

**2000 Voluntary Ozone  
Reduction Program Summary**



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We would like to thank the following organizations for their efforts this summer to reduce ozone pollution. Without these partners, the RAQC's Voluntary Ozone Reduction Program would not have been possible.

Associated Landscape Contractors of Colorado

Building Owners and Management Association, especially

*Mile High Companies*

*Colorado Center*

*Mile High Center*

*Qwest Tower*

Brookfield Properties

*Republic Plaza*

Trammell Crow Company

Colorado Department of Public Health and Environment

Colorado Department of Transportation

Colorado Petroleum Association

*Conoco*

*Frontier Oil*

*Phillips Petroleum*

*Sinclair Oil*

*Ultramar Diamond Shamrock*

Colorado Wyoming Petroleum Marketers Association

Denver Regional Council of Governments

Envirotest Systems Corporation

7-11, Inc.

Metropolitan Area Independent Emissions Testing Stations

Metropolitan Area Local Governments

## 2000 Voluntary Ozone Reduction Program

The Regional Air Quality Council (RAQC) has concluded the 2<sup>nd</sup> year of its voluntary ozone reduction program. The 2000 program, launched with numerous stakeholders from the Denver metropolitan area, worked with local governments, businesses, transportation organizations and citizens to educate the Denver metropolitan area about ozone pollution and how to reduce it.

Ground-level ozone pollution is a summer time pollutant that occurs when volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. 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 levels of ozone.

Ozone levels were very high in 1998 making the 1999 and 2000 summers critical for reducing ozone pollution.

Although the 2000 effort reached new audiences and participants for ozone reduction, the region did technically violate the 8-hour ozone standard. A violation occurs when the 3-year average of the 4<sup>th</sup> highest maximum level of ozone recorded at any given monitor is 85 parts per billion (ppb) or higher. One monitor now has a 3-year average of 86 ppb.

It is imperative that the Denver metropolitan area maintain efforts to reduce ozone pollution not only to improve air quality and public health but also to keep levels low and reduce the amount of control measures that may have to be introduced to maintain federal standards. The 8-hour ozone standard currently is being disputed in the Supreme Court and the Environmental Protection Agency (EPA) has re-instated the

old 1-hour standard. These issues will be discussed further on page 2.

The voluntary ozone reduction program aimed to reach as many people as possible to bring awareness about ground level ozone pollution. The program consisted of the following:

- Continuation of the ozone alert system, similar to the winter alert system, designed to warn people in advance of potential high ozone days and to encourage changes in ozone contributing behaviors;
- Securing voluntary reductions in the Reid Vapor Pressure (volatility) of gasoline through a partnership with the petroleum refining industry;
- Reducing gasoline vapor emissions by working with the local petroleum marketers to distribute stickers that encourage individuals to "Stop at the Click";
- Changes in operations by local governments to help reduce ozone-causing VOCs;
- Targeted outreach to the landscape and building owner and management industries;
- A series of media and special events designed to highlight ozone pollution and strategies for reducing it;
- The "Put a Cap on Ozone" gas cap replacement program; and,
- A Smart Sign public education program.

This 2000 program was made possible through support from a Congestion Mitigation Air Quality (CMAQ) grant from the federal government, administered by the

Denver Regional Council of Governments (DRCOG) and a pollution prevention grant from the Colorado Department of Public Health and Environment (CDPHE). Additional support came from the Colorado Department of Transportation (CDOT), Envirotech Systems Corporation and local governments throughout the metropolitan area.

## **8-Hour and 1-Hour Ozone Standard Update**

### ***8-Hour Ozone Standard***

In 1997, EPA established a new 8-hour standard of 80 ppb, to replace the previous 1-hour ozone standard. Under the new standard, a violation occurs if the 3 year average of the 4<sup>th</sup> highest recorded levels of ozone at a monitor is greater than or equal to 85 ppb.

During the 2000 ozone season, the RAQC was most concerned with levels recorded at the National Renewable Energy Laboratory (NREL) monitor in Golden. The 4<sup>th</sup> highest value at this monitor could not be above 79 ppb in order to remain in attainment with EPA's 8-hour ozone standard.

Unfortunately, the NREL monitor recorded values above this threshold. Please see Table 1 in Appendix A which lists the 4<sup>th</sup> maximum ozone levels recorded in the region in 2000.

This resulted technically in a violation of the 8-hour standard as the 3-year average at NREL is now 86 ppb. The 8-hour standard, however, is being disputed in the Supreme Court and the court must rule on the 8-hour ozone standard before the region knows what, if any, mandatory federal control measures will be put in place to reduce ozone pollution. The Supreme Court will rule on the standard by next spring.

It is also important to remember that the region's current 3-year average is heavily influenced by the unusually high values from the summer of 1998, when the NREL monitor recorded a 4<sup>th</sup> maximum of 95 ppb. Fortunately, levels from 1999 and 2000 have been much lower than those seen in 1998. As a result, in 2001, the region will be able to discard the 1998 values and hopefully have a normal summer in 2001 take its place. The RAQC does not know at this time whether EPA will take into account this situation when deciding on nonattainment designations in the future.

### ***1-Hour Ozone Standard***

On July 5, 2000, the EPA reinstated the 1-hour ozone standard since the 8-hour standard is being debated in the Supreme Court. EPA also reinstated the Denver metropolitan area's previous designation as nonattainment even though the region has not violated the 1-hour standard since 1987.

The RAQC has proposed a maintenance plan and redesignation request that will be considered by the Air Quality Control Commission (AQCC) on January 11, 2000. After approval by the AQCC in January and the General Assembly in February, Governor Owens then will submit the plan to EPA in March for final approval. EPA is expected to approve it in May so that Denver can be redesignated as attainment for the 1-hour ozone standard in June, 2001.

The federal 1-hour ozone standard is 120 ppb and a violation occurs when the 3 year average of exceedances is greater than 1 per year. The Denver metropolitan area did not exceed the 1-hour standard during the 2000 ozone season. Please see Table 2 in the Appendix A for additional 1-hour ozone information.

## Ozone Advisory Program

### *Description*

The Technical Services staff of the Air Pollution Control Division (APCD) developed a system to forecast imminent meteorological conditions that support the development of ozone concentrations above 75 ppb. APCD staff meteorologists used national and local weather data and an array of national predictive models to make the advisory calls, effective at 4:00 p.m. each day for the following 24-hour period.

Using the APCD's advisory calls, the RAQC staff faxed and e-mailed ozone action alerts to the media, local governments, businesses and citizens when the conditions were right for high ozone days.



The RAQC faxed ozone action alerts to 42 local government representatives, 25 media outlets and e-mailed to 184 people representing business, government and private citizens.

These alerts allowed local governments to make changes in operational behavior to reduce volatile organic compounds. It was also an opportunity for them to inform their citizens of the high ozone day through signs, web site updates and cable television updates. The alerts provided the media the information to broadcast the high ozone potential and to encourage changes in ozone-causing behaviors.

### *Results*

The record-breaking 61 days with temperatures above 90 degrees, including 26 in July alone, resulted in a large number of alerts this year. Twenty-seven alerts were called in all including 3 in June, 15 in July and 9 in August.

The increase from 8 alerts issued in 1999 reflects both an attempt to have better alert coverage for the high days and the hotter summer experienced in Colorado. Alert forecasts improved significantly this year, and the Division anticipates continued improvement in 2001. During 2000, there were 9 days above 80 ppb and 2 days above 85 ppb.

Please see Table 3 in Appendix A for a chart of the ozone levels recorded in 2000. Table 4 provides a history of the 8-hour ozone levels in the metropolitan area since 1992.

## Voluntary Reductions in the Reid Vapor Pressure

### *Description*

The RAQC, AQCC and APCD worked with the local refiners to voluntarily reduce the Reid Vapor Pressure (RVP) of the gasoline sold in this region. The RVP measures volatility in gasoline, meaning the higher the volatility, the more VOCs are released when it is used or evaporated.

The voluntary reduction lowered the RVP from 9.0 pounds per square inch (psi) to 8.5 psi for non-ethanol fuels and from 10.0 psi to 9.5 psi for ethanol for the summer season. The refiners agreed to make the reduction from Memorial Day through Labor Day.

Refiners who participated in the program included: Conoco, Frontier Oil, Sinclair, Ultramar Diamond Shamrock and Phillips Petroleum. The five refiners supply nearly all the gasoline in the Denver market.

### **Results**

The APCD staff randomly sampled the fuel at metro area gas stations during the 2000 season. For non-ethanol fuel, the RVP was reduced from 9.0 to 8.2 psi. For ethanol-blended fuels, the RVP was reduced from 10.0 to 9.4 psi. Because of favorable ethanol prices, 60 percent of gasoline sold in the summer of 2000 was blended with ethanol, an unusually high number. Therefore, the weighted average of the RVP was 8.9 psi, a reduction of 0.7 psi.

## **Outreach to Petroleum Marketers**

### **Description**

One source of the hydrocarbons that contribute to ozone pollution production is spilled and evaporated fuel. By eliminating the overfilling of the fuel tank, small fuel spills, drips, and excess evaporation are eliminated. The RAQC worked closely with the Colorado Wyoming Petroleum Marketers Association (CWPMA) and the Colorado Petroleum Association to provide stickers to gas retailers that educate the public about the need to "Stop at the Click."

Stopping at the click reduces spills and evaporation. In addition, overfilling can disable emissions equipment.



### **Results**

The CWPMA helped distribute more than 4,700 gasoline pump stickers to gasoline vendors throughout the metro region. Many independent and corporate retailers participated last year including Royal Crest Dairy, BP Amoco, Texaco, Sinclair, among others. This year, Ultramar Diamond Shamrock, Xcel Energy, 7-11 Corporation and numerous independent retailers joined the effort. Local governments throughout the region also placed the stickers on their own pumps for fueling government-owned vehicles.

## **Local Government Operational Changes**

### **Description**

Metropolitan area local governments have been a significant partner in the ozone reduction effort. Many local governments coordinated with Public Works, Parks and Recreation and Public Information departments to change operations and to get the word out about ozone pollution and ways to reduce it.

### **Results**

After two years of working with metro-area local governments on ozone awareness and ozone reduction activities, most have started to integrate ozone reduction activities into summer time operations.

Employees now stop at the click when refueling vehicles, have avoided, when possible, the use of gas-powered lawn equipment and have reduced idling.

Many local governments also e-mailed employees on ozone alert days, displayed

signs and pursued other avenues to tell citizens about ozone pollution.

Another example of ozone reducing activities include Jefferson County staff planting slower growing buffalo grass which requires less mowing. Also, Douglas County staff completely switched to low VOC striping paint. The City and County of Denver handed out chocolates to employees on ozone alert days if they did something to reduce ozone pollution. and distributed prizes and gift certificates at the end of the ozone season. See Appendix B for additional information on specific local government actions.

**Targeted Outreach to Landscape and Building Owner and Management Industries**

**Description**

One way to reduce ozone pollution is to prevent it from occurring in the first place. Through a pollution prevention grant from the Colorado Department of Public Health and Environment, the RAQC specifically worked with the Associated Landscape Contractors of Colorado (ALCC) and the Building Owners and Management Association (BOMA).

These two associations provide an important link to people using lawn and garden equipment and solvents—two activities that contribute to ozone pollution.

The RAQC worked with ALCC members to give them information about best management practices in their industry including:

- Avoid gasoline spillage;
- Avoid idling;
- Keep vehicles and equipment tuned;
- Refill gas tanks after 6 p.m.; and,
- Replace pre-1997 lawn equipment.

BOMA provided an opportunity for ozone education with the businesses that manage large commercial buildings. The RAQC presented information to the governmental affairs committee of BOMA on low-VOC solvents and best management practices for lawn maintenance.

**Results**

The RAQC presented information about ozone pollution to ALCC members at a monthly dinner meeting. Also, ALCC published an article in their newsletter, which is sent to 438 members, on ozone pollution each month during ozone season.

Five BOMA members used their concierge desk to display high ozone alert signs and to provide information about ozone pollution. BOMA also published an article in its association newsletter and organized a lunch to summarize the ozone season. Working with BOMA allowed the RAQC to reach many hundreds of businesses and more than 7,100 employees in the metropolitan area.

**Media, Special Events and Public Outreach**

**Media Description**

As part of its effort to educate the general public about ozone reduction tools and strategies, the RAQC participated in or initiated a variety of media events to let the public know more about ozone’s health effects and ways to reduce ozone pollution.

The RAQC hosted an ozone media seminar for reporters and public information officers with Marty Coniglio, Channel 7 Chief Meteorologist, as one of the featured speakers. The press conference

announcing the start of ozone season also was covered by the press. As the RAQC issued press releases forecasting high ozone days, media highlighted these alerts.

### **Media Results**

More than 20 major television stories were developed and aired about ground-level ozone pollution during the 2000 summer ozone season. Stories aired on WB2, News 4, 7 News, and 9 News. Channel 7 meteorologist Marty Coniglio announced every ozone alert day and reminded people about ozone-reducing actions they could take.

Radio coverage and interviews were conducted by Clear Channel Radio, Jefferson Pilot and Metro Network Radio stations.

The Greater Metro Telecommunications Consortium (GMTC), which broadcasts *Metro Voices*, a quarterly program on issues of concern for residents in the metropolitan area, produced and aired *Metro Voices: The Air We Breathe*, providing ozone information through cable access television. GMTC membership includes: Adams County, Arapahoe County, Arvada, Aurora, Brighton, Castle Rock, Cherry Hills Village, Commerce City, City and County of Denver, Douglas County, Edgewater, Englewood, Glendale, Golden, Greenwood Village, Idaho Springs, Lafayette, Lakewood, Littleton, Northglenn, Parker, Sheridan, Thornton, Westminster and Wheat Ridge.

### **Public Outreach Description**

The public outreach effort of the voluntary ozone reduction program expanded on the accomplishments of the 1999 program. RAQC staff made presentations, staffed booths at special events and festivals, and disseminated information about ozone pollution. The RAQC web site, [www.raqc.org](http://www.raqc.org), hosted an ozone survey and

listed ozone reduction strategies. RAQC staff was responsible for faxing and e-mailing ozone action alerts to local governments, businesses and citizens.

### **Public Outreach Results**

RAQC staff presented information about ozone pollution to more than 30 organizations, governments and businesses. More than 9,800 brochures and 2,000 flyers were distributed to businesses and organizations and at special events.

Ozone articles placed in local government and other newsletters reached more than 285,000 households and nearly 100 people filled out the ozone pollution survey that was located on the RAQC website. Results are available from the RAQC.

## **“Put a Cap on Ozone” Gas Cap Replacement Program**

### **Description**

From June 15 through September 15, 2000, the RAQC in conjunction with the Colorado Department of Public Health and Environment (CDPHE), Colorado Department of Transportation (CDOT), Envirotech Systems Corporation, independent emissions testing stations and NAPA Auto Parts, launched a gas cap replacement program.

Evaporative gasoline emissions can account for up to 6 percent of volatile organic compound (VOC) emissions on any given day in the Denver metropolitan area. This amounts to nearly three tons of air pollution per day. Pollutants in evaporative emissions are a key ingredient in ground-level ozone formation.



The \$80,000 program was made possible by support from CDOT and Envirotech Systems Corporation. NAPA provided all the gas caps at cost. "Put a Cap on Ozone" gave free gas caps to any motorist whose vehicle failed its emission test, because of a faulty or missing gas cap, at Air Care Colorado testing stations or independent testing stations.

Drivers whose vehicles required unusual or specialized gas caps not readily available at the testing facility were issued a voucher for a \$5 credit toward the purchase of the desired gas cap at any NAPA store in the metropolitan area.

The State of Colorado recently implemented new requirements in the emissions testing procedure that failed vehicles which undergo an emissions test if their gas cap is not operating properly. Previously the gas cap test was an "advisory" test and not a pass/fail item. Motorists whose vehicle did not have a gas cap always have failed the emissions test. Implementation of the "Put a Cap on Ozone" program provided an opportunity to educate motorists about the health and regulatory benefits of properly-working gas caps as an ozone pollution control strategy.

### **Results**

At the end of the ozone season, approximately 9,500 gas caps had been replaced and nearly 3,000 gas cap vouchers had been handed out, with 1,256 redeemed. This is estimated to reduce VOC emissions by 660 pounds per day—or the equivalent of driving round trip from Denver to Boulder nearly 2,300 times. In the summertime, faulty gas caps allow one gallon of gas to evaporate every 15 days.

With the success of this program, the RAQC has secured Congestion Mitigation Air Quality grant money to continue the program for next year's ozone season.

## **Smart Sign Program**

### **Description**

The Smart Sign is a tool to raise public awareness about the importance of a well-maintained car. Vehicles pass through an invisible beam that measures hydrocarbons, which form ozone pollution in the presence of sunlight. The sign then flashes a "good," "fair," or "poor" reading to help motorists assess their vehicles's fuel efficiency and overall condition.

### **Results**

With assistance from Envirotech Systems Inc. and local governments, the RAQC provided the Smart Sign for eight weeks this summer in Aurora, Boulder, Douglas County, Lakewood, Northglenn, Thornton and Westminster.

Nearly 160,000 vehicles were measured by the Smart Sign this past summer. Approximately 13% of those vehicles were responsible for 70% of the hydrocarbon emissions recorded during the program. This data confirms what other studies have shown that a small number of vehicles are responsible for a large portion of the total pollution emitted.



**Put a cap on ozone!**

## Summary and Future Plans

The 2000 Voluntary Ozone Reduction Program complemented and expanded on the efforts of the 1999 program. The RAQC conducted outreach not only with local governments but also with businesses, transportation management organizations and other concerned groups. This enabled the RAQC to reach a broader audience with the ozone pollution reduction message.

The RAQC also cultivated relationships with the media to ensure accurate and pertinent coverage. This helped get out a consistent message to audiences across the metropolitan area.

During 2000, ozone information was presented to more than 30 local governments and organizations and was delivered to more than 285,000 households. An additional 4,700 "Stop at the Click" stickers were placed on area gas pumps. More than 10,750 gas caps were replaced during the "Put a Cap on Ozone." Brochures and flyers were distributed at festivals, fairs, concierge desks and other municipal and business locations. Finally, email and fax alerts and web pages generated additional awareness about ozone pollution.

As the RAQC works with its partners to plan for 2001, the status of the 8-hour and 1-hour ozone standard will affect those efforts. The Supreme Court will rule on the 8-hour ozone standard by next spring. Until the court rules, the region will not know what, if any, additional control strategies will be needed for ozone pollution.

Outreach efforts, including the Voluntary Ozone Reduction Program and the "Put a Cap on Ozone" program, will be continued to keep the Denver metropolitan area in

attainment of federal ozone standards and to help improve the region's air quality.

For additional information about the 2000 Voluntary Ozone Reduction Program, contact Laura Hagg Nelson at the RAQC, 303-629-5450, x220 or [lhnelson@raqc.org](mailto:lhnelson@raqc.org).

# **Appendix A**

## Appendix A

**Table 1. 8-Hour Ozone Concentrations for selected monitors for 2000 (ppb)**

<b>Monitor</b>	<b>1st Max</b>	<b>2nd Max</b>	<b>3rd Max</b>	<b>4th Max</b>
<b>NREL</b>	<i>28-Jul</i>	<i>20-Jul</i>	<i>2-Aug</i>	<i>1-Aug</i>
	89	84	83	83
<b>Rocky Flats</b>	<i>28-Jul</i>	<i>15-Aug</i>	<i>16-May</i>	<i>9-Aug</i>
	84	83	82	81
<b>S. Boulder Creek</b>	<i>9-Aug</i>	<i>13-Jul</i>	<i>15-Aug</i>	<i>7-Jun</i>
	78	77	75	71
<b>Highlands Ranch</b>	<i>28-Jul</i>	<i>15-Jul</i>	<i>20-Jun</i>	<i>3-Aug</i>
	86	85	78	76
<b>Chatfield</b>	<i>15-Jul</i>	<i>2-Aug</i>	<i>28-Jul</i>	<i>20-Jul</i>
	83	80	80	80

Standard exceedance  $\geq 85$  ppb.

**Table 2. Four Highest Values for the 1-Hour Ozone Standard for 2000 (ppb)**

<b>Monitor</b>	<b>1st Max</b>	<b>2nd Max</b>	<b>3rd Max</b>	<b>4th Max</b>
<b>NREL</b>	<i>28-Jul</i>	<i>10-Aug</i>	<i>16-Jul</i>	<i>16-May</i>
20th & Quaker, Golden	118	107	101	99
<b>Rocky Flats North</b>	<i>28-Jul</i>	<i>10-Aug</i>	<i>9-Aug</i>	<i>16-May</i>
16600 W. Highway 128	103	97	95	94
<b>South Boulder Creek</b>	<i>9-Aug</i>	<i>10-Aug</i>	<i>13-Aug</i>	<i>15-Aug</i>
1405 ½ S. Foothills Parkway	99	90	90	85
<b>Highlands Ranch</b>	<i>28-Jul</i>	<i>15-Aug</i>	<i>15-Jul</i>	<i>3-Aug</i>
8100 S. University Blvd.	111	97	96	96
<b>Chatfield</b>	<i>20-Jul</i>	<i>28-Jul</i>	<i>15-Jul</i>	<i>3-Aug</i>
11500 N. Roxborough Park Rd.	106	104	102	96

Standard exceedance  $\geq 125$  ppb.

**Table 3 Annual 4<sup>th</sup> Maximum 8-Hour Concentrations (ppb)**

<b>Monitor</b>	<b>1997 4th Max</b>	<b>1998 4th Max</b>	<b>1999 4th Max</b>	<b>2000 4th Max</b>	<b>97-99 Ave.</b>	<b>98-00 Ave.</b>	<b>2001 Allow.</b>
<b>NREL</b> 20th & Quaker, Golden	75	95	80	83	83	86	91
<b>Rocky Flats</b> 16600 W. Highway 128	75	92	80	81	82	84	93
<b>S. Boulder Creek</b> 1405 ½ S. Foothills Parkway	72	89	75	71	78	78	108
<b>Highlands Ranch</b> 8100 S. University Blvd.	65	84	75	76	75	78	103
<b>Chatfield</b> 11500 N. Roxborough Park Rd.	75	81	75	80	77	79	99

Violation: 3 year average of 4<sup>th</sup> maximum is equal to or greater than 85 ppb.

2001 Allow. is the 4<sup>th</sup> highest value allowed to be recorded at that monitor to maintain compliance with the 8-hour standard.

**Table 4. Historical 8-hour Ozone Levels**

<b>Monitor</b>	<b>1992*</b> 3rd Max	<b>1993*</b> 3rd Max	<b>1994*</b> 3rd Max	<b>1995</b> 4th Max	<b>1996</b> 4th Max	<b>1997</b> 4th Max	<b>1998</b> 4th Max	<b>1999</b> 4th Max	<b>2000</b> 4th Max
<b>NREL</b> 20th & Quaker, Golden	-	84	84	79	82	75	95	80	83
<b>Rocky Flats North</b> 16600 W. Highway 128	64	88	81	80	83	75	92	80	81
<b>Chatfield</b> 11500 N. Roxborough	-	-	-	74	79	75	81	75	80
<b>Arvada</b> 9101 W. 57th	71	69	72	71	73	70	89	72	76
<b>Highlands Reservoir</b> 8100 S. University Blvd.	66	74	76	68	73	65	84	75	76
<b>S. Boulder Creek</b> 1405 ½ S. Foothills	-	85	75	74	75	72	89	75	71
<b>Carriage</b> 23rd & Julian St.	74	66	64	68	68	66	85	68	71
<b>Welby</b> 3174 E. 78th Ave.	70	68	69	71	74	71	83	71	62
<b>Welch</b> 124000 W. Hwy. 285	81	72	70	70	69	68	80	66	68

# **Appendix B**

## Appendix B

### Local Government Ozone Reduction Highlights

*This section highlights activities of local government to reduce ozone pollution. Every effort was taken to contact each city and county in the Denver metropolitan area. However, this is not necessarily a comprehensive list but more of an overview of actions taken.*

#### Counties

##### Adams County

Contact: Dave Schmitdline, 303-853-7057.

- All employees are e-mailed the ozone action alerts
- Stop at the click stickers have been placed on all county fuel pumps
- Employees are encouraged to reduce the use of equipment that produces volatile organic compounds (VOCs) on high ozone days, to reduce idling and to stop at the click.
- Literature has been displayed in county offices
- Department directors have been educated on ozone reduction strategies

##### Arapahoe County

Contact: Bob Patterson, 303-795-4400.

- An article on ozone pollution was placed in the *County Line*, an employee newspaper with a circulation of 1600 employees
- Ozone action day alerts were sent to managers of fleets, roads and grounds. These managers then sent the alert out to field offices
- Fueling is done as late in the day as possible - especially on high ozone days
- Stopping at the click is encouraged through stickers on pumps, and vehicles and equipment are tuned up on a regular basis

- During ozone season, the road and bridge and the fleet departments go to a four day week schedule to keep resource use, including fuel and other VOCs, lower

##### Boulder County

Contact: Gabi Hoefler, 303-441-1147.

- Staff distributed literature at the Boulder Creek Festival (120,000 attendees) and provided information on ozone pollution at the transportation fair
- Ozone alert information is posted in all county buildings
- E-mail action day alerts are sent to departments throughout the county that are sources of VOCs
- E-mail ozone action alerts are posted to members of the Clean Air Consortium including tips on ozone reduction strategies
- The county worked with the *Daily Camera* to develop an ozone pollution story
- Managers and supervisors have been instructed to look for more efficient equipment (3 stroke vs 2 stroke engines) when the time comes to replace them, even if the cost is higher

## Douglas County

Contact: Kristin French, 303-660-7401

- All employees are e-mailed the ozone action alerts
- Stop at the click stickers have been placed on all county fuel pumps
- The county only purchases low-VOC striping and other paints
- Employees are encouraged and reminded to reduce idling
- The Smart Sign was located in the county from July 17 - 21, 2000

## Jefferson County

Contact: Jim Dale, 303-271-5718.

- The county planted slower growing buffalo grass which requires less mowing
- On high ozone days, grass near bridges and overpasses that do not have pedestrian access are not mowed
- The Department of Health has purchased a natural gas vehicle and have another one ordered
- Ozone action day alerts were sent to county division heads including Fleet and Facilities Departments
- "Stop at the click" stickers have been posted on all county gasoline pumps
- Bulletins on ozone reduction were placed in the *County Line* (a monthly newsletter) as well as in periodic e-mails to county employees
- The Facilities Department allowed some grass areas in the county to revert to their natural prairie state that requires no mowing
- Future efforts will focus on replacing older, small gas-powered engines and planting more prairie grass and xeriscaping

## Cities

### Arvada

Contact: Maria Vanderkolk, 303-431-3000

- The city included information on ozone in the *Arvada Report* which is sent to 52,000 households

### Aurora

Contact: Tim Cunningham, 303-739-7458

- All interested employees receive an e-mail regarding ozone action day alerts
- The departments of Public Works and Parks and Open Space received daily ozone action day alerts by e-mail or fax
- The access desk at the Aurora Municipal Building and the Aurora Central Library have information on display including brochures and the tabletop ozone awareness sign
- "Stop at the Click" stickers were placed on all gasoline and diesel fuel pumps in 1999
- Articles were placed in citizen and employee newsletters
- *The Air We Breathe* cable television program was aired on 6/21, 7/6, 7/8, 8/24 and 8/26
- The Smart Sign was placed in Aurora from July 10 - 17 and measured a total of 12,846 vehicles
- The *Aurora Sun Sentinel* ran a story on the Smart Sign and summer ozone in its July 13 edition

### Boulder

Contact: Alice Guthrie, 303-441-1915

- RAQC staff made presentations to City Council, to City field staff and to the Environmental Advisory Board



- The city Environmental Affairs staff sent out e-mail messages to city employees on ozone alert days along with specific actions they could take at home and at work
- The city paid half the cost of the Smart Sign which was placed in Boulder for two weeks, August 14 - 28, 2000
- An ozone article was placed in the city employee newsletter which is sent to approximately 2,000 people
- Brochures were placed in the municipal building along with signs alerting citizens to ozone action days
- City staff helped distribute ozone pollution information at the Boulder Creek Festival
- Parks and Recreation staff delayed mowing on high ozone days and using small gas powered equipment
- Streets (median maintenance) delayed using sources of VOCs on high ozone days as well as avoided using small gas-powered equipment
- The Open Space Department also avoided using gas-powered equipment on high ozone days
- The city declared the month of June "Ozone Awareness Month" and received publicity regarding that declaration
- The *Daily Camera* also ran an article on ozone and focused on the Utilities Department and changes they were making during the ozone season
- The City's web site contained ozone facts and actions and linked to the RAQC's website for ozone alert information

### **Brighton**

Contact: David Spronk, 303-655-2000.

- On high ozone days, a phone message is sent to all extensions in the City asking them not to run small engines, not refuel, and not to use VOC emitting products unless absolutely necessary
- "Stop at the click" stickers have been placed on city gas pumps

### **Broomfield**

Contacts: Kirk Oglesby and Rosann Doran, 303-469-3301

- Ozone alerts are forwarded to everyone in the city who has e-mail
- RAQC staff made a presentation at a City Council meeting
- *The Air We Breathe* ran twice a day, 7 days a week from July through September 15
- Employees are trained to stop at the click, to keep vehicles tuned and to avoid idling on ozone action days
- City staff avoided the use of VOC emitting products whenever possible
- Street striping personnel use latex paint and dispose of solvent-soiled rags carefully
- The city is working on retiring most of the pre-97 engines by 2003. The majority of engines are post 1997
- "Stop at the click" stickers are on all the city's gas pumps and equipment is maintained daily
- Parks and recreation staff are pulled off of jobs using hand-held, gas powered lawn equipment on high ozone days

### **Cherry Hills Village**

Contact: Cheryl Kuechenmeister, 303-783-2722

- Ozone reduction strategies were discussed at department head meeting
- Local Government Checklist of ozone reduction strategies sent to all departments
- Police and Public Works departments were sent the ozone alerts as a reminder to fuel as late in the day as possible and to "stop at the click."

## Denver

Contact: Alice Nightengale Luhan, 303-285-4043.

- On high ozone days, small gasoline-powered engines are not used. The City is able to sustain this for about two days, then grounds maintenance concerns require getting these engines back to work
- A variety of incentives, including chocolate treats, were created for employees who used alternative modes of transportation, avoided mowing, or employed any other ozone reducing strategies
- Employee Transportation Coordinators within the city were used as a conduit to get ozone reduction information out to city employees
- E-mail alerts are sent to all employees on high ozone days
- A newsletter article on ozone was included in the employee newsletter which is mailed to 9,000 employees
- An ozone article was included in the city's Department of Health Newsletter
- Staff is developing a matrix that can be used to quantify the amount of pollution avoided as a result of changes in operational practices
- RAQC staff made a presentation to the Mayor's cabinet meeting and to vendors at DIA
- Local television interviewed the Manager of Environmental Health on the city's ozone reduction efforts

## Erie

Contact: Judy Ding, 303-926-2700

- Information on ozone pollution and how to reduce it was forwarded to all field staff
- Staff encouraged to "stop at the click" and to refuel as late in the day as possible

## Federal Heights

Contact: Don Pardis, 303-428-3526, x270

- Public Works staff refrained from mowing on high ozone days
- Staff encouraged to refuel vehicles and equipment as late in the day as possible

## Golden

Contact: Tami Johnson, 303-384-8119.

- A community awareness article on ozone was included in the city's newsletter reaching 8,500 residents and businesses
- A general press release on ozone went out from the city to local news
- A special committee comprised of "possible ozone contributors" was held to provide awareness and to put an ozone reduction plan into place
- City Manager Mike Bestor held a meeting with Department heads and reviewed the ozone reduction strategies
- Ozone awareness messages also were posted on the city's government access channel

## Lakewood

Contact: Ron Ritschard, 303-987-7050

- The City wrote an article for their citizen newsletter, *Looking at Lakewood*, that was mailed to 67,000 households
- RAQC staff made a presentation to a City Council study session
- Staff fueled vehicles as late in the day as possible, stopped at the click when refueling and avoided idling
- Staff postponed mowing when they can and kept the lawn equipment well-maintained
- The City used water-based paints only
- The Smart Sign was located in the city from June 1 - 8, 2000

### Greenwood Village

Contact: Michelle Kivela, 303-486-5743.

- The City Manager sent out a letter to all employees encouraging efforts to limit city operations which produced VOCs
- An ozone awareness article in the city newsletter also went out to residents
- Staff fueled vehicles and equipment at the end of the day and stopped at the click when refueling
- The city will be retiring all pre-1997 equipment this year. Usually such equipment is sold at an auction, but to avoid adding to air pollution, the city will sell the equipment for scrap metal
- The city has purchased 2 electric vehicles and would like to acquire more
- Next year, the city will strive to turn high ozone days into equipment maintenance days, so they use lawn equipment as little as possible on those days

### Littleton

Contact: Kelli Narde, 303-795-3733.

- Ozone awareness month was declared for the month of July
- An article on ozone was included in the *Littleton Report* with a circulation of 21,000
- Information on ozone was posted on the city's web site
- *The Air We Breathe* aired regularly on Channel 8

### Longmont

Contact: Dave VanAllen, 303-651-8332.

- City staff sent ozone e-mail hotline to all relevant departments
- Distributed the ozone checklist to each department so they had suggested strategies for ozone reduction on high ozone days and throughout the summer
- RAQC staff made a presentation to City Council

### Louisville

Contact: Heather Balsler, 303-666-6565, ext 162.

- Staff wrote an article for the city newsletter which went out to 7,800 households.

### Northglenn

Contact: Bruce Shipley, 303-450-8831.

- The City has alerted employees to stop at the click and to refuel as late in the day as possible
- RAQC staff made a presentation to the City Council
- The city staff prepared a cable access television interview featuring the mayor interviewing RAQC staff, Laura Hagg Nelson and Jerry Dille, on ozone pollution and citizen action. This program was aired on city cable access channel throughout the month of June
- The Metro Voices program, *The Air We Breathe*, was aired throughout the summer
- The city hosted the Smart Sign from July 24 - 31, 2000

### Thornton

Contacts: Jan Dexter Blunt and Joyce Hunt, 303-538-7238.

- Staff developed and distributed a newsletter article and payroll insert to all employees. An article also went out in the city newsletter to 34,000 households
- Staff developed an internal e-mail committee with contacts from each of the relevant operational departments
- Staff displayed flyers and brochures at recreation centers and city field offices
- General information on ozone is placed on the city's web site; next year ozone alert day notices will be on the web site
- Staff worked with the *Northglenn/Thornton Sentinel* to publish an article on ozone

- Staff sent e-mail notices of high ozone days to a designated ozone committee
- On individual high ozone days, no mowing is done
- On consecutive days the postponement of mowing was less likely
- *The Air We Breathe* cable show was aired regularly throughout the ozone season
- The city hosted the Smart Sign from August 3 - 14, 2000
- Staff worked with Lamar Outdoor Advertising to place ozone reduction posters in bus shelters throughout the City

### Westminster

Contact: Rachel Harlow-Schalk, 303-430-2400.

- The city helped create, produce and air the cable program, *The Air We Breathe*, for Channel 8
- The city sent out an e-mail to every city department and every employee reminding them about what they can do to reduce ozone pollution
- An ozone article was included in the city's newsletter, *City Edition*, that was mailed to nearly 50,000 households
- The city distributed "Stop at the Click" refrigerator magnets, reminding citizens to not overfill their vehicle's gasoline tank
- The city hosted the Smart Sign from June 27 - July 5, 2000