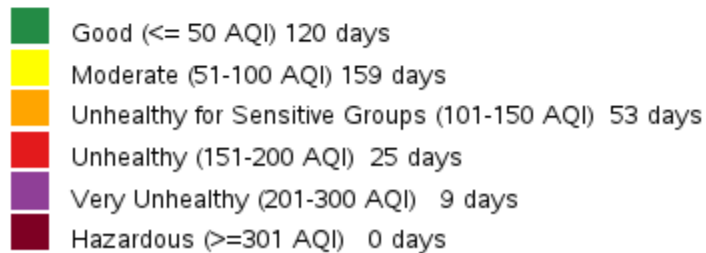
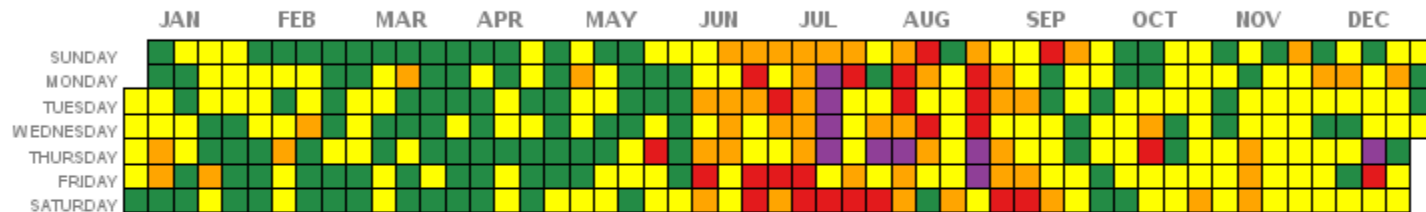
Baltimore-Washington area Clean Air Partners
<http://www.cleanairpartners.net/current-and-forecasted-air-quality>

Quality Assured Data:

EPA's AirData- <https://www.epa.gov/outdoor-air-quality-data>

Where to find data...

Daily AQI Values in 1980 District of Columbia County, DC

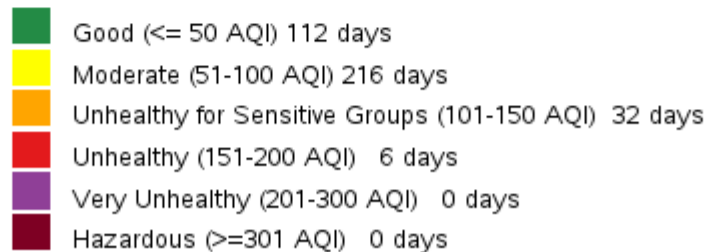
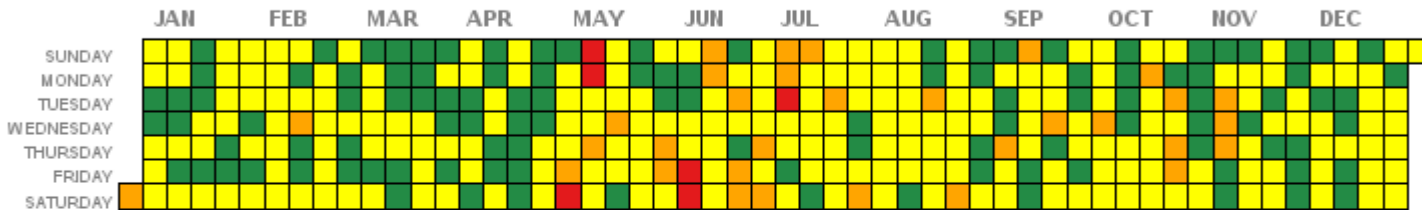


Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>

Generated: May 13, 2021

Where to find data...

Daily AQI Values in 2000 District of Columbia County, DC

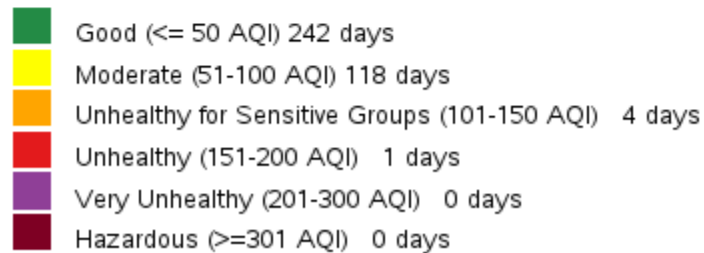
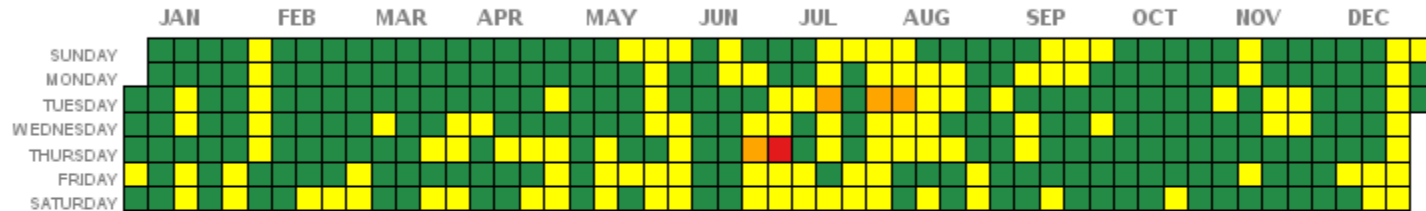


Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>

Generated: May 13, 2021

Where to find data...

Daily AQI Values in 2019 District of Columbia County, DC

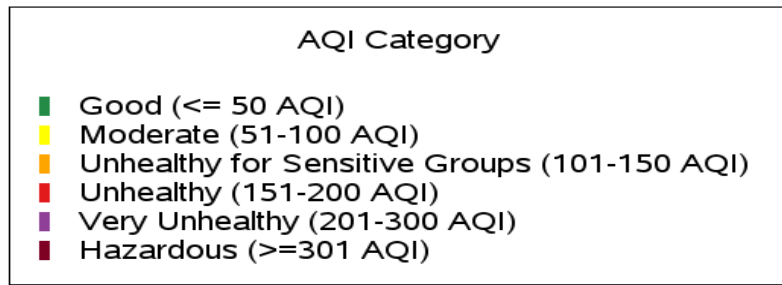
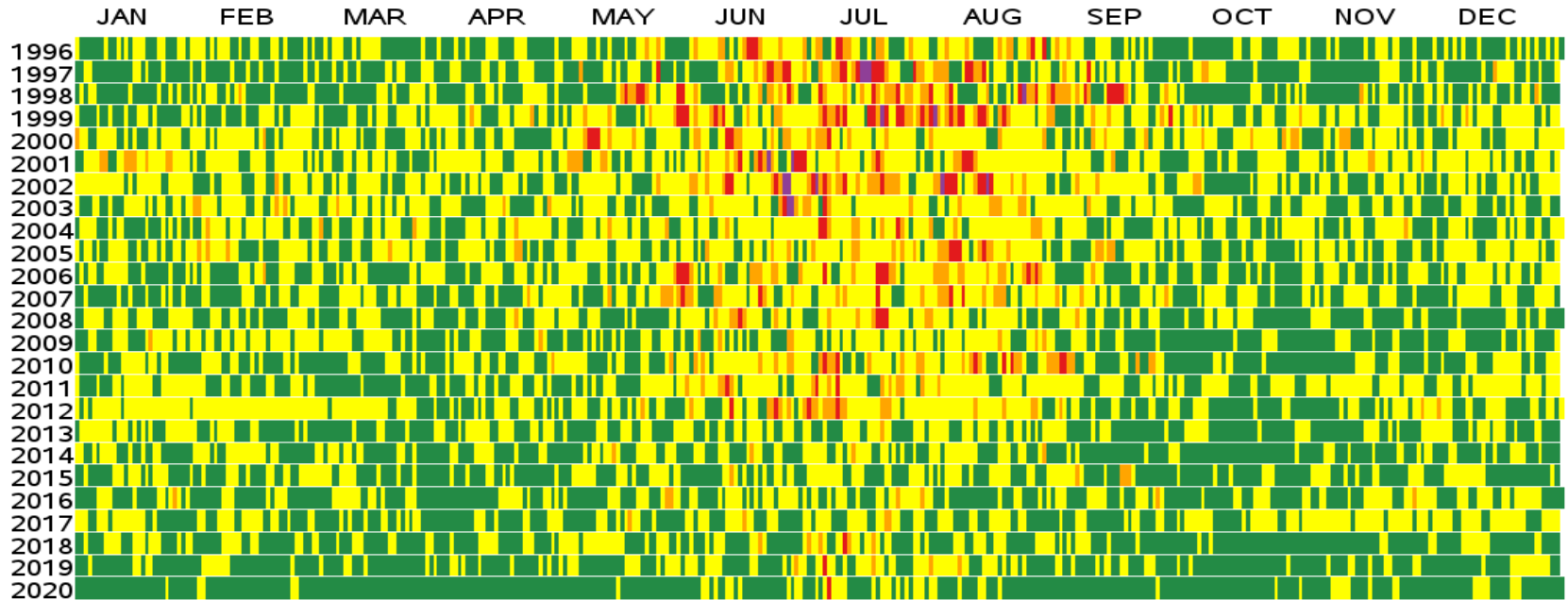


Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>

Generated: May 13, 2021

Where to find data...

Daily AQI Values, 1996 to 2020 District of Columbia County, DC



Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>

Generated: May 11, 2021

Note: The PM_{2.5} monitoring network was phased in between 1999 and 2001 in most areas. Earlier years in this plot do not include PM_{2.5} data.

National Ambient Air Quality Standards (NAAQS)

Pollutant	NAAQS
Ozone	70 ppb
PM2.5 PM10	35 $\mu\text{g}/\text{m}^3$ & 12 $\mu\text{g}/\text{m}^3$ 150 $\mu\text{g}/\text{m}^3$
Carbon Monoxide	35 ppm & 9 ppm
Nitrogen Dioxide	100 ppb & 53 ppb
Sulfur Dioxide	75 ppb
Lead	0.15 $\mu\text{g}/\text{m}^3$

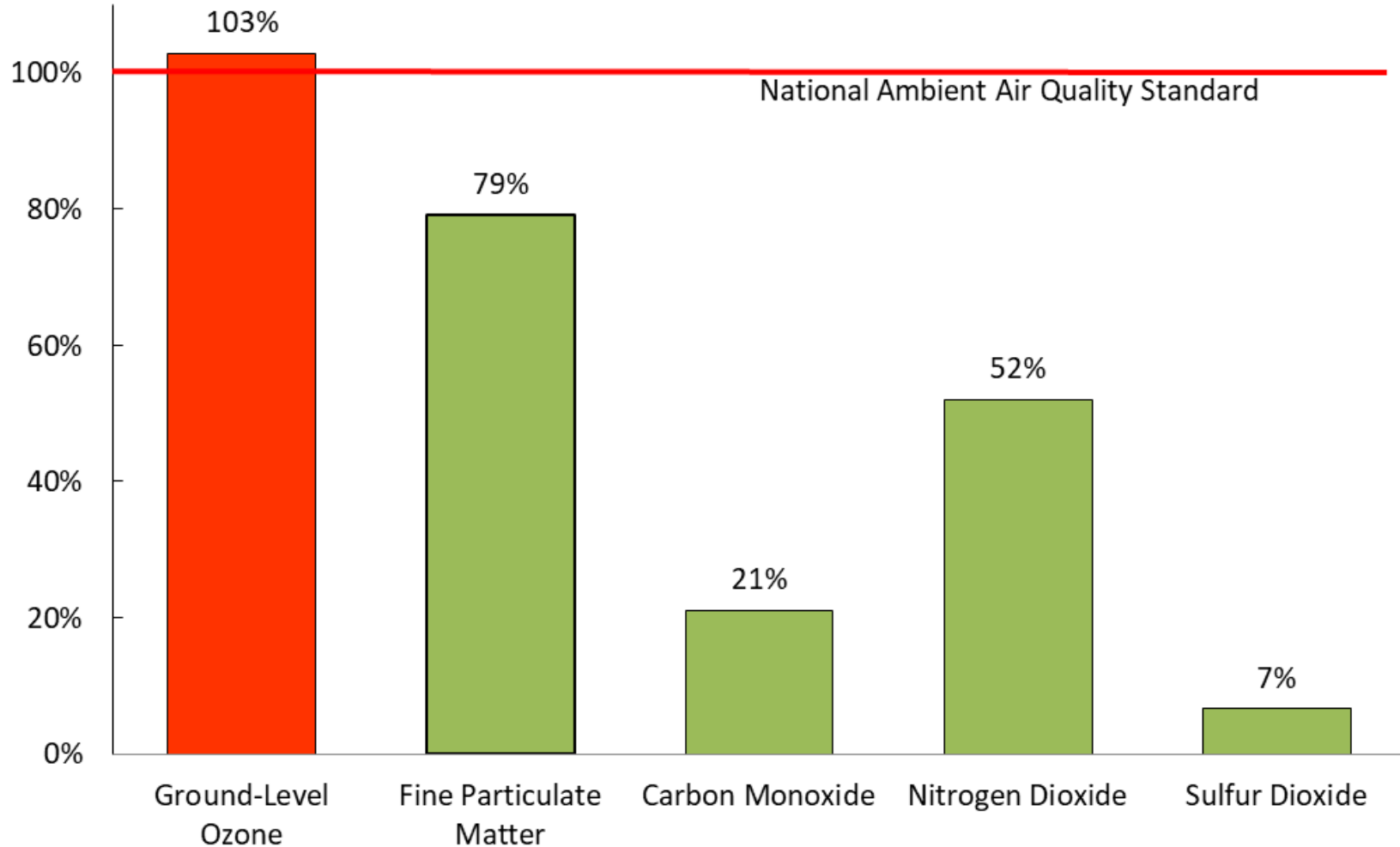
Source: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

District's Air Quality vs. NAAQS

- Carbon monoxide, CO
- Nitrogen dioxide, NO₂
- Sulfur dioxide, SO₂
- Lead, Pb
- Particulate Matter (PM₁₀ & PM_{2.5})
- Ozone, O₃



District's Air Quality Status...



Questions?

Contact:

Dr. Rama Tangirala
(202) 535-2989
rama.tangirala@dc.gov

