# **2008 REPORT**

"Let's Take Care of our Summer Air"
Ozone Education and Outreach Program

October 2009

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LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

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#### 2008 OZONE REPORT

The 2008 Ozone Education and Outreach Program was made possible by funding from the following organizations.

Colorado Department of Public Health and Environment Denver Regional Council of Governments Colorado Department of Transportation

Envirotest Systems Corp. (Air Care Colorado)

Federal Highway Administration Strategic Environmental Project Pipeline Foundation

See "Overview" section for more detailed funding information.

#### **ACKNOWLEDGEMENTS**

The Regional Air Quality Council (RAQC) would like to thank its partners for their participation in the 2008 "Let's Take Care of our Summer Air" ozone education and outreach program. The contributions of the below partners have are greatly appreciated and have added to the success of the program.

- American Lung Association of Colorado
- Colorado Department of Public Health and Environment, Air Pollution Control Division
- Colorado Department of Transportation
- Denver Regional Council of Governments
- Envirotest Systems, Corp. (Air Care Colorado)
- Federal Highway Administration
- JohnstonWells Public Relations
- Launch Advertising
- Local governments throughout the Denver region, specifically:
  - Arapahoe County
  - City of Arvada
  - City of Aurora

- Boulder County
- Boulder County Sheriff's Office
- Town of Castle Rock
- City and County of Denver
- Douglas County
- City of Englewood
- City of Golden
- Media Visions, Inc.
- Neuton Lawn Mower Company
- Regional Transportation District
- Strategic Environmental Project Pipeline (StEPP) Foundation
- Suncor Energy (U.S.A.) Inc.
- Noble Energy

The RAQC would also like to thank the following organizations for their involvement in the 2008 "Let's Take Care of our Summer Air" ozone education and outreach program.

- Andersen Recycles
- CBS Outdoor
- Clear Channel
- Colorado Community Papers
- Comcast Spotlight
- Denver Boulder Couriers
- Denver Newspaper Agency
- GSP Marketing
- City of Greeley
- KBCO 97.3 FM
- KCNC
- KDVR
- KMGH
- KUSA
- KWGN
- Unique Litho

#### **OVERVIEW**

The Regional Air Quality Council (RAQC) has concluded the tenth year of its Voluntary Ozone Reduction Program. The program built upon previous years with the continued implementation of an enhanced awareness, education, and outreach program entitled "Let's Take Care of Our Summer Air."

This comprehensive program was made possible with the help of numerous stakeholders from the Front Range region, including local, state and federal governments, businesses, transportation organizations, nonprofits and citizens. Its goal was to increase awareness and understanding of ozone pollution and voluntary activities to help reduce it throughout the region.

Ground-level ozone pollution is a summertime pollutant that occurs when volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>X</sub>) react in the presence of sunlight. These pollutants come from everyday items such as local industry, gasoline-powered vehicles and lawn equipment, and household paints, stains, and solvents.

Ozone pollution can cause breathing problems and respiratory infections in the elderly, young, and those with pre-existing ailments. Even healthy people who exercise or work outdoors can experience breathing problems when exposed to elevated ozone levels.

Unfortunately, during the 2008 summer ozone season, the Front Range region continued to violate the 8-hour standard set by the U.S. Environmental Protection Agency (EPA). A violation also occurred in 2007 and continued violation in 2008 means ongoing attention to the issue of ground-level ozone

including further stakeholder action to address additional strategies. (see the "Standards and Status" section for more information).

It is imperative that the Denver-metropolitan area and Front Range region maintain and increase efforts to reduce ozone pollution to improve air quality and public health. In addition, it is important to ensure ozone levels are well below the standard for years to come as the U.S. Environmental Protection Agency (EPA) lowered the health-based standard in 2008 to .075 parts per million (ppm) from the previous standard of .080 ppm. Keeping ozone levels well below the standard will help to reduce the amount of mandatory control measures that may have to be introduced in order to meet federal requirements (see the "Regulatory Plan" section for more information).

The Voluntary Ozone Reduction Program, named "Let's Take Care of our Summer Air," expanded efforts to include a large-scale public awareness campaign, aimed to reach as many people as possible to increase awareness and understanding about ground-level ozone pollution. The program consisted of the following activities:

- A continuation of the Ozone Action Alert
  Program, designed to warn people in advance of
  the potential for elevated ozone levels and to
  encourage changes in ozone-forming activities;
- The implementation of a large-scale information, outreach, and education campaign that focused on simple actions people can do to reduce ground-level ozone;
- The utilization of television, radio, outdoor, web, and print advertising to educate citizens on simple tips to reduce ozone pollution;

- The continuation of a behavior-change campaign, "Summer Chill," in which citizens were encouraged to take a pledge to avoid activities which contribute to ozone pollution
- The implementation of the Car Care Fairs for Cleaner Air – a partnership with Colorado Select NAPA AutoCare Centers and metro-area local governments to a host a vehicle maintenance clinic;
- The implementation of a lawnmower exchange event, in partnership with Neuton Lawn Mower Company;
- The expansion of the ozone-dedicated web site,
   OzoneAware.org, with information for local governments, citizens, businesses and media;
- The AirWaves High School Radio Scholarship program to promote vehicle maintenance as a means to reduce ozone pollution, in partnership with Envirotest Systems Corp.;
- Outreach to the North Front Range and surrounding areas;
- Participation in additional metro-area events such as Bike to Work Day and RideSmart Thursdays.

The 2008 program would not have been possible without the RAQC's financial partners, all of which contributed greatly to the campaign's efforts.

- Federal Highway Administration (FHWA),
   Colorado Department of Transportation, and
   Denver Regional Council of Governments
   (DRCOG) Congestion Mitigation/Air Quality
   (CM/AQ) grant
- Strategic Environmental Project Pipeline Foundation (StEPP) – Supplemental Environmental Project grant
- Envirotest Systems, Corp. (Air Care Colorado) private contribution to develop the AirWaves

- High School Radio Scholarship Program and to assist with components of the Car Care Fairs
- Colorado Department of Public Health and Environment's (CDPHE) Supplemental Environmental Projects (SEP) program

Additional support was provided by the Colorado Department of Public Health and Environment, and local governments throughout the metropolitan area and Front Range region.

#### **Summary of Major Funding Sources**

Source	Amount
CM/AQ	\$691,000
Envirotest	\$25,000
CDPHE SEP (Noble Energy)	\$25,700
StEPP Foundation	\$17,900
TOTAL	\$759,600

#### STANDARDS AND STATUS

8-Hour Ozone Standard

The 8-hour ozone standard limits the allowable level of ozone to 0.08 parts per million (ppm) or 80 parts per billion (ppb) averaged over eight hours. A violation of the 8-hour standard occurs when the three-year average of the 4th maximum concentration at any given monitor reaches or exceeds 0.085 ppm or 85 ppb.

Due to formal violations of the standard in 2007 and 2008 it is even more imperative that the RAQC and its partners continue efforts to ensure the region meets the standard in future years.

The EPA officially promulgated a new 8-hour standard in the March 27, 2008 federal register

based on the comments from the Clean Air Scientific Advisory Committee (CASAC) as well as additional research and public comments. The new standard is set at 0.075 ppm or 75 ppb.

#### 1-Hour Ozone Standard

EPA approved the Denver Region's 1-Hour Ozone Redesignation Request and Maintenance plan in the Federal Register on September 11, 2001 and the attainment redesignation became effective on October 11, 2001.

The maintenance plan details strategies to keep the region in attainment of National Ambient Air Quality Standards (NAAQS) for ozone and also requests that the EPA redesignate the Denver-metropolitan area to attainment status for ozone.

The federal 1-hour ozone standard is 0.12 ppm and a violation occurs when the three-year average of exceedances is greater than one per year. The region has not violated the 1-hour standard since 1988.

#### **REGULATORY PLAN**

State, regional and local agencies in the Denvermetropolitan area entered into a voluntary agreement with EPA in December 2002 that outlined a process for achieving attainment with EPA's new, stricter 8-hour ozone standard in an expeditious manner.

Called an Early Action Compact for Ozone (EAC), the agreement set forth a schedule for the development of technical information and the adoption and implementation of necessary control measures into the state implementation plan (SIP) in order to comply with the 8-hour standard by

December 31, 2007 and maintain the standard beyond that date.

In exchange for implementing strategies earlier than required by the traditional nonattainment process, EPA agreed to defer a potential nonattainment designation. So, on April 15, 2004, EPA designated the seven-county, metro-Denver region, in addition to portions of Larimer and Weld Counties, as a deferred nonattainment area for the new 8-hour standard.

The State submitted the plan to the federal government in December of 2004 and the EPA officially accepted it in 2005. Unfortunately, the Denver region failed to meet the requirements set forth in the EAC in 2007. On November 20, 2007, the EPA announced it will not grant another extension date for Denver to meet EPA's 8-hour ozone standard. The result was a federal nonattainment designation for the Denver area.

In 2008, the RAQC worked with EPA, the Colorado Department of Public Health and Environment (CDPHE) and the Denver Regional Council of Governments (DRCOG) as well as numerous regional stakeholders to develop a new State Implementation Plan (SIP) that was accepted by the Air Quality Control Commission (AQCC) on December 12, 2008. The SIP then went to the legislature for approval before Governor Bill Ritter Jr. signed it in June 2009.

All past regulatory documents outlined a variety of mandatory strategies but did not include a voluntary outreach and education component. The lack of a voluntary plan was one of the driving forces behind the creation of the RAQC's ozone outreach, education and behavior change campaign. It is vital that the RAQC continues its outreach efforts in order to raise awareness and understanding about ozone.

#### **NUMBERS**

Since the region has been categorized as a nonattainment area for ozone, it will be even more important that stakeholders find ways to keep ozone levels low while the risk of violating the standard over the next few years is still a possibility. Ongoing ozone mitigation efforts will continue to be critical.

The basis for the federal 8-hour ozone standard is the 4th maximum concentration at any given monitor averaged over an 8-hour time period at each monitor. The EPA calculates the standard by averaging the 4<sup>th</sup> maximum concentration over three years. In 2008, the Welch monitor recorded the highest value of the season at 95 ppb on July 10. This was followed by the Chatfield and the Denver Metro Animal Shelter monitors, which recorded 90 ppb and 86 ppb respectively, on July 10.

There were a total of 6 days that area monitors recorded values at or above 85 ppb during the 2008 season and 12 additional days with values at or above 80 ppb. The majority of the exceedances occurred in July, traditionally the hottest month in the Denver-metro region. When combined with the two previous years (2006 and 2007), the 4<sup>th</sup> maximum average at Rocky Flats is 86 ppb and Chatfield State Park is 82 ppb. The value at the Rocky Flats monitor does not meet the standard of 85 ppb and indicates an official violation of the federal standard for ozone. All other monitors maintained averages below the 85 ppb limit.

Additional ozone monitoring data for the 2008 summer ozone season, as well as previous seasons, is contained in tables in the Appendices section of this report.

#### **VOLUNTARY PLAN**

During the RAQC's numerous planning processes to address ozone in the Denver region it has remained a priority to maintain an on-going large-scale, comprehensive ozone outreach and education effort that utilized a multi-media approach in order to reach out to a diverse audience. The RAQC's previous efforts were successful in organizing stakeholders and reaching out to small groups. Due to lack of funding, however, it was not able to expand significantly on previous efforts until 2005. However, thanks to numerous grant opportunities and other significant financial partners, the RAQC was able to greatly expand its plans in 2005, an effort that has continued through 2008.

The RAQC, charged with developing a large-scale, comprehensive plan, made the decision to hire professional contractors to assist with this effort. With the assistance of the Ozone Outreach, Information, and Education Advisory Committee (Advisory Committee), the RAQC contracted with JohnstonWells Public Relations and Launch Advertising to assist with advertising and public relations activities. The RAQC also chose National Research Center, Inc. and the Howell Research Group to assist with research and evaluative activities in 2005 through 2007 - efforts that were crucial to the development and maintenance of the campaign. All four contractors worked closely with each other, the RAQC Board and staff, and the Advisory Committee to develop, implement and assess the comprehensive campaign.

The result of this multi-partner effort was a comprehensive, multi-media campaign that successfully educated and raised awareness of ground-level ozone pollution by 12% over the course of three years, ending in 2007. Another official

research assessment will occur in 2010 to measure the campaign's effectiveness. The specific components of the campaign are discussed in more detail below.

#### **COMPONENTS**

The 2008 "Let's Take Care of our Summer Air" education and outreach program included a myriad of components designed to reach out to citizens, local governments, nonprofits, businesses, and media. In addition, it included a multi-media paid advertising campaign covering television, outdoor, radio, print, and online components in order to maximize visibility. These various components, which are described in detail below, worked together to raise awareness throughout the Front Range region about this important issue. The major components of the campaign were simultaneously launched June 1 and continued through August 31 to coincide with the start and the end of the summer ozone season.

#### 1. Ozone Action Alerts

One of the longest standing programs of the RAQC's summertime efforts include Ozone Action Alerts, designed to warn citizens of the potential for elevated ozone levels and to encourage behavior change. The technical services staff of the Air Pollution Control Division (APCD) at CDPHE developed a system over ten years ago to forecast imminent meteorological conditions that support the development of ozone concentrations at or above 75 ppb, which are reported on an as-needed basis.

APCD staff meteorologists used national and local weather data and an array of national predictive models to make the advisory calls, which take effect at 4:00 p.m. The advisories remain in effect for the following 24-hour period.

Using the APCD's advisory calls, the RAQC faxed and e-mailed ozone action alerts to the media, local governments, businesses, and citizens when meteorological conditions were expected to increase ozone levels. The alerts were also displayed on Colorado Department of Transportation (CDOT) highway message boards throughout the metro area. All local television stations made an effort to broadcast alerts as well as mention the alerts during various morning and evening weather broadcasts.

The RAQC posted ozone alerts to the web site so people visiting the site could also access the current air quality information. As in the past, many local governments and nonprofit organizations placed a link on their web sites to display current air quality conditions.

By utilizing the templates from the outdoor boards posted around the metro-area, five alerts were used to raise awareness of the actions associated with an ozone alert. Each alert featured one of the actions that citizens may take to help reduce ozone on potentially high ozone days. The alerts included information on how ozone is formed, the health effects, important contact information, and information on the summer "chill" campaign an pledge program implemented as part of the 2008 program (see below for more detailed information on the summer "chill" campaign).

#### Results

The RAQC emailed the Ozone Action Alerts to nearly 400 local government representatives, media outlets, businesses, and citizens, including several Spanish television media outlets. The ozone alerts allowed local governments to make changes in operational behavior to reduce VOC emissions. It was also an opportunity for them to inform their

citizens of the high ozone day through e-mail, signs, and web site and cable updates. The alerts also provided media with information to broadcast the potential for elevated ozone levels and to encourage changes in ozone-causing behaviors.

During the 2008 ozone season, a total of 39 alerts were issued including 12 in June, 21 in July, and six in August. Due to the forecast nature of the program, the number of alerts is not necessarily an indication of actual ozone levels above the federal standard.

#### 2. Media Advertising

The RAQC continued the advertising campaign to raise awareness about ozone pollution developed by Launch Advertising in 2005, adding 2 new television advertisements and one new radio spot. The campaign was based on simple actions citizens can take to help reduce ground-level ozone pollution. The RAQC and its advertising partners believe that through repetition of the media messages over the past several years that citizens have begun to internalize the behaviors associated with reducing ozone pollution.

The purchased advertising schedule utilized television, radio, web, and outdoor advertising methods in order to maximize awareness of the issue. In addition, the RAQC's multiple media partners donated bonus television and radio airtime, bus tails, and pump toppers, extending the campaigns reach.

The use of media was also utilized to publicize the RAQC's public events and programs, including the AirWaves high school radio scholarship contest and Mow Down Pollution.

#### Results

The multi-media paid advertising campaign resulted in over 1,794 television and radio spots that ran for a six- to seven-week period, in addition to five outdoor billboards rotating at seven of the largest and most visible billboard locations in the metro area during a three-month period. A partnership with the Regional Transportation District allowed for a two-month campaign utilizing 50 large bus tail billboards and a significant partnership with Suncor Energy (U.S.A.) Inc. resulted in nearly 1,458 bonus gasoline pump toppers. In addition, the RAQC ran a one-week radio promotion to advertise the Mow Down Pollution lawn mower exchange in mid-April. The total number of impressions across all paid media elements was over 57,600,000.

All media aspects, including the creative work, were developed simultaneously with the other components of the program to ensure continuity throughout the entire campaign. Results of the paid media advertising campaign are detailed in the Appendices section.

#### 3. Media Relations

The RAQC worked with JohnstonWells Public Relations to build upon the successes achieved in previous years with regard to the comprehensive media outreach plan, which was designed to complement the paid media advertising plan, by raising awareness of this issue among major media outlets throughout the region. By educating reporters, meteorologists, and editors of the significance of ozone pollution, the RAQC and its partners were able to secure a large number of articles and on-air mentions about the essential components of the campaign.

The key elements to media outreach for 2008 included educating media personnel on the "chill" campaign and meteorologists on the important link between weather and ozone formation. The RAQC and its partners focused on fostering strong relationships with media in order to emphasize the importance of including the campaign's simple messages into their broadcasts.

#### Results

The program and its events generated 42 known news stories in both English and Spanish on television, in print (daily, weekly, and community newspapers and local government newsletters), on radio, and online (see the Appendices section for a document on "Known Media Coverage"). The intense outreach to media outlets and personnel paid off, making ozone pollution a priority story to cover during the 2008 season. It is estimated that the number of media impressions reached approximately 58,000,000 during the campaign showing evidence of the priority placed on ozone over the summer. Our media partners were essential in helping the RAQC and JohnstonWells reach a diverse and large audience with carefully crafted messages.

#### 4. Public Outreach

Over the past four seasons, public outreach has been a key element in educating citizens about ozone pollution. To enhance this effort the new summer "chill" campaign was continued. Along with existing events, many public outreach measures were implemented to maximize exposure of the campaign and its essential messages as well as educate citizens on this issue using a more one-on-one approach. A number of informational items armed with important information about ozone pollution were handed out at various public events.

These items are detailed below and examples can be found in the Appendices section of this report.

#### a. Web site

The ozone-dedicated web site, OzoneAware.org, featured over 20 pages of information in both English and Spanish about ground-level ozone pollution including a newsroom where local governments and businesses were able to download press releases and articles, information on how ozone is formed and how citizens can prevent it. The site also included information about the RAQC and a point of contact for further questions about ozone.

The 2008 season included a web site redesign that offered a fresh look on the campaign. The new design added more color and photography to liven up the look of the site. Also new for 2008 was an upgraded content management system designed to ease the burden of updating the web site for RAQC staff.

Throughout the summer, the homepage featured a link to the newly-formed pledge page as part of the summer "chill" campaign where citizens were able to pledge online to engage in ozone-reducing behavior. As an added feature to the pledge page, citizens could also click on a link that would bring up all the names of citizens who had also taken the pledge to "chill" on hot summer days.

#### Results

Overall, the web site proved to be a powerful communication tool with 3,725 unique visitors who spent an average of two minutes and 30 seconds on the site, logging on the site and 6,302 total visits over the course of the 2008 outreach campaign. There were 17,783 page visits throughout ozone season.

#### b. Informational Items

RAQC staff utilized a variety of promotional items to assist in delivering messages about ozone pollution to the public. Many items used the "chill" theme and colors to help encourage citizens to chill out and avoid ozone-causing behavior during the summer months.

#### Results

RAQC staff distributed nearly 8,000 educational pieces of literature or giveaways at events and meetings in which they participated, raising awareness and understanding about ozone pollution. These items included:

- Pledge/Tip cards: The two-sided card served as both a pledge card for the "chill" campaign as well as an informational tip card. The side-by-side perforated card asked citizens to "pledge to chill" to reduce ozone-causing behaviors on one side while the other side served as a tear-away tip card the individual could keep. The cards were distributed at all public events for which RAQC had a presence as well as by the Clean Air Crew.
- Bottle Openers: White and red bottle openers with the ozone web address, were distributed at Oktoberfest.
- T-shirts: T-shirts were distributed that read
   "Clean Air Crew" across the front along with the
   campaign website, and had the "chill" ozone
   icon on the back. It was worn by Clean Air Crew
   members when they attended community
   events, as well as staff.
- Stickers: Two stickers, containing "I breathe, therefore I care" and "Don't just breathe, do something" and the "Let's Take Care of our Summer Air" tagline and web address, were distributed at all events by staff and the Clean Air Crew.

#### d. Summer "Chill" Campaign

As a means to encourage citizens to change their behavior in favor of ozone reduction, the RAQC and its partners continued the summer "chill" campaign. The campaign used simple messages and an online and print pledge to encourage awareness and action. The "chill" concept stems from asking people to avoid mowing the lawn, painting the deck, running errands, etc. on hot summer days. Instead, people were encouraged to chill out and read a book in the park or take a walk to the local movie theater. People not only escaped the summer heat, but helped reduce ozone pollution.

Web pages (http://pledge.OzoneAware.org) were added to the existing web site at OzoneAware.org to accommodate an online pledge system where citizens voluntarily pledged to reduce one or more activities, such as drive less and mow after 5 p.m. Visitors to the web site were also able to see the names of others who pledged and the corresponding action chosen. In addition to the online pledge system, a number of pledges were handed out in print form at community events. The print pledges had an attached tip card that the pledges could take with them after signing a pledge.

#### Results

By the end of the summer, 550 pledges were obtained at community events and an additional 320 people pledged online.

#### e. Mow Down Pollution

The RAQC partnered with Neuton Lawn Mower Company to host "Mow Down Pollution" in Greeley, CO this spring. As



part of the "Let's Take Care of our Summer Air" outreach campaign, the event gathered citizens together to permanently recycle old gasoline-powered lawn equipment in exchange for significant discounts on low-emissions alternatives. Citizens were offered a discount of nearly \$150 on Neuton's cordless rechargeable lawnmower. Only residents of Weld County were permitted to participate in the event. This program was made possible by funding provided by the StEPP Foundation and Envirotest. In addition to the physical event, a virtual, online event was open to all Colorado residents.

#### Results

#### **Weld County**

The RAQC and its partners permanently prevented 3 tons of VOCs from entering Weld County's air by recycling 125 pieces of gasoline-powered lawn equipment at the event. In addition, the RAQC and its partners sold a total of 104 battery-operated lawn mowers. The total weight of scrap metal that was recycled totaled approximately 6 tons.

#### **Virtual Event**

Through the online program 126 new, battery operated mowers were sold to residents across the state.

#### f. Car Care Fair for Cleaner Air

The RAQC, in conjunction with the Colorado Select NAPA AutoCare Group and the Automotive



Association of Colorado, hosted a Car Care Fair.

The fair helped educate motorists about maintaining optimum gas mileage and overall vehicle maintenance as well as provided information on reducing emissions and safety risks. NAPA-certified technicians volunteered their time and provided free, visual vehicle inspections for all participating motorists. The technicians inspected more than 30 components of the vehicles and provided specific information to motorists about their respective vehicles.

Due to the responses from participants, the radio show was the driving force behind motorists' participation, as well as a significant online presence. The event was also advertised in the Mile High Newspapers throughout the Denver metro area. AutoCare Radio on 630 KHOW sponsored by NAPA devoted the entire Saturday morning news radio program on the Saturday of the event as well as mentioned the events during the month-long time span, which helped to increase participation and educate motorists on the importance of vehicle maintenance.

#### Results

The RAQC and NAPA inspected 100 vehicles at the Wheatridge Town Center at 44<sup>th</sup> and Wadsworth Blvd.

In addition, the event provided an opportunity to distribute vehicle maintenance logs and other pertinent vehicle maintenance information to over 100 participants.

#### g. AirWaves High School Radio Scholarship Program

The RAQC, Envirotest Systems Corp. (Air Care Colorado), and 97.3 KBCO FM partnered again to implement the AirWaves contest to provide local

Service

high school students the opportunity to write and record their own air quality public service announcement (PSA) to be broadcast on a major radio station throughout the metro area.

Students in grades nine to 12 were asked to submit a 30-second PSA relating vehicle pollution to air quality and

public health.
This is the
second year
that the
partners
joined



together for the contest. A selection committee reviewed the entries from the Denver-metro area and chose two PSAs that most closely fit the tone of this year's ozone outreach campaign. The winning students were afforded the opportunity to visit the KBCO studios to record their winning PSAs professionally in preparation for a seven-week long run on the air.

#### Results

Nearly 500 posters were distributed to approximately 110 public and private high schools throughout the entire Front Range region to announce and advertise the scholarship program. The selection committee had several finalists to choose from before selecting winners from Skyline High School in Longmont and Brighton High School. The three students responsible for producing the two winning PSAs were awarded a college scholarship in the amount of \$1,500 per entry as well as the opportunity to be recognized by family and peers on local radio station 97.3 KBCO FM and Spanishlanguage station 95.7 KMGG throughout the entire Denver-metropolitan region. In addition, each of the two schools received a \$500 environmental

scholarship. The finished, produced spots played during morning and afternoon drive time for six weeks between June and mid-July.

#### h. Bike to Work Day

In June, the RAQC participated in the annual Bike to Work Day, sponsored by the Denver Regional Council of Governments' (DRCOG) to help raise awareness of summer ozone. RAQC staff hosted a booth in Civic Center Park to hand out fun, informational items, including bike reflectors, tire gauges, stickers, granola bars and pledge cards. All items included the tagline, logo, and the ozone web site – OzoneAware.org. Many local news channels attended the event as well as over 20,000 participants, including the Mayor of Denver, John Hickenlooper and Governor Bill Ritter.

#### Results

The RAQC handed out more than 1,000 bike reflectors, tire gauges, stickers, and pledge cards to Bike to Work Day participants. Denver Mayor John Hickenlooper participated in the event as well as several of the local television stations that aired clips from Bike to Work Day.

#### 5. Local Government and Front Range Outreach

The local governments throughout the Denvermetropolitan area have been among the RAQC's most significant partners in its ozone reduction efforts. Over the past ten years, local government staff has worked to make operational changes in public works and fleet maintenance divisions as well as educate staff and communities about ground-level ozone pollution. In addition, the RAQC worked with the North Front Range to coordinate outreach and education efforts.

Given the regional nature of air quality, ground-level ozone pollution remains a priority not just for the Denver-metro area, but to the entire Front Range region. The RAQC has been working with Front Range local governments and planning organizations for several years and have increased efforts to further coordinate ozone outreach and information campaigns. All of the materials from the "Let's Take Care of our Summer Air" program, including the logo, tagline, graphics, Ozone Action Alert templates, advertising materials, and other campaign materials, were made available to all Front Range cities for replication, and some hard copies were made available to those who requested. The past two years, in particular, the City of Fort Collins has made a great effort to incorporate these materials in a number of ways to ensure a consistent message with the Denver region.

The Weld County Mow Down pollution program also provided a great opportunity to distribute information on ground level ozone pollution. At the event, everyone who purchased or recycled a lawn mower was given information and tip and pledge cards.

The Car Care Fair in Wheatridge was also used to disseminate the message about ground level ozone pollution, and actions that can be taken to help reduce it.

Further, Ozone Detector Cards were made available to Local Governments along the Front Range.

#### **SUMMARY**

The Voluntary Ozone Reduction Program complemented and expanded on the efforts of the previous nine years. By securing additional funding, the RAQC was able to successfully develop and implement a large-scale advertising, outreach and behavior change campaign to complement the

strategies outlined in the regulatory plans designed to reduce ground-level ozone pollution.

The RAQC worked with local governments, businesses, nonprofit organizations, transportation management organizations, employee transportation networks, citizens and other concerned and interested groups. The greater visibility allowed the RAQC to leverage a large amount of bonus media throughout the duration of the campaign which also helped to increase awareness in the area. The RAQC was able to reach a larger audience than ever before through the use of a multi-media approach utilizing television, radio, print, public events, media outreach and a prominent online presence. This helped deliver a consistent message to audiences across the Front Range Region.

Unfortunately, the region continued to violate the federal ozone standard, despite great efforts among all stakeholders. The RAQC has hopes to expand on the current base of knowledge in the region and expand the efforts to keep ozone well below the designated limit in future years.

#### **FUTURE PLANS**

Building on the efforts of the 2008 campaign, the RAQC and its partners plan to continue education and outreach efforts to local governments, businesses, and citizens. The 2009 campaign will focus on changing behavior through education and awareness with an increased emphasis on online media. Specifically, the campaign will include the following components:

- Citizen Outreach
  - Ozone Action Alert program
  - AirWaves High School Radio Scholarship Program

- Gas Can Exchange
- Updated dedicated web site:

OzoneAware.org

- Community events, such as Bike to Work Day and Ridesmart Thursdays
- Initiate social media communications
- Local Government Outreach
  - Revitalization of fleet gas cap testing
  - Outreach to staff and council
- Media Advertising and Outreach
  - Continuation of paid advertising campaign
  - Continuation of media outreach campaign
  - Creation of a local government guide

The RAQC looks forward to continuing to work with all of its partners on future years of a successful ozone outreach, education and behavior change campaign. For more information, contact Sarah Anderson at <a href="mailto:sanderson@raqc.org">sanderson@raqc.org</a> or (303) 629-5450, ext. 220 or visit OzoneAware.org.

# DATA APPENDICES

#### **APPENDIX ONE:**

# MAP OF THE METROPOLITAN-DENVER OZONE ATTAINMENT/MAINTENANCE AREA AND MONITORING SITES



#### **APPENDIX TWO:**

# AQI/VSI SYSTEM REPORTING SITES FOR OZONE DENVER-METROPOLITAN AND FRONT RANGE REGIONS

Site Name	Abbreviation	Location
Arvada	ARV	9101 W. 57th (57 <sup>th</sup> & Garrision)
Carriage	CRG	23 <sup>rd</sup> Avenue & Julian Street
Chatfield Reservoir	CHAT	11500 N. Roxborough Park Rd.
Colorado Springs	ACAD	Road 640, USAF Academy
Denver	CAMP	2105 Broadway
Denver Municipal Animal Shelter	DMAS	678 S. Jason
Ft. Collins	FTC	708 S. Mason St.
Ft. Collins West	FTCW	LaPorte Avenue & Overland Tr.
Greeley Tower	GRET	3101 35 <sup>th</sup> Ave.
Highlands *	HLD	8100 S. University Blvd.
Manitou Springs	MAN	401 El Monte Place
National Renewable Energy Laboratories	NREL	20 <sup>th</sup> Avenue & Quaker Street
Rocky Flats North	RFN	16600 W. Highway 128
South Boulder Creek	SBC	1405 1/2 S. Foothills Highway
Welby	WBY	3174 E. 78 <sup>th</sup> Ave (78 <sup>th</sup> Ave. & Steele St.)
Welch	WCH	124000 W. Highway 285

<sup>\*</sup> This monitor was out of service in 2008 due to construction.

#### **APPENDIX THREE:**

#### OZONE ACTION ALERTS 1999 – 2008

	June	July	August	Total
1999	1	7	0	8
2000	3	15	9	27
2001	1	8	4	13
2002	10	10	0	20
2003	2	25	15	42
2004	3	8	3	14
2005	3	19	1	23
2006	22	24	3	49
2007	14	26	4	44
2008	12	21	6	39
Average per month	5.5	14.5	4.5	

#### **APPENDIX FOUR:**

# OZONE MONITORING DATA (PPB) SELECT CDPHE MONITORING SITES

Monitor	2008			2008	2007	2006	2006-08	2009+2010	2009
								97 Standard of .085	08 Standard of .075
	1st	2nd	3rd	4th	4th	4th	Ave.	4th	4th
	Max	Max	Max	Max	Max	Max		Allowable	Allowable
	10-Jul	29-Aug	20-Jun	18-Jul	15-Jun	15-Jul		Max.	Max.
Welby	85	J		76	70	69	71	89	79
	60	83	78	70	31-Jul	19-Jul	/ 1	89	79
Highland*					75	81	78		
	10-Jul	18-Jul	9-Jul	31-May	20-Jul	29-Jul	70		
So. Bld Ck	80	76	76	76	85	82	81	89	64
	10-Jul	29-Aug	20-Jun	26-Jul	29-Jun	2-Jul	01	03	04
Carriage	81	75	73	72	76	72	73	91	77
Chatfield	10-Jul	30-Jun	27-Jun	20-Jun	21-Jul	27-Jul	7.0	01	,,
S.P.	90	82	80	80	82	86	82	87	63
	29-Aug	10-Jul	20-Jun	5-Aug	20-Jul	29-Jul	02	0.	- 55
Arvada	81	80	77	74	79	82	78	90	72
	10-Jul	20-Jun	18-Jul	19-Aug	2-Jul	22-Jul			
Welch	95	79	77	73	80	81	78	90 and 91	72
Rocky	10-Jul	18-Jul	31-May	29-Aug	30-Jun	15-Jul			
Flats	83	80	79	79	90	90	86	87 and 88	56
NDEL	10-Jul	29-Aug	20-Jun	2-Jun	25-Aug	15-Jul			
NREL	85	85	77	76	85	83	81	89	64
Greeley Tr.	24-Jul	26-Jul	20-Aug	31-May	30-Jun	23-Jul			
Greeley 11.	77	76	76	73	74	82	76	90 and 91	78
Fort Collins	25-May	9-Jul	18-Jul	31-May	24-Jun	13-Jun			
Fort Collins	70	70	68	66	69	78	71	94	90
RMNP	9-Jul	25-May	31-Jul	31-May	30-Jul	28-Jul			
IXIVIINE	81	77	77	76	78	76	76	89	71
Fort Collins	18-Jul	9-Jul	25-May	24-Jul	30-Jul	19-Jun			
W.	81	79	78	76	85	87	82	89	64
DMAS	10-Jul	29-Aug	13-Jul	26-Jul					
DIVIAG	86	72	72	70	***	***	***		

#### NOTE:

2006 data harmonized with APCD TS Program Summer Ozone Report through 12-31-06. Data has been formally QA'd. 2007 data has been harmonized with APCD TS Program Summer Ozone Report through 12-31-07. Data has been formally QA'd. 2008 data has been harmonized with ACPD TS program Summer Ozone Report through 9-30-08. Data has been formally QA'd.

exceedance of new EPA standard 75 ppb

NOTES: Table includes data through August 31, 2006, which conforms to Colorado Air Pollution Control Division draft data. No data has been formally quality assured at this time. Values highlighted in green in the columns on the left represent exceedances to the 8-hour standard. \*The Fort Collins West (FTCW) monitor is a new special purposes monitor; therefore there is not three-year average.

<sup>\*</sup> temporarily out of service

<sup>\*\*\*</sup>new monitor this season

#### **APPENDIX SIX:**

2006
1ST, 2ND, 3RD, AND 4TH MAXIMUM 1-HOUR OZONE VALUES (PPB)
SELECT CDPHE MONITORING SITES

Site	1 <sup>st</sup> Max	2 <sup>nd</sup> Max	3 <sup>rd</sup> Max	4 <sup>th</sup> Max
NREL	8-August	10-July	5-August	24-August
NKEL	97	93	92	92
ARV	5-August	29-August	10-July	25-July
ARV	93	93	92	88
RFN	10-July	18-July	29-August	2-July
KFIN	88	88	88	87
CHAT	10-July	20- June	29- August	8-August
СПАТ	101	98	95	92
HLD	4-April	8-April	18- April	19-April
пси	65	64	64	62
CRG	5-August	29-August	10-July	20-June
CKG	94	90	89	85
SBC	10- July	25-July	15-July	31- May
360	89	89	86	85
WCH	10-July	20-June	5-August	29-August
WCH	102	90	88	88
WBY	29-August	5-August	10-July	20-June
4401	100	95	92	89
GRET	29-July	15-July	23-July	13-July
GKEI	103	100	95	93
FTC	20-August	24-July	1-August	4-August
716	94	92	89	87

#### **APPENDIX SEVEN:**

#### 10 YEARS OF 8-HOUR OZONE LEVELS 4TH HIGHEST MAXIMUM LEVELS (PPB) SELECT CDPHE MONITORING SITES

MONITOR	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
MONITOR	4 <sup>th</sup> Max										
NREL	95	80	83	81	81	95	74	79	83	85	76
RFN	92	81	81	82	88	91	72	77	90	90	79
CHAT	81	76	80	77	83	95	74	83	86	82	80
HLD	84	75	76	77	76	91	72	79	81	75	N/A
ARV	89	72	76	74	73	83	65	78	81	79	74
CRG	85	68	71	72	73	85	66	74	72	76	72
SBC	89	75	72	71	78	82	68	76	82	85	76
WCH	80	66	68	64	69	77	62	64	81	80	73
WBY	83	71	62	64	68	66	66	73	69	70	76

**NOTE**: Values shown in bold reflect recordings at or above 85 ppb.

#### **APPENDIX EIGHT:**

#### PAID MEDIA ADVERTISING CAMPAIGN **JUNE - AUGUST 2008**

	Description	Paid Media	Bonus Media	Total
Television	:30 animated spots – one focused on lawn care and the other on car care (6-week run)	470	369	839
Radio	:10 and :15 traffic tags read by live announcers during radio traffic reports (7-week run), :30 AirWaves ads (6- week run), & :60 KBCO Environminute spots (6- week run)	604	346**	955
Outdoor	5 billboards, all with different messages, that rotated at 7 locations (3-months run)	3	2	5
Transit	50 bus boards promoting the use of public transit, donated by RTD (2-month run)		50	50
Pump Toppers	249 signs on the tops of gasoline pumps, donated by Suncor Energy (1-month run)		1,458	1,458
Print	1 print ad in a community newspaper to advertise the Car Care Fairs (2-week run)	1		1
Online				

<sup>\*</sup>TV bonus coverage also included website banners at no charge on websites for KUSA, KMGH, KDVR. An additional 1,236 spots ran on streaming website page WeatherPlus on KUSA's website.
\*\*Radio bonus spots include 297 :30 spots run on streaming websites for KBCO, KOA, KRFX.

#### **APPENDIX NINE:**

#### KNOWN MEDIA COVERAGE APRIL – SEPTEMBER 2008

#### **Radio**

- Colorado Matters NPR, June 12, 2008

#### **Print**

- Greeley Tribune Lots of Activities to pick from this weekend, April 28, 2008
- Denver Post Blade Stunner: swap to green mower, get a discount, April 2, 2008
- Your Hub Denver asked to battle ozone at height of season, June 12, 2008
- **Denver Post -** Energy firms look to curtail well leaks, *March 27, 2008*
- Four Corners Business Journal Oil, gas industry may face tougher air pollution rules, May 5, 2008
- The Chronicle News Auto emissions test more stringent, May 7, 2008
- **Denver Post** Denver fund would pay to get polluting cars off the road, *May 29, 2008*
- Rocky Mountain News Plan aims to buy up dirty cars, May 29, 2008
- Daily Camera Denver plans for buyouts of polluting cars, May30, 2009
- **Denver Post -** 08 ozone battle looks bleak, *June 2, 2008*
- The Gazette Spring air exceeds smog standards, June 2, 2008
- Rocky Mountain News Colo. Ozone troubles persist, *June 16, 2008*
- **Greeley Tribune -** Ozone meeting scheduled, *June 7, 2008*
- Denver Business Journal Ozone Alert: Car repairs among preventive efforts, May 23
- Cortez Journal County Measures Ozone, June 24, 2009
- TimesCall Emissions testing needed? June 25, 2009
- Denver Business Journal Ozone season has begun, June 20, 2009
- TimesCall Health official: Reduce outdoor activities on high-ozone days, June 30, 2008
- The Villager Park to be renamed for Mayor Emley, June 19, 2008
- **Denver Post** States foggy on haze, *July 7, 2008*
- Coloradoan Officials urge residents to be aware of ozone and high temperatures, June 4, 2008
- **Denver Post -** Ozone busts new rules, *July 8, 2008*

#### **Television**

- KWGN - Electric mowers keep you and your lawn green, April 23, 2008

- **KCNC -** State offers incentive for buying Green Lawn Mower, *April 29, 2008*
- KMGH Summer Ozone Season Starts June 1, May 31, 2008
- KUSA Summer Ozone Season resumes in the metro area, May 31, 2008
- KMGH Flooding and Poor Air Quality Due To Consecutive Days Near 90, June 16, 2008
- KUSA Consumer Minute: \$200,000 for polluters, U.S. Beef imports, Allard tours towers, May 1, 2008
- **KWGN** Tougher emissions standards catching some by surprise, *June 6, 2008*

#### **Online**

- Goupstate.com Many see greener pastures in city's gas mower trade in, June 1, 2008
- Newsday.com Electric mowers keep you and your lawn green, April 28, 2008
- Coloradoan.com Officials put heat on for ozone campaign, June 11, 2008
- Coloradoan.com Ozone alert issued for Fort Collins, Front Range, June 17, 2008
- RAQC.org Metro Denver Air Quality: Past Achievements, Future Challenges, June 1, 2008
- Gazette.com- Ozone alert is in effect today, June 15, 2008
- YourHub.com Park to be renamed for former Littleton mayor, June 13, 2008
- South Florida Sun-Sentinel.com Electric mowers keep you and your lawn green, April 23, 2008
- Coloradoan.com Cutting ozone levels vital, June 12, 2008
- dailykos.com DNC Wants to hide dirty little secret in Denver, June 17, 2008

# CREATIVE APPENDICES

#### **APPENDIX ONE:**

#### **TAGLINE AND GOOD/BAD OZONE ICONS**



# LET'S TAKE CARE OF OUR SUMMER AIR.

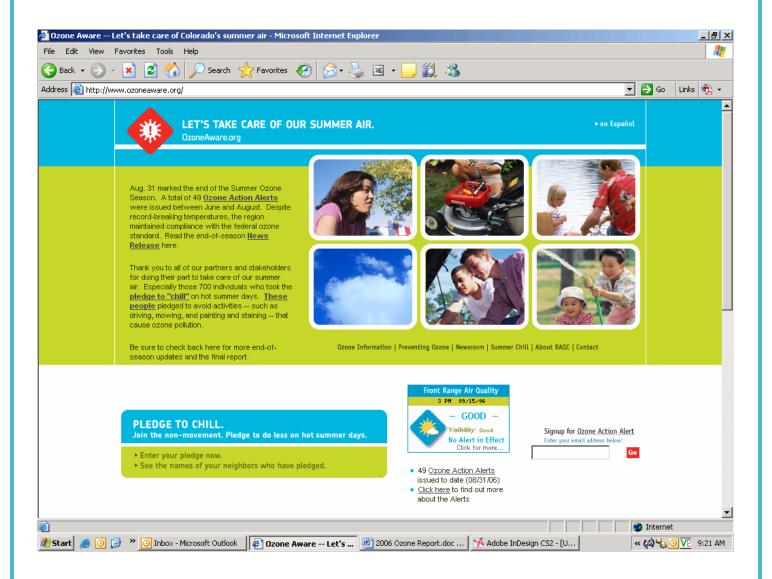
# OzoneAware.org





#### **APPENDIX TWO:**

#### **WEB SITE: OZONEAWARE.ORG**



#### **APPENDIX THREE:**

#### **OUTDOOR BILLBOARDS**

# TIGHTEN YOUR GAS CAP.



LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

# MOW IN THE EVENING.



LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

## CHECK YOUR TIRE PRESSURE.



LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

# TUNE UP YOUR CAR.



LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

# REFUEL IN THE EVENING.



LET'S TAKE CARE OF OUR SUMMER AIR.

OzoneAware.org

#### **APPENDIX FOUR:**

#### **OZONE ACTION ALERT TEMPLATE**



#### **OZONE ACTION ALERT:**

THE REGIONAL AIR QUALITY COUNCIL AND THE COLO. DEPT. OF PUBLIC HEALTH AND ENVIRONMENT HAVE ISSUED AN ALERT FOR THE METRO-DENVER AND FRONT RANGE REGION. HOT TEMPERATURES, CLEAR SUMMER SKIES, AND LIGHT-TO-MODERATE WINDS MAY LEAD TO INCREASED GROUND-LEVEL OZONE THROUGHOUT THE REGION. THIS OZONE ACTION ALERT IS IN EFFECT UNTIL 4:00 P.M. TOMORROW.

#### SO WHAT'S THE DIRT ON OZONE?

Ground level ozone pollution is created when emissions from everyday items – such as gasoline-powered vehicles and lawn equipment, and household paints, stains and solvents – combine with other pollutants in the atmosphere on hot, summer days.

#### IT CAN AFFECT YOU.

At ground level, ozone pollution is harmful to all of us, especially the young and elderly. Ozone can also trigger attacks and symptoms in individuals with pre-existing health conditions, such as asthma or other respiratory infections.

High levels of ozone pollution often affect healthy people who work or exercise outdoors and can cause breathing difficulties, eye irritation and reduced resistance to lung infections and colds with exposure for prolonged periods.

#### CHILL OUT AND BREATHE EASY.

The fewer ozone-causing emissions you produce on hot, still, summer days, the better. Reduce pollution by doing these simple things:

- > Keep your car well maintained
- > Refuel in the evening on hot sunny days
- > Stop at the click don't overfill gas tank
- > Mow in the evening on hot sunny days
- > Tighten gas cap after refueling



#### FOR MORE INFORMATION:

24-Hour Air Quality Hotline: 303.758.4848
Media Inquiries: 303.540.1887 (pager)
Ozone Aware: www.OzoneAware.org
RAQC: 303.629.5450 or www.raqc.org
CDPHE: 303.692.3100

### TIGHTEN YOUR GAS CAP.



LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

#### **APPENDIX FIVE:**

#### **OUTREACH STICKERS AND TIP CARD**





#### SO WHAT'S THE DIRT ON OZONE POLLUTION?

Ground level ozone pollution is created when emissions from everyday items such as gasoline-powered vehicles and lawn equipment, and household paints, stains and solvents, combine with other pollutants in the atmosphere on hot, summer days. Ground level ozone is harmful to our health and environment. We can reduce our Ozone Alert days by working together. Check out the simple actions you can take on the back of this card



LET'S TAKE CARE OF OUR SUMMER AIR.

OzoneAware.org

(front)

#### THINK BEFORE YOU START.

Ground Level Ozone Pollution can be reduced when you do these simple things:

- > keep your car well maintained
- > refuel after 5 p.m. on hot sunny days
- > stop at the click don't overfill gas tanks
- > walk to lunch and run errands after work
- > take the bus at least once a week
- > use gas-powered lawn equipment after 5 p.m. on hot, sunny days
- > avoid painting and staining projects in the heat of the day
- > tightly cap solvents; store in a cool place

(back)

#### **APPENDIX SIX:**

#### "CHILL" PLEDGE CARD AND LOGO

#### PLEDGE TO CHILL.

Join the non-movement. Pledge to do less on hot summer days.

Check the activities you'll commit to and mail back or register with us online at OzoneAware.org.

drive less, walk to lunch, run errands after work refuel your car after 5 p.m. and stop at the click mow after 5 p.m. on hot summer days

Street Address\_ City/State/Zip

☐ I would like my name to appear on your web site's pledge page.

The Regional Air Quality Council does not sell or give away personal information from the information you provide. It is used solely for the purposes of sending you ozone updates and special offers.

#### SO WHAT'S THE DIRT ON OZONE POLLUTION?



LET'S TAKE CARE OF OUR SUMMER AIR.



#### THINK BEFORE YOU START.

Ground Level Ozone Pollution can be reduced when you do these simple things:

- > keep your car well maintained
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- > stop at the click don't overfill gas tanks
- > walk to lunch and run errands after work
- > take the bus at least once a week
- > use gas-powered lawn equipment after 5 p.m. on hot, sunny days
- > avoid painting and staining projects in the heat of the day
- > tightly cap solvents; store in a cool place



1445 Market Street, Suite 260 Denver, CO 80202

Regional Air Quality Council



CHILL. HANG. BE COOL.



LET'S TAKE CARE OF OUR SUMMER AIR. OzoneAware.org

#### **APPENDIX SIX:**

#### **ONLINE "CHILL" PLEDGE**

