

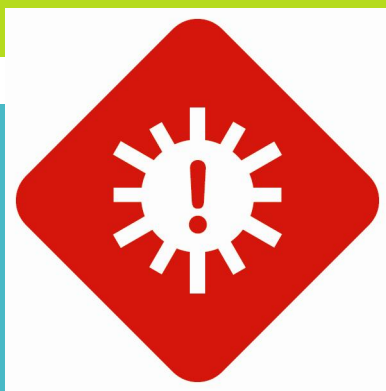
Comprehensive Report

“Let’s Take Care of our Summer Air”
Ozone Education, Outreach and
Behavior Change Program

December 2007

Published by:
Regional Air Quality Council
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LET'S TAKE CARE OF OUR SUMMER AIR.
OzoneAware.org

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COMPREHENSIVE OZONE REPORT

The 2005-2007 Ozone Education and Outreach Program was made possible by funding from the following organizations.

Colorado Department of Public Health and Environment	Colorado Department of Transportation
Denver Regional Council of Governments	Envirotest Systems, Corp. (Air Care Colorado)
Federal Highway Administration	Strategic Environmental Project Pipeline

See “Overview” section for more detailed funding information.

ACKNOWLEDGEMENTS

The Regional Air Quality Council would like to thank its partners for their participation in the “Let’s Take Care of our Summer Air” ozone education and awareness campaign. Without the significant contribution of the below partners, this campaign would not have been as successful.

- American Lung Association of Colorado
- Colo. Dept. of Public Health and Environment, Air Pollution Control Division
- Colorado Department of Transportation
- Colorado Select NAPA AutoCare Group
- Denver Regional Council of Governments
- Envirotest Systems Corp. (Air Care Colorado)
- Federal Highway Administration
- Howell Research Group
- JohnstonWells Public Relations
- Launch Advertising
- Local governments throughout the Denver region, in specific:
 - Arapahoe County

- Boulder County
- Boulder County Sherriff’s Office
- City of Arvada
- City of Aurora
- City of Englewood
- City of Golden
- Douglas County
- Town of Castle Rock
- Greater Metro Telecommunications Consortium – 33 metro-area local governments working jointly on issues related to telecommunications
- Media Visions
- National Jewish Medical and Research Center
- Neuton Lawn Mower Company
- Regional Transportation District
- Strategic Environmental Project Pipeline (StEPP) Foundation
- Suncor Energy (U.S.A.) Inc.

The RAQC would also like to thank the following organizations for their involvement in the “Let’s Take Care of our Summer Air” ozone education and awareness campaign.

- Bene Gourmet Pizza
- Bond Video Arts
- The Cherry Creek Bike Rack
- Cherry Creek North
- Dave Wruck
- Denver Art Museum
- Denver Boulder Couriers
- Kear/Stevens Creative
- Littleton Public Schools
- The Lodo District
- NAPA Auto Parts (Genuine Parts Company)
- PlayCoed.com

- Project Vision 21, LLC
- Reel Creative Productions
- REI
- Revolution Cleaners
- Transportation Solutions
- Unique Litho

OVERVIEW

The Regional Air Quality Council (RAQC) has concluded the ninth year of its Voluntary Ozone Reduction Program as well as the final year of a three-year comprehensive outreach, education and behavior change campaign. 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_x) 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 2007 summer ozone season, the Front Range region violated the 8-hour standard set by the U.S. Environmental Protection Agency (EPA). A violation in 2007 means continued attention to the issue of ground-level ozone including an official stakeholder process 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 it appears likely that the U.S. Environmental Protection Agency (EPA) will lower the standard in coming years. Keeping ozone levels well below the current 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 development of a 30-minute educational television program on ozone pollution, which aired on cable access stations, Comcast's Metro Beat TV series, and at emissions testing centers
- The development 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 host vehicle maintenance clinics around the metro area;
- The implementation of a lawnmower exchange event, in partnership with several vendors throughout the three-year campaign;
- A gas cap testing and replacement program, focusing on local government fleet vehicles;
- The implementation of a local government sub-grant program to assist communication professionals with raising awareness of ozone pollution;
- The creation and subsequent expansion of the ozone-dedicated web site, OzoneAware.org, with information for local governments, citizens, businesses and media;
- The development of the Clean Air Crew, a youth group that attended a number of community events throughout the region to raise awareness of ozone and encourage people to take the pledge to "chill" on hot summer days;

- 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;
- Outreach for the "Repair Your Air" campaign, which identified high-emitting vehicles using remote sensing technology and offered motorists up to \$500 in emissions-related repairs; and
- Participation in additional metro-area events such as Bike to Work Day and RideSmart *Thursdays*.

The 2005-2007 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 – Community-Based Clean Air Grant

Additional support was provided by American Lung Association of Colorado, National Jewish Medical and Research Center, and local governments throughout the metropolitan area and Front Range

region.

Summary of Major Funding Sources

Source	Amount
CM/AQ	\$531,500
Envirotest	\$33,000
Community-Based Clean Air Grant	\$25,000
StEPP Foundation	\$18,500
TOTAL	\$608,000

STANDARDS AND STATUS

8-Hour Ozone Standard

After a several-year court battle, EPA committed to promulgate nonattainment designations for the new, stricter 8-hour ozone standard by April 15, 2004. Governors were required to submit recommended designations by April 15, 2003.

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

A recommendation by the Clean Air Scientific Advisory Committee Ozone Review Panel will likely affect the region's status for the coming years. At a meeting in 2006, the group recommended lowering

the current 8-hour standard to 0.070 parts per million (ppm). The EPA is set to make an official recommendation on the future standard sometime in 2008 and is expected to lower it from the current standard set at 0.080 ppm.

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 Denver-metropolitan 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. In August of 2005, the EPA officially approved the EAC which was the result of a three-year collaborative effort by federal, state, regional and local agencies to address the issue of ozone pollution in the Denver area. The region fully implemented the strategies outlined in the EAC by the end of 2005. The Ozone Action Plan can be obtained through the RAQC's web site at www.raqc.org.

While the EAC outlined a variety of mandatory strategies, it 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 pollution.

NUMBERS

Unfortunately, due to growth in industry, the region was unable to meet the standard by the required date set by the EPA. On November 20, 2007, the EPA released a statement announcing that the region "has forfeited its participation in the Early Action Compact program." Despite the great efforts

of industry, local governments, businesses and an enhanced education and awareness effort aimed at curbing ground-level ozone pollution through the education of citizens, the region was still unable to meet its goal. The forfeit of the Early Action Compact means that the region is now categorized as a "nonattainment area." The new designation will require local and state officials to submit a new plan to reduce ground-level ozone pollution.

Even though the region has been designated as a nonattainment area, efforts to reduce ozone pollution in the future will continue to be a priority. 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 4th maximum concentration over three years. In 2007, the Rocky Flats monitor recorded the highest value of the season at 98 ppb. This was followed by the National Renewable Energy Laboratory (NREL) and the Fort Collins West monitors, which recorded 90 ppb and 88 ppb respectively, on July 9.

There were a total of 22 days that area monitors recorded values at or above 85 ppb during the 2007 season and 12 additional days with values at or above 80 ppb. The majority of the exceedances occurred in July when the average temperature was 91.7 degrees. When combined with the two previous years (2005 and 2006), the 4th maximum average at Rocky Flats is 85 ppb and Chatfield State

Park is 84 ppb. The value at the Rocky Flats monitor meets 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 2007 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 planning process to address ozone in the Denver region, it became clear that there was a need for the development of a 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 for 2005 through 2007.

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 newly-formed 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, National Research Center, Inc. and the Howell Research Group to assist with research and evaluative activities throughout 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 three-year 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. The specific components of the campaign are discussed in more detail below.

COMPONENTS

The 2005 through 2007 "Let's Take Care of our Summer Air" education, awareness and behavior change campaign 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 launched in the spring and continued through August each year to coincide with 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 nine 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 the conditions were expected to potentially 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.

In an attempt to make alerts visible for local government employees and businesses, two alert posters were posted to OzoneAware.org to provide easy access to the downloadable materials. One poster indicated an “Ozone Action Alert Day,” and the other indicated that there is “No Alert in Effect.” In addition, the RAQC posted Ozone Action Alerts to the web site so people visiting the site could also access the current air quality information. The RAQC also worked to encourage local governments, nonprofit organizations, businesses and media outlets to place a link on their web sites to display current air quality conditions.

The RAQC redesigned the alert in 2005 to address requests from stakeholders about information they wanted to see in the alerts. By utilizing the graphic elements created in 2005 by Launch Advertising, five messages or tips were created to raise awareness of the actions associated with an ozone alert. New alert actions or messages were added in

both 2006 and 2007 for a total of seven new alert templates by the end of the three-year campaign. Each alert used 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 how to “pledge to chill” to reduce summer ozone pollution as well as links to the RAQC’s web site and pledge page.

Results

The RAQC distributed the new Ozone Action Alerts to nearly 400 local government representatives, media outlets, businesses and citizens, including several Spanish television media outlets during the first year. By the final year of the campaign in 2007, the number of recipients grew to nearly 600 raising the total by over 200 email addresses and fax numbers. 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.

A table displaying the number of ozone action alerts for each year is below.

Fig. 1: Ozone Action Alerts

Year	June	July	August	TOTAL
2005	3	19	1	23
2006	22	24	3	49
2007	14	26	4	44

2. Media Advertising

A comprehensive paid media campaign was developed as part of the overall effort to extend the reach of the messages and to grab people’s attention. The RAQC hired Launch Advertising in 2005 to develop a high-impact campaign to effectively raise awareness about ozone pollution. The creative team utilized feedback from the qualitative and quantitative research conducted prior to campaign development (see the “Research” section for more information) in order to design a campaign that would resonate with citizens. The concept of the campaign was constructed based on simple actions citizens can take to help reduce ground-level ozone pollution. The campaign’s look was fresh and colorful in an attempt to capture a more diverse audience (examples of campaign materials are displayed in the “Appendices” section of this report).



Professionals from Launch Advertising were able to work with an experienced media buyer, who successfully negotiated a healthy paid media schedule utilizing television, radio, print, 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, without which the campaign would not have been as far-reaching.

Results

The carefully planned and executed three-year

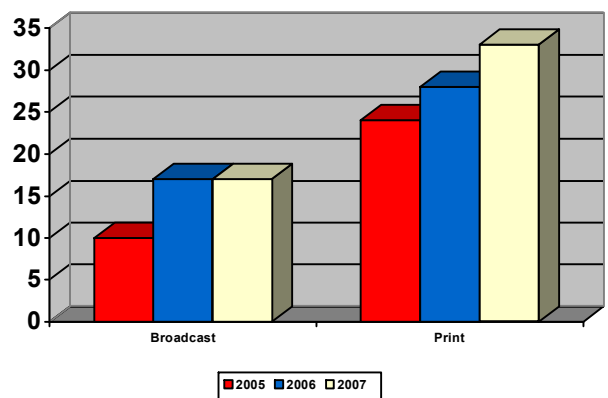
multi-media paid advertising campaign resulted in yearly totals detailed in the table below.

3. Media Relations

The RAQC and its partners identified a need for a focused public relations effort to complement the paid media campaign. In 2005, the RAQC hired JohnstonWells Public Relations to develop a comprehensive media outreach plan to raise awareness of this issue among major media outlets throughout the region. By educating reporters, meteorologists and editors of the importance of ozone pollution, the RAQC and its partners were able to secure a multitude of articles and on-air mentions about the essential components of the campaign. In addition, the RAQC began utilizing many grassroots efforts to raise awareness of ozone pollution.

Results

Fig. 3: Broadcast vs. Print Media



4. Research

During the first year of the campaign, the RAQC hired National Research Center, Inc. (NRC) to develop a comprehensive, qualitative and

quantitative pre-campaign research survey. As part of the first year's research, and interim survey was conducted that measured awareness at the end of the first year of the campaign in 2005. The RAQC also planned to conduct post-campaign quantitative research in 2007 at the close of the campaign to determine the effectiveness of its efforts. The first year's research included a pre-campaign random telephone survey of 400 respondents designed to gather quantitative data about several issues related to the campaign.

The second component of the research in 2005 included two pre-campaign focus groups to gain a better understanding of the level of knowledge about ozone pollution and what types of actions people are willing to take to voluntarily change their behavior in favor of ozone reduction. The focus groups allowed for a more in-depth exploration of the issue and guided the creative team in developing messaging and a target audience.

In addition, the RAQC allocated funds to provide for a post-campaign survey at the conclusion of the 2005 campaign. A second batch of 400 respondents was randomly surveyed via telephone to gauge overall awareness after the first year of the comprehensive outreach and education campaign.

At the end of the three year campaign in 2007, the RAQC bid out the post-campaign research and The Howell Research Group was chosen to conduct the analysis. The principal, David Howell, worked very closely with the RAQC and other partners to develop a post-campaign survey that would capture the overall changes in awareness and knowledge of ozone pollution.

Results

The post-campaign research was completed at the end of August. The research showed statistically significant increases in several components of the outreach and education program, showing that the campaign was effective in raising awareness and increasing ozone reduction behavior.

Awareness

The findings included a raised awareness of ozone pollution such as an increase in familiarity with ground-level ozone pollution. In 2005, only 32% of the survey respondents were either "somewhat familiar" or "very familiar" with the problem of ozone pollution. Those that were "somewhat" or "very" familiar with ozone pollution increased to 44% in 2007. Awareness of each contributor to ground-level ozone pollution also increased from 2005 to 2007. The largest increase was measured for "gasoline-powered lawn equipment" which increased from 60% in the 2005 pre-survey to 82% in the post-survey. Also an important fact, awareness of Ozone Action Alerts increased during the three-year campaign. Awareness of Ozone Action Alerts steadily increased from the 2005 pre-survey at 17% to 43% at the 2005 interim-survey and finally to 50% at the time of the 2007 post-campaign survey. This indicates a three-fold increase in awareness since the launch of the campaign in 2005.

Behavior Change

During the campaign, important progress was made to change behaviors related to ground-level ozone pollution in the metropolitan Denver region. One indicator that behaviors had changed is that in 2007, 92% of survey respondents had an awareness (unaided) of at least one action that drivers can take to reduce ozone pollution. The awareness was highest for four actions: "carpool" (40%), "use public

transit” (38%), “reduce driving” (32%) and “keep vehicles well-maintained” (25%). Another indicator that behavior change had occurred is that in 2007, more than nine out of 10 survey respondents indicated that they either “always” or “often” *make sure the gas cap is sealed tightly* (96%) and *keep the car well-maintained* (92%). More than three out of four (77%) said they *stop pumping gas after nozzle clicks off*. The majority of respondents (56%) indicated that they “always” or “often” use *low-pollution/water-based paints and stains*. The majority of those who personally mow their own lawn (54%) said they “always” or “often” *mow the lawn after 5:00 p.m.* More than four out of ten respondents (43%) said they “always” or “often” *limit driving or take alternative modes of transportation*.

The completion of the final analyses further demonstrates the importance of including research in the public awareness campaign. The research and analyses were crucial in determining the overall effectiveness of the program and will assist in planning for the future.

5. Public Outreach

One of the areas in which the RAQC and its partners were most interested in expanding with the campaign was outreach to the general public. A series of events and programs were developed and implemented to maximize exposure of the campaign and its essential messages as well as educate the citizens on this issue using a more one-on-one or grassroots approach. A number of informational items armed with important information about ozone pollution were handed out at a number of public events. These items are detailed below and examples can be found in the Appendices section of this report.

a. Web site

To complement the campaign’s advertising and media relations efforts, a new ozone-dedicated web site was designed and developed in 2005 to assist with all aspects of the outreach and education components of the program. Over the three-year campaign, the web site was continually updated to include new information and pages.

The web site, OzoneAware.org, features nearly 20 pages of information about ground-level ozone pollution including a newsroom where local governments and businesses can download press releases and articles, information on how ozone is formed and how citizens can prevent it, and a “weblog” or “blog” where RAQC staff or citizens can post information and others can respond with questions or concerns. The RAQC added the pledge page in 2006 where citizens can pledge online to make behavior changes to reduce ozone pollution. The site also includes information about the RAQC and a point of contact for further questions about ozone.

After the metro Denver region violated the federal ozone standard in the campaign’s final year, the RAQC set up a stakeholder’s page through OzoneAware.org where stakeholders can find out any information about the stakeholder process and meeting schedule. Stakeholders also have the opportunity to provide feedback on the process through the stakeholder page by suggesting potential strategies, leaving comments or asking questions.

Results

Overall, the web site proved to be a powerful communications tool with more than 20,000 unique visitors logging on the site over the course of the

three-year outreach campaign. The web stats reflect the ozone season which runs from June 1 through August 31 each year. One of the web statistics from the campaign shows that the top referring web site was consistently OzoneAware.org. This means that most people who viewed the site went to their computers and typed in the URL directly instead of linking to it from another site or search engine.

The research showed a high awareness of the term “OzoneAware” which stems from the web site. This is illustrated by the 52% of respondents who indicated they were familiar with the phrase.

Please see the table below for web statistics for the three-year campaign.

Fig. 2: Web Stats

	2005	2006	2007
Unique Visitors	6,500	4,000	10,509
Total Visits	Unknown	10,000	33,953

b. Informational Items

RAQC staff enlisted the help of the creative team to develop a series of fun and educational items to aid in the outreach process for the campaign. The items outlined below were designed specifically for special events and promotions and serve as a continued resource to citizens after attendance at an event. All materials and items were designed to match the theme of the overall campaign to ensure consistency with all messages.

Results

RAQC staff and the Clean Air Crew (see section “k” below for more detailed information) distributed over 26,000 pieces of educational information during the

three-year campaign including literature or giveaways at events and meetings in which they participated, raising awareness and understanding about ozone pollution. These items included:

- Tip cards: contained general information about ozone pollution and simple, behavior-changing tips and were distributed at all public events for which RAQC had a presence
- Bike reflectors: contained the “Let’s Take Care of our Summer Air” tagline and the ozone-dedicated web address – OzoneAware.org and were distributed at Bike to Work Day
- Tire pressure gauges: contained the “Let’s Take Care of our Summer Air” tagline and the ozone-dedicated web address – OzoneAware.org and were distributed at the Car Care Fairs and Bike to Work Day
- Travel mugs: contained the “Let’s Take Care of our Summer Air” tagline and the ozone-dedicated web address – OzoneAware.org and were distributed at the RideSmart *Thursdays* kick-off event in 2006
- T-shirts: contained the “Let’s Take Care of our Summer Air” tagline and the new ozone-dedicated web address – OzoneAware.org; were distributed at numerous events including impromptu events by the Clean Air Crew, RideSmart *Thursdays* events, and event at the Denver Art Museum and Bike to Work Day
- Stickers: contained “I breathe, therefore I care” and “Don’t just breathe, do something” as well as the “Let’s Take Care of our Summer Air” tagline and the ozone-dedicated web address – OzoneAware.org and were distributed at all events by staff and the Clean Air Crew
- Banners: contained the “Let’s Take Care of our Summer Air” tagline and the ozone-dedicated web address – OzoneAware.org and were

displayed at all events in which the RAQC participated

- Vehicle maintenance logs: designed to fit in a glove box, the vehicle maintenance log allows motorists to keep track of gasoline mileage and maintenance as well as provides simple tips to keep a vehicle in optimal performance and were distributed at the Car Care Fairs and other relevant events
- Ozone table top display: table top display designed to engage citizens in the issue of ozone pollution that included simple tips, general information, health information and much more and was displayed at public events in which the RAQC participated
- Summer chill pledge cards: took the place of tip cards in 2006 by giving citizens the option to “pledge to chill” to reduce ozone on one side of the card, with a tear-off tip card for the individual to keep on the other side of the card

c. Ozone Education Video

In an attempt to deepen the understanding of ozone pollution – including how it is formed, ways to reduce it, and how it affects human health – the RAQC hired a professional production team in 2006 to produce an educational video to be aired in a number of places to reach a wide audience. The RAQC teamed up with the Greater Metro Telecommunications Consortium (GMTC) – a coalition of 33 metro-area local governments working jointly on issues relating to telecommunications. With GMTC’s assistance and recommendations, the RAQC contracted with Bond Video Arts to produce the educational program. One of the GMTC members also served as executive producer of the project in order to include a representative of the local government members.

Results

The result of the partnership with GMTC and Bond Video Arts was “Ozone in Our Zone,” which addresses the difference between stratospheric ozone and ground-level ozone pollution. In an animated trip down an airway and into a lung, viewers were exposed to a visual representation of how ozone pollution affects our health.

The program also featured Donald H. Stedman, professor of chemistry and biochemistry at the University of Denver and Erwin W. Gelfand, M.D., director of pediatrics at National Jewish Medical and Research Center. These highly experienced professionals provided viewers with an interesting combination of information on current programs and projects that address ozone pollution, the chemistry of ozone pollution formation, the adverse health affects and how citizens can make small changes in their daily lives that combine to make a big impact.

The program started airing in June 2006 and continued through the summer of 2007. In addition, the program was aired at all Envirotest Systems Products, Corp. emission testing facilities throughout the year. Comcast Cable also offered the program on-demand and as part of its Metro Beat TV series. The local government stations were exceptionally helpful in exposing the documentary to a diverse audience throughout the metro-Denver area during its two-year run. Local governments have expressed an interest in continuing to air the program into future years.

d. Summer “Chill” Campaign

As a means to encourage citizens to change their behavior in favor of ozone reduction, the RAQC and its partners developed the summer “chill” campaign

in 2006 and continued through 2007. 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, the idea is to chill out and read a book in the park or take a walk to the local movie theater to avoid activities that may cause ozone pollution to form. People can escape the summer heat and help 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 can voluntarily pledge to reduce one or more activities, such as drive less and mow after 5 p.m. Visitors to the web site can also see the names of people who have pledged and the corresponding action chosen. In addition to the online pledge system, a number of pledges were printed to hand out at community events. The print pledges had an attached tip card that the pledgees could take with them after signing a pledge.

Several corporate sponsors (Butterfly Pavilion, Chipotle, Denver-Boulder Couriers, KBCO, Noodles & Company, REI, Bene Pizza, Denver Art Museum, Cherry Creek Bike Rack, Transportation Solutions, Revolution Cleaners, the LoDo District Inc. and PlayCoed.com) donated prizes such as gift certificates and coupons to help encourage participation. This year’s Clean Air Crew traveled to a number of community events to educate people about ozone pollution and ask them to take the pledge to “chill.”

Results

During its existence in 2006 and 2007, the RAQC received nearly 2,000 pledges both online and at events. The RAQC plans to continue the pledge program into the future when even more citizens will agree to change their behavior in favor of ozone-reducing behaviors.

e. Gas Can Exchange

In 2005 and 2007, the RAQC staff attended a number of household hazardous waste clean-up events to exchange old gasoline cans for new non-spill, non-permeable gas cans. The RAQC attended several events throughout the metro area to educate citizens about ground-level ozone pollution and to offer them an environmentally friendly gas can for their home or yard in an attempt to reduce emissions from evaporation or spills. The RAQC partnered with the Tri-County Health Department to attend events in Adams and Douglas Counties. This program was made possible by funding provided by the StEPP Foundation.

Results

The RAQC attended six household hazardous waste clean-up events in Adams and Douglas counties during its two-year span. Over 250 old gas cans were permanently recycled and 500 new non-spill, non-permeable gas cans were distributed to event participants. The recycled gas cans resulted in a savings of over 300 pounds of VOCs per year. In addition, over 1,000 participants were better educated about the contribution of gas can emissions to ozone formation.

f. Mow Down Pollution

The RAQC operated a version of the “Mow Down Pollution” program each year during the campaign’s three-year span, changing it slightly to accommodate the program’s needs through the

years. However, each year the goal remained the same – to recycle citizens’ older gasoline-powered lawn equipment in exchange for deep discounts on low- or zero-emission alternatives. During the first year, the RAQC partnered with Black and Decker and The Home Depot stores to host the exchange event at several metro-Denver locations. The second year, the event was consolidated to one large event hosted at Mile High stadium where citizens exchanged older mowers for a lower-priced Neuton model. In 2007, the RAQC again partnered with Neuton to sell their rechargeable lawnmower model and hosted the event “virtually” or completely online. In addition, a gas can exchange was added to the events. Older gas cans were exchanged for new non-spill, non-permeable cans to reduce emissions from spills and evaporation. This program was made possible by funding provided by CDPHE and the StEPP Foundation. Please see the table below for a breakdown of the event by year.

Results

Fig. 3: Mow Down Pollution Results

Year	Pieces of Equip. Recycled	Pieces of New Equip.	Gas Cans Retired	# of New Gas Cans Distributed	Total Reduction of VOC's (in pounds)
2005	53	165	20	120	~690
2006	40	68	20	23	~248
2007	27	103	10	144	~560
TOTAL					

g. Car Care Fairs for Cleaner Air

The RAQC hosted the Car Care Fairs in 2005 and 2006 to help educate citizens about proper vehicle maintenance. The fairs helped teach motorists

about maintaining optimum gas mileage and overall vehicle maintenance as well as provided information on reducing emissions and safety risks. During both years’ set of events, 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 media coverage was the driving force behind motorists’ participation. Representatives from both the RAQC and NAPA made appearances on many of the major networks each year which appeared to significantly raise awareness of the event. Moreover, AutoCare Radio on 630 KHOW sponsored by NAPA devoted much of the morning news radio program to the event, which helped to increase participation and educate motorists on the importance of vehicle maintenance on ozone pollution and overall vehicle health.

Results

The RAQC and NAPA inspected over 800 vehicles throughout the Denver-metro area in the cities listed below.

- Arvada
- Aurora
- Boulder
- Broomfield
- Centennial
- Denver
- Englewood
- Federal Heights
- Fort Collins
- Lakewood
- Littleton
- Longmont
- Louisville
- Northglenn
- Thornton
- Westminster
- Wheat Ridge

In addition, the events provided an opportunity to distribute vehicle maintenance logs and other pertinent vehicle maintenance information to nearly 1,000 participants during 2005 and 2006. During the event in 2005, participants were offered a new non-spill, non-permeable gas can at the event. Approximately 300 of the new earth-friendly gas cans were distributed to event participants. If all 300 participants recycled an old gasoline can in its place, it would result in a savings of over 400 pounds of VOCs per year.

h. AirWaves High School Radio Scholarship Program

The RAQC, Envirotest Systems, Corp. (Air Care Colorado), and 97.3 KBCO FM partnered to implement the AirWaves scholarship contest during all three program years to provide local 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 maintenance, air quality and health. The original idea for the project stemmed from Envirotest Systems, Corp. in British Columbia, Canada, who has conducted the program successfully for several years. The entries came from students in schools throughout the metro-Denver region and two winning entries were chosen each year. The winning students were afforded the opportunity to visit the KBCO studios to record their winning PSAs professionally in preparation for a six-to-seven week run on the air.

Results

Posters were distributed to approximately 300 public and private high schools throughout the entire

Denver-metropolitan region to announce and advertise the scholarship program during all three years. Envirotest, CDPHE and the RAQC received 17 entries from 29 entrants since each entry could have up to three team members submit an entry. Entries that most closely matched the goals of the ozone outreach and education campaign were chosen for each year. Each winning entry was awarded a college scholarship in the amount of \$1,500 as well as the opportunity to be recognized by family and peers on local radio station 97.3 KBCO FM throughout the entire Denver-metropolitan region. In several cases, the scholarship was split between two to three students because some students chose to work in groups. In addition, the school in which the winning students attended received a \$500 environmental scholarship. The finished, produced spots played during morning and afternoon drive time for six weeks between June and mid-July. Information and photos about each of the students who produced the selected entries are posted on OzoneAware.org.

i. Bike to Work Day

In June of each year, the RAQC participated in the Denver Regional Council of Governments' (DRCOG) Bike to Work Day. In addition, RAQC staff hosted a booth in Civic Center Park to hand out fun, informational items, including bike reflectors, tire gauges, stickers, and tip cards. All items included the tagline, logo, and the new ozone web site – OzoneAware.org.

Results

The RAQC handed out more than 1,000 bike reflectors, tire gauges, stickers, and tip cards to Bike to Work Day participants. The Clean Air Crew made an appearance with spontaneous performances in and around Civic Center Park. A photograph of the

Clean Air Crew appeared on the front of the Capitol Hill community paper the following week, with a brief description of the performance group. Several of the local television stations also aired clips from Bike to Work Day.

j. RideSmart Thursdays

RideSmart *Thursdays* is an annual program developed jointly by the Regional Transportation District (RTD), Denver Regional Council of Governments and numerous partnering agencies to encourage metro-area citizens to commit to using public transportation or carpool at least one day per week. Intended to increase the use of public transportation in the area, the program starts out each year with a kick-off event. As part of the large-scale ozone outreach effort, the RAQC helped support RTD and DRCOG's effort in 2005 and 2006 by participating in the kick-off event held in Skyline Park in downtown Denver. The RAQC attended the event and distributed informational and promotional materials to event participants to assist with raising program awareness.

Results

RAQC staff handed out travel coffee mugs, t-shirts and tip cards adorning the "Let's Take Care of Our Summer Air" tagline and web site address. The number of new visitors to OzoneAware.org increased in the days following the event.

k. Clean Air Crew

In 2005, JohnstonWells Public Relations proposed investing in a method of public outreach that was more engaging and interesting than hosting an informational booth at public events. They contacted area dance organizations to gauge interest in putting together a performance group to spread clean air messages throughout the

community. Several dance organizations developed proposals and Cleo Parker Robinson Dance was selected in 2005 as the best match for the project.

This team of professionals quickly formed the Clean Air Crew which performed a series of dance routines and call-and-response chanting to raise awareness about ozone pollution at Denver-area public events. In 2006, it was determined that the Clean Air Crew needed to change with the campaign and was re-developed to assist with the "Summer Chill" campaign. High school and college students were chosen to attend public events and distribute outreach materials and obtain completed pledge cards. Some of the events attended in 2006 and 2007 included Jazz at the Park, the Capitol Hill People's Fair, community events and Film on the Rocks, among others.

Results

Both versions of the Clean Air Crew were successful in handing out many informational items. The wide range of geographic locations allowed the Clean Air Crew to hand out stickers and pledge cards to people throughout the metro-Denver region to raise the awareness of ground-level ozone pollution.

6. Local Government Outreach

The local governments throughout the Denver-metropolitan area have been among the RAQC's most significant partners in its ozone reduction efforts. Over the past nine years, local government staff have worked to make operational changes in public works and fleet maintenance divisions, as well as educate staff and communities about ground-level ozone pollution. During the three-year campaign, the RAQC offered local governments many opportunities to participate in the program such as allocating funding to assist with programs

involving fleet maintenance and education. In addition, the RAQC worked with municipalities in the North Front Range to coordinate outreach and education efforts. More specific information about these programs is listed in more detail below.

a. Fleet Gas Cap Testing Program

In 2005, 2006 and 2007, the RAQC worked with municipal fleet operators to test and replace faulty gas caps on local government fleet vehicles. The program was made possible through partnerships with local government fleets from across the metro-area that agreed to incorporate the testing into their regular preventative maintenance schedule.

A faulty or missing gas cap can allow one gallon of gasoline to evaporate every two weeks. Pollutants in evaporative emissions are a key ingredient in ground-level ozone formation.

The RAQC chose to work with local government fleets because earlier “Put a Cap on Ozone” program findings indicated that approximately 10 to 15 percent of the fleet vehicles had a faulty or missing gas cap. The fleet gas cap testing program provided a free gas cap testing kit as well as free replacement gas caps for all vehicles that either failed the pressure test or had a missing gas cap altogether.

In addition, public information officers from the participating local governments took the opportunity to educate thousands of metro-area residents about the health and regulatory benefits of properly-working gas caps as an ozone pollution control strategy through newsletter articles and employee informational materials.

Results

The fleet gas cap testing program was helpful in involving local governments and helping them begin a small operational change that can reduce ozone pollution for years to come.

See table on in the next column for gas cap replacement totals.

Fig. 4: Fleet Gas Cap Testing Program Totals

	2005	2006	2007	Total
Total Tested	860	257	830	1,947
Replaced	109	20	52	181
Failure rate	13%	8%	6%	9%
VOCs reduced*	42 lbs./day	8 lbs./day	20 lbs./day	70 lbs./day

*This number is calculated as a per-day average for the three-month ozone season from June through August.

b. Local Government Sub-Grant Program

In order to increase awareness in various areas throughout the metro area, the RAQC offered a unique opportunity in 2005 for local governments around the region to apply for funding to increase outreach, information, and education efforts in their respective cities. The RAQC released a request for proposal asking municipalities to develop creative outreach projects within \$2,500 or \$5,000 budgets.

Results

In 2005, four local governments applied for the funding and each had creative ideas about how to increase awareness in their area. All four of the local governments that submitted proposals were selected to receive funding. The local governments that received the sub-grants were Boulder County,

the Cities of Federal Heights and Thornton and the City and County of Denver. In 2006, an additional four local governments applied for and received funding. These included the Cities of Aurora, Arvada, and Castle Rock, and the Greater Metro Telecommunications Consortium (GMTC) – an association of representatives from municipal cable access stations.

2005

The City and County of Denver hosted an employee “Ozone Awareness Fair” that featured Channel 7 Meteorologist Mike Nelson as the guest speaker. In addition, several vendors were invited to set up a booth at the event to distribute information about their individual organizations. The vendors included representatives from Denver Recycles, Colorado Select NAPA AutoCare Centers, the Tri-County Health Department and American Lung Association of Colorado.

The City of Federal Heights requested funding to help educate communities about ground-level ozone pollution that would not otherwise have access to the RAQC’s outreach and education campaign materials. Part of their proposal included funding to translate printed campaign materials into Spanish.

Boulder County requested funding to help launch a lawnmower exchange program similar to the RAQC’s “Mow Down Pollution” program. They worked with local businesses to arrange for discounts on low-polluting lawn equipment while asking citizens to retire older gasoline-powered lawn equipment.

City of Thornton received funding to implement a miniature outdoor advertising campaign to further educate citizens about ozone pollution. Due to

staffing changes and other logistical issues, the City of Thornton was not able to complete its project. However, the City continues to work with the RAQC to educate staff and citizens about ozone and its impacts.

2006

The City of Aurora hosted two fuel can exchange events to provide citizens a free non-spill, non-permeable fuel can in exchange for permanently recycling an old plastic or metal can. The City hired an independent contractor to properly handle any residual oil and gas from the old cans. At these two events, a total of 288 new cans replaced old ones resulting in a permanent reduction of nearly 400 pounds of VOCs during the critical summer months.

In 2006 and 2007, the City of Arvada published an informational article on ozone pollution and ways to reduce it in their citizen newsletter that reaches over 30,000 households. In addition, they printed informational brochures that were available at City Hall and other facilities. In 2007, the City used their remaining funding to hire a consultant to complete an air quality audit in city buildings and facilities to find ways to reduce ozone pollution. The auditor found many operational changes that could be made to city structures including insulating water heaters, improving fuels storage and changing mowing operations to ensure that gasoline-powered lawn equipment would not be operated during the hottest parts of the day.

The Town of Castle Rock developed and printed 500 t-shirts with the “Top Ten Ways to Decrease Ozone Pollution” and handed them out at City-sponsored events such as the Summer Movie Starlight Festivals. The promotion also prompted citizens to

ask about the Town's free bus system, CATCO, which is powered by compressed natural gas.

GMTC used their funding to develop animated graphics to supplement "Ozone in Your Zone." The graphics helped visually explain what happens to ozone molecules when they are inhaled to our lungs. The result was a powerful visualization that resulted in a better understanding of how ozone affects our health. The video in its entirety was played throughout the summer and fall of 2006 and 2007 on all municipal cable access stations, at all Envirotest emission testing stations and on Comcast's Metro Beat TV series.

c. Boulder County Outreach

Over the years, Boulder County has worked diligently to reach out to citizens to ensure they are aware of ozone pollution and ways to help reduce it. The staff of the Department of Environmental Health have planned a program each year called The Clean Air Challenge which encourages citizens to take alternative modes of transportation during the hottest months of the summer. The program is intended to help reduce ozone pollution during those months as citizens who can reduce their vehicle miles traveled (VMT) the most are given prizes such as an electric bicycle, gift certificates to REI and CamelBak products. The program has been in existence since 2003 and continues to draw more participants each year. At the end of the summer ozone season, Boulder County hosts a public event to celebrate the participants and organizations that helped to reduce the most VMT.

Results

The 2007 Clean Air Challenge drew over 200 participants from throughout Boulder County. Collectively, participants saved 244,653 VMT and

14,360 gallons of gasoline for the duration of the program. They also reduced a total of 293,061 pounds of air pollutants from being created which includes a combination of volatile organic compounds, carbon monoxide, carbon dioxide and nitrogen dioxide.

d. Greater Front Range Outreach

Given the regional nature of air quality, ground-level ozone pollution has become 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.

Results

The City of Fort Collins implemented a number of the components of the outreach campaign in the North Front Range by using several different means. The city offered rebates for earth-friendly lawn equipment in a similar fashion to the RAQC's "Mow Down Pollution" event. It was structured so that citizens were offered a \$30 rebate for purchasing the zero- or low-emissions lawn equipment and received an additional \$30 if they recycled an older gasoline-powered piece of equipment. They also utilized the new Ozone Action Alert templates, which were published in the *Coloradoan* as well as broadcast on Cable 14 public access channel in an attempt to reach a large audience.

In addition, the City of Fort Collins partnered with several local Climate Wise businesses to purchase a gas cap testing kit and test employee vehicles. The City visited eight local employers and tested 213 gas caps and replaced 17 failing or missing gas caps, resulting in a reduction of over six pounds of VOCs per day during the critical summer months. The City was also able to utilize the graphics from two of the outdoor boards created by Launch Advertising and adapt them to the North Front Range region. The two outdoor boards were posted from June 15 through August 15 in the Fort Collins area.

SUMMARY

The Voluntary Ozone Reduction Program complemented and expanded on the efforts of the previous eight 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 Early Action Compact 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.

In an attempt to change behavior, the RAQC and its partners developed the summer “chill” campaign,

which encouraged citizens to take a pledge to chill on hot summer days and avoid activities that contribute to ozone pollution.

Unfortunately, the region violated 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 2006 campaign, the RAQC and its partners plan to continue education and outreach efforts to local governments, businesses, and citizens. Similar to the 2006 campaign, the 2007 campaign will focus on changing behavior through education and awareness. Specifically, the campaign will include the following components:

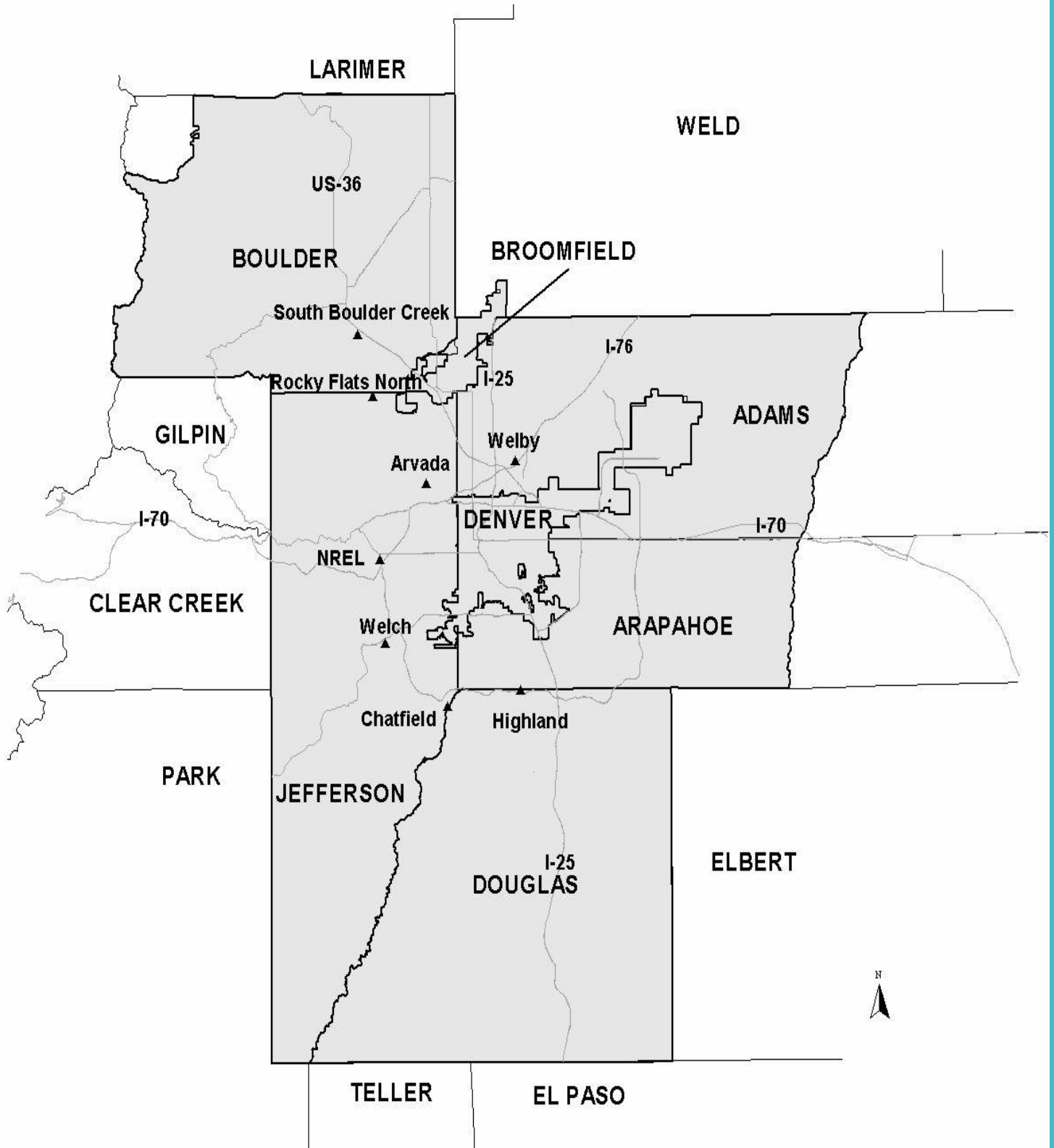
- Citizen Outreach
 - Ozone Action Alert program
 - Ozone Education Video
 - AirWaves High School Radio Scholarship Program
 - Gas Can Exchange
 - Dedicated web site: OzoneAware.org
 - Community events, such as Bike to Work Day and Ridesmart *Thursdays*
- Local Government Outreach
 - Continuation of fleet gas cap testing
 - Outreach to staff and council
- Media Advertising and Outreach
 - Continuation of paid advertising campaign
 - Continuation of media outreach campaign

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 Sandi Garcia at sgarcia@raqc.org 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 th & Garrison)
Carriage	CRG	23 rd Avenue & Julian Street
Chatfield Reservoir	CHAT	11500 N. Roxborough Park Rd.
Colorado Springs	ACAD	Road 640, USAF Academy
Ft. Collins	FTC	708 S. Mason St.
Ft. Collins West*	FTCW	LaPorte Avenue & Overland Tr.
Greeley Tower	GRET	3101 35 th Ave.
Highlands	HLD	8100 S. University Blvd.
Manitou Springs	MAN	401 El Monte Place
National Renewable Energy Laboratories	NREL	20 th 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 th Ave (78 th Ave. & Steele St.)
Welch	WCH	124000 W. Highway 285

**The Ft. Collins West monitor is a new special purpose monitor added in 2006 as part of an expansion at the Budweiser facility*

APPENDIX THREE:
OZONE ACTION ALERTS
1999 – 2007

	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
Average per month	6.5	15.8	4.3	

APPENDIX FOUR:

**OZONE MONITORING DATA (PPB)
SELECT CDPHE MONITORING SITES**

Monitor	2007			2007	2006	2005	2005-07	2007	2004-06	2008
	1st Max	2nd Max	3rd Max	4th Max	4th Max	4th Max	Ave. 4th Max	Allow. 4th Max	Ave. 4th Max	Allow. 4th Max
WBY	31-Jul	9-Jul	21-Jul	15-Jun	69	73	69	115	68	112
	86	78	72	70						
HLD	9-Jul	2-Jul	30-Jun	31-Jul	82	80	77	102	81	93
	83	79	75	75						
SBC	9-Jul	2-Jul	1-Jul	20-Jul	82	76	75	110	75	96
	88	86	85	85						
CRG	9-Jul	21-Jul	31-Jul	29-Jun	72	74	70	114	75	108
	81	79	77	76						
CHAT	31-Jul	25-Aug	9-Jul	21-Jul	86	84	81	95	84	84
	87	85	83	82						
ARV	9-Jul	31-Jul	2-Jul	20-Jul	81	78	74	111	75	95
	84	80	79	79						
WCH	9-Jul	30-Jun	21-Jul	2-Jul	81	64	69	128	67	109
	85	82	82	80						
RFN	9-Jul	25-Aug	31-Jul	30-Jun	90	77	80	104	80	87
	98	95	94	90						
NREL	9-Jul	30-Jun	2-Jul	25-Aug	83	79	78	101	82	92
	90	85	85	85						
GRET	16-Aug	21-Jul	24-Jun	30-Jun	78	78	76	107	76	94
	76	75	74	74						
FTC	30-Jun	9-Jul	1-Jul	24-Jun	78	76	72	114	71	100
	73	73	71	69						
RMNP	19-Jul	20-Jul	2-Jul	6-Jul	76	75	74	106	78	103
	79	79	78	78						
FTCW*	9-Jul	30-Jun	2-Jul	30-Jul	87	---	---	---	---	---
	88	87	85	85						

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.

APPENDIX FIVE:

**2006
1ST, 2ND, 3RD, AND 4TH MAXIMUM 8-HOUR OZONE VALUES (PPB)
SELECT CDPHE MONITORING SITES**

Site	1 st Max	2 nd Max	3 rd Max	4 th Max
NREL	29-Jul	22-Jul	28-Jul	15-Jul
	94	89	84	83
ARV	15-Jul	22-Jul	29-Jul	14-Jul
	83	83	82	81
RFN	19-Jun	29-Jul	14-Jul	15-Jul
	94	93	91	90
CHAT	13-Jul	29-Jul	22-Jul	27-Jul
	92	87	86	86
HLD	13-Jul	22-Jul	29-Jul	19-Jul
	85	82	82	82
CRG	29-Jul	15-Jul	28-Jul	13-Jul
	92	74	74	72
SBC	19-Jul	14-Jul	15-Jul	29-Jul
	87	86	86	82
WCH	29-Jul	13-Jul	14-Jul	22-Jul
	96	87	82	81
WBY	29-Jul	2-Jul	14-Jul	15-Jul
	81	70	69	69
GRET	13-Jul	29-Jul	14-Jul	23-Jul
	90	87	84	78
FTC	29-Jul	14-Jul	15-Jul	13-Jun
	84	80	79	78

APPENDIX SIX:

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

Site	1 st Max	2 nd Max	3 rd Max	4 th Max
NREL	29-July	01-July	20-July	02-July
	109	100	99	98
ARV	29-July	15-July	14-July	20-July
	99	94	93	92
RFN	19-June	14-July	15-July	29-July
	104	103	103	100
CHAT	17-July	27-July	13-July	02-July
	103	102	100	99
HLD	20-July	13-July	19-July	01-July
	97	95	95	94
CRG	29-July	02-July	23-July	20-July
	108	90	90	87
SBC	25-May	19-June	15-July	14-July
	99	98	98	97
WCH	29-July	22-July	13-July	02-July
	112	98	96	93
WBY	23-July	29-July	20-July	02-July
	89	87	84	82
GRET	29-July	15-July	23-July	13-July
	103	100	95	93
FTC	29-July	13-June	15-July	28-July
	100	94	92	90

APPENDIX SEVEN:

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

MONITOR	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max	4 th Max
NREL	82	75	95	80	83	81	81	95	74	79	83
RFN	83	76	92	81	81	82	88	91	72	77	90
CHAT	79	75	81	76	80	77	83	95	74	83	86
HLD	73	65	84	75	76	77	76	91	72	79	81
ARV	73	70	89	72	76	74	73	83	65	78	81
CRG	68	66	85	68	71	72	73	85	66	74	72
SBC	75	72	89	75	72	71	78	82	68	76	82
WCH	69	68	80	66	68	64	69	77	62	64	81
WBY	74	71	83	71	62	64	68	66	66	73	69

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

**APPENDIX EIGHT:
PAID MEDIA ADVERTISING CAMPAIGN
JUNE – AUGUST 2005**

**Paid Media Advertising Campaign
June – August 2005**

Television Spots

	Paid Spots	Bonus Spots	Miscellaneous Bonus Spots	TOTAL
KWGN (2)	64	---	26 (billboards)	90
KCNC (4)	20	5	---	25
KMGH (7)	95	8	27 (billboards)	130
KUSA (9)	127	9	19 (billboards)	155
KDVR (31)	32	---	65 (:10 weather)	97
Comcast (Cable)	205	149	---	354
TOTAL	543	171	137	851

Radio Spots

	Paid Spots	Bonus Spots	Promotional Spots	TOTAL
KOA (850 AM)	3 (CCF)	---	---	3
KBCO (97.3 FM)	168 (AirWaves)	---	---	168
KRFX (103.5 FM)	15 (MDP)	---	14 (MDP)	29
KXKL (105 FM)	23 (MDP)	---	16 (MDP)	39
Premiere Traffic	467	85	---	552
TOTAL	676	85	30	791

Outdoor

Billboards (paid): 5 each month (June – August) at nine rotating locations
 Bus tails (bonus): 50 bus tails (July 14 – September 30)

Gasoline Pump Toppers

Suncor (bonus): 257 signs at 43 Phillips 66 stations (July)
 NextMedia (paid): 104 signs at 26 various stations (July)
 144 signs at 36 various stations (August)

Print Ads

*DNA (paid): 1 ad in each newspaper (Car Care Fairs)
 1 ad in each newspaper (Mow Down Pollution)
 **MHSP (paid): 1 ad in each of the 19 community newspapers (Car Care Fairs)

*Denver Newspaper Agency includes The Denver Post and Rocky Mountain News

**Mile High Suburban Press includes 19 local, community newspapers covering the metro area

APPENDIX NINE:

KNOWN MEDIA COVERAGE APRIL – SEPTEMBER 2005

Car Care Fairs:

- KCEC-TV Univision: Friday 10:00 pm news 4/29
- KMGH-TV 7NEWS: Saturday morning show 4/30 – with vehicle inspection
- KUSA-TV 9NEWS: Saturday morning show 4/30
- KCNC-TV CBS4: Saturday morning show 4/30
- *Denver Business Journal*: article and event listing (circ 20,000)
- Event coverage included on websites of 9NEWS, 7NEWS and CBS4
- YourHub.com: article and event listing

AirWaves High School Radio Scholarship Program:

- *Farmer and Miner* (Frederick)
- *Longmont Daily Times-Call*

Meteorologist Briefings:

- Briefed KMGH-TV 7NEWS Chief Meteorologist Mike Nelson weather producer on ozone challenge and RAQC's education campaign.
 - Secured daily inclusion of alerts in on-air newscasts and web site.
 - Resulted in article on TheDenverChannel.com's weather section.

Mow Down Pollution:

- KUSA-TV: four airings including meteorologist Marty Coniglio discussing Ozone Action Alert and meteorologist Nick Carter's segment on Mow Down Pollution event
- KOA-AM
- *La Voz Nueva* (circ. 30,000)
- Event coverage on 9NEWS web site
- YourHub.com: seven mentions

Clean Air Crew:

- Inclusion in KMGH-TV's coverage of Bike to Work Day
- YourHub.com: article
- Featured by editors of YourHub.com with photos and highlight of upcoming appearance at KidSpree event
- Life on Capitol Hill: front page picture

Ozone Action Alerts:

- KMGH-TV: ongoing throughout summer
- *Denver Post*., Metro ozone breaks federal standards
- KWGN-TV: ongoing throughout summer
- *Denver Post*: Ozone advisory issued as levels sour
- *Daily Camera*: Ozone levels rise with temps
- *Denver Post*: Six consecutive days of ozone action alerts
- Denvergov.org: Help Prevent Summer Ozone Pollution with tips
- TheDenverChannel.com: High Ozone Levels Affect Many People
- MileHighNews.com: Causes of local ozone problem hazy
- *Wheat Ridge Transcript*: Causes of local ozone problem hazy
- KDVR-TV: ongoing throughout summer
- LovelandFYI.com: Silent threat

Spanish Web site:

- *Rocky Mountain News*: Spanish web site announcement
- *La Voz Nueva*: Spanish web site announcement

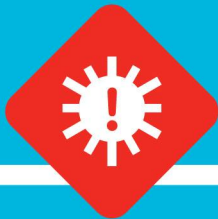
Local Government Communication:

- City and County of Denver: article in employee newsletter and online
- City of Englewood: interview with the mayor (cable channel 8)
- City of Federal Heights: article
- City of Golden: article
- City of Lakewood: interview with the mayor (cable channel 8)
- City of Northglenn: article and story on cable channel 8
- City of Thornton: article
- City of Westminster: article
- Denver Regional Council of Governments: article in regional newsletter
- University of Colorado at Boulder: article in employee newsletter

CREATIVE APPENDICES

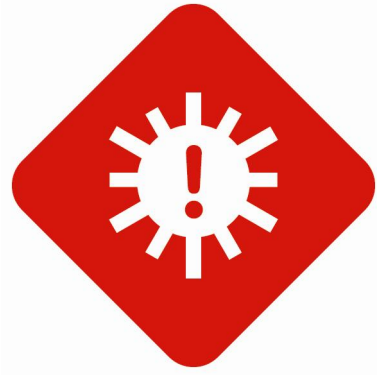
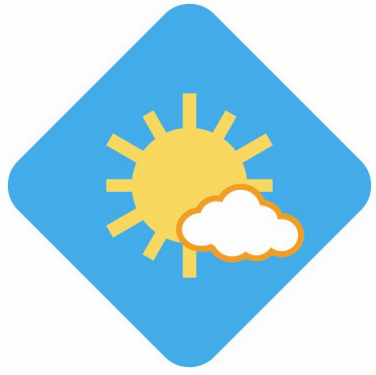
APPENDIX ONE:

TAGLINE AND GOOD/BAD OZONE ICONS



LET'S TAKE CARE OF OUR SUMMER AIR.

OzoneAware.org



APPENDIX TWO: WEB SITE: OZONEAWARE.ORG

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

Aug. 31 marked the end of the Summer Ozone Season. A total of 49 **Ozone Action Alerts** were issued between June and August. Despite record-breaking temperatures, the region maintained compliance with the federal ozone standard. Read the end-of-season **News Release** here.

Thank you to all of our partners and stakeholders for doing their part to take care of our summer air. Especially those 700 individuals who took the **pledge to "chill"** on hot summer days. **These people** pledged to avoid activities -- such as driving, mowing, and painting and staining -- that cause ozone pollution.

Be sure to check back here for more end-of-season updates and the final report.

Ozone Information | Preventing Ozone | Newsroom | Summer Chill | About RAQC | Contact

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

- ▶ Enter your pledge now.
- ▶ See the names of your neighbors who have pledged.

Front Range Air Quality
3 PM 09/15/06
- GOOD -
Visibility: Good
No Alert in Effect
Click for more...

Signup for Ozone Action Alert
Enter your email address below:
 Go

- 49 Ozone Action Alerts issued to date (08/31/06)
- [Click here](#) to find out more about the Alerts

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**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

Name _____ Email _____

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?

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. Take the pledge this summer to help take care of our summer air.



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

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



Regional Air Quality Council
1445 Market Street, Suite 260
Denver, CO 80202



CHILL. HANG. BE COOL.



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

APPENDIX SIX: ONLINE "CHILL" PLEDGE

Register a Pledge - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail Stop

Address <http://pledge.ozoneaware.org/> Go Links

PLEDGE TO CHILL.
Join the non-movement. Pledge to do less on hot summer days:

Pledge to Chill.
Please join the non-movement. And pledge to do less on hot summer days. You'll help us reduce ozone pollution when you avoid these activities during the heat of the day. So do your part, and chill.

Name:

City:


I pledge to...

- drive less, walk to lunch, run errands after work
- refuel my car after 5pm and stop at the click
- mow after 5pm on hot summer days

Yes, please [display my pledge](#) on the web site:

Stay tuned for developments. Our partners will be offering discounts and giveaways for some cool chill stuff. We'll also be working with partners to provide some Summer Chill Zones - laid back places where you can go to just chill, read a book, surf the net or enjoy a cold drink.

Be sure to check back in the coming weeks for a list of Chill Zones and partners and the latest Summer Chill news! Thank you to all of our "chill" partners for encouraging all of us to stay cool this summer by taking the pledge to chill.

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

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