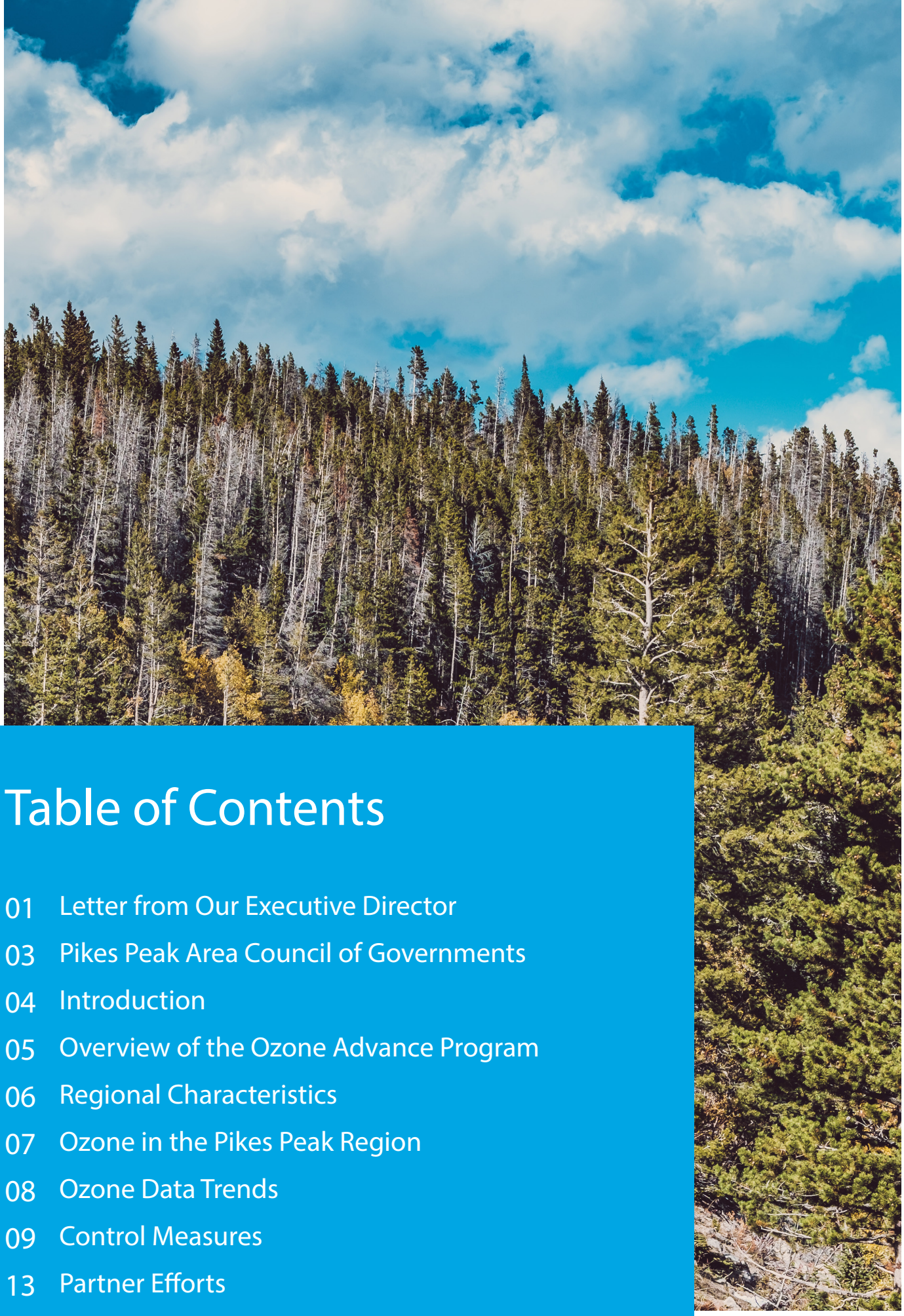
January 2021

Pikes Peak Region Ozone Advance Program 2021

Pikes Peak Area
Council of Governments

Communities Working Together



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Message from Our Executive Director

The Pikes Peak Region is a beautiful and vibrant community, with a host of outdoor activities. Because of this, we are seeing more and more people reside here. With this comes a rise in population, in turn increasing vehicles usage, energy consumption, and other causes which impact our region's air quality. Our communities are dedicated to seeing that the Pikes Peak Region continue to have clean, healthy air and are willing to take action before we have a much larger problem.

The Pikes Peak Area Council of Governments (PPACG) has a responsibility to advise member agencies and monitor the quality of our ambient air within Park, Teller and El Paso Counties. The Ozone Advance Program coordinated by the Environmental Protection Agency supports and helps local communities reduce ozone pollution to help these areas continue to maintain the National Ambient Air Quality Standards of the Clean Air Act. The program encourages and supports proactive steps to keep our air clean.

I am excited to say that the Pikes Peak Region is the first in Colorado to participate in this program. In January of 2020, PPACG committed to the Ozone Advance Program. Our first step is the development of this action plan, and then implement the strategies you'll see here.

The PPACG Air Quality Technical Committee is a group representing communities and partners throughout the region, who looked at the challenges and opportunities our communities face in 2021. They looked at the strong partnerships and coordination that our region is so lucky to see. Taking into consideration of our regional goals and potential opportunities, they developed realistic strategies to move forward within our region.

We're excited to see how the efforts we are conducting will help lower ozone pollution. Through our education and outreach efforts, non-attainment designation policy research, and community improvement projects, we will follow a path to ensure our communities are safe and protected.

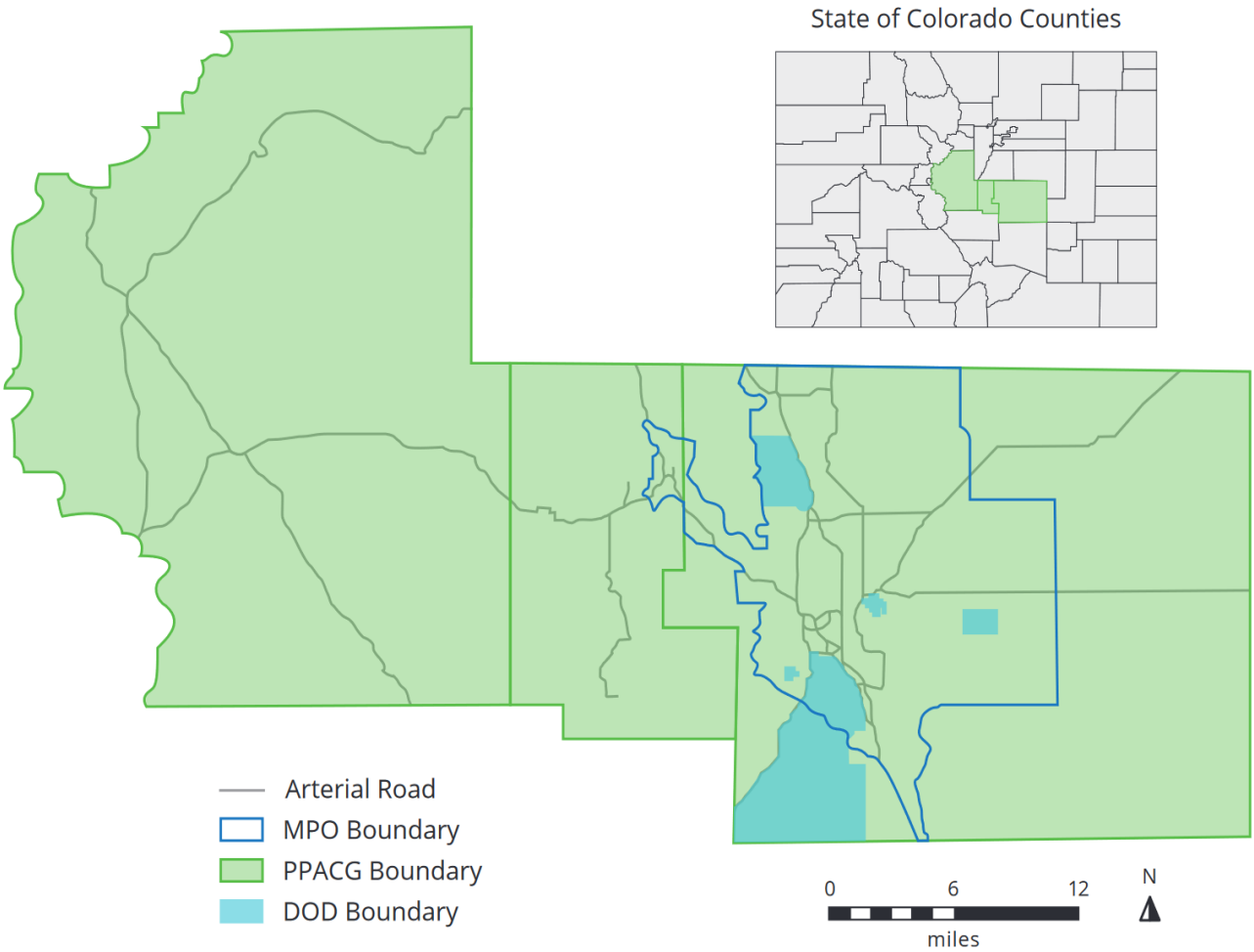
Andrew Gunning

Pikes Peak Area Council of Governments

The Pikes Peak Area Council of Governments (PPACG) is a voluntary organization made up of 16 area jurisdictions, counties, and municipalities. Our aim is to provide a forum for local governments to discuss issues that cross their political boundaries, identify shared opportunities and challenges, and develop collaborative strategies for action. Formed in 1967 under Colorado law, PPACG's mission is to ensure that all communities—big and small—have a forum to:

» Discuss issues that cross their political boundaries
» Identify shared opportunities and challenges
» Develop collaborative strategies for action

PPACG AND MPO BOUNDARIES



Introduction

The Pikes Peak Area Council of Governments Board of Directors (2019)

The Pikes Peak Area Council of Governments is the designated air quality management agency for Park, Teller and El Paso Counties, responsible for undertaking air quality and transportation control planning in collaboration with the State of Colorado. PPACG reviews current and emerging air quality issues and goals, conducts public outreach and education, and develops plans to improve air quality.

PPACG is also the Metropolitan Planning Organization (MPO) for the Colorado Springs Urbanizing Area. One of the responsibilities of an MPO in an air quality maintenance area is making an air quality conformity determination for regional long-range transportation plans and transportation improvement programs.

The Colorado Department of Public Health and Environment (CDPHE) regulates the Clean Air Act for Colorado, operates the ambient air quality monitoring network, analyzes data trends, and develops associated reports and plans. The data presented in this report is from CDPHE.

Overview of Ozone Advance Program

The Environmental Protection Agency's (EPA) Ozone Advance Program promotes local actions in attainment areas to reduce ozone pollution to help areas continue to maintain the National Ambient Air Quality Standards within the Clean Air Act. The program provides technical assistance, opportunities for collaboration, and other support to states, tribes, and local governments that want to take proactive steps to keep their air clean.

The Pikes Peak Region and the Pikes Peak Area Council of Governments is the first to participate in this program in the State of Colorado, providing leadership to ensure our air quality is safe and healthy for all citizens and the natural environment. PPACG committed to the EPA Ozone Advance Program in January 2020, where we plan to report to EPA annually on our ozone reduction efforts, as well as future strategies.

WHAT IS OZONE?

In the Earth's lower atmosphere near ground level, ozone is formed when pollutants emitted by cars, power plants, vegetation, industrial plants and other sources chemically react in the presence of sunlight. Ozone is not emitted directly as a pollutant, but forms when sunlight powers a chemical reaction between a class of hydrocarbon compounds called volatile organic compounds (VOCs) and nitrogen oxides (NOx). Ozone is a component of the brown cloud, otherwise known as "smog". Ozone levels are usually the highest in the summer, especially on sunny days with no wind. Because ozone comes from so many different sources and it takes time for the reaction to occur, the reacting compounds can spread over a large area and produce a regional problem.

HEALTH IMPACTS

Exposure to ozone can make people more susceptible to respiratory infection, resulting in lung inflammation, and aggravate pre-existing respiratory diseases, such as asthma. Sensitive groups like children and older adults are most impacted by ozone pollution. Other health effects include a decrease in lung function and an increase of respiratory conditions such as chest pain and cough. These effects usually occur when individuals are actively exercising, working, or playing outdoors.

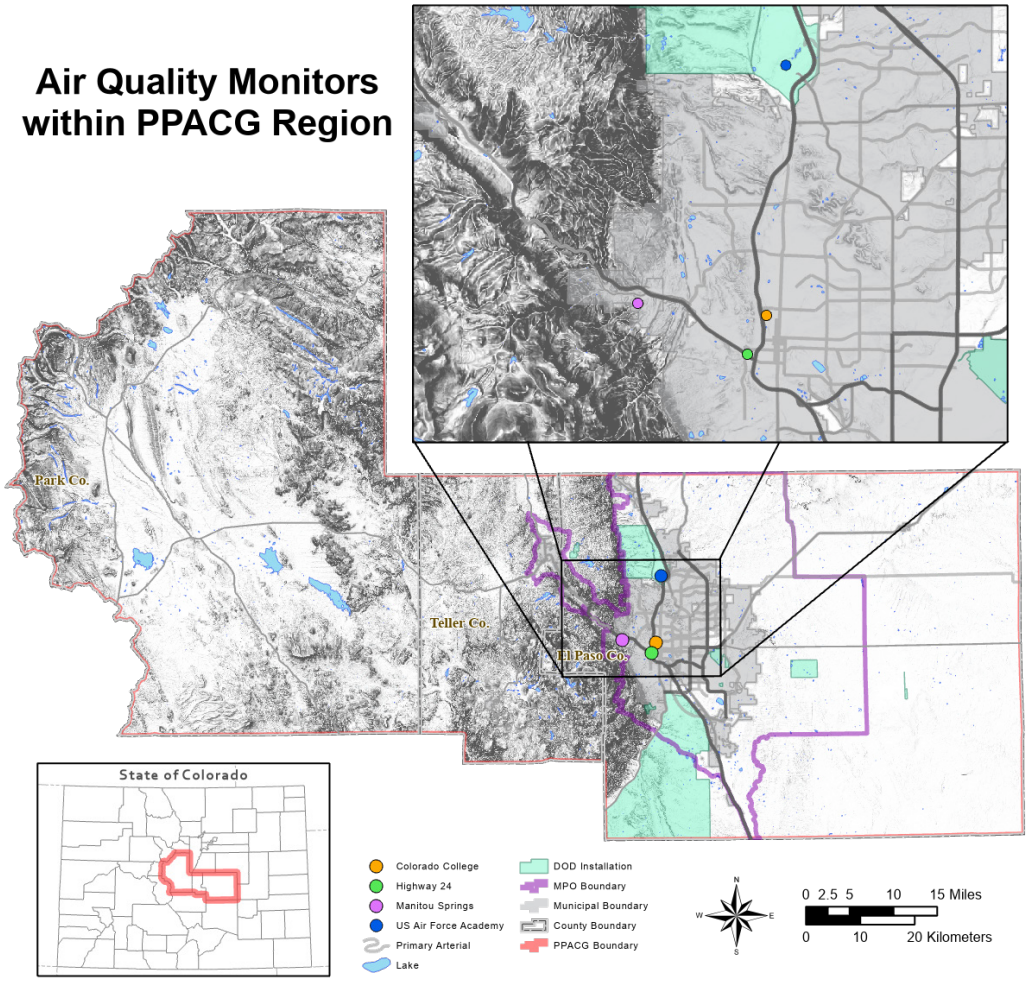
ENVIRONMENTAL IMPACTS

Ozone also affects plants and ecosystems, leading to reduced agricultural and commercial forest yields, and reduced growth and survival rates of tree seedlings.

Regional Characteristics

PPACG was designated by the State of Colorado as the region's lead air quality management agency in the 1970's. In 2015, about 700,000 people lived in the region. By 2045, the Pikes Peak region will be home to over one million people, growing by more than 300,000. This means we expect to see more roadway usage, more vehicles and an increase in energy consumption, which may increase the emissions of ozone precursors.

Monitors collect air quality data depending on what they are designed to measure. The EPA determines if a monitor is required within an area based on population, if pollutant concentrations are high or low, changes in regulatory requirements, or other reasons. Currently, the Pikes Peak Region has four monitoring stations that measure ozone, particulate matter 2.5 and 10, carbon monoxide and/or sulfur dioxide. The two monitors that measure ozone are located near the United States Air Force Academy (USAFA) and near Manitou Springs.

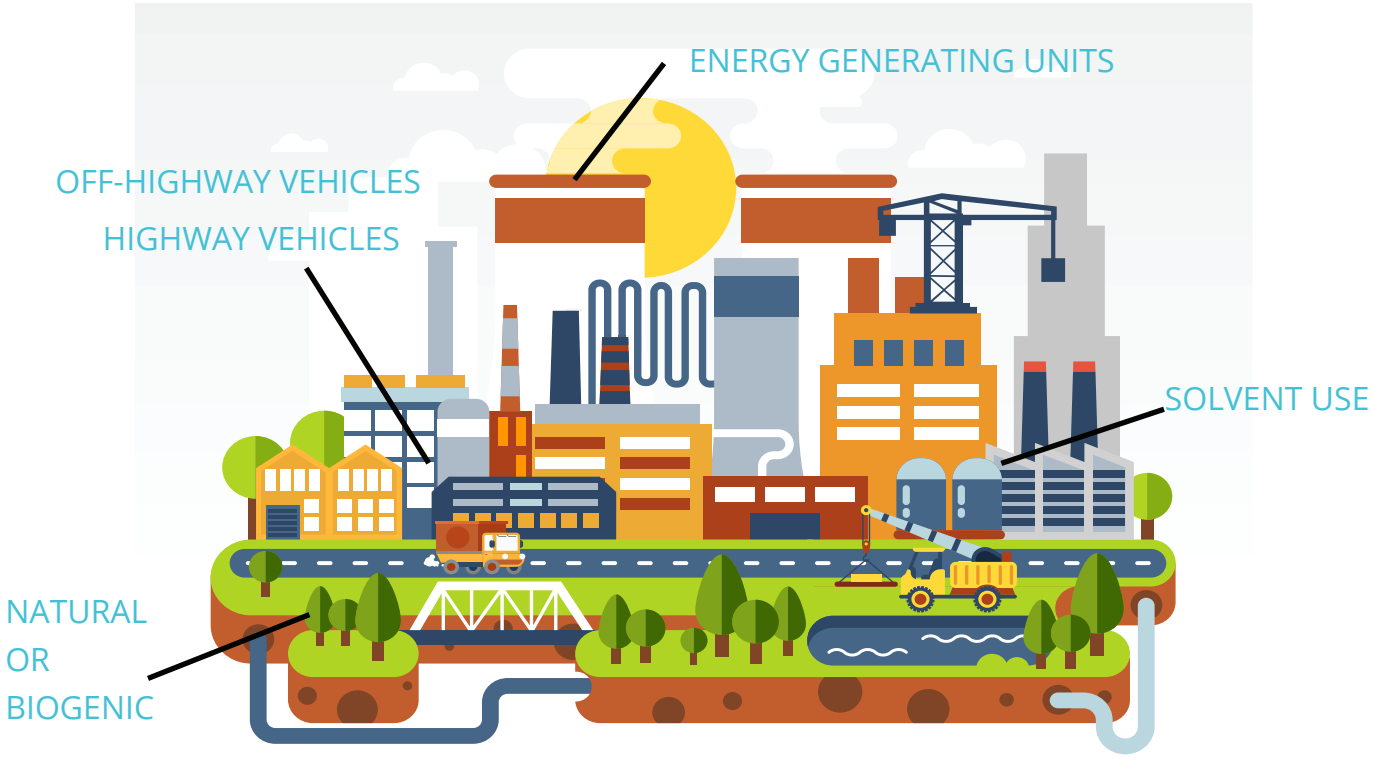


Ozone in the Pikes Peak Region

Ground-level ozone is currently the pollutant of concern in the Pikes Peak region, inching closer to a non-attainment designation. The standard for ozone in the Clean Air Act is the three-year average of the annual fourth highest 8-hour daily maximum ozone concentration. The EPA lowered the ozone standard on three occasions, with the 1997 standard, 2008 standard, and 2015 standard. There are currently two standards in effect for ozone pollution - 2008 standard at 0.075 ppm, and the 2015 standard at 0.070 ppm.

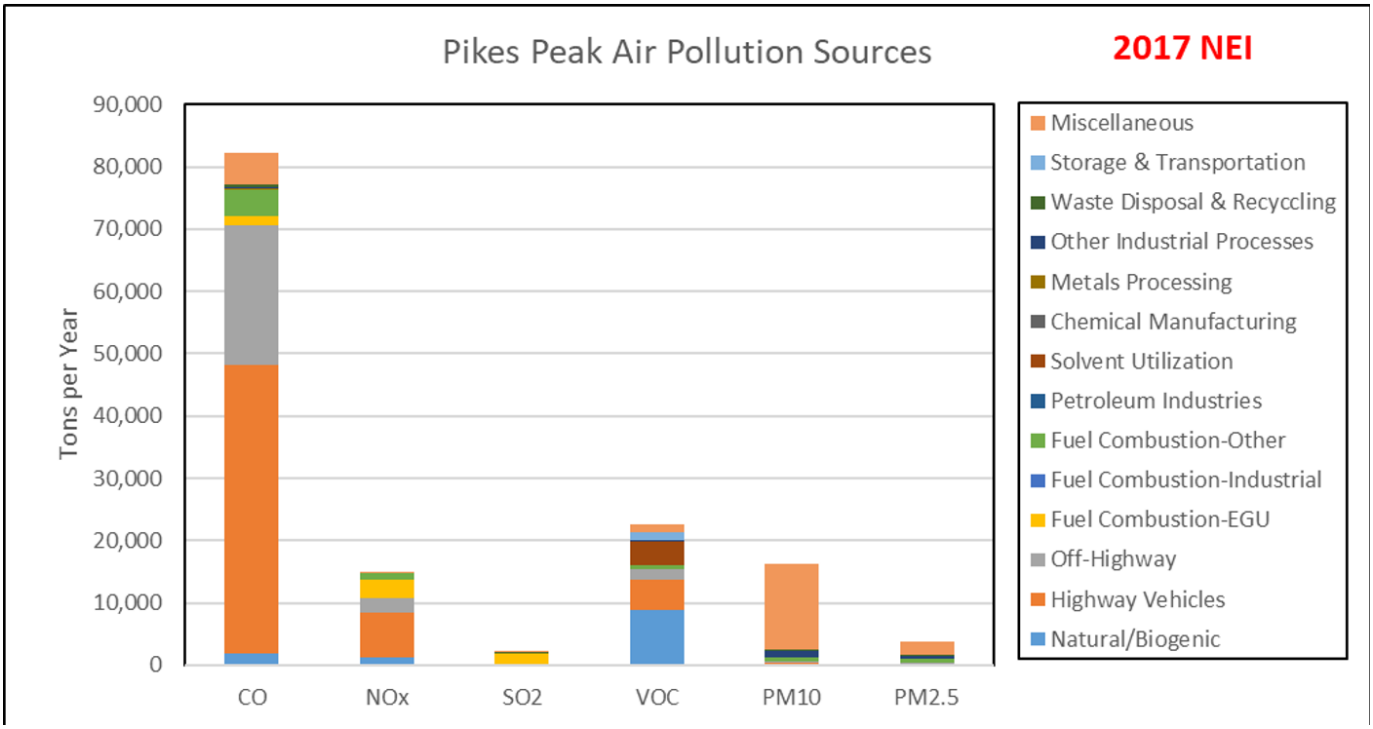
Although summer 2020 ozone data is not yet validated, the Pikes Peak Region has cause for concern. The 2020 pandemic has seen a slight decrease in the number of vehicle miles traveled, but wildfires made a significant impact to ozone pollution. Including these wildifre events, the 2020 three year average of the fourth maximum value at USAFA is 0.072 ppm and Manitou Springs at 0.071 ppm. This is above the Clean Air Act standard for ozone. Without these events, our data shows that we are in compliance, with USAFA is at 0.068 ppm, and with Manitou Springs at 0.066 ppm. These values will not be confirmed until early 2021.

According to the 2017 National Emissions Inventory, the largest sources of ozone in the Pikes Peak Region are:

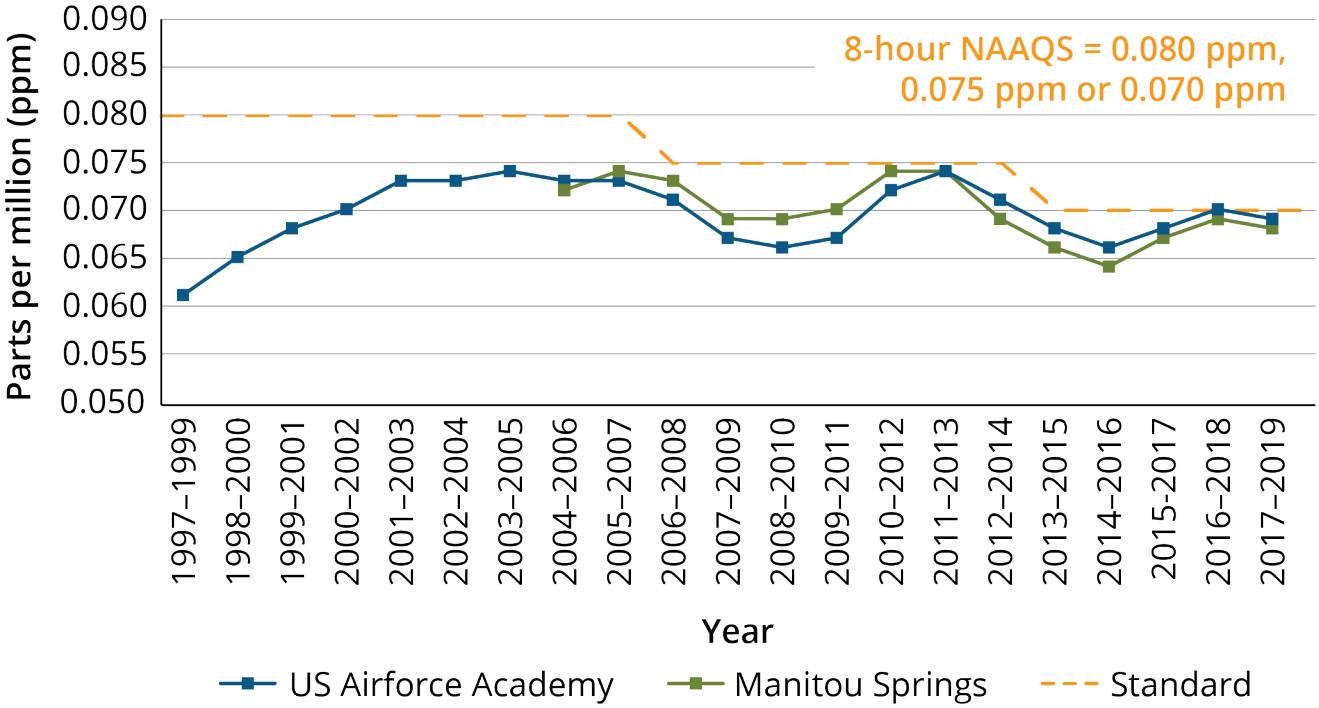


Ozone Data Trends

2017 NATIONAL EMISSIONS INVENTORY - PIKES PEAK REGION



OZONE — 8 HOUR 3-YEAR AVERAGE 4TH MAXIMUM (1997 - 2019)



Control Measures

The PPACG Air Quality Technical Committee consists of local jurisdiction and military representation within the field of air quality and environmental science, lead by the PPACG Environmental Planner. The committee met monthly throughout 2020 to discuss local air quality issues, met with partner organizations, and coordinated strategies to implement for the first iteration of this program.

The control measures listed on the following pages have three overarching themes: Outreach and Education, Data Collection and Administrative.

These themes were selected because committee members felt that these were the most obtainable given the following challenges:

- Funding limitations
- PPACG staff capacity
- Partner agency staff capacity
- New to the Advance Program
- 2020 pandemic

Outreach and Education

To bring awareness and understanding of ozone pollution, we need to reach all types of audiences. The strategies below captures the business, local government, and public sectors. Although these strategies will be ongoing to bring consistenancy in messaging, PPACG plans to have documentation completed before the 2021 summer ozone season.

Partner and Promote

Create a Community of Practice group with interested citizens to meet regularly to promote air quality education, as well as attend speaking and resource - sharing opportunities.

Air Quality Education

Develop and implement air quality lesson plans for K-12 school districts to ensure comprehension of air quality concerns with future generations.

Outreach Materials

Create and distribute audience-specific air quality resources to local governments, businesses, and the general public.

Social Media Guide

Create a social media guide for PPACG and interested organizations to promote air quality through social media.

Idle Reduction Campaign

Create a communications plan to promote idle reduction throughout the region.

Data Collection

PPACG recieves regular inquires that are specific to data needs and availability that organizations within our region are unable to collect, or the data is available but challenging to comphrend by the general public. PPACG plans to collect data indicators that impact ozone pollution, as well as make them available in a user-friendly way. Once these strategies are implemented by the end of 2021, they will be ongoing projects so data and information are up-to-date.

Annual Reporting

Develop annual reports that display visual air quality data and trends.

Data Vizualization

Create a visual display of the two ozone monitors on the PPACG website.

Local Business Survey

Survey area organizations to understand their comprehension of air quality, their impacts on air quality and collect telecommuting data.

Vehicle Data

Collect data on the number of vehicles and types in each county.

Public Transit Data

Collect data on the number of passengers utilizing public transit.

Administrative

Administrative tasks will always be an ongoing process, ensuring that PPACG will take on opportunities as they become available. Some of these efforts are already in effect, but our region is excited for new projects involving more air quality staff and expanding our partnership network.

Apply for Funding

Apply for air quality program funding opportunities to support Advance program strategies.

Hire Interns

Hire students to support strategies in the Advance Program and AQTC, as well as supporting students by providing them with professional experience in air quality mitigation.

Research Project Opportunities

Research potential studies, like a non-attainment economic assessment, to collect more regional air quality data.

Partner Collaborations

Research and collaborate with new organizations to assist in implementing the 2021 Advance plan, as well as improving future updates to the plan.

Partner Efforts

Reducing ozone pollution will take more hands than just the Pikes Peak Area Council of Governments. Member organizations in the Air Quality Technical Committee are coordinating their own projects either within their agencies or with the communities they serve. PPACG staff are stakeholders in the projects listed in the next few pages, and will incorporate their progress in the next iteration of the Ozone Advance Plan.

City of Colorado Springs

The City of Colorado Springs, in partnership with Colorado Springs Utilities (CSU), has hired ICF, a global consulting services company, to develop an Electric Vehicle (EV) Readiness Plan for the community. The Plan will provide an analysis of the community's needs, opportunities, and challenges regarding EV adoption, as well as a thorough exploration and prioritization of implementation options. Components of this plan include a roadmap for conversion of City and Utilities fleet to electric vehicles, public education and EV adoption incentives, and policy adoption.

The City proposes an initiative to foster and support the transition to zero emission vehicles and advance the adoption of EVs in the community through the development of an Electric Vehicle Readiness Plan. The project will involve collaboration amongst numerous entities, including Utilities, the Colorado Energy Office, local stakeholders, and community members. The completed plan will present an action-ready roadmap that will identify implementable short and long-term strategies toward promoting renewable energy goals related to EVs. The City, in partnership with Utilities, applied for and received a Renewables and Clean Energy Challenge Grant provided by the Colorado Department of Local Affairs ("DOLA") in the amount of $187,500. Utilities has committed $25,000 in matching funds and the City's Office of Innovation has committed an additional $37,500 in matching funds.

University of Colorado - Colorado Springs

The University of Colorado Colorado Springs (UCCS) is committed to providing educational opportunities to improve air quality. Since 2017, the Office of Sustainability has hosted an Ozone Garden as part of the international network of gardens overseen by the National Center for Atmospheric Research (NCAR.) Citizen scientists collect data from four ozone-sensitive plants providing longitudinal data on our air quality. The Office of Sustainability is currently working to install an ozone monitoring station next to the Ozone Garden as an additional data source. Next steps for both these projects are to strengthen our connections with faculty to utilize the data in their courses and research and make it more widely accessible to our campus and Colorado Springs community.

Along with educational opportunities, UCCS maintains its facilities and grounds to assist with air quality. All woodshops and metal shops have dust collection systems to reduce the amount of particulate matter released into the atmosphere. UCCS has also implemented a "Green Labs" program that ensures lab equipment is turned off when not in use and all labs are operating as efficiently as possible.

In addition, Facilities Services, in conjunction with the Colorado Springs Fire Department, conducts regular wildfire mitigation efforts in the Austin Bluffs open spaces to reduce the risk of wildfires.

Colorado Springs Utilities

Colorado Springs Utilities manages water, wastewater, electric and gas utilities in Colorado Springs and the Pikes Peak Region. They are spearheading a variety of efforts to reduce ozone precursor emissions, including:

- Retirement of all coal generation power plants no later than 2029:
  - » Retirement of the remaining coal units at Martin Drake Power Plant no later than end of 2022.
  - » Retirement of the coal unit at the Ray Nixon Power Plant (last coal unit in CSU's fleet) no later than end of 2029.
- Pike Solar Project scheduled to be online in 2023.
- Pike battery storage project scheduled to be online in 2023.
- Retirement of the Birdsall Powerplant (three natural gas / fuel oil units) no later than end of 2034.
- Help reduce customers energy usage by an additional 5% by 2030.
- Rooftop solar incentive (0.10 per AC watt of system installed).
- Integration of new natural gas generation, renewable generation, and storage resources.

Schriever Air Force Base (SAFB)

Schriever Air Force Base (SAFB) is part of the newly established Peterson-Schriever Garrison. Our mission is to enable United States Space Force (USSF) and partner mission execution of eight of the nine functional space deltas and more than 80 mission partners across 22 world-wide locations through the provision of integrated USSF and United States Air Force Base Operating Support, Combat Service Support, and Garrison Support Agency services.

SAFB is committed to the environment through education, improving processes, reducing waste, ensuring minimal mission impacts, and preserving natural resources for future generations. We understands the negative health and environmental impacts associated with air emissions. Our soldiers, their families, and our community are very important to us. For that reason, we have chosen to modify and upgrade the following internal and external combustion sources (ICOM/ECOM):

Four (4) 16.387 MMBTU/HR Dual Fuel Fired Boilers

SAFB has appropriated funds to commence in 2021, a project dedicated to the addition of NOx reducers. Based on PTE calculation used, without control equipment, the 4 boilers can potentially emit 28.80 T/Y of NOx. Using the same data above but adding low NOx burners and flue gas recirculation, it is estimated that NOx emissions would drop to 9.22 T/Y. Modification to the boiler equipment achieves a 68% NOx reduction.

Four (4) 3,082 HP Emergency Engines

SAFB is in the preconstruction design phase to replace 4 Tier 0 emergency engines. Based on PTE calculations used, the 4 emergency engines can potentially emit 45.897 T/Y of NOx and 12.206 T/Y of carbon monoxide. Our installation will be replacing the Tier 0 engines with EPA certified Tier 2 engines. Based on manufacturer data, our calculations demonstrate a potential to emit of 19.863 T/Y of NOx and 2.49 T/Y of CO. The replacement of the emergency engines would reduce NOx by 57% and CO by 80%.

SAFB owns a total of 17 ICOM and ECOM sources. Three of the 17 sources were replaced in 2012. Between 2021 and 2025, we will be modifying or replacing 8 of the remaining 14 sources.

Education and Community Involvement

Education and Community Involvement

We are dedicated to achieving mission requirements while protecting the environment and providing a safe environment for our personnel. Our priority is educating personnel in the environmental impacts associated with mission requirements. In addition, we train and provide guidance to personnel in regards to potential hazards associated with work performed. We are committed to environmental stewardship and have developed an environmental commitment statement that extends to every individual at our installation.

Our commitment to our community and the environment extends further than equipment modification and replacement. We are currently in the process of creating air quality awareness material that is easily accessible to our community. Our idea is to generate awareness for our community to understand the impacts associated with emissions, health hazards, and how to reduce personal environmental impact. As our installation grows, we will continue to evaluate processes and make environmental stewardship part of our mission.

Peterson Air Force Base

Peterson Air Force Base plans to continue its ozone outreach. Pollution prevention pamphlets designed specifically for on-base housing (audience is active duty and dependents) are provided.
The Right Start briefing occurs every month; outlining what ozone is and how to reduce it at home and at work. This is a briefing directed at all new employees on Peterson Air Force Base. In addition, ozone briefings are done at environmental management systems cross-functional team meetings. The base also plans to continue to advocate for readiness testing in the morning (i.e. generator testing and maintenance). Lastly, Peterson plans on conducting more meetings and trainings virtually, reducing the number of vehicle miles traveled.

Clean Cities Coalition

Clean Cities is a national program of the U.S. Department of Energy focused on promoting clean, domestic fuels and improving transportation efficiency. Implemented through local coalitions, staff are a free resource for fleets and drivers in the region looking to implement projects that will reduce emissions. Staff are available to assist projects from concept to execution with a variety of tools and resources that will be useful for a broad range of fleet sizes. As an example of their work, in September, 2020, Southern Colorado Clean Cities Coalition hosted the Electric Vehicle Test Drive Challenge to provide virtual education and outreach related to electric vehicles, which enabled participants to learn more about cleaner transportation options while respecting current health protections.

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LEARN MORE

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