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Air Quality and Transportation on Colorado's  
Front Range: Taking Responsibility for Difficult  
Choices (March 12)

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### Air Quality and Transportation on Colorado's Front Range: Taking Responsibility for Difficult Choices

Wade Buchanan

David A. Pampu

Christine Lipaj Shaver

University of Colorado Boulder. Natural Resources Law Center

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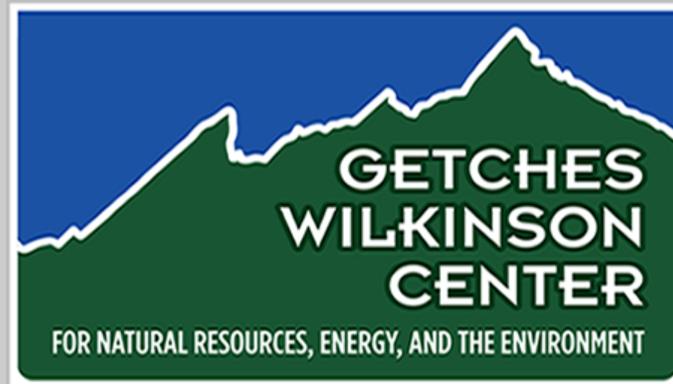
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WADE BUCHANAN, DAVID A. PAMPU & CHRISTINE L. SHAVER,  
AIR QUALITY AND TRANSPORTATION ON COLORADO'S FRONT  
RANGE: TAKING RESPONSIBILITY FOR DIFFICULT CHOICES  
(Natural Res. Law Ctr., Univ. of Colo. Sch. of Law  
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# HOT TOPICS IN NATURAL RESOURCES

## SPRING 1996 PROGRAMS

MONDAY, FEBRUARY 5

### A TRUST FOR WHOM? MANAGING COLORADO'S 3 MILLION ACRES OF STATE LAND

Historically, state trust lands have been managed for public schools revenue. Now there is pressure to protect some state lands as open space. Should trust lands be managed for broader public values? Is this consistent with existing legal mandates? Speakers: State Land Board Commissioner **Maxine Stewart**; **John Evans**, Colorado Board of Education; **Reeves Brown**, Colorado Cattlemen's Association; The Nature Conservancy's Colorado State Director **Mark Burget**. Special focus on the recently implemented Multiple Use Program and also on how The Nature Conservancy is working with the State Land Board to preserve resources. Center Director **Elizabeth Rieke** will moderate.

TUESDAY, MARCH 12

### AIR QUALITY AND TRANSPORTATION ON COLORADO'S FRONT RANGE: TAKING RESPONSIBILITY FOR DIFFICULT CHOICES

With communities along Colorado's Front Range continuing to grow at a rapid rate, government, private businesses and citizens are faced with difficult choices concerning air quality and transportation. Can we control the "brown cloud" and increasing congestion on our roads and freeways? What decisions and sacrifices must be made, and who will take responsibility for them? **Wade Buchanan**, Chairman of the Regional Air Quality Council (RAQC), will moderate a panel addressing these issues including **David Pampu**, Deputy Executive Director of the Denver Regional Council of Governments (DRCOG); **Christine Shaver**, Environmental Defense Fund attorney; and **Ken Hotard**, Senior Vice-President of the Boulder Area Board of Realtors.

TUESDAY, APRIL 23

### THE PROBLEM OF FEDERAL-PRIVATE SPLIT MINERAL ESTATES: WHO HAS CONTROL?

Many federally owned lands overlie privately owned oil and gas and mineral rights. Increasingly, the competition between agency multiple use directives and private interests in resource development has resulted in legal battles between the federal government, which seeks to regulate use of the federally owned surface estate for resource extraction, and the private owners of mineral estates. **Andrew Mergen**, the Center's 1996 El Paso Natural Gas Law Fellow, will look at problems and potential solutions associated with these split mineral estates.

12:00 noon

Holland & Hart

555 17th St., 32nd Floor, Denver

Box lunches provided

One Hour of Continuing Legal Education (applied for)

Prepayment required. Seminar cost: \$15 if received 3 working days before program; \$18 thereafter. Cost includes lunch. Additional charge of \$5 for CLE credit, if desired. Limited scholarships.

Register by phone or FAX with credit card or send check payable to the University of Colorado to Natural Resources Law Center, Campus Box 401, Boulder, CO 80309-0401. Phone 492-1288; FAX 492-1297. Kathy Taylor, Coordinator.

## NATURAL RESOURCES LAW CENTER "HOT TOPICS" SERIES

**"AIR QUALITY AND TRANSPORTATION ON COLORADO'S FRONT RANGE:  
TAKING RESPONSIBILITY FOR DIFFICULT CHOICES"**

Presentation by

**Wade Buchanan**Director, Colorado Office of Energy Conservation  
Chair, Regional Air Quality Council**1. STATUS OF KEY POLLUTANTS IN METRO AREA**

The metro Denver region has made tremendous progress toward improving the air and meeting federal health-based standards. The challenge now is to look at air quality trends in the metro area over the longer-term -- both in terms of federal health standards and in terms of the state visibility standard.

**Carbon Monoxide (CO):**

- Colorless, odorless, tasteless gas formed mostly by incomplete combustion of fuel. Motor vehicles contribute 90% of the CO emissions in the Denver area.
- Highest concentrations in the Central Business District and along the Valley Highway (I-25).
- Violations of the carbon monoxide standard have fallen from 36 in 1985 to only 2 in 1995, even with the considerable population and economic growth that occurred in the area during that time. Our success is due to cleaner new cars as required by the Federal Clean Air Act, effective inspection and maintenance efforts, and cleaner fuels (oxygenated fuels).
- We anticipate attaining the federal standard within the next few years and being able to maintain the standard for at least several decades into the future.

**Particulate Matter (PM10):**

- Fine particulate matter smaller than 10 microns in size. Motor vehicles are responsible for about 55% of the PM10 in the metro area. Other sources include industrial sources and woodburning.
- Highest concentrations in Central Business District and down valley.

- There have been only a handful of violations of the federal PM10 standard in recent years, and we actually attained the standard in 1995. There have been a variety of strategies used to reduce these emissions, including significant changes in how we sand and sweep streets.

#### Ozone:

- A colorless gas with a sweet odor. A secondary pollutant created when volatile organic compounds (particularly transportation hydrocarbons) and nitrogen oxides combine in the presence of sunlight.
- Highest concentrations most common on the perimeter of urban development.
- We have not had an ozone violation since 1989 and will be proposing redesignation later this year.

The metro area also is subject to a state standard for **visibility**, which is not a health-based standard even though it clearly is related to particulate matter.

- The "Brown Cloud" is composed primarily of tiny particles smaller than 2.5 microns. It also includes particles containing carbon and particles formed by chemical reactions between different gases in the atmosphere (e.g., NOx, SO2 and ammonia).
- This is the most complex and least understood of our problems, and the one against which we have made the least progress. During the winter months, it is not unusual to exceed the standard as much as 70 percent of the time. We also have significant visibility degradation during the summer months.

#### TRENDS AND CHALLENGES

- We expect to attain all current federal health-based standards within the next few years and to be able to show maintenance of those standards for at least the next ten years. This is a real success story and the result of much hard work.
- The key question we now must answer is, How will we fit 750,000 to 1 million new residents into the metro area over the next few decades without making the air much worse and without greatly decreasing our quality of life?
- There are really only three ways to reduce air pollution related to transportation:
  - Build cleaner cars, and keep them clean;
  - Use cleaner fuels; or
  - Use our cars less.

- Most of the improvements in air quality over the past ten years have been due to technological improvements in cars and fuels:
  - new cars which are vastly cleaner;
  - inspection and maintenance programs;
  - cleaner fuels (oxygenated fuels); and
  - improved street sanding and cleaning.
- Unfortunately, future increases in population and the amount of driving are expected to erode this progress over the long term.
- This panel will focus on the options available in each of these areas.
- Having reviewed the comments of the other panelist ahead of time, I want to make several preliminary observations:

**First**, most of the progress in the past has been in the first two areas -- cleaner cars and cleaner fuels. Several panelists will talk about the real potential for further substantial gains in these areas. While some of these options may be controversial or difficult to achieve, at least on this panel there seems to be little disagreement that their potential is real and that they should be pursued.

**Second**, we have not yet figured out or agreed on an effective way, at least in this metro area, to limit the growth in driving or to provide meaningful, convenient alternatives to the single occupant vehicle for a significant number of our residents. Whether or not we can achieve that, whether we can afford it, and whether it will help cut air pollution all are matters of disagreement between panelists.

**Third**, even if we could agree on what strategies might actually work to reduce vehicle travel and cut pollution in the metro area, actually implementing those strategies would be very difficult given the existing system of governance in the metro area. It may be that finding a way to make common and purposeful decisions across city and county lines in the metro area will be the toughest challenge we face. Can we find a way to make decisions as a region as opposed to more than 40 separate cities and counties that happen to be crowded together in one area?

#### KEY ACTORS AND ROLES

The **Regional Air Quality Council (RAQC)** is the lead air quality planning agency in the metro area. As such, it takes the lead in planning and advocating for strategies to reduce air pollution throughout the region. However, the RAQC has no authority to implement anything it proposes -- for that it must rely on the State Legislature, the Air Quality Control Commission, City and County governments and, in some cases, the private sector.

- The RAQC was created by the Governor in 1989 and consists of 37 members. Roughly half are metro-area city council members or county commissioners. The other half are appointed by the Governor to represent key interests, including business and industry and the environmental community.
- **The State Legislature, local governments, the Regional Transportation District (RTD), the Denver Regional Council of Governments (DRCOG), and state agencies such as the Colorado Department of Transportation (CDOT) are the primary implementing entities who can insure that more investments are made in providing alternative travel choices and alternative development patterns.**
- **Business and industry** have an economic interest in insuring that transportation operates efficiently and that air quality is improved along the Front Range. Businesses could play a role in advocating investment in alternative transportation choices and more efficient development patterns.
- **Environmental and consumer interest groups** can also play a role in advocating decisions about transportation and land use that will benefit air quality.
- Finally, the **federal government** has played and will continue to play a critical role in bringing about improvements in air quality. But as we move into the tougher issues of transportation and land-use decisions, federal agencies and law makers face a real challenge in making their actions relevant and even constructive. They need to move away from centralized command and control solutions and move toward decentralized, flexible and locally-driven solutions.

### WADE BUCHANAN

Wade Buchanan is director of Colorado Governor Roy Romer's Office of Energy Conservation (OEC), and chair of the Regional Air Quality Council (RAQC). OEC promotes energy efficiency, renewable energy and alternative motor fuels throughout Colorado and is the lead recycling agency in the state. RAQC is the lead air quality planning agency for the metropolitan Denver area and is responsible for developing plans for attaining federal and state air quality standards.

Mr. Buchanan served as deputy director and acting director of Governor Romer's Office of Policy and Initiatives. He oversaw the Governor's policy staff on issues including the environment, natural resources, transportation, economic development and health care. He has also served as one the Governor's chief speech writers.

Mr. Buchanan also has worked in the Governor's office as a policy analyst and as a lobbyist (1987-90), and as coordinator of local government programs for the RAQC (1990-91).

A third-generation Coloradan, Mr. Buchanan attended Boulder High School and graduated with honors from Colorado College in 1983. He attended Oxford University as a Rhodes Scholar from 1983-86. At Oxford, he received a masters degree in international relations.

## AIR QUALITY AND TRANSPORTATION ON COLORADO'S FRONT RANGE: TAKING RESPONSIBILITY FOR DIFFICULT CHOICES

Presentation by

David A. Pampu, Deputy Executive Director  
Denver Regional Council of Governments

- I. The Denver Regional Council of Governments (DRCOG) role in transportation and air quality planning and decisionmaking.
  - A. DRCOG is a regional planning commission formed in 1955 pursuant to Colorado regional planning statutes.
    1. A membership organization composed of eight counties and 39 municipalities.
    2. Member governments include over 99% of the region's population.
    3. Responsible for developing a regional master plan for the physical development of the region, including recommendations regarding the location and character of roads and other transportation improvements.
  - B. DRCOG is designated as a metropolitan planning organization (MPO) pursuant to federal highway and transit statutes.
    1. Responsible for preparation of a realistic long-range (25 year) regional transportation plan.
      - a. Federal highway and transit funding is limited to improvements identified in the regional transportation plan.
      - b. Plan must be fiscally constrained, i.e., it must be consistent with dollars expected to be available from known sources over the life of the plan.
      - c. Plan must conform to the requirements of section 176(c) of the Clean Air Act.
    2. Responsible for preparation of a short-range (three to six year) transportation improvement program (TIP).
      - a. Program establishes project priorities to which CDOT, RTD and local governments using federal transportation funds must adhere.
      - b. TIP must be fiscally constrained and conform to requirements of section 176(c) of the Clean Air Act.

C. DRCOG's role in air quality planning derives from its transportation responsibilities.

1. The agency participates in and supports preparation of state implementation plans (SIPs).
  - a. Member of Regional Air Quality Council.
  - b. Provides technical support (transportation modeling) for mobile source components of SIPs.
2. An MPO shall not ". . . give its approval to any project, program, or plan which does not conform to an implementation plan approved or promulgated under section 110 [of the Clean Air Act]." (Section 176(c)(1) of the Clean Air Act as amended).
  - a. EPA regulations (40 CFR Parts 51 and 93) prescribe a highly analytic and complicated technical transportation and air pollution modeling process for making conformity determinations.
  - b. The transportation plan and TIP must be analyzed for each pollutant, the attainment year, and 10 and 20 years in the future. Must pass each test in order to find conformity.
  - c. Only DRCOG and the U.S. Dept. of Transportation make regional conformity determinations.
  - d. If DRCOG is unable to find conformity, CDOT, RTD, local governments and others may not use federal funds to add highway or transit capacity to the region's transportation system and also, under certain circumstances, may not use local funds for such projects.

II. As a long time participant in transportation and air quality planning in the region, I would offer some observations about the transportation and air quality issues facing the region and perhaps put a somewhat different slant on them.

A. The Denver region has made substantial progress toward solving our air quality problem. We are virtually at attainment of the National Ambient Air Quality Standards (NAAQS).

1. NAAQS violations have declined dramatically over the last 25 years, despite a more than doubling of travel in the area over the same period.
2. Future projections from our most recent conformity analysis show that we will continue to maintain compliance even with an expected 50% growth in travel by 2015.
3. How can this be? On the mobile source side virtually all the improvement has been the result of two programs.

- a. The federal motor vehicle emissions control program resulting in significantly cleaner vehicles in the fleet.
  - b. The Colorado motor vehicle inspection and maintenance program.
- B. While we are nearly at a point where we can and should declare victory over health-based pollutants, we must also be diligent and credible in our efforts to ensure that standards are maintained in the future.
- 1. Past efforts to provide incentives or coerce people out of their cars have simply not been successful and have resulted in the credibility, and sometimes the sanity, of those proposing such strategies being questioned.
    - a. Transportation control measures, such as employer-based transportation management plans, trip-reduction ordinances, and congestion pricing, while intellectually sensible, have proven to be generally unacceptable to the public.
    - b. Attempts to "sell" rapid transit as a air quality strategy. There are many good reasons to build a rapid transit system in the Denver region, but air quality is not one. Air quality benefits of rapid transit are negligible over 20 years.
    - c. Holding the highway program hostage through the conformity requirements, provides virtually no air quality benefit and hinders our ability to deal with legitimate traffic congestion problems.
  - 2. Future efforts to address mobile source emissions should take a different approach.
    - a. There is always a great temptation to try to "push the envelope." However, in order to build support for meaningful strategies we must recognize and respect established consensus on air quality objectives.
    - b. We should be endorsing and advocating measures that will have impact such as keeping pressure on the motor vehicle industry to continue to produce ever cleaner vehicles.
    - c. We should be positive about the success of efforts to improve air quality and specifically define what further emission reductions are necessary, if any, and what measures are required to achieve this reduction.
    - d. Using air quality as an excuse to achieve other agendas such as growth control/management or travel reduction is not being honest with the public and detracts from our ability to build public support for meaningful air quality strategies.

C. But what about transportation? With a growing region relying more and more on automotive transportation, what can we do to solve existing congestion and prevent future gridlock?

1. We need to carefully target highway improvements to solve congestion problems resulting from antiquated design or specific bottlenecks, e.g., Mousetrap reconstruction, removal of I-70 airport tunnels.
2. We should invest in rapid transit to provide a significant alternative to the automobile in key congested corridors.
3. We must recognize the critical linkage between land use decisions and congestion. Land use decisions which create travel demand are made by local government, but most of our principal arterial roads which supply the capacity for this demand are the responsibility of the state, e.g., Colorado Blvd., Wadsworth Blvd., I-25 in the vicinity of the Denver Tech Center.
4. New development will have to contribute to addressing its impacts on the regional transportation system. There simply is not enough money nor can taxes be raised enough to both maintain what we already have and build new capacity to support new development.

**DAVID A. PAMPU**  
Deputy Executive Director  
Denver Regional Council of Governments

**Education:**

Bachelor of Arts (Political Science)  
The University of Michigan, Ann Arbor, Michigan  
1962

Masters Degree (Urban Planning)  
Wayne State University, Detroit, Michigan  
1967

**Professional Background:**

As DRCOG Deputy Executive Director since 1978, is responsible for management and direction of the Council's planning and service delivery program. Principal areas of responsibility include surface and air transportation, growth and development planning, water quality, social services and service to local governments. Previously, was Assistant Director for Program and Planning, as well as Program Director of Transportation and Land Use Development Planning with DRCOG. Before joining the DRCOG, was a Research Associate at the University of Michigan Center for Urban Studies. In this capacity, served as Principal Analyst and Project Director for a variety of studies in the field of urban transportation and research. Prior to this, he was with the Michigan Department of State Highways.

**Professional Organizations:**

Member, American Institute of Certified Planners (AICP)  
Member, American Planning Association (APA)  
Associate Member, International City Management Association (ICMA)

**Professional Activities:**

Regional Air Quality Council Board Member  
Association of Metropolitan Planning Organizations Policy Committee  
National Association of Regional Councils Clean Air Project - Conformity Panel  
Colorado DOT Transportation Planning and Development Task Force (Activities Completed)  
Governor's Task Force on Integrated Solid Waste Management (Activities Completed)  
Strategic Planning Task Force on Statewide Transportation (Activities Completed)  
APA Local Capital Improvements and Development Management Committee (Activities Completed)  
Colorado Aging Fund Allocation Committee (Activities Completed)

**Awards:**

1987 Roderick L. Downing Award - Outstanding Contribution to the Advancement of the Transportation System of Colorado - Presented by the University of Colorado at Denver and Colorado Department of Highways

Meritorious Service Award - Presented by the Denver Regional Council of Governments

March 12, 1996

NATURAL RESOURCES LAW CENTER  
HOT TOPICS IN NATURAL RESOURCES

**AIR QUALITY AND TRANSPORTATION  
ON COLORADO'S FRONT RANGE:**

***TAKING RESPONSIBILITY FOR DIFFICULT CHOICES***

Outline of Presentation by Christine L. Shaver  
Senior Attorney, Environmental Defense Fund

- I. Cost-effective regulatory approach: Focus on the tailpipe/fuels for greatest pollution reduction per vehicle.
  - A. Emissions from automobiles manufactured today are substantially lower (>90%) on a per-vehicle-mile traveled basis than 1960's models, in large part due to the Federal Motor Vehicle Emission Control Program in the Clean Air Act, as well as the California motor vehicle emissions program. However, the number of vehicles, and with it the total vehicle miles traveled, have increased dramatically -- a trend that is expected to continue. Similarly, emissions from heavy-duty on-road diesel engines have been reduced (70% for NOx, 95% for PM) since the early 1970's.
  - B. Continuing tailpipe reductions can be achieved by:
    1. Adoption of Federal Low Emission Vehicle (LEV) standards (the so-called "49-state LEV) beginning in 2001 and adoption of Tier 2 standards effective 2004. Agreements currently being negotiated.
    2. Adoption of EPA's recent proposal to further reduce NOx emissions from on-road HDVs by at least 50% compared to the 1998 requirements contained in the 1990 CAAA. In late 1995, EPA, California ARB and heavy duty engine manufacturers signed a statement of principles to this effect.
    3. Adoption of additional tailpipe standards for off-road vehicles. EPA is currently negotiating standards.
    4. Further reductions in sulfur content of gasoline and diesel fuel
    5. Pursuit of fuel and emission standards for for locomotives, marine vessels/pleasure crafts, and airplanes (e.g., finalize proposed HC standards for recreational boats; adopt NOx standards for new locomotive engines; strengthen HC standards and adopt stringent NOx standards for aircraft engines).
    6. Improved control of evaporative emissions through on-board and refueling devices that capture evaporative emissions.
    7. Promoting proper vehicle maintenance through state-of-the-art vehicle inspection and maintenance programs coupled with a mechanics' training and certification program.

8. Retiring high-emitting vehicles by developing incentives for people to get rid of older, higher-polluting vehicles.
9. Converting vehicles used for mass transportation and delivery to cleaner fuels (e.g., CNG, LNG, alcohol-based fuels) in urban areas and along major trucking corridors.

II. Alternatives, Competition and Incentives: Focus on demand management to reduce vehicle miles traveled and congestion

- A. The challenge: creating alternatives and incentives to reduce reliance on single/low occupancy vehicle use
- B. Provide multi-modal transportation alternatives
  1. Public investment: Completion of light rail system to provide key piece of mass transit infrastructure.
  2. Private investment: Encourage competition and private investment in transportation options by reducing or eliminating entry barriers and rate regulations in the transit industry (e.g., to promote privately-operated shuttle/jitney services).
- C. Provide incentives for governmental policies/programs that result in better integration of transportation, land use and air quality planning
  1. Use of conformity requirements to affect transportation planning process and federal and regionally-significant transportation projects
  2. Develop funding and other incentive-based schemes that give priority to allocating state/local funding to transportation projects that reduce reliance on SOV and reward communities that implement innovative solution (e.g., land use ordinances that favor development in existing transit/transportation corridors, high density development, and co-located residential, business and commercial development)
  3. Establish accountability mechanism for meeting mobile source emissions budgets, e.g., by assigning responsibility for living within an equitable and appropriate portion of the budget to local governments.
- D. Institute pricing schemes to encourage changes in behavior
  1. Internalize the full cost of operating a motor vehicle by charging vehicle owners emission fees that reflect the total societal costs and harm caused by vehicle-related pollution. Use of the common airshed as a discharge medium for pollution should be paid for on a per-unit basis. Sending the right pricing signals provides individuals with incentives to prevent or remedy pollution and holds them accountable for their actions.

2. Emission fees should be coupled with user fees associated with use of transportation infrastructure (e.g., congestion pricing and/or tolling of major roadways; parking fee increases.
3. Fees collected could be rebated to motorists based on a formula that rewards those who have managed to reduce their vehicle use and emissions below average levels and/or used for public investment in pollution reduction, mass transit or other transportation modes, or perhaps, highway maintenance.
4. If appropriate pollution fees were instituted for all sectors, they could be used in lieu of prescriptive regulations and used as a substitute for taxes on property or income.

## BIO SKETCH

**Christine Lipaj Shaver** is a Senior Attorney with the Environmental Defense Fund's Rocky Mountain Region and has 20 years' experience working on air quality related issues. Prior to joining EDF in 1992, Chris spent nine years with the National Park Service's Air Quality Division, where she directed the NPS's efforts to remedy air pollution problems in national parks through involvement in legislative, regulatory, permitting and compliance activities on a nationwide basis. She earned the Department of Interior's Honor Award and the National Parks and Conservation Association's "Founder's" Award (which is presented annually to an NPS employee who has risked job security to take action needed to protect park resources).

From 1979-1983, Ms. Shaver worked as an attorney in the EPA Region VIII (Denver) Office of Regional Counsel, where she specialized in Clean Air Act issues and earned EPA's "Gold Medal for Exceptional Service." Prior to that, she worked in EPA's Office of Air and Radiation in Washington, D.C., where she analyzed legislative alternatives for the prevention of significant deterioration of air quality program (1975-76), and later, developed transportation-related policies under the Clean Air Act Amendments of 1977 (1977-79).

Ms. Shaver is a graduate of Wittenburg University (B.A. in Sociology and Psychology, magna cum laude, 1974) and Georgetown University Law Center (J.D. 1977).