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# Air Quality Program Strategic Plan



September 2001 **Draft**

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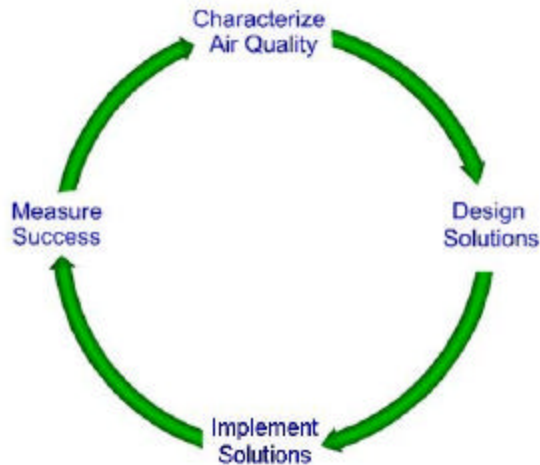
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# Introduction

## Overview

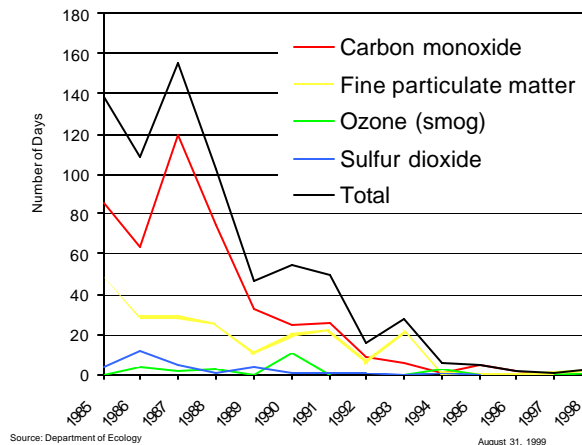
Thirty years: that's how long it has taken to solve the first set of air quality problems the 1970 federal Clean Air Act required Washington and the other states to address. In the 1970s, hundreds of violations of health-based air quality standards were recorded each year. Today, few if any such violations occur. Over time, an air quality management system has been developed that has allowed us, in partnership with local air pollution control authorities and the U.S. Environmental Protection Agency, to succeed in identifying problems, designing solutions, and implementing the solutions needed to solve the problems.

## Air Quality Management System



It is with a real sense of pride that we look back at our accomplishments. It is also timely and appropriate to look to the future. What will tomorrow bring? Can this incredible progress be sustained in light of continued population growth? Is the quality of the air acceptable, and if not, how much improvement is needed? Do we understand the impacts of air pollution on the health and well-being of our citizens? What are the most important air quality issues for the coming decade?

Days With Unhealthy Air Quality



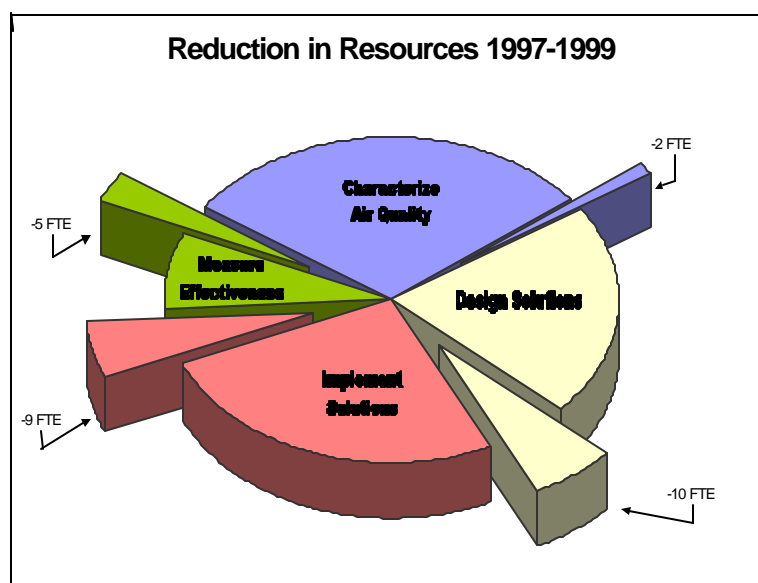
Over these past 30 years, we have come to understand the complexities of air quality management. We know there are not just six air pollutants, but hundreds. We know each increment of progress in reducing these pollutants in our air is more costly and difficult than the last. We have shifted our focus from large factories to smaller, but more widespread, sources like wood stoves and gas stations, and have designed solutions that require behavior changes.

The purpose of this strategic planning effort is to establish a set of priorities to guide the Air Quality Program's actions over the next 10 years. It provides focus for our future efforts, and establishes objectives for the coming decade. Just as a map guides us to our destination, the strategic plan guides us to our preferred future. It helps us decide where our next dollar will be spent, and which elements of the program must be protected if our resources are reduced.

## Program Resources

Over the past 30 years, the Air Quality Program has continued to develop its capacity to take on the challenges of today's complex environment. When we first began to implement air pollution controls, significant air quality improvements could be achieved by controlling a few sources of air pollution, and our progress was typically measured in hundreds of tons. Today, every increment of progress is more difficult and costly to achieve, and sometimes results in only a few tons of air pollution reductions per year. Given the cost and complexity of new control measures, significant effort will be needed just to maintain the status quo. As more people move to the state, and as new industries move in, there will be growing pressure on the air resource. Each increase in air pollution resulting from a new source will require a corresponding decrease in air pollution somewhere else just to maintain current air quality levels. In summary, each increment of improvement in air quality will require an increased commitment of resources.

The Air Quality Program is smaller today than it was two years ago. In 1997, there were 150 employees in the Air Quality Program. Today, there are approximately 125, diminishing our air quality management capacity by nearly 20 percent.



Strategic alignment of available resources will be critical to our success at achieving our priority objectives. A preliminary estimate of resource needs is summarized in the following section.

# Program Strategic Plan

## Mission and Goals

The Air Quality Program is committed to the Department of Ecology mission:

*“The Mission of the Department of Ecology is to protect, preserve and enhance Washington’s environment, and promote the wise management of our air, land and water for the benefit of current and future generations.”*

The Air Quality Program vision is as follows:

*“Washington citizens enjoy air that is healthy to breathe and views that are aesthetically pleasing, and recognize that good air quality is both an important natural resource and a valuable economic resource.”*

## Objectives, Milestones, and Strategies

The Air Quality Program’s strategic planning effort resulted in objectives, milestones, and strategies for six air quality goals:

- Prevent air quality violations;
- Reduce motor vehicle emissions;
- Improve visibility;
- Reduce risk from toxic air pollutants;
- Improve stakeholder understanding; and
- Provide local air management services.

The objectives, milestones, and strategies for these goals are described in the following pages.

# Prevent Air Quality Violations: Nonattainment Early Warning System

**Objective:** *By 2010, reduce ambient criteria pollutant concentrations to levels that provide less than a one percent chance of triggering nonattainment of health-based National Ambient Air Quality Standards.*

**Problem:** Continuing growth threatens to overwhelm our current strategies to maintain air quality standards, and in areas of the state that have not been monitored, health risks are a matter of conjecture.

## Milestones:

- By 2003, develop a data acquisition, management, and analysis system from which useful information can be extracted.
- Complete statewide assessment and prioritization of areas for the likelihood of violating standards by 2003.
- Develop consensus among stakeholders by 2003.
- Develop and implement control strategies for highest priority areas by 2005.
- Develop and implement control strategies for the rest of the state by 2008.

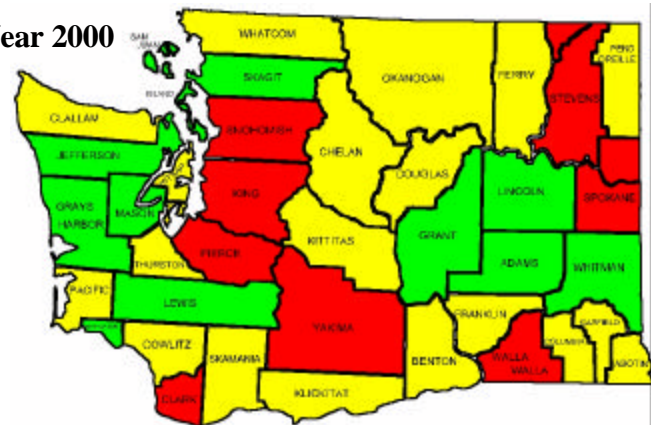
## Washington will have clean air!

The Environmental Protection Agency (EPA) has set health-based air quality standards. Air quality monitoring indicates that Washington's metropolitan areas currently meet these standards or are making significant progress. However, our state's continuing growth threatens to reverse this progress and cause some areas to exceed air quality standards. Other areas of the state remain unmonitored, and have not been evaluated for potential health risk.

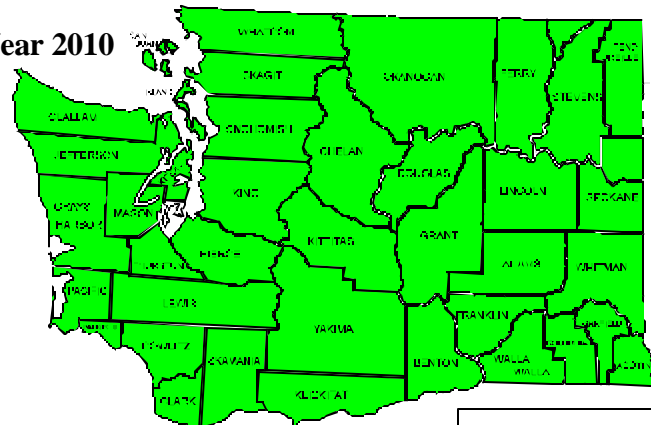
EPA designates areas that exceed air quality standards as "nonattainment." A nonattainment area must commit to a program of prescriptive, confining, and costly measures to clean up the air. Regulatory control increases, and economic growth is restrained. The nonattainment area remains on the "dirty air list" until EPA is satisfied that the area meets air quality standards and the air will remain clean.

Avoiding federal oversight requires a "nonattainment early warning system" to identify areas at risk, and "attainment maintenance plans" to assure the air stays clean. A comprehensive approach assures that Washington's citizens will breathe clean air.

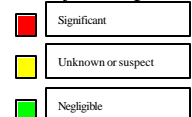
Year 2000



Year 2010



Probability of NAAQS Violation



## **Strategies:**

### **Improve the data acquisition, management, and analysis system.**

- Develop a data system that can be readily and extensively used by air quality professionals.
- Develop automated risk assessment, integrating monitoring data, modeling results, and other relevant information.

### **Conduct statewide assessment of the likelihood of violating standards.**

- Define nonattainment risk assessment methodology.
- Collect all data necessary for nonattainment risk assessment.

### **Prioritize areas.**

- Classify all areas of the state as to the likelihood they will violate health-based National Ambient Air Quality Standards.
  - Red areas have a significant likelihood of violating a standard.
  - Yellow areas are where the likelihood of violating a standard is suspect or unknown.
  - Green areas have a negligible likelihood of violating a standard.
- Prioritize red areas based on likelihood of violation and population density.

### **Develop consensus among stakeholders.**

- Share the strategic objective with stakeholders. Major stakeholders include local air authorities, regional planning agencies, pollutant-emitting sources, and affected communities.
- Achieve consensus with and among stakeholders.
- Develop and implement nonattainment risk avoidance plans with local decision-making.

### **Develop and implement control strategies to lower ambient air pollutant levels.**

- Identify origins of criteria pollutant emissions.
- Assess risk of nonattainment and identify potential measures in alliance with stakeholders.
- Evaluate costs of triggering nonattainment vs. costs of avoiding nonattainment.
- Determine the risk avoidance target in alliance with stakeholders.
- Select measures for inclusion in the plan in alliance with stakeholders.

### **Implement control strategies.**

- Implement measures to reduce risk of nonattainment.
- Track progress.
- Maintain risk avoidance through periodic review and revision of plans.

# Reduce Motor Vehicle Emissions

**Objective:** *By 2010, reduce emissions from mobile sources by 35 percent.*

**Problem:** More people, more growth, and more sprawl mean more traffic and more pollution from motor vehicles. Without significant emission reductions, we cannot guarantee attainment of federal air quality standards, avoid the imposition of hundreds of millions in increased costs to business and citizens, or prevent more citizens from becoming sick or dying from air pollution.

## Milestones:

- By 2001, identify the most appropriate strategies for the near-term (2000-2005).
- By 2002, implement selected near-term strategies.
- By 2003, identify the most appropriate strategies for the long-term (2005-2010).
- Between 2003 and 2005, initiate long-term strategies.
- Periodically evaluate effectiveness of strategies and refine strategic plan as needed.

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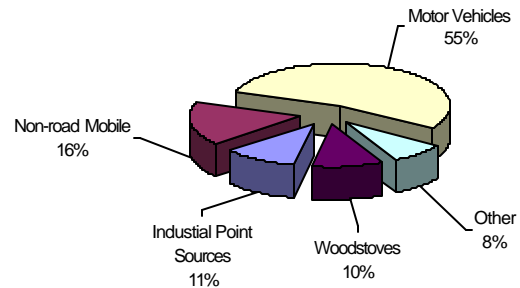
## Getting there with clean air

Cars and trucks, both gasoline and diesel, combine with other non-road vehicles to generate two-thirds of the air pollution in Washington. The number of vehicle miles traveled in our state continues to grow. Pollutants generated by these vehicles along our congested streets and highways increase the amount of toxics in the air, threaten public health, and degrade visibility.

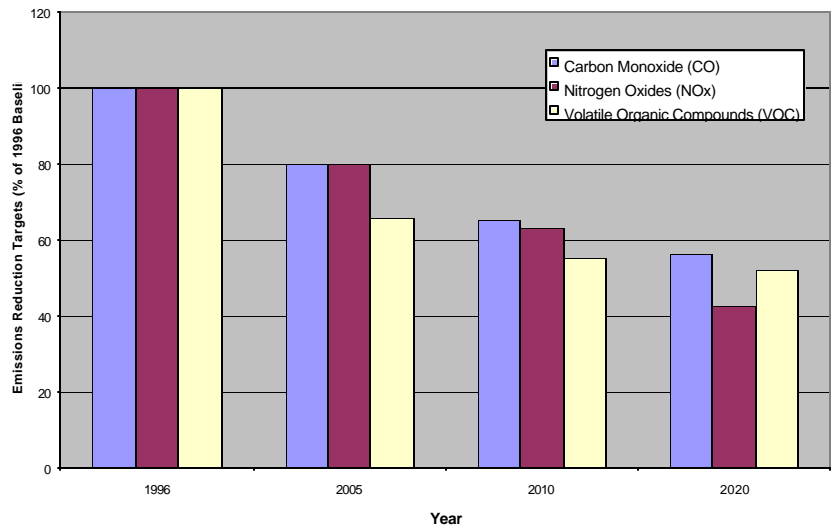
Oncoming cleaner fuels and vehicles will not emerge in time to ensure that we continue to meet federal health standards during the next five years. To keep our communities breathing healthy air, we need to develop strategies that include:

- improved motor vehicle technologies;
- use of transportation alternatives that reduce the number of vehicles on the road;
- economic incentives for cleaner vehicles and fuels;
- modifications to existing programs;
- increased focus on diesel and heavy-duty engines; and
- increased coordination with land use and transportation planners and decision-makers.

Sources of Air Pollution in Washington



Emissions Reduction Targets for WA Motor Vehicles



## **Strategies:**

*How will we identify the strategies?*

The mobile source team will identify potential strategies, consult with stakeholders, and determine potential strategies. Strategies will be evaluated based on their appropriateness to ensure that Washington attains and maintains air quality standards and achieves the toxic and visibility objectives defined in this strategic plan. Stakeholders will actively participate in the selection of strategies. Selected strategies should reduce emissions in a cost-effective manner and sustain economic vitality, and should not place unfair burdens on Washington's citizens.

### **Identify near-term emission reduction strategies, 2000- 2005.**

Near-term strategies include technology improvements of existing programs.

### **Identify long-term emission reduction strategies, 2005 – 2010 and beyond.**

Long-term strategies include market incentives, education/outreach programs and technical assistance to encourage less-polluting alternatives.

### **Update mobile source strategic plan.**

Update the Mobile Source Strategy Team document. Expand the document to include non-road emission reduction strategies.

### **Implement selected strategies.**

The margin of safety for maintaining federal air quality standards is very small for many parts of Washington. Near-term strategies that emphasize technical solutions and modifications to existing programs should be quickly implemented to address these needs. Long-term strategies should move away from command and control measures and pursue innovative approaches that use public outreach and market incentives to reward choices that reduce emissions and improve air quality. Strategies may include:

- Coordinate local efforts to increase the availability of alternative fuels.
- Upgrade the gasoline and diesel motor vehicle Emission Check Program.
- Request state tax credits for the purchase of ultra-low emission vehicles.
- Seek funding for cleaner government vehicles and equipment (on-road and non-road).
- Coordinate the implementation of a pilot program that initiates long-term emissions reductions such as changes in land use.
- Advocate new federal regulations for cleaner fuels and technologies that reduce emissions.

### **Refine strategies and strategic plan.**

- Select strategies that do the most to support achievement of the toxics, visibility, and other objectives defined in this strategic plan.
- Conduct periodic comprehensive evaluations to update the overall plan.

# Improve Visibility

**Objective:** *By 2010, develop and implement control strategies to reduce human-caused visibility-impairing emissions by 25 percent. By 2020, reduce these emissions by 50 percent.*

**Problem:** Visibility is negatively affected by air pollution levels well below those allowed by the federal health-based standards. Clear views within our national parks and wilderness areas, as well as views from outside these areas, are important to our economy and our quality of life. To enhance and preserve this cherished natural resource, we need to develop and implement strategies that will significantly reduce visibility-impairing

**Milestones:**

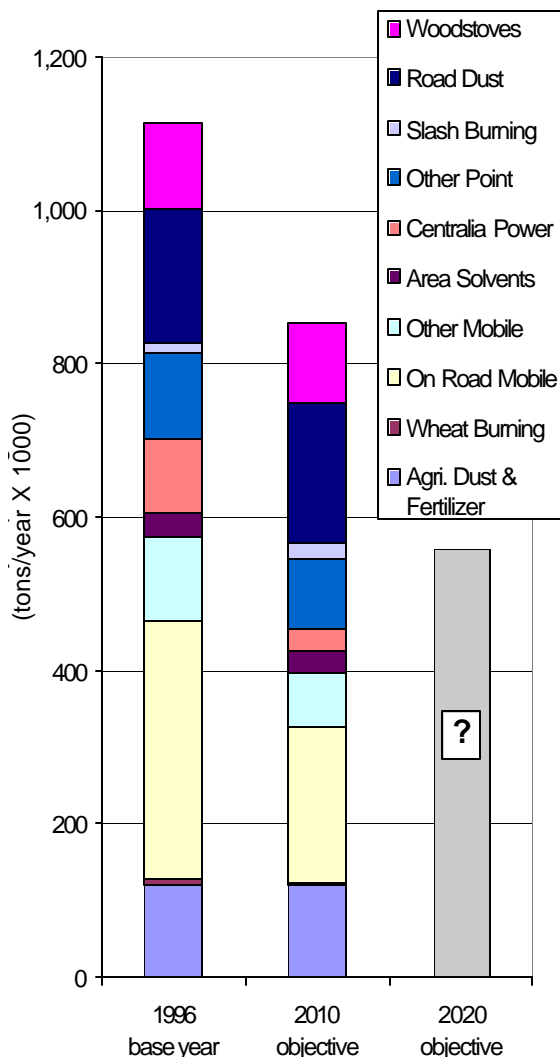
- Develop state and regional infrastructure and stakeholder support for improving visibility.
- Develop a visibility-monitoring network.
- Develop an inventory of visibility-impairing emissions.
- Identify source contribution to visibility-impairing emissions.
- Identify types of emission controls needed to meet the objectives.
- Develop and implement control strategies to meet the objectives.
- Periodically assess progress made towards meeting objectives.

## “The scenery’s fabulous!”

Clear views of spectacular natural vistas are an important part of our quality of life in Washington State. A recent federal regulation addressing impacts from regional haze will require us to bring visibility back to natural levels in the state’s mandatory Class I areas (national parks and certain wilderness areas). Our strategy goes a step further by proposing to protect and improve visibility in all areas of the state. Much of the same work necessary to meet the federal regulation will benefit other areas of the state. Likewise, actions taken to achieve other objectives in this strategic plan will contribute to statewide visibility improvement.

Although some improvement in visibility can be expected under other planned emission reduction programs, additional strategies will be needed to meet the objectives described above. To meet the 2010 objective, strategies will initially target motor vehicles, certain industries, wood stoves, and road dust. At the same time that these strategies are being developed and implemented, Ecology will be learning more about the impacts of other sources on visibility. With this increased knowledge, we will be able to develop additional strategies to help us meet the 2020 and longer-term objectives.

Reducing Emissions to Improve Visibility



## **Strategies:**

### **Develop state and regional infrastructure and stakeholder support for improving visibility.**

- Assess support for improving visibility through stakeholder groups by 7/02.
- Develop a public education and outreach program by 7/03.
- Identify regional planning body states by 7/01 for regional haze SIP development.

### **Develop a visibility-monitoring network.**

- Identify “visibility important areas” (VIAs) in consultation with stakeholders and communities by 7/02 (mandatory class I areas are already identified and are included as VIAs).
- Establish monitoring that represents all VIAs by 7/03.
- Define existing visibility conditions for all VIAs by 7/05.
- Define natural visibility conditions for all VIAs by 7/05.

### **Develop an inventory of visibility-impairing emissions.**

- Refine and expand the existing inventory of natural and human-caused emissions by 7/02.
- Define current and project future visibility-impairing emissions by 7/02.

### **Identify source contribution to visibility-impairing emissions.**

- Develop and/or refine Pacific Northwest emission source signatures by 7/02.
- Develop and test a method for identifying source contribution to visibility impairment by 7/02.
- Identify source regions that contribute visibility-impairing emissions to VIAs by 7/04.
- Use model to identify source category contribution to VIAs by 7/04.

### **Identify types of emission controls needed to meet the objectives.**

- Model different emission scenarios by 7/05 to identify the types of controls needed to reach the emission reduction objectives.

### **Develop and implement control strategies to meet the objectives.**

- Revise the Phase I visibility SIP by 7/03.
- Develop a visibility protection strategy for the Columbia River Gorge National Scenic Area by 7/07.
- Develop and implement control strategies for the 2010 VIA objective by 7/07.
- Develop and implement control strategies for the first regional haze SIP by 7/07.
- Develop and implement control strategies for the 2020 VIA objective by 7/11.

### **Periodically assess progress made towards reaching the objectives.**

- Complete the Phase I visibility SIP review by 7/02.
- Assess regional haze progress first in 2013, then every five years thereafter.
- Determine if strategies will continue to provide reasonable progress towards objectives every five years. If not, revise existing strategies and/or develop new strategies.

## Reduce Risk From Toxic Air Pollutants

**Objective:** *By 2010, reduce emissions of priority toxic air pollutants by 50 percent, and significantly reduce potential risk to the public of cancer and other serious adverse health effects caused by airborne toxics.*

**Problem:** Toxic air pollutants can cause health problems for citizens of Washington who breathe dirty air. This is particularly true for the young, aged, and those whose breathing is already compromised. The reduction and elimination of toxic air pollutants is an emerging issue. Although the federal government is beginning to address many of these pollutants, they may or may not address those toxics most significant in Washington State in a timeframe that provides satisfactory protection for Washington citizens.

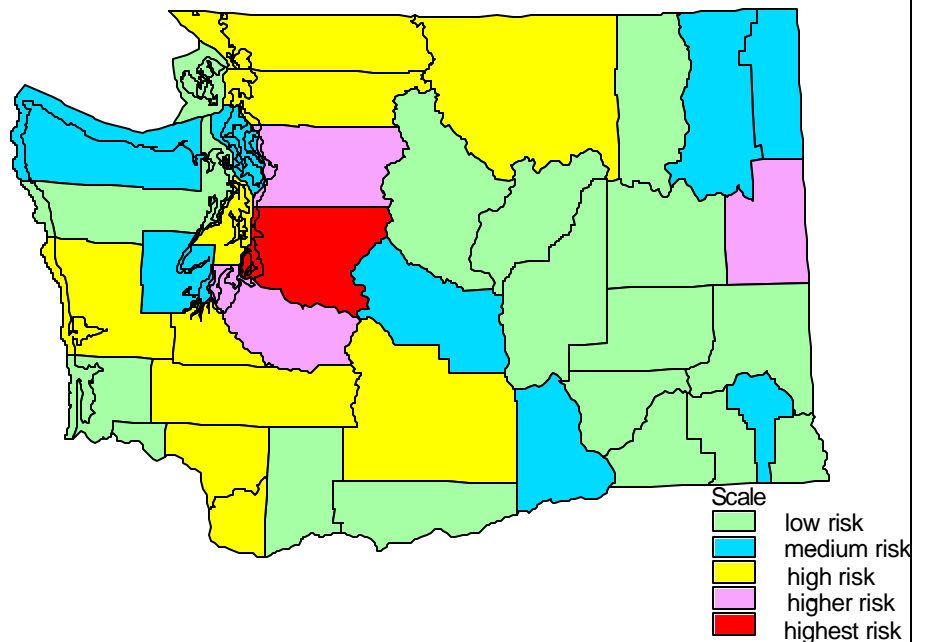
### Milestones:

- By winter 2000, develop, choose, and apply a method for ranking and prioritizing air pollutants.
- By summer 2001, determine the sources of the priority air pollutants.
- By the end of the year 2001, evaluate and propose strategies for reducing priority air pollutants from those sources.
- By the beginning of the year 2002, begin to implement strategies.

### What's in our air?

Toxic air pollutants come from many sources, including wood stoves, automobiles, outdoor burning, and industries. Ecology has the responsibility to make sure that people in Washington are breathing healthy air. We also have the responsibility to target the most harmful pollutants. This strategy will give us the tools we need to know which pollutants and which sources have the greatest impact on the health of Washington citizens. It will help us identify policies regarding the pollutants that pose the greatest risk.

### Air Toxic Risks by County



Data derived from U.S. Environmental Protection Agency Cumulative Exposure Project, 1998

## **Strategies:**

### **Develop and apply a method for ranking and prioritizing air pollutants.**

- Learn enough about available tools to choose and apply a method wisely.
- Take into account human health, environmental impacts, and toxicity.
- Use measurements of ambient air and records of pollutants emitted by sources.

### **Determine the sources of priority air pollutants.**

- May include wood stoves, gasoline and diesel automobiles, outdoor burning, industries, and others.

### **Evaluate and propose strategies for reducing priority air pollutants from those sources. Strategies may include the following:**

- Make sure that industries that emit priority air pollutants are using legally required air pollution control methods.
- Make sure that other sources of air pollution – for example, wood stoves and automobiles – are also using appropriate pollution controls.
- Is there a less polluting way to accomplish the job? Encourage and facilitate pollution prevention.
- Evaluate the effectiveness of strategies through measuring ambient air, computer modeling, and improvements in the reporting of emissions from different sources.

### **Begin to implement strategies.**

## Increase Citizen Awareness

**Objective:** *Provide easily accessible and understandable information about the risks and costs of air pollution to citizens and elected officials.*

**Problem:** Citizens, regulators and elected officials need to be well informed about the effects of air pollution in order to take action to minimize those effects.

### Milestones:

- By June 2001, query resources for information to use in educating citizens.
- Develop communication strategies for strategic plan components by June 2002.

### Let's Keep it Clean!

Ecology works in partnership with all citizens of Washington to achieve and maintain clean air. We will assess health, environmental and economic impacts of air pollution to identify the most important air pollution problems and to inform citizens about them. As understanding of the benefits of clean air and the impacts of air pollution increases, citizens, civic leaders and government will take action to achieve clean air. We draw on scientific data acquired through other plan objectives to form our communication strategies.



Particle concentration, visibility, and health effects impact our economy.

## **Strategies:**

### **Query resources for information to use in educating citizens.**

- Assess, define and catalogue the air quality program's data resources.
- Use data resources to support communication on, and understanding of, identified air pollution problems.

### **Develop communication strategies for one of the strategic plan components.**

- Develop a community-based marketing campaign for communicating strategic plan components and responding to survey results.
  1. Conduct surveys to measure current awareness of the role of air pollution and assess the relevance of these problems to our citizens.
  2. Review and assess previous research and strategies on awareness and relevance of air pollution problems.
  3. Identify barriers to change, using focus groups, survey research, and interviews.
  4. Measure success/evaluate the campaign, using iterative surveys of awareness gained or behavior change, including measurement of vehicle miles traveled, improved air quality, improved views of Mount Rainier.
  5. Make recommendations to improve the campaign.
- While the survey conclusions are in progress, proceed with development of communication strategies using the following methods as tools: community-based marketing, traditional information-based outreach, internet, incentive programs, and partnerships. Coordinate efforts geographically around the state.
- Assess the results of the survey and plan for a follow-up survey.

### **Implement communication strategies.**

- Implement strategies on an ongoing basis dependent on resources and evaluation of survey conclusions and methods.

# Solve Regional Air Pollution Problems

**Objective:** *Washington citizens in 18 counties breathe clean air! Air that is clean enough not to notice . . . so clean that people cannot see it, taste it, smell it, or feel it. By 2010, the air quality throughout eastern and central Washington is measured and sustainable at levels that health and environmental experts agree is sufficient to protect human health. Past regional air quality problems have been solved, strategies are in place that prevent new ones from emerging, and specific pollution problems are resolved as they arise.*

## **Problem:**

Nagging regional smoke and dust pollution plagues many areas in central and eastern Washington. Source-specific air pollution problems are often not resolved quickly and efficiently. Efforts at preventing problems are frequently hit-or-miss.

## **Milestones (selected):**

- By 2005, keep agricultural burning emissions below protective smoke loading action levels.
- By 2005, regional wood smoke problems are well understood, real-time programs are in priority communities.
- By 2006, regional dust problems are well understood, control/advisory programs exist in priority communities.
- By 2007, open burning rule is fully and effectively implemented in eastern and central regions.
- By 2008, regional smoke and dust problems are starting to be prevented through sustainable planning.
- By 2009, non-burning alternatives and higher-end uses of agricultural residue/material are not uncommon.
- By 2010, regional air pollution problems are largely solved and future problems are prevented through sustainable planning. Problems that do arise are quickly and effectively addressed.

## **About Air Quality in Eastern & Central Washington**

While most of Washington west of the Cascades has the benefit of a locally operated Clean Air Authority, most of eastern Washington does not. Ecology's Air Quality Program is charged with fulfilling the local service delivery role to over 500,000 Washington citizens in 18 rural Washington counties.

The air quality in central and eastern Washington is challenged by a range of human activities that add unhealthy pollutants to the air we breathe. Smoke and dust contribute to regional air quality problems. Specific air quality problems arise from a variety of sources.

## **Strategies**

### **Smoke from open burning**

- Implement the open burning rule in cooperation with fire protection authorities and local governments.
- Establish real-time permit management, public information, and air quality advisory systems.
- Work with other agencies and organizations to provide high-end public information and community education on the causes, effects, costs, and alternatives related to open burning.
- Foster and encourage non-burning alternatives and higher end uses of once-burned organic material.
- Involve communities and leaders in getting solutions for problems, especially those not addressed by the new open burning rule or that become evident on the rule's implementation.

### **Smoke from indoor burning**

- Identify regional communities with potential wood smoke problems (measured, perceived, projected)
- Establish real-time, custom-fit, wood smoke management programs including voluntary and/or mandatory curtailments/advisories that include local ambient air quality data, local weather data, and local forecasts.
- Design and deliver tailored wood stove education programs targeting and in conjunction with retailers, owners, builders, and agencies with common/overlapping interests.
- Work closely with local government agencies to prevent future problems through sustainable planning.
- Involve communities in designing creative solutions to wood smoke problems, especially those that are not addressed by traditional approaches.

### **Smoke from agricultural burning**

- Limit emissions from agricultural burning through a rigorous permitting program accompanied by defensibly strict guidance on what reasons for burning are allowable/not allowed.
- Keep smoke levels low by monitoring conditions very closely. Establish management systems that provide: real-time tracking; near real-time air quality data used in burn decisions; daily/hourly fire sequencing; and current/forecast smoke advisories.
- Develop protective smoke loading levels (concentrations that are acceptable and not unacceptable); establish a protective, scientifically defensible level; select an appropriate interim level.
- Through research, education, and partnerships, foster and encourage non-burning alternatives and higher end uses of agricultural residue/material.

### **Regional and neighborhood dust problems**

- Identify sources and impacts of dust that contribute to neighborhood and regional air quality degradation.

- Design and deliver education and technical assistance to developers, construction/demolition contractors, and others that engage in activities that can produce neighborhood dust problems; and undergird this program with a strong and visible enforcement presence.
- Identify (in conjunction with others) and carry out appropriate roles (such as: education/outreach, liaison, technical assistance, financial assistance, monitoring, compliance/enforcement, etc.) for Ecology which support the successful implementation of agricultural wind erosion best management practices.

# Performance Measures

Just as our air quality management system includes a step to “measure performance,” we should also continuously evaluate our efforts to achieve our strategic planning objectives. Performance measures act as checkpoints, allowing us to gauge our progress and, if necessary, adjust our plan along the way. The following are key performance measures for each of the strategic plan objectives. The first list, for the most part, rephrases the objective statement as a 10-year performance measure. The second list includes performance measures for the coming two years. We chose two years because we intend to formally review and update the strategic plan at that time.

## Ten-Year Performance Measures

- All areas of the state have less than a one percent likelihood of violating air quality standards.
- Motor vehicles are 35 percent cleaner.
- Emissions of the most important toxic air pollutants are reduced by 50 percent.
- Visibility impairing air pollution is reduced by 25 percent.
- Citizens have an improved understanding of air pollution and its affects on health, the environment, and the economy.
- Citizens throughout the state are protected from, and fully informed about, the effects of air pollution.

## Two-Year Performance Measures

- A statewide assessment of the statistical likelihood of air quality violations is completed.
- An assessment of the most effective measures to reduce emissions from motor vehicles is completed.
- Rules are adopted and implemented to reduce in-use vehicle emissions in Puget Sound, Vancouver, and Spokane by 10 percent.
- Toxic air pollutants are ranked, and an evaluation of the control strategies to reduce the most important ones is completed.
- Areas where visibility is important are identified, and monitoring in these areas is implemented.
- The five most important air pollution problems are identified, and a strategy to communicate these problems is implemented.

# Appendices

Appendix 1: Work Plan for 2000 through 2001

Appendix 2: