

**Agenda for the Meeting of the
Air Improvement Resources Executive / Advisory Committees
Wednesday, March 27, 2002 9:00 a.m.
Alamo Area Council of Governments
8626 Tesoro Drive, Suite 100, San Antonio**

Agenda

- I. Roll Call
- II. Citizens to be Heard
- III. Approval of Minutes
- IV. AIR Public Education Report
- V. Ozone and Particulate Matter Report
- VI. Development of the 8-hour ozone NAAQS Implementation Policy
 - A) EPA Public Meeting, Alexandria, VA., March 5, 2002
 - B) TNRCC's Release of "Protocol For Early Action Compacts Designed To Achieve And Maintain The 8-Hour Ozone Standard"
- VII. Other Issues
 - A) Off-Road Equipment Subcommittee Status Report
 - B) June Meeting Date
 - C) Cities for Climate Protection
 - D) The Problems with the Photochemical Model, and Solution Approaches
- VIII. Adjourn

AACOG Natural Resources Web Site Address: <http://www.aacog.com/naturalres.htm>

**The Minutes of the
Air Improvement Resources Executive/Advisory Committee
Meeting**

**Alamo Area Council of Governments
8626 Tesoro Drive, Suite 100, San Antonio, Texas
Wednesday, February 27, 2002, 9:00**

Executive Members Present

Mayor Patrick Heath, Chair, City of Boerne
Commissioner Jay Millikin, Vice-Chair Comal Co.
Walter Ague for Councilwoman Bonnie Conner
Gene Uptain, Greater Bexar CCC
Judge Marvin Quinney, Wilson Co.
Judge James Sagebiel, Guadalupe Co.

Advisory Members Present

Julie Klumpyan, Valero
Dan Feliz for Mark Brown, Zachary Co.
Chris Treutler, USAA
Bill England, Neighborhood Asso.
Ken Bercaw, New Braunfels C of C
David Splittek, Lackland ISD
Bill Barker, VIA
David Splittek, Lackland ISD
Dean Word, Word Construction Co.
Pete Donahoe, Holt Co.
John Kelley, TxDOT
Raegan Wagner, HEB

Guests Present

Renee Green, Bexar Co.
Jeanne Geiger, MPO
David Bernal, MPO
Kate Williams, TNRCC
Susan Stuver, COSA
David Martinez, VIA
Ismael Garza, COSA
Roy Baird, Car Pro
Ken Zigrang, TxDOT
Stacy Jonas, Official Insp. Station

Staff Present

Al Notzon, AACOG Exec. Dir.
Dean Danos, Deputy Dir.
Peter Bella
Steven Smeltzer
Chris Langston
John Quebe
Dorothy Birch
Berti Vaughan

I. Roll Call

Roll call was conducted by Dean Danos. Subsequently, Mayor Heath called the meeting to order.

II. Citizens to be Heard

Mayor Heath asked if there were any citizens to be heard on any item of consequence or concern germane to the meeting. There were none.

III. Minutes

Mayor Heath asked the committee to review the minutes. Commissioner Millikin moved to approve the minutes. Walter Ague seconded the motion. The minutes were unanimously approved as submitted.

IV. Air Public Education Report

A. Air Quality Media Meetings

Dorothy Birch reported that several Air Quality Media Meetings had been set for March. These included the three major television networks: KMOL, KENS, and KSAT. She thanked the executive committee members for their response to scheduling meetings and reported that she was currently scheduling meetings with the Express News and radio stations. She was also providing informational materials to all media entities that explained how to better display Air Quality Health Alerts and the Air Quality Index throughout the ozone season.

B. Ozone Season Kickoff Event Update

Ms. Birch reported that the Ozone Season Kick-Off Event was scheduled for Saturday, April 6, 2002 from 8:00 in the morning through 3:00 in the afternoon. The location selected for the event is the CPS South Side Service Center located at 509 Southwest Military Dr. She pointed out the activities being planned for the event had been expanded. The activities included remote sensing events, free OBDII checks, free gas cap checks, a variety of booths, hybrid cars, VIA propane bus, classroom on wheels, Mow Down Smog equipment turn in, an essay contest in cooperation with Tech Net on air Quality and Car Care, and free bike safety lessons.

C. Remote Sensing Events Update

Ms. Birch gave an update on the remote sensing events. She informed the committee that she was in receipt of \$13,000 in donations; \$5000 from AACOG, \$5000 from USAA, and \$3000 from HEB. She explained that the amount of money in hand was enough to fund the SMART sign for the remote sensing event scheduled for Saturday April 6th through Thursday April 11th at \$7000, leaving \$5000 for radio advertisements. She was continuing to look for sponsorship donations to increase radio advertisements for the event.

D. Upcoming Events

Ms. Birch reported that she had recently participated in the Leon Valley Earth Wise Living Day. She had met with teachers who were interested in having Air Quality Presentations in their classrooms. She also met with Isidro Reyna with the John Marshall High School Student Council who is member of the environment and energy committee. The young people are very interested in working with the Public Education Committee on a variety of activities and environmental work. Ms. Birch mentioned Councilman Castro's Northwest Community Festival scheduled on March 18th where she would be providing free air quality information, and free homeowner energy workbooks. Ms. Birch reported that on March 25th, the Drive Clean Across Texas Statewide Air Quality Campaign Launch will take place. She and Isabel Chacon would be attending. Lastly, Ms. Birch pointed to two new publications recently printed. "Air Pollution and Your Neighborhood" in both Spanish and English and also the "Plant a Tree Clean our Air" brochure.

Walter Ague asked Ms. Birch if she was ready to look for other locations for the remote sensing events. Ms. Birch answered yes. She indicated that the equipment was secured for five days and she was looking for other sites to schedule.

V. Particulate Matter Report

Mr. Bella reported on the particulate matter readings for the region as being well below the Clean Air Act standards. Using a handout he explained that the data he was using to report particulate matter readings on a monthly basis to the committee came from a different kind of monitor source and would not be used in non-attainment determinations. He was using it with approval from TNRCC because the readings were very similar to

the Federal Reference Monitors whose monitors were used to declare attainment or non-attainment. He explained that the problem in obtaining data from Federal Reference Monitors was that it took months for the data to clear Quality Assurance / Quality Control procedures. Therefore he would continue to use the available data until the Federal Reference Monitor Data became available.

VI. Clean Air Policy

A. 8-hour Ozone NAAQS Implementation Policy

Steven Smeltzer reported that during the February 13, 2002 meeting of the Technical Working Group for Mobile Source Emission in Austin, it was announced that the EPA anticipated the adoption of a new implementation policy for the 8-hour ozone NAAQS in 2003. This was in response to the statutory requirement that EPA submit recommended designations and guidance regarding how to determine boundaries for non-attainment areas under the 8-hour ozone standard. Under the new policy, non-attainment declarations made under the 8-hour standard, if made in 2003, would use the three years of ozone data from 2000-2002, with a suggested attainment year of 2010. Mr. Smeltzer said that the EPA Region 6 office reported that the implementation policy redevelopment was underway with working group and public meetings being held on March 5th in Alexandria Virginia and March 7th in Atlanta. Mr. Smeltzer mentioned that Austin representatives were attending the meeting. Kate Williams with TNRCC said that everyone in Texas was sending a representative to the meeting in Virginia.

B. Clean Air/03Flex Plan Report

AIR Committee Chairman Patrick Heath reported that he and Vice-Chairman Jay Millikin met with the Chairman of the TNRCC, Robert J. Huston, earlier in the month at the Comal County Courthouse. Chairman Huston provided them with information that led them to believe imminent the approval of the EPA of a proposal from the TNRCC that has the potential of becoming associated with the revised implementation of the Clean Air Rules. Mayor Heath suggested that the protocol being suggested by TNRCC and likely to be approved by the EPA, would in a sense bless what the committee has done over the past three years and give it added impetus. There was strong reason to believe that both the Environmental Protection Agency and the TNRCC within a week or so may soon be issuing fresh guidance on early implementation plans relating to air quality attainment policies under the 8-hour average ozone National Ambient Air Quality Standards. Because of this new information, Mayor Heath suggested the need for staff representation at the March meeting in Washington.

Renee Green reported that on Wednesday afternoon, Chairman Huston and Gregg Cooke with EPA's regional office met with Judge Wolff to discuss an Early Attainment Agreement. Chairman Huston and Mr. Cooke presented what they viewed as the protocol for this type of agreement to Judge Wolff and discussed various issues. They viewed the agreement as something that could be approved by EPA. Ms. Green remarked that Judge Wolff was very happy with the discussion on the agreement. In addition, comments made during the meeting indicated that San Antonio and Austin were the only areas in a position to be worked into this type of agreement.

Mayor Heath suggested a schedule that would re-address the language of the agreement during March and April and then address the various local governments for approval by the end of the summer. Mayor Heath reminded everyone that the agreement would not replace any of the work that has already been done on the Clean Air Plan and

the Memorandum of Agreement. Mayor Heath asked Mr. Notzon if there were resources to send staff and a member of the committee to the meeting in Washington. Mr. Notzon indicated that there were funds available and that he felt it was important that staff and committee were represented at the EPA meeting. There was some discussion on committee member availability. It was decided that arrangements would be made after the meeting.

VII. Intelligent Transportation System Enhancement Grant Application

Ismael Garza with the City of San Antonio requested that the Air Improvement Resources Committee review and act upon a resolution of support for a grant application to the Federal Highway Administration for deployment and integration of intelligent transportation systems enhancements in the IH 37 corridor between San Antonio and Corpus Christi. The grant would provide a transportation management center for communication links to South Texas on interstate 37 for emergency planning. Walter Ague motioned for approval of the resolution. Bill Baker seconded the motion. The motion passed. Mayor Heath requested that staff submit a report to the committee at a later meeting on a possible similar linkage through the Austin Corridor.

VII. Technical Reports

AACOG Ozone Monitoring Project

Mr. Smeltzer reported on the Ozone Monitoring RFP process that was posted requesting "installation, maintenance and data quality assurance for air quality monitors in the San Antonio MSA." Staff and technical committee members received and reviewed two proposals submitted to establish four new ozone monitoring sites in the SA MSA and maintain a fifth site located at Trinity University. The staff and technical committee members recommended that the bid be awarded to OpTech International Technologies Corporation based on their expertise, delivery, their sophisticated monitoring equipment, their commitment to daily, weekly and monthly checks, their flexibility on installation, and financial considerations. Mr. Uptain motioned to accept the bid. Commissioner Millikin seconded the motion. The motion passed.

IX. Other Issues

A. Letter From TNRCC on Adding Sulfur Dioxide Monitor

Peter provided the letter submitted by Chairman Huston looking into the possibility of adding a sulfur dioxide monitor for the committee's review.

B. President Bush's Clear Skies Proposal

Peter presented the document for the committee's perusal.

C. Texas Near Non-Attainment Areas Meeting Report & Release of MOBILE6

Steve reported on the release of EPA's MOBILE6 software that is used to model and predict the air quality impacts of transportation activities and controls.

D. Off-Road Sub-Committee Report

Chris Langston reported on the progress of the off-road committee's planning efforts on the second Heavy Equipment Air Pollution Control Workshop.

E. Clean Cities Report

John Quebe reported on three grant application abstracts submitted to the State Energy Conservation Office from San Antonio area companies requesting funding for alternative refueling sites.

X. Adjournment

With no further business, the meeting was adjourned.

**AIR Public Education Committee Report
AIR Executive / Advisory Committee Meeting 3/27/02**

- I. Air Quality Media Meetings
- II. Ozone Season Kickoff Event Update (Outline Attached)
- III. Remote Sensing Events Update (Outline Attached)
- IV. Recent & Upcoming Events
 - ◆ Texas Clean Air Campaign Launch, March 25th
 - ◆ Earth Day at Woodlawn Lake, April 20th



2002 Ozone Season Kickoff Event

When: Saturday April 6, 2002
8:00 a.m. to 3:00 p.m.

Where: CPS Southside Customer Service Center
509 SW Military Drive
(at the intersection of SW Military and Boswell)

Cost: **FREE**

What: A free event for the public focusing on the solution to ozone pollution: car maintenance, small engine maintenance, earth-wise landscaping, and energy efficiency.

Events will include:

- Announcement of Air Care and Car Care Essay Contest
- Free Remote Sensing engine health checks
- Free OBD II engine checks
- Free gas cap testing
- Lawnmower turn-in for the Mow Down Smog program
- Electric-gasoline hybrid cars on display
- Propane-fueled lawn mowers on display
- VIA's "Clear the Air" propane fueled bus on display
- VIA's Classroom on Wheels
- Free info on planting for reduced water and energy bills
- Composting and mulching information and demonstrations
- Energy conservation tips and information
- Free bicycle safety lessons for kids from the SAPD bike cops
- Free bicycling and health information for children
- Free giveaways and activities for children
- Free information on how air quality affects your health
- Free entry and prizes given away throughout the day.

For more information, contact Dorothy Birch at (210) 362-5213 or dbirch@aacog.com

Development of the 8-hour ozone NAAQS Implementation Policy EPA Public Meeting March 5th, 2002, Alexandria, Virginia

On March 5th, Susan Stuver of the City of San Antonio, Renee Green of Bexar County, and Peter Bella of AACOG represented the AIR Committee during a Public Meeting in Alexandria, Virginia. The EPA Public Meeting was held on the subject of 8-hour ozone National Ambient Air Quality Standards (NAAQS) Implementation policy. There are a number of possible directions which the 8-hour ozone NAAQS implementation policy may take, as hopefully will be clear from the following report.

Summary:

The proposed options for designation and possible classification schemes presented by EPA during the March 5th meeting appeared to present challenges to the creation of early control strategy implementation policy like the Ozone Flex Plan. There was a general concern by attendees that specific language for an O3 Flex Plan as part of the designation or classification scheme needs to be included in the proposed implementation rules.

However, during a March 7th telephone conversation with Kate Williams, she assured me that the Early Action Agreement (also named the Early Action Compact), piloted by TNRCC as an 8-hour ozone early implementation policy, will go through. On March 20th, just prior to release of this agenda, TNRCC released this Early Action Agreement / Compact in a letter to EPA; the plan has been released for public scrutiny. Acceptability on the federal level of such a plan seems, at this time, to depend on the development of further Classification schemes under Subpart 1 (see background for explanation).

Other recourse includes developing comments to be submitted to the EPA as part of the public comments solicited at this time.

These details will be discussed during the meeting on Wednesday, March 27, 2002, of the Air Improvement Resources Executive/Advisory Committee.

Background:

Title 1 of the Clean Air Act (available online: <http://www.epa.gov/oar/caa/contents.html>), Part D, contains two subparts that are at the center of the current effort to rewrite the 8-hour ozone National Ambient Air Quality Standards (NAAQS). Subpart 1, "Nonattainment Areas in General," dictates general requirements for SIPs for all nonattainment areas. Subpart 2, "Additional Provisions for Ozone Nonattainment Areas," provides for specific classifications (marginal, moderate, severe, etc.) and specific control strategies within each classification.

- When EPA published the 8-hr ozone standard in July 1996, EPA indicated it would implement the standard under the less prescriptive subpart 1 requirements.
- In February 2001, the Supreme Court upheld the constitutionality of the standard-setting process in the CAA, but ruled that EPA's implementation approach was

unlawful and that EPA could not ignore subpart 2 when implementing the 8-hr standard.

- The Supreme Court said,
 1. “[D]oes subpart 2 provide for classifying nonattainment ozone areas under the revised standard? It unquestionably does.”
 2. “Whereas Subpart 1 gives the EPA considerable discretion to shape nonattainment programs, Subpart 2 prescribes large parts of them by law. Compare 7502(c) and (d) with 7511a.”
 3. “EPA may not construe the statute in a way that completely nullifies textually applicable provisions meant to limit its discretion”

The bullets and numbered statements above come from an EPA handout available online¹. THIS HANDOUT MUST BE STUDIED THOROUGHLY AND MASTERED to understand the arguments presented by EPA during the March 5th meeting. References to this EPA handout, “class_030102.pdf”, will be made in this synopsis. Here are key points as they were made during the meeting. Please keep in mind that this public meeting, the handout and the comments made during the meeting do not represent EPA policy; rather, we heard an introduction of issues and suggested solutions.

- The Supreme Court implied that the distinct classification schemes for 1-hour ozone areas as dictated by Subpart 2 do provide for creation of a classification scheme for 8-hour ozone areas. This is a paraphrase of numbered statement one above. The EPA introduced several Options, which reflect in varying degree the 1-hour classification structure grafted onto 8-hour policy. (The most direct mirroring of 1-hour classifications as 8-hour classifications is Option 2 in class_030102.pdf, and is accompanied by a table illustrating the resultant classification scheme.)
- Subpart 2 dictates classification schemes and control strategies² for the 1-hour ozone NAAQS. In this way, EPA has little discretion in creating 1-hour implementation policy. The Supreme Court seems to imply that, because Subpart 2 was written specifically for ozone, the EPA is wrong in ignoring Subpart 2 as a precedent in its creation of 8-hour ozone policy. This is a paraphrase of numbered statement three above.

The EPA does assume that, in areas to be covered under Subpart 1, additional classification schemes may yet be devised. This is consonant with the Ozone Flex Plan under which a declaration of non-attainment would be followed by a classification that has yet been devised. This will be discussed in the section of this document treating the O3Flex Plan.

Four Options Presented During the Public Meeting

Only outlines of the options and the discussions about them are noted below. For details of the options, please consult class_030102.pdf.

¹ “Classification of Nonattainment Areas for the 8-hour Standard” is available online as http://www.epa.gov/ttn/rto/ozonetech/o3imp8hr/class_030102.pdf

² Subpart 2 stipulates Classification Schemes, Reasonable Further Progress, I/M, Transportation Conformity, New Source Review, Attainment Schedules and Control Strategies which are applied and (generally) distinct for each 1-hour Classification. In sharp contrast, Subpart 1 prescribes only Transportation Conformity and New Source Review programs. Hence, early 8-hour implementation guidance only required Transportation Conformity and New Source Review.

Option 1 – Classify 8-hr O₃ nonattainment areas under subpart 2, table 1 and, as appropriate, under subpart 1, **based on 1-hr O₃ design values**.

While the 85 ppb designation threshold stands, a designation of non-attainment is accompanied by a non-attainment classification. In this option, classification is based on the area's 1-hour design value. Essentially, if an area like ours was in attainment of the 1-hour ozone NAAQS, we would fall into a "submarginal" category. (See Table 1 attached as the last page here.) However, since 1) submarginal categories would carry essentially no control strategy implementation, this would probably not be seen as effective or adequate to environmental groups. Further, 2) an area's 1-hr design value may not reflect the area's 8-hr O₃ problem and would produce some inequities (e.g., a "submarginal" area covered under subpart 1 may have a higher 8-hr ozone design value than another area that is marginal or even moderate and covered under subpart 2).

Option 2 – Classify 8-hr nonattainment areas **based on 8-hr O₃ design values**.

This scheme is outlined in Table 1. It allows for a classification scheme – Marginal, Moderate, Serious, etc. – from the 1-hour classification scheme with cutoff ozone concentrations again based on the 1-hour scheme. By determining the percent above and below the 1-hour's 125 ppb threshold, these percentages are applied to the 85 ppb 8-hour threshold to assign the homologous classifications.

This, it would seem to me, is the most likely of the Options to be successful, based on the threat of lawsuits. That is, the 1-hour classification scheme has not been altered by litigation. So, translating it to apply directly to an 8-hour classification scheme both allows a close mimicry of successful 1-hour policy and follows, to the most extreme extent, the Supreme Court's statement that the "EPA may not construe the statute in a way that completely nullifies textually applicable provisions meant to limit its discretion." Such considerations, however, lend fresh emphasis to the statement by the EPA that they do assume that, in areas to be covered under Subpart 1, additional classification schemes may yet be devised.

Option 3 – Classify **based on 8-hr O₃ design values** (similar to option 2), except that any area would be classified as marginal if **EPA-acceptable available modeling information** indicates that the area will attain the 8-hr O₃ standard in the short term (e.g., 3 years after designation) as a result of existing control measures

It is not clear if this option is seen as a challenge to the CAA by environmental groups. This option was not discussed at length during the meeting. Please again refer to class_030102.pdf for a development of this option.

Option 4 – Hybrid 2-step approach. Use 1-hr design value to determine which areas are required to be placed under subpart 2, then classify all areas considering 8-hr design values.

This option was not discussed at length during the meeting. Please again refer to class_030102.pdf for a development of this option.

Possible Implications for the Ozone Flex Plan for the San Antonio Metropolitan Statistical Area

O3Flex Plan allows for an as-yet undefined classification scheme to accompany non-attainment.

As a kind of worst-case scenario, if the classification scheme shown in Option 2 in the class_030102.pdf document were to be adopted, there would be virtually no flexibility available for an O3Flex Plan, which, in San Antonio, calls for “[s]upporting this O3FLEX Plan only with flexibility from EPA in imposing requirements upon implementation of the eight-hour ozone NAAQS, such as availability of an applicable alternate classification scheme.” The San Antonio O3Flex Plan also states, “[t]his Agreement may be terminated, but does not have to be terminated, if the SA/MSA, in whole or in part, is designated as non-attainment by the EPA under the eight-hour ozone NAAQS. Any revision of the existing eight-hour ozone NAAQS will be cause for review and reassessment of this Agreement. If a classification of non-attainment for the SA/MSA, in whole or in part, is assigned under a finalized eight-hour ozone NAAQS, this Plan will serve as the basis for further negotiations as required by the San Antonio region to meet their clean air planning obligations under the NAAQS.”

However, as noted earlier, the EPA does assume that additional classification schemes may yet be devised for areas under Subpart 1. This is consonant with the Ozone Flex Plan under which a declaration of non-attainment would be followed by a classification that has yet been devised. We should work to devise a classification scheme that could work on our behalf, if the EAA doesn't work for us. The scheme should be developed in concert with the Near Non-Attainment Areas, which have submitted draft O3Flex Plans to EPA Washington, to our mutual benefit.

Addendum:

On March 20, 2002, shortly before mailing this agenda out, the TNRCC distributed their most recent draft version of a plan, called the Early Action Compact (EAC), an early implementation policy for the 8-hour ozone NAAQS. This plan has been devised with the close cooperation of EPA Region 6. This draft EAC will be discussed at the meeting on Wednesday.

Possible Implications for the Early Action Agreement

Addendum:

During the February 27th meeting of the AIR Executive/Advisory Committee, Chairman Heath announced that the TNRCC and EPA Region 6 were working out new guidance for an early implementation policy. On March 20, 2002, shortly before mailing this agenda out, the TNRCC distributed their most recent draft version of this plan, called the Early Action Agreement (EAA) or the Early Action Compact (EAC), which addresses an early implementation policy for the 8-hour ozone NAAQS. This plan has been devised with the close cooperation of EPA Region 6.

Several EAA issues were discussed during the March 5th meeting. A more complete explanation of the policy will be discussed at the meeting.

EAA Plan implies that a declaration of non-attainment can be avoided.

The EAA³ draft protocol states, in reference to the EAA itself, “[b]ecause such a plan would be designed to meet the intent of the CAA for the traditional mandatory growth-related designation requirements (e.g. NSR and conformity), EPA will deem an approved SIP revision to sufficiently address designation requirements. EPA will move quickly to review and approve completed plans by no later than six months after submission of the SIP revision. Provided that the monitors in the area reflect attainment by the end of the Agreement term, EPA will move expeditiously to designate the area as attainment and impose no additional requirements.”

This implies that 2007, the end of the agreement term, would be the earliest that EPA could designate an area as non-attainment under the terms of this plan, and it implies that subpart 1 alone remains sufficient for non-attainment designation requirements. When the idea was discussed at the EPA Public Meeting that this EAA would allow an area to avoid a designation of non-attainment, regardless of the monitored ozone levels, John Walke, the Director of Clean Air Program for the Natural Resources Defense Council, stated before the group that the NRDC would file a lawsuit if an area’s monitored levels demonstrated a violation of the NAAQS and the area was not properly declared in non-attainment due to such an agreement.

Susan Stuver spoke at some length with Mr. Walke after the meeting finished and he said that he had had prior private conversations with EPA about just such circumstance and just such a lawsuit. EPA allegedly confessed to Mr. Walke that they thought the NRDC would win such a lawsuit brought against the EPA.

The implication that, during the term of the EAA, the EPA would not designate an area in non-attainment is surely the most attractive implication of the EAA. It is not clear at this time if the flexibility in the Clean Air Act exists to allow conditions under which a non-attainment declaration could be postponed.

³ “Draft Version – 2/1/02, Protocol for Early Action Agreements Designated to Achieve and Maintain the 8-hour Ozone Standard”, presented by TNRCC

Next Steps

Air Improvement Resources (AIR) Committee Chairman Patrick Heath requested that the AIR Technical Committee work along the following lines during their March 18th meeting.

The AIR Technical Committee should make recommendations based on:

Development of Comments to EPA from the San Antonio region

- A statement encouraging flexibility in 8-hour ozone NAAQS implementation policy should be forthcoming from the San Antonio region. Chairman Heath requested this statement be developed for approval by the AIR Executive/Advisory Committee before being sent to the US Environmental Protection Agency (EPA).
- Development of another Option (in addition to Options 1 thru 4 listed in the EPA handout class_030102.pdf⁴) and additional Classification Schemes⁵ incorporating / allowing implementation of the EAA and / or the O3Flex Plan should be drafted. Such development would likely address the undefined classification scheme, as we would wish to see it in the NAAQS for implementation of the O3Flex Plan. Chairman Heath qualified this as “key.”

In Response: From the AIR Technical Committee meeting of March 18th

The AIR Technical Committee does fully concur with the need for flexibility in non-attainment classifications under the 8-hour ozone implementation policy. The AIR Tech Committee notes the need for the creation of an attainment and / or classification scheme that does not place our area under the subpart 2. The current scheme is too inflexible and outdated; for example, the CAA now calls for Stage II vapor recovery, which has been replaced by the better technology of on-board vapor recovery. Several points observed by the AIR Tech Committee included:

1. One possible solution is the formal creation of a submarginal classification, which would be designed to contain only some or none of the prescriptive requirements included under subpart 2, such as a continuing maintenance plan after attainment;
2. The rules should make an allowance for New Source Review flexibility in acknowledging that ours is not an ozone problem driven by the existence of many point sources, so a blanket rule on all point sources may not be an effective prescriptive measure to reduce ozone;
3. Best Available Control Technology (BACT) would be adequate for controlling at least some select sources as opposed to the more expensive Lowest Achievable Emission Rate (LAER) technology⁶.

The AIR Technical Committee also agreed for the need to create other Options than just the four presented during the March 5th meeting. This Option(s) would address again the flexibility we would like to achieve for early implementation of control strategies. This could be attained, perhaps, through the Early Action Agreement/Compact just released by TNRCC.

⁴ See pages 2-6: http://www.epa.gov/ttn/rto/ozonetech/o3imp8hr/class_030102.pdf

⁵ Page 2, Ibid. “Areas that are covered under subpart 1 may still be classified under an additional yet-to-be-identified classification scheme.”

⁶ RACT/BACT/LAER Clearinghouse from EPA: <http://cfpub1.epa.gov/rblc/htm/bl02.cfm>

VI. Development of the 8-hour ozone NAAQS Implementation Policy
A. EPA Public Meeting

During the AIR Tech meeting, Mike Magee of TNRCC noted that, during discussions the previous Friday, TNRCC Commissioner Marquez had reiterated the need to develop 8-hour ozone NAAQS implementation policy which both met the Supreme Court's requirements and contained flexibility for early implementation policy. He noted that the TNRCC will aggressively act to ensure the viability of the Early Action Agreement/Compact developed by the TNRCC.

The AIR Technical Committee members will work, during the next several weeks, to refine and complete specific Options and Recommendations on 8-hour ozone NAAQS Implementation Policy. They will vote on specific recommendations during their next meeting on April 15th. Pending final approval by the AIR Executive / Advisory Committee during their April 24th meeting, the recommendations will be sent to EPA before the close of the public comment period. According to Denise M. Gerth⁷ of U.S. EPA in Washington DC, during a telephone conversation of March 15th, the public comment period will close 30 days after the third and final public meeting scheduled to be held April 3rd in Tempe, Arizona⁸.

Developing Comments and Strategies for the Near Non-Attainment Areas

- A meeting with the Texas Near Non-Attainment Areas hosted by EPA Region 6 for discussion of this topic is advised. The Chairman suggested that all those present at the Washington DC meeting should be sure to attend, as well as all interested parties from the NNA areas.

In Response: From the AIR Technical Committee meeting of March 18th

This idea was recommended by the AIR Tech Committee and is being developed by AACOG staff.

Work with the local Chamber of Commerce and local Governments to promote support for our planning efforts

While Bexar County is prohibited from lobbying, the City of San Antonio has sent a lobbyist to the second public meeting on this topic, held March 7th, in Atlanta, Georgia. Local governments will be encouraged to voice their opinion and to work through the AIR Committee system to make their comments heard.

⁷ Denise M. Gerth, U.S. EPA, Office of Air Quality Planning and Standards, C539-02, Research Triangle Park, NC 27711, phone (919) 541-5550, or e-mail: gerth.denise@epa.gov

⁸ The Federal Register announcement of the meeting is online as <http://www.epa.gov/fedrgstr/EPA-AIR/2002/March/Day-18/a6491.htm>.

VI. Development of the 8-hour ozone NAAQS Implementation Policy
A. EPA Public Meeting

TABLE 1/SUBPART 2: 1-HR O3 CLASSIFICATION TABLE; ALSO: TRANSLATION TO 8-HR DESIGN VALUES					
Area classification		cutpoints 1-hr O3 ppm	% above 1-hr O3 NAAQS	Translated 8-hr cutpoints ppm	Primary standard attainment date
Marginal	from	0.121	0.833	0.081	3 years after enactment
Marginal	up to	0.138	15.000	0.092	
Moderate	from	0.138	15.000	0.092	6 years after enactment
Moderate	up to	0.160	33.333	0.107	
Serious	from	0.160	33.333	0.107	9 years after enactment
Serious	up to	0.180	50.000	0.12	
Severe -15	from	0.180	50.000	0.12	15 years after enactment
Severe -15	up to	0.190	58.333	0.127	
Severe -17	from	0.190	58.333	0.127	17 years after enactment
Severe -17	up to	0.280	133.333	0.187	
Extreme	equal to or above	0.280	133.333	0.187	20 years after enactment

VI. Development of the 8-hour ozone NAAQS Implementation Policy
B. Protocol For Early Action Compacts Designed To Achieve And Maintain The 8-Hour Ozone Standard

On March 20, 2002, shortly before mailing this agenda out, the TNRCC distributed their most recent draft version of this plan, called the Early Action Agreement (EAA) or the Early Action Compact (EAC), which addresses an early implementation policy for the 8-hour ozone NAAQS. This plan has been devised with the close cooperation of EPA Region 6. The Early Action Compact is attached here for your review.

**PROTOCOL FOR EARLY ACTION COMPACTS
DESIGNED TO ACHIEVE AND MAINTAIN THE 8-HOUR OZONE STANDARD**

Purpose of Compact

Early voluntary 8-hour air quality plans can be developed through a Compact between Local, State and EPA officials for areas that are in attainment of the 1-hour ozone standard but approach or monitor exceedances of the 8-hour standard. These early action plans will include all necessary elements of a comprehensive air quality plan, but will be tailored to local needs and are driven by local decisions. The Early Action Compact is designed to develop and implement control strategies, account for growth, and achieve and maintain the 8-hour ozone standard. This approach will offer a more expeditious time line for achieving emission reductions earlier than EPA's expected 8-hour implementation rulemaking, while providing "fail-safe" provisions for the area to revert to the traditional State Implementation Plan (SIP) process if specific milestones are not met. Early Action Compacts should complement any existing Ozone Flex Agreements.

The principles of the tri-party Early Action Compact to be executed by Local, State and EPA officials are:

- Early planning, implementation, and emission reductions leading to expeditious attainment and maintenance of the 8-hour ozone standard;
- Local control of the measures to be employed, with broad based public input;
- State support to ensure technical integrity of the early action plan;
- Formal incorporation of the early action plan into the SIP;
- Deferral of the effective date of nonattainment designation and/or designation requirements so long as all Compact terms and milestones are met; and
- Safeguards to return areas to traditional SIP attainment requirements should Compact terms and/or milestones be unfulfilled, with appropriate credit given for emission reduction measures implemented.

Compact Requirements

The Compact will address the following components:

A. Milestones and Reporting

- In order to facilitate self-evaluation and communication with EPA, TNRCC and stakeholders, the Early Action Compact must include clearly measurable milestones for the development and implementation of the plan. Local areas will assess and report their progress against milestones in a regular, public process, at least every six months. Milestones will include, at a minimum:
 - Completion of emissions inventories and modeling;
 - Adoption of control strategies that demonstrate attainment;
 - Completion and adoption of the early action SIP revision;

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- Attainment not later than December 31, 2007;
- Post-attainment demonstration and plan updates;
- In the absence of achieving milestones, including attaining the 8-hour ozone standard on or before December 31, 2007, the area will be deemed in violation of the Compact and will be subject to the full planning requirements under applicable mandatory standard SIP processes (which will be developed under EPA's 8-hour implementation rulemaking). Such an area will be subject to the same requirements and deadlines which would have been effective had it not participated in this program, with no preferential delays or exemptions from EPA. However, the area will receive appropriate credit in the standard SIP process for all emission reductions from measures implemented in this program.
- If the area has had a non-attainment designation deferred and the area does not reach attainment of the standard by December 31, 2007, then the non-attainment designation will be effective immediately. If EPA's implementation schedule also requires SIPs from areas on or before December 31, 2007, then a SIP revision demonstrating attainment by the new attainment date will be due for the non-attainment area no later than December 31, 2008. EPA will offer areas no extensions or delays of the applicable attainment date.

B. Emissions Inventory

- Modeling emissions inventories using the most current tools available will be completed for at least one recent episode in order to support the early action plan. Emission inventories must include:
 - 1999 or later episode reflective of a typical ozone season exceedance that meets EPA episode selection guidance to ensure that representative meteorological regimes are considered;
 - MOBILE6 data with link based Travel Demand Model (TDM) mobile data in urban areas;
 - NONROAD model data adjusted for local equipment populations and usage rates;
 - Area source data based when possible on local survey data.
- Further episode inventories will also be developed over time to fully represent the variety of situations that typically contribute to ozone production in the area and to include the most recent developments.
- Emission inventories will be compared and analyzed for trends in emission sources over time. This will improve an area's understanding of the trends in emissions in their community and will aid in verification of the accuracy of the inventories.

C. Modeling

- Emission inventories will be used to develop SIP quality modeling episodes that perform within EPA's accepted margin of accuracy, including a base case and future case on or before December 31, 2007. Therefore, inventories must sufficiently account for projected future growth in ozone precursor emissions, particularly from stationary, non-road, and on-road mobile sources.
- Local area must carefully document modeling approach, and work will be supported and reviewed by the State and concurrently reviewed by EPA.
- Quantifiable emission reduction measures will be integrated into the future case to produce one or more control cases. These control cases will be used to indicate the relative effectiveness of different measures and aid in selecting appropriate measures.
- Prior to plan implementation the control strategies should be determined based on model results from a control case episode that shows achievement of the 8-hour ozone standard on or before December 31, 2007 through implementation of the control strategies.

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- Communities will continue to develop other episodes as necessary to fully represent the variety of situations that typically contribute to ozone production in the area and to support the plan with the most current information and tools. Other episodes may also indicate necessary revisions to ensure that sufficient emission reduction measures are selected and implemented to continue to achieve target ozone concentration levels.

D. Control Strategies

- After all adopted Federal and State controls that have been or will be implemented by the attainment date of December 31, 2007, are accounted for in the modeling, the local area will identify additional local controls, as necessary, to demonstrate attainment of the 8-hour standard on or before December 31, 2007. These local controls will be specific, quantified, permanent and enforceable control strategies. All controls will include specific implementation dates, as well as detailed documentation and reporting processes.
- Controls will be implemented as soon as practicable, but not later than December 31, 2005.
- Controls will be designed and implemented by the community with full stakeholder participation.
- All control measures will be incorporated by the state into the State Implementation Plan and submitted to EPA for review and approval. In the event that areas wish to add or substitute measures after SIP submittal, plan modifications will be treated as SIP revisions and facilitated by the state.

E. Maintenance for Growth

- The plan must include a component to address emissions growth at least 5 years beyond December 31, 2007, ensuring that the area will remain in attainment of the 8-hour standard during that period. This future attainment maintenance analysis may employ one or more of the following or any other appropriate techniques necessary to make such a demonstration:
 - Modeling analysis showing ozone levels below the 8-hour standard in 2012;
 - An annual review of growth (especially mobile and stationary source) to ensure control measures and growth assumptions are adequate;
 - Identification and quantification of federal, state, and/or local measures indicating sufficient reductions to offset growth estimates.
- The plan must also detail a continuing planning process, including modeling updates and modeling assumption verification (particularly growth assumptions). Modeling updates and planning processes must include all relevant actual new point sources in the modeling, and evaluate and account for potential new source growth, as well as updating the modeling of future transportation patterns and their impact on air quality.
- If the review of growth demonstrates that adopted control measures are inadequate to address growth in emissions, additional measures will be added to the plan. Local planning processes should prepare for this possibility.

F. Public Involvement

- Public involvement will be conducted in all stages of the planning and implementation process.
- Public education programs will be used to raise awareness regarding issues, opportunities for involvement in the planning process, implementation of control strategies, and any other issues important to the area.
- Interested stakeholders will be involved in the planning process as early as possible. Planning meetings will be open to the public, with posted meeting times and locations. Plan drafts will be publicly available, and the drafting process will have sufficient opportunities for comment from all interested stakeholders.

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- Public comment on the proposed final plan will follow the normal SIP revision process as implemented by the State.
- Semi-annual reports detailing, at a minimum, progress toward milestones, will be publicly presented and publicly available.

Local, State and EPA Commitments

Local Areas

Local areas hold primary responsibility for the development and implementation of the plan, as well as for maintaining communication with all parties, including:

- Draw up the Compact which embodies the requirements described in Sections A-F, including a time line for milestones.
- The Early Action Compact must be completed and a final version signed by all parties no later than December 31, 2002.
- The early action plan must be complete and adopted as part of the SIP no later than December 31, 2004.
- Notify parties as soon as possible of issues and developments which may impact performance and progress toward milestones.
- Notify parties as soon as possible if Compact milestones will be missed or have been missed.
- Notify parties as soon as possible if Compact modification/termination is to be requested.

State

The state will assist in the drafting of the Early Action Compact and will provide support to areas throughout the planning and implementation process, including:

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- Technical assistance in the development of emission inventories, modeling process, trend analysis and quantification and comparison of control measures;
- Necessary information on all Federal and State adopted emission reduction measures which affect the area;
- Critical third party review of emissions inventory, modeling, and self-evaluation work;
- Technical and strategic assistance, as appropriate, in the selection and implementation of control strategies;
- Technical and planning assistance in developing and implementing processes to address the impact of emissions growth beyond the attainment date;
- Maintenance of monitors and reporting and analysis of monitoring data;
- Support for public education efforts;
- Coordinate communication between local areas and EPA to facilitate continuing EPA review of local work;
- Expedient review of the locally developed plan, and if deemed adequate, propose modification of the SIP to adopt the early action plan;
- Adoption of control measures into the SIP as expeditiously as possible. The final complete SIP revision must be completed, adopted, and submitted by the state to the EPA no later than December 31, 2004.

EPA

EPA will recognize the local area's and State's commitment to voluntarily adopt an early, substantive, enforceable and scientifically-based attainment plan with early implementation of control measures by becoming a party to the Early Action Compact developed in conformance with this protocol.

- EPA will provide technical assistance to the state and local area in the development of the early action plan.
- EPA will move quickly to review and approve completed plans by no later than nine months after submission of the SIP revision by the state.
- When EPA's 8-hour implementation guidelines call for designations, EPA will defer the effective date of nonattainment designation and/or designation requirements for participating areas that are monitoring violation of the 8-hour ozone standard as long as all terms and milestones of the compact are being met, including submission of the early action SIP revision no later than December 31, 2004.
- Provided that the monitors in the area reflect attainment by December 31, 2007, EPA will move expeditiously to designate the area as attainment and impose no additional requirements.
- If at any time the area does not meet all the terms of this Compact, including meeting agreed-upon milestones, then it will forfeit its participation and be designated (or re-designated if necessary) according to EPA's 8-hour ozone implementation guidelines. EPA will offer such an area no delays, exemptions or other favorable treatment because of its previous participation in this program.
- If the area violates the standard as of December 31, 2007, and the area has had a non-attainment designation deferred, and then the area will revert to its designation of non-attainment effective immediately. The state will then submit a revised attainment demonstration SIP revision according to EPA's 8-hour implementation guidelines, unless the 8-hour implementation schedule requires SIP's from 8-hour non-attainment areas before December 31, 2008. In that event, a revised attainment demonstration SIP revision for the participating area will be due as soon as possible but no later than December 31, 2008. In no event will EPA extend the attainment date for the area beyond that required by the 8-hour implementation guidance.
- No area will be allowed to renew their Early Action Compact after December 31, 2007, or initiate a new compact if it has previously forfeited its participation.

Off-Road Equipment Subcommittee Status Report

The Off-Road Equipment Subcommittee continues to be an active component of the overall plan to explore and develop voluntary ozone control strategies in the SA/MSA. During the March 13, 2002 meeting, the subcommittee reviewed the results from the City of Houston's Diesel Demonstration, the first round results of SB 5, and began to develop plans for the next Heavy Equipment Air Pollution Control Workshop.

City of Houston Diesel Demonstration Results:

- ❑ The City of Houston recently completed a diesel demonstration in which eight different products were tested on 34 vehicles representing a cross section of diesel-powered vehicles.
- ❑ All of the testing was undertaken "in-the-field" using a portable emissions sampling system developed by Environment Canada that facilitates the collection of emissions data while the equipment is operated under real world conditions.
- ❑ Tests on these vehicles were conducted over conditions that reflected the normal operation of the engine and piece of equipment.
- ❑ These "in-the-field" evaluations ran from the summer of 2000 through to the fall of 2001.
- ❑ The results and the full report on the demonstration can be found at the following link: <http://www.ci.houston.tx.us/citygovt/mayor/dieseldemo.pdf>

First Round Results of SB5:

- ❑ The subcommittee reviewed the first round results of SB 5 in order to gain insight into what type of projects were granted funding, and what type of projects were unsuccessful.

I. Heavy Equipment Air Pollution Control Workshop

- ❑ A tentative date, August 13th, was set for the next workshop.
- ❑ A draft invitation list of 105 organizations in the San Antonio region was formulated.
- ❑ A draft list of 35 potential vendors was also put together.

The next subcommittee meeting is scheduled for April 10, 2002, when our efforts will continue.

Cities for Climate Protection Campaign and its use in tracking the Municipal Electrical Energy Reductions required by Senate Bill 5

During the March 18th meeting of the Air Improvement Resources (AIR) Technical Committee, Linda Stone, Executive Director of the Metropolitan Partnership for Energy (MPE), presented information about the Cities for Climate Protection (CCP) Campaign to the AIR Committee. The City of San Antonio has already committed to joining CCP. At the last MPE Board Meeting, Linda Stone asked Judge Wolff of Bexar County and Al Notzon of AACOG to draw up a draft resolution for consideration by their respective agencies so that they can join the CCP also. Linda had suggested to Board Members that they utilize the CCP template to manage their SB5 requirements.

Cities for Climate Protection Commitment

CCP is a Campaign of the International Council for Local Environmental Initiatives (ICLEI), a worldwide nonprofit organization dedicated to creating a sustainable future. Local governments joining CCP must pass a Resolution committing them to a five-step program for GHG emissions reduction. These steps include a baseline energy use/emissions inventory, setting a target emissions reduction goal, developing a Local Action Plan to meet this goal, implementing the plan, and verifying results. ***CCP is a voluntary agreement that governments make to reduce GHG emissions and improve quality of life in their municipality. There are no penalties for noncompliance.*** The introductory material attached provides information on the scope and methods employed by the CCP Campaign.

Senate Bill 5 Requirements

SB5 states, in part, that:

- Local governments⁹ shall implement all energy efficiency measures that meet the standards established for a contract for energy conservation measures... in order to reduce electricity consumption by the existing facilities of the political subdivision.
- Local governments shall establish a goal to reduce their electric consumption by five percent each year for five years, beginning January 1, 2002.
- A political subdivision annually shall report to the State Energy Conservation Office (SECO) regarding the political subdivision's efforts and progress.
- Those not attaining these goals must include in the report to SECO justification that the political subdivision has already implemented all available measures.

Since governments complying with Senate Bill 5 will reduce electrical consumption, they will reduce greenhouse gas emissions as well. Electrical power generation produces both greenhouse gases (carbon dioxide) and ozone precursors (especially oxides of nitrogen, or NOx). In fact, ozone itself is a greenhouse gas; the goal of SB5 to reduce electrical consumption targets ozone reductions across the state and will lower greenhouse gas production also.

Since governments complying with Senate Bill 5 will, with the aid of SECO, document and report their energy reductions, this same report can be the basis for claims under the CCP that the signatory government has reduced greenhouse gas emissions. Since there is no greenhouse gas reduction level required under the CCP Local Action Plan,

⁹ The SB 5 Energy Efficiency Program speaks to "political subdivisions," which includes local city and county governments in 38 Texas non-attainment and affected (includes Bexar, Comal, Guadalupe, and Wilson) counties.

only a target goal set by the government, signing onto the CCP program does not require further reductions beyond those achieved under SB 5.

Greenhouse Gas Reductions beyond SB 5: “Community and Corporate”

Governments can choose to be more aggressive in their plans to reduce greenhouse gases than the reductions that accompany SB 5 compliance. As described in the CCP literature below, there are other sources of greenhouse gases that governments can control in the daily functions they are called upon to perform for the general public. Almost any burning process – in industrial processes and transportation, for example – creates carbon dioxide. The production of methane, another greenhouse gas, can be reduced by control of landfill gases, both by recycling and electrical cogeneration¹⁰ efforts.

And, as yet another aspect of greenhouse gas reductions that local governments may choose to pursue, they can work with the citizens they represent to encourage and educate the public about greenhouse gas reduction.

Essentially there are two areas for greenhouse gas reductions open to local governments. Controlling the greenhouse gases created by the daily, in-house operations under the government’s auspices are called “corporate” reductions. The reductions achieved by educating and encouraging the public to reduce these gases are called “community” reductions. Clearly, if business and industry join CCP, they can also achieve community and corporate reductions.

Comments from the AIR Technical Committee

Several committee members were interested to learn how the baseline GHG emissions inventory would be compiled and how it would work for meeting SB5 requirements. That is, although they understood the goals of the CCP Campaign, they wanted to be sure that they could coordinate the staff required to complete the inventory and/or that Ms. Stone’s office could provide necessary assistance. It was also mentioned that AACOG could provide a coordinating role. They also want to develop a clear methodology for creating the inventory. Ms. Stone said that software designed to make it easy for each agency to estimate their GHG and energy usage baseline is free for local governments that join the CCP program. The software allows input of all emissions sources and can project future energy use and related emissions. Ms. Stone offered to send to the AIR Technical Committee a copy of the New Orleans baseline inventory, which she saw through to completion before coming to San Antonio.

Recommendations from the AIR Technical Committee

Acknowledging that the local governments may desire to enter into the CCP program, the AIR Technical Committee resolved to table approval of a recommendation to the AIR Committee to join the CCP until their next monthly meeting. In the interim, they resolved to:

- Meet at AACOG to review the software and the New Orleans inventory,
- Join during the meeting in a conference call to the software manufacturer with any applicable technical questions, including software training questions,

¹⁰ Cogeneration is the production of electricity using waste heat (as in steam) from an industrial process or the use of steam from electric power generation as a source of heat. Burning methane from landfills to produce electricity is one example of cogeneration.

VII. Other Issues

C. Cities for Climate Protection

- Decide how best to approach the issue of staff time availability and work-sharing between agencies and the MPE, and
- Confer with their local parent governments on any other issues.

Ms. Stone said she would contact SECO to explain the CCP software and ask if they would approve its utilization by local governments to determine their energy usage and energy reductions as required in SB 5. If so, this might be a useful tool for the local governments complying with SB 5.



Cities for Climate Protection (CCP) is a campaign of the International Council for Local Environmental Initiatives¹¹ (ICLEI). The CCP is a performance-oriented campaign that offers a framework for local governments to develop a strategic agenda to reduce global warming and air pollution emissions, with the benefit of improving community livability. Five hundred local governments are participating in the Campaign, representing 8% of global greenhouse gas emissions, and the numbers are growing.

The CCP focuses on the following emissions:¹²

- ◆ Carbon dioxide (CO₂), emitted by energy consumption of fossil fuels by municipal buildings and facilities, households, institutional and commercial buildings, auto transportation, industrial and manufacturing process.
- ◆ Methane (CH₄), a GHG emitted in urban areas by local waste disposal, especially landfills and waste water treatment; and
- ◆ conventional air pollutants such as nitrogen oxides, carbon monoxide, and non-methane volatile organic compounds, compounds that are precursors of ground-level ozone and smog, as well as by-products of fossil fuel combustion.

In order to become a participant in the CCP, the elected council or an appropriate bureaucratic authority must adopt a Local Government Resolution. In most local governments, the draft resolution is prepared by staff and eventually approved by the full governing body of the local authority. Once it has become a CCP participant, the local government proceeds to undertake and complete the five performance milestones. They are:

- ◆ Conduct an energy and emissions inventory and forecast
- ◆ Establish an emissions target
- ◆ Develop and obtain approval for the Local Action Plan
- ◆ Implement policies and measures
- ◆ Monitor and verify results

Employing the CCP methodology, cities across the globe have gained a new perspective on how day-to-day municipal decisions affect multiple local and global issues. Inventorying energy use and identifying sources of GHG emissions has linked what were thought to be unrelated items and provided a mechanism for integrated and strategic approaches to a broad range of issues -- from local air quality and global climate change to effective municipal budget management and local economic development. With the knowledge gained, CCP local governments have used their local action plans to direct urban planning, transportation choices, and development decisions to positively affect local and global environmental quality.

¹¹ <http://www.iclei.org/>

¹² <http://www.iclei.org/co2/background.htm>

The Problems with the Photochemical Model, and Solution Approaches

Focus: The Value of the Photochemical Model in Air Quality Planning

Should the model accurately predict ozone levels all across the region, then the photochemical model becomes a very useful tool. We want to be able to use the model to predict ozone levels that occur when we implement control strategies, like the use of low RVP gasoline. We also want to forecast the ozone levels in future years, to see if we will keep our current attainment status without adopting other control strategies. And the value of all those variations – predicting changes in ozone levels when various control strategies are in place, forecasting the ozone levels in future years with and without control strategies – relies on developing the most accurate September 1999 photochemical model possible.

During the February 27th meeting of the Air Improvement Resources Executive/Advisory Committee, Chairman Patrick Heath asked AACOG staff to develop an informal explanation of the statement, “the photochemical model is currently underpredicting 1999 ozone levels.” The explanation requested would include the way we’re going to approach solving the problem. He jokingly asked staff to take part of a lunch hour to write it down, but be sure to eat a good lunch, too.

In that spirit, I’ve written a quick, conversational-tone explanation. Here goes.

II. The Problem with the Photochemical Model

If I wanted to know how much money you (the reader) have in your savings account at the bank, I might guess, oh, \$15,397.60. Where did I get that figure? Out of thin air. Obviously, if I want to better predict your savings account balance, I’d have to get some more information: what is your yearly salary? What other sources of annual income do you have? When you opened your account, how much did you deposit and how many years ago was that? The more questions I asked, the better my estimate can become... what are your expenses?... and on and on.

Next, I’d have to put pen to paper. I’d develop an estimate by adding income and subtracting expenses, calculating penalties and interest earned, based on the appropriate rates and applicable time periods for loans and savings.

Note that there are two essential steps to the process of estimating your savings account given above, and these two steps are very similar to the process of estimating ozone levels.

The first step, gathering information about income and expense, is like gathering up the emissions inventory that we keep discussing. Just as estimating your bank balance requires an inventory of your income, ozone modeling requires an inventory of pollution production.

The photochemical model, which is a computer simulation of ozone creation and movement, performs the second step – the calculation. The photochemical model is software that performs a series of calculations, just like putting pen to paper. It’s a whole lot more complicated than anyone’s bank balance I’ve ever seen, but I never worked for Arthur Andersen, either. (Sorry.)

VII. Other Issues

D. The Problems with the Photochemical Model, and Solution Approaches

So if my estimation of your savings account balance was exact to the penny, that would be a pretty good trick, unless I had all sorts of very precise information. Maybe I'd come up with an estimation that was more than you really had, maybe less.

How would I know if my estimation of your balance were even close? Simple: look at your savings balance. How would I know if the photochemical model were doing a reasonable job of approximating ozone levels? Since the ozone model churns out estimates for ground-level ozone all across the region, I'd locate the ozone level predicted by the model where a particular monitor exists, and compare the model's estimation with the level recorded at the real monitor.

When we say the model is underpredicting ozone levels, we're saying that the estimates, the ozone concentrations that the model *should* give us are lower than the concentrations *recorded* by the actual ozone monitors. And since this is a 1999 episode, we know the ozone concentrations that were actually recorded at the monitors. And, as it turns out, the photochemical model is currently underpredicting 1999 ozone levels.

Solution Approaches:

If my methods of estimating the balance in your savings account are wrong, why are they wrong? Well, considering my two-step methodology, I can name two very likely places to look for mistakes. 1) Either my inventory – my list of all your income sources and expenses – was incomplete or carried wrong information, or else 2) when I put pen to paper, my actual calculation methods were wrong. Maybe both contain errors.

You might think that, if the model is really like calculating a bank balance, that ENVIRON should have the calculating process pretty well figured out. After all, ENVIRON wrote the software for the computer simulation and was contracted by four of the five near non-attainment areas (Austin, San Antonio, Victoria, and Corpus Christi) and the Texas Natural Resource Conservation Commission (TNRCC) to put the inventory into the model software, that is, to create the September 1999 model. But creating a photochemical model is very different from balancing your checkbook. The simulation process is much more complicated and the model itself is designed to be varied to fit different situations.

The same is true for the emissions estimations in the inventory. Creating the emissions inventory is a very, very complicated process. There are many possible errors in the data base that can lead to poor model predictions. You are invited to visit the AACOG website (<http://www.aacog.com/naturalres.htm>) and look at the 1996 Emissions Inventory there. You'll begin to get an idea of the complexity of the task.

However, the nature of the underprediction makes us think that we might have an emissions inventory problem. So we – the near non-attainment areas, and TNRCC – are working together to set this straight.

Final notes:

When you consider that there are currently only four monitors in the San Antonio Metropolitan Statistical Area of Bexar, Guadalupe, Comal and Wilson Counties, that means we only really know the ozone levels at those four single points. When the predicted ozone levels from the simulation are close to the observed levels recorded at the monitor locations, then we have strong evidence that the model will **accurately predict the ozone levels everywhere else**, not **just** at those four points.

VII. Other Issues

D. The Problems with the Photochemical Model, and Solution Approaches

Now you have one explanation for the importance we attach to operating more ozone monitors, as AACOG is now establishing under the recently approved ozone monitoring contract. The more monitors you have, the more *observed*, true, real data you have to use to verify the accuracy of the simulation. This is called evaluating the model's performance.

Should the model accurately predict ozone levels all across the region, then the photochemical model becomes a very useful tool. We want to be able to use the model to predict ozone levels that occur when we use control strategies, like the use of low RVP gasoline. We also want to forecast the ozone levels in future years, to see if we will keep our current attainment status without adopting other control strategies. And the value of all those variations – predicting changes in ozone levels when various control strategies are in place, forecasting the ozone levels in future years with and without control strategies – relies on developing the most accurate September 1999 photochemical model possible.

- Peter Bella, Environmental Modeler, Alamo Area Council of Governments