

OZONE REDUCTION SURVEY RESULTS SPRING 1998

Gary T. Henry, Principal Investigator
Charlotte Steeh, Project Director
Mark D. Rivera, Project Manager
Margaret H.H. Brackett, Consultant

APPLIED RESEARCH CENTER
School of Policy Studies
Georgia State University

August 12, 1998

Executive Summary

The Georgia Environmental Protection Division (EPD), in conjunction with the Environmental Economics Program (EEP) at Georgia State University, designed the Voluntary Ozone Action Project (VOAP) to educate Georgians about the effects of ground level ozone and to promote actions that reduce ozone-causing emissions. To inform their efforts, EPD and EEP engaged the Applied Research Center at Georgia State University to survey residents of the Atlanta metropolitan area about ground level ozone. This report presents the results of the most recent survey for that purpose—the Spring 1998 survey. While previous surveys focused on the behaviors and attitudes of residents concerning ground level ozone, the Spring 1998 survey added questions about the salience of issues and attitudes toward improving air quality.

Major Findings

Personal Salience

While respondents do not perceive the Environment as the most important issue facing the Atlanta area, they do express significant personal concern for environmental issues. Respondents indicated, however, that community concern for these issues is not as intense as personal concern. Specifically, with the issues of 1)the Environment, 2)Air Quality, 3)Water Quality, and 4) Ground Level Ozone, the differences between personal concern and perceived community concern for these issues were greater than for any other issues. Ground Level Ozone received the lowest ratings of concern at both the personal and community level.

Perceived Impacts of Ground Level Ozone

Respondents indicated that damage to the environment and the cost of clean up were the outcomes of ground level ozone that affect them most profoundly. Health problems were viewed as the outcomes with the least impact, despite the fact that almost one-third of respondents suffer from respiratory problems.

Attitudes and Opinions about Improving Air Quality

Metro Atlanta residents perceive more support for improving water quality than air quality. With regard to *how* to improve air quality, respondents advocated both government intervention and voluntary action equally.

Awareness of Ground Level Ozone

Without the benefit of the information campaign that is conducted during the ozone season, awareness of ground level ozone appeared to decrease slightly from Fall 1997 to Spring 1998. The percentage of respondents who felt well-informed about ozone issues declined slightly overall, while the percentage of who did not feel well-informed remained roughly constant. The percentage indicating uncertainty or neutrality increased.

Television remains the main source of information about ground level ozone, with magazines and newspapers close behind in the rankings. The percentage of respondents learning about ozone increased for every source, *except* television and radio. Not surprisingly, the 53% of respondents who reported paying attention to newspaper articles on state and local issues exhibited higher levels of awareness than those not paying attention. Of the “attentive” group, 53% “felt well-informed,” compared to only 23% of the “inattentive” group.

Behaviors and Ground Level Ozone

While some respondents were able to cite one or more actions taken in response to ozone alerts, the percentages reporting multiple actions remained roughly the same as in past surveys. The percentage indicating no action in response to alerts increased from prior surveys. It is difficult to discern from this information if VOAP has progressed toward its goal of changing behaviors that cause ground level ozone.

Regarding commuting behaviors, Atlanta residents appear to be driving longer distances every day and taking more car trips per day. Higher percentages were reported for rush hour driving, and driving alone to work 5 days per week. The proportion of respondents using mass transit at least once in the previous week increased, perhaps signifying that intermittent changes in commuting behaviors are possible.

As for other ground level ozone producing behaviors, overall the findings were mixed. The percentages of respondents reporting certain negative driving behaviors declined slightly—for exceeding the speed limit, driving to lunch, and quick-starting at intersections. Also on the positive side, the proportion of respondents using any kinds of gasoline-powered equipment dropped since Spring 1997. However, the vast majority of respondents continue to use gas-powered mowers.

Knowledge of Ground Level Ozone Pollution

While the knowledge of Atlanta area residents improved in some areas since Spring and Fall 1997, overall the same information needs emerged in the Spring 1998 survey as in past surveys. Specifically, the lowest percentage of correct answers occurred on questions concerning 1)the seasonal nature of ground level ozone, 2)the relationship between ground level ozone and aerosol spray cans, and 3)the distinction between ground level ozone and the ozone layer.

Overall, respondents' knowledge about ground level ozone does not appear to have changed from Spring 1997 to Spring 1998. While the percentages of respondents answering questions correctly rose for specific questions, the increases occurred mostly for questions with small percentages of correct answers. For example, the percentage of respondents indicating that the CFCs in aerosol spray cans do not cause ground level ozone increased from Spring 1997 to Spring 1998; yet, only 16% answered correctly in Spring 1998.

Attitudes about Outcomes of Ground Level Ozone

While the majority of respondents agree that reducing ground level ozone will reduce respiratory problems, they do not view Atlanta's air problems on the same level as those in other cities. Still, respondents recognized that Atlanta's air quality is not good, but the majority of respondents do not see ground level ozone as a pressing issue.

General Introduction

The Georgia Environmental Protection Division (EPD), in conjunction with the Environmental Economics Program (EEP) at Georgia State University, designed the Voluntary Ozone Action Project (VOAP) to educate Georgians about the effects of ground level ozone and to promote actions that reduce ozone-causing emissions. As a part of VOAP, EPD obtains commitments from public and private sector employers to create a plan for implementation on "Ozone Action Days." Ultimately, VOAP aims to reduce ground-level ozone violations in the Atlanta metropolitan area through short- and long-term behavioral changes.

To inform its efforts, EPD and EEP engaged the Applied Research Center at Georgia State University to survey residents of the Atlanta metropolitan area about ground level ozone. In the spring of 1997, the Center conducted telephone surveys of residents living and working in the 13-county ground level ozone non-attainment area. Similar surveys were conducted in the fall of 1997 and in April of 1998. Additional surveys will follow in July and October of 1998, with the aim that the 1998 surveys fall in accordance with the beginning, middle, and end of the period of highest ozone levels.

While the surveys have consistently included questions concerning ozone producing behaviors and knowledge, each has differed slightly in terms of emphasis. The Spring 1997 survey focused on the behaviors and attitudes of residents concerning ground level ozone. Following the peak ozone season, the Fall 1997 survey added questions about behavioral intentions and barriers to changing behaviors. The Spring 1998 survey shifted in emphasis to attitudes about change and the salience of issues.

In addition to these surveys, beginning in May 1998, a daily tracking survey will supplement the periodic survey by allowing a constant monitoring of the day-to-day effects from the VOAP and other ozone programs on behaviors throughout the ozone season (May through September).

To attain its ultimate goal of reducing ground level ozone by changing behaviors, VOAP seeks to estimate the extent to which individuals change their behavior, as well as the extent to which information about ground level ozone induces any such behavioral change. Surveys measuring ozone-producing behaviors and attitudes about changing those behaviors can be especially useful for estimating VOAP's progress toward its goal.

This report presents the results from the Spring 1998 survey. When applicable, information from the Fall 1997 and Spring 1997 surveys have been provided as well.

Methodology

The survey was conducted by the Applied Research Center at Georgia State University. Residents were randomly selected and interviewed from April 15th – May 13th, 1998. Interviewing was conducted on weekdays from 10:00 a.m. to 9:15 p.m. Monday through Thursday, and 10:00 a.m. to 5:00 p.m. on Friday. Weekend interviewing was conducted Saturday 11:00 a.m. to 7:00 p.m. and Sunday 10:00 a.m. to 6:00 p.m. Each number was contacted a minimum of 7 times, or until a final disposition was reached. The actual results collected were weighted using the most recent U.S. Census data on the state of Georgia.

The results of the Survey are likely to contain some error. Ninety-five percent of the time, error due to the random selection process will be no more than 3.89 percentage points plus or minus the reported percentage for all Georgians. Error for subgroups is likely to be slightly larger. Other sources of error are caused by individuals refusing to participate in the interview and inability to connect with the selected telephone number. For the Spring 1998 survey, 639 surveys were completed, yielding a response rate of 29.8% and a cooperation rate of 40.9%. Every feasible effort was made to obtain a response and reduce the error, but the reader should be aware that some error is inherent in all research.

Approximately 75% of respondents were white and 23% African American, 54% were female and 46% male. The mean age was 42 and, on average, respondents had completed some college course work. The median family income was \$50,000-\$75,000 and 63% of those surveyed owned their residence.

INDEX

Topic	Page
Personal and Community Salience	7-8
• Atlanta’s Most Pressing Problem	7
• Personal Concern about Issues Versus Perception of Community Concern	7-8
Perceived Impacts of Ground Level Ozone	9
Opinions about Public Support for Improving Air and Water Quality	10
Attitudes about Improving Air Quality	11-12
Awareness of Ground Level Ozone	13-15
• Sources of Information about Ground Level Ozone	14
• Relationship between “Attentiveness” and Ground Level Ozone Awareness	15
Behavioral Measures Taken in Response to Ozone Warnings	16
Behaviors Causing Ground Level Ozone	17-21
• Car Availability, Mileage, Trips, and Average Miles per Trip	17
• Commuting Behaviors	18-19
• Automobile Maintenance and Driving Tendencies	20
• Lawn Care, Grilling, and Other Behaviors	21
Knowledge of Ground Level Ozone Pollution	22-23
Attitudes about Outcomes of Ground Level Ozone	24-25

Personal and Community Salience

Atlanta's Most Pressing Problem

Only a small percentage of respondents (10%) cited the Environment as the most important problem facing the Atlanta metropolitan region. Much higher percentages reported Education (34%) and Drugs and Crime (27%) as the most significant problems in the area. Some of the respondents selecting Social Welfare and Health Issues (4%) as most important might view ground level ozone as a problem as it relates to health concerns.

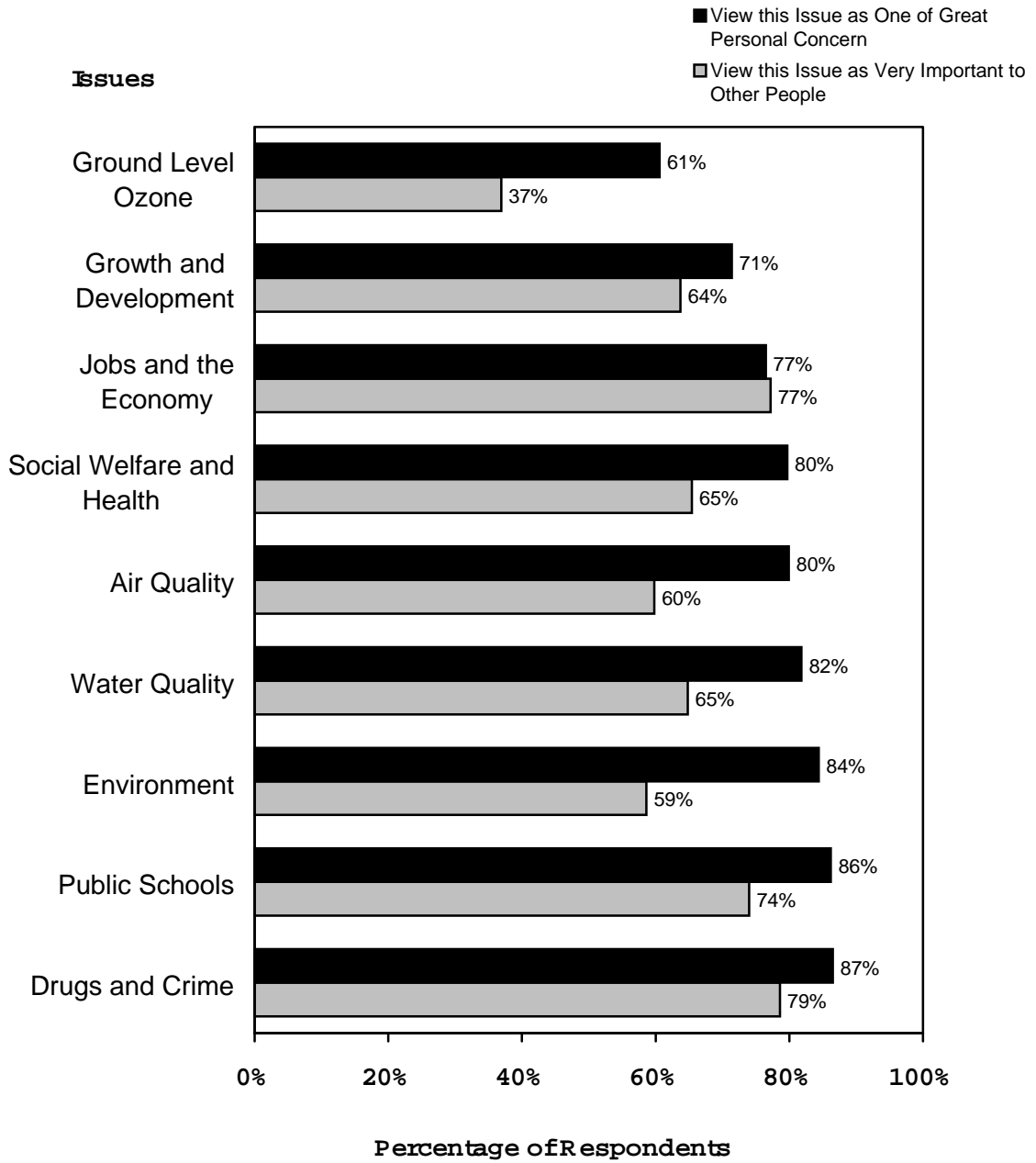
Personal Concern about Issues versus Perception of Community Concern

Although only a small group of respondents view the Environment as the most important issue facing Atlanta, a majority (84%) expressed personal concern for environmental issues. They do not perceive serious community concern about these issues, however. Instead, respondents feel that residents in the Atlanta region are more concerned with issues such as Drugs and Crime and Jobs and the Economy. Still, 59% perceive this issue to be one of importance to the community. Only 30% of respondents agreed with the statement that “Air quality is not really a problem in the Atlanta metro region.”

Individuals appear to view themselves as more concerned about issues than society in general; higher average levels of personal concern than community concern were expressed for every issue. However, the differences between personal and community concern were largest for three of the four environmental issues: Environment, Air Quality, and Ground Level Ozone. In addition, higher percentages of respondents expressed personal concern than perceived community concern for almost every issue. The differences in the percentages expressing personal concern and community concern were largest for the four environmental issues—Environment, Water Quality, Air Quality, and Ground Level Ozone.

Ground Level Ozone received the lowest average ratings of concern at both the personal and community level. Sixty-one percent expressed personal concern for Ground Level Ozone, while only 37% of respondents felt that the community views this issue as important. In contrast, 87% expressed personal concern for Drugs and Crime, and 79% perceived community concern for this issue.

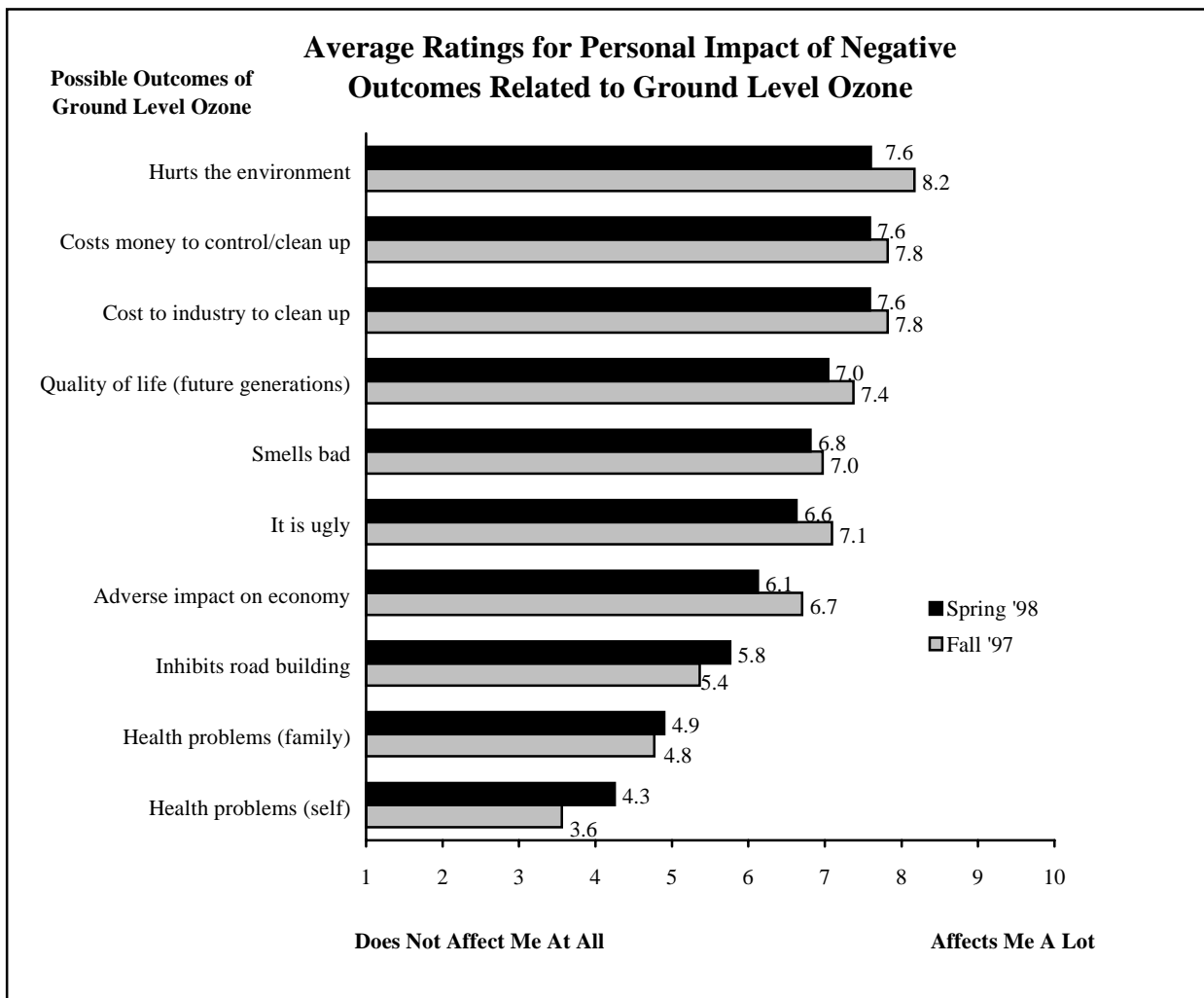
Personal Concern about Issues Versus Perception of the Concern of Other People



Perceived Impacts of Ground Level Ozone

Respondents indicated that damage to the environment and the cost of clean up were the outcomes of ground level ozone that affect them most profoundly. Health problems were viewed as the outcomes with the least effect, although average ratings indicate that health problems affect people slightly more in Spring 1998 than in Fall 1997. It would have seemed likely that health problems would have rated higher—had more of an effect on respondents—given that almost one-third of respondents suffer from respiratory problems.

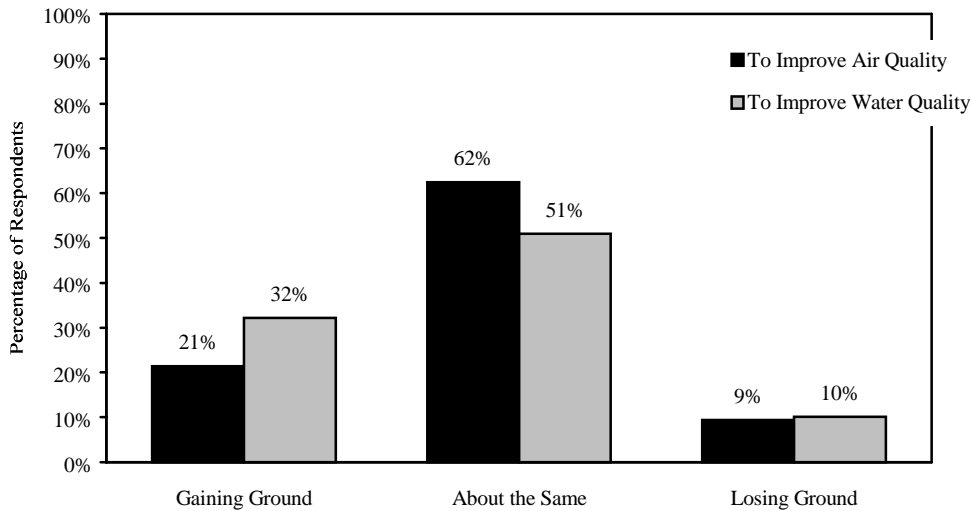
Most of the ground level ozone outcomes appear to affect people less in Spring 1998 than in Fall 1997, although the differences in average ratings were small. (All differences were statistically significant.) The lower effect ratings might be explained by the fact that the Spring survey precedes of the peak ozone season of May through September. The three outcomes showing a slight increase in average personal impact from Fall to Spring were 1) inhibiting road building, 2) affecting health problems for the individual, and 3) affecting health problems for someone in the individual's family. However, it is too soon to assess whether these increases indicate a trend.



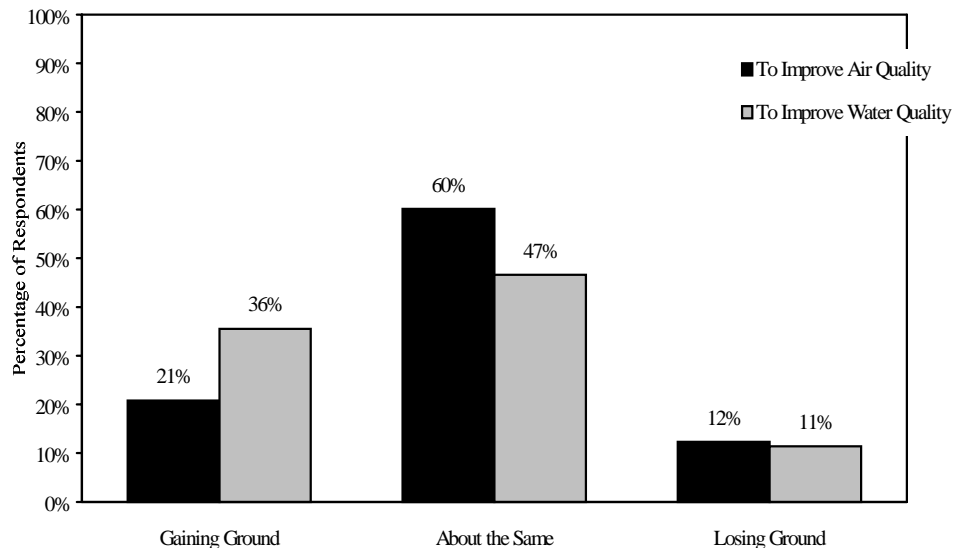
Opinions about Public Support for Improving Air and Water Quality

Respondents indicated that public support for improving air and water quality in the Atlanta region is not changing overall. Metro Atlanta residents appear to perceive more support for action to improve water quality than for air quality. Roughly the same percentage of respondents held this opinion, regardless of whether such improvement would be accomplished through voluntary action or government regulations.

Opinion About Change in Public Support for Voluntary Action



Opinion About Change in Public Support for Governmental Regulations

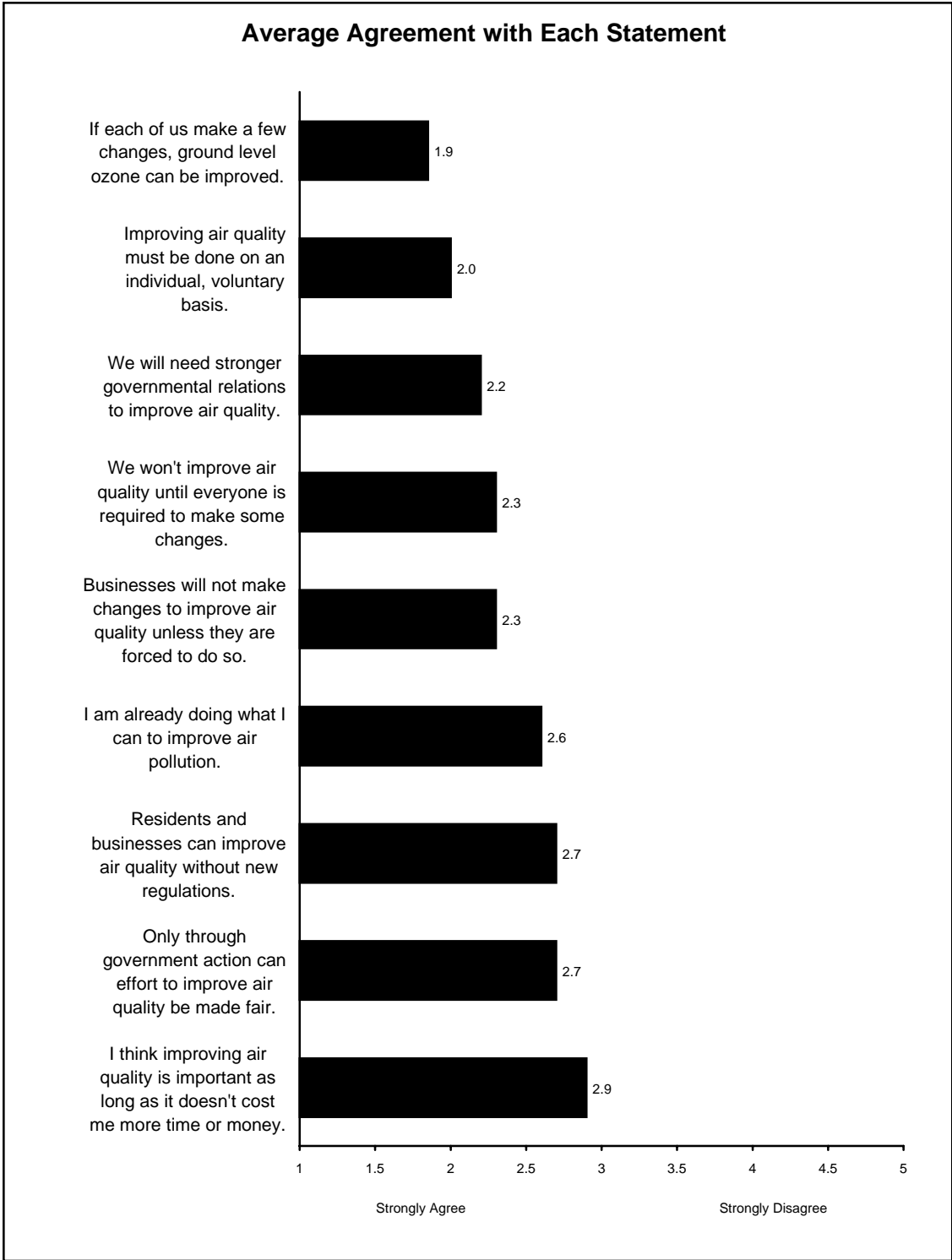


Attitudes about Improving Air Quality

Respondents indicated support for both individual action and governmental intervention to improve air quality. Atlanta metro residents appear to recognize that air quality is a problem in the region-- the strongest disagreement that emerged concerned the statement to the contrary. Respondents do not agree that air quality is not a problem in the Atlanta area. Atlantans also seem to favor individual efforts to improve air quality. Respondents agreed with the statement that ground level ozone could be improved if individuals make a few changes in their lives.

Respondents rated their level of agreement with the following statements, ranging from **1 (Strongly Agree)** to **5 (Strongly Disagree)**. Mean responses are reported for each question.

	Average for Spring 98
• Air quality is not really a problem in the metro Atlanta region.	3.6
Attitudes about Government Regulations	
• We will need stronger governmental regulations to improve air quality.	2.2
• Businesses will not make changes to improve air quality unless they are forced to do so.	2.3
• We won't improve air quality until everyone is required to make some changes.	2.3
• Only through government action can effort to improve air quality be made fair.	2.7
Attitudes about Voluntary Intervention	
• If each of us make a few changes, ground level ozone can be improved.	1.9
• Improving air quality must be done on an individual, voluntary basis.	2.0
• I am already doing what I can to improve air pollution.	2.6
• Residents and businesses can improve air quality without new regulations.	2.7
• I think improving air quality is important as long as it doesn't cost me more time or money.	2.9

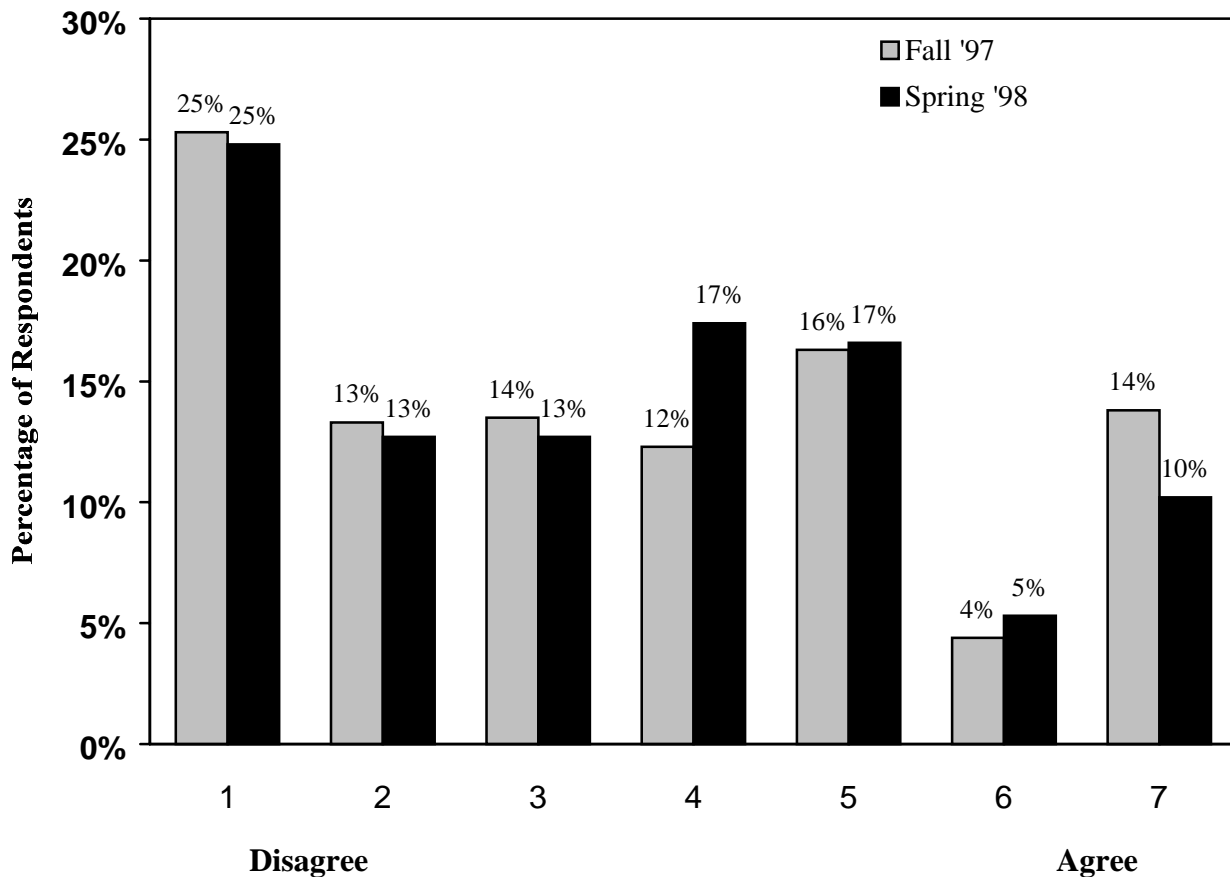


Awareness of Ground Level Ozone

Without the benefit of the information campaign that is conducted during the ozone season, awareness of ground level ozone appears to decrease slightly. From Fall 1997 to Spring 1998, the percentage of respondents who had heard about ground level ozone dropped from 47% to 41%. The percentage of respondents who remembered hearing about an ozone alert the previous summer fell from 42% to 36%.

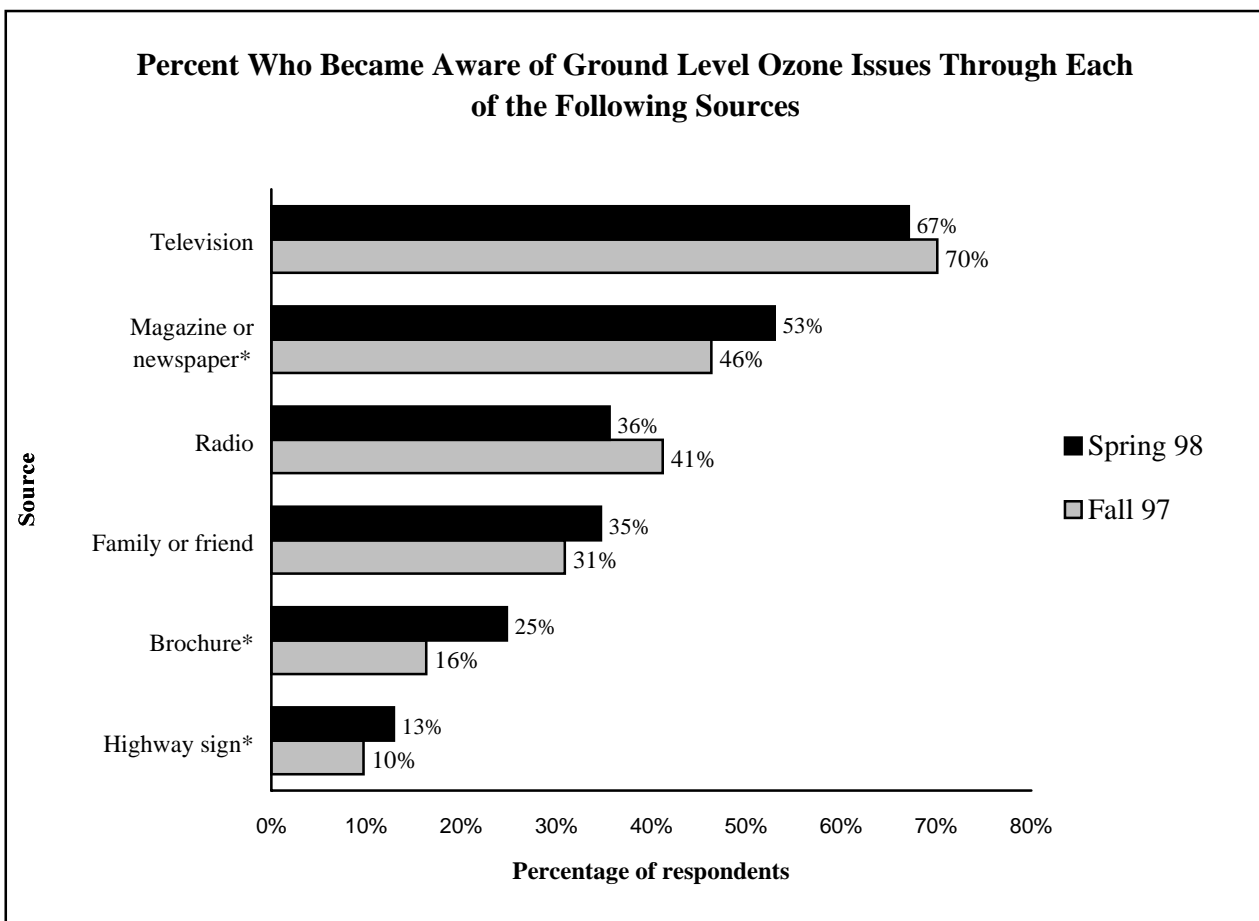
The percentage of respondents who felt well-informed about ozone issues declined slightly overall from Fall 1997 to Spring 1998, while the percentage who did not feel well-informed remained roughly constant. The percentage that indicated uncertainty or neutrality—in the middle of the scale—increased.

Agreement with the Statement: "I Am Well-informed About Ozone Issues."



Sources of Information about Ground Level Ozone Issues

Determining the source of the public’s knowledge of ground level ozone can better inform education efforts. The Spring 1998 survey—like the Fall 1997 survey—reveals that the largest percentage of respondents reported television as a source of ground level ozone information. Magazines and newspapers were also frequently mentioned, as was radio programming. A much smaller percentage indicated that digital highway signs provided information. The percentage of respondents learning about ground level ozone increased for every source, *except* television and radio. The increases in the percentages citing newspapers and brochures might be linked to public information campaigns carried out through these sources.



*Denotes statistically significant difference at the .05 level.

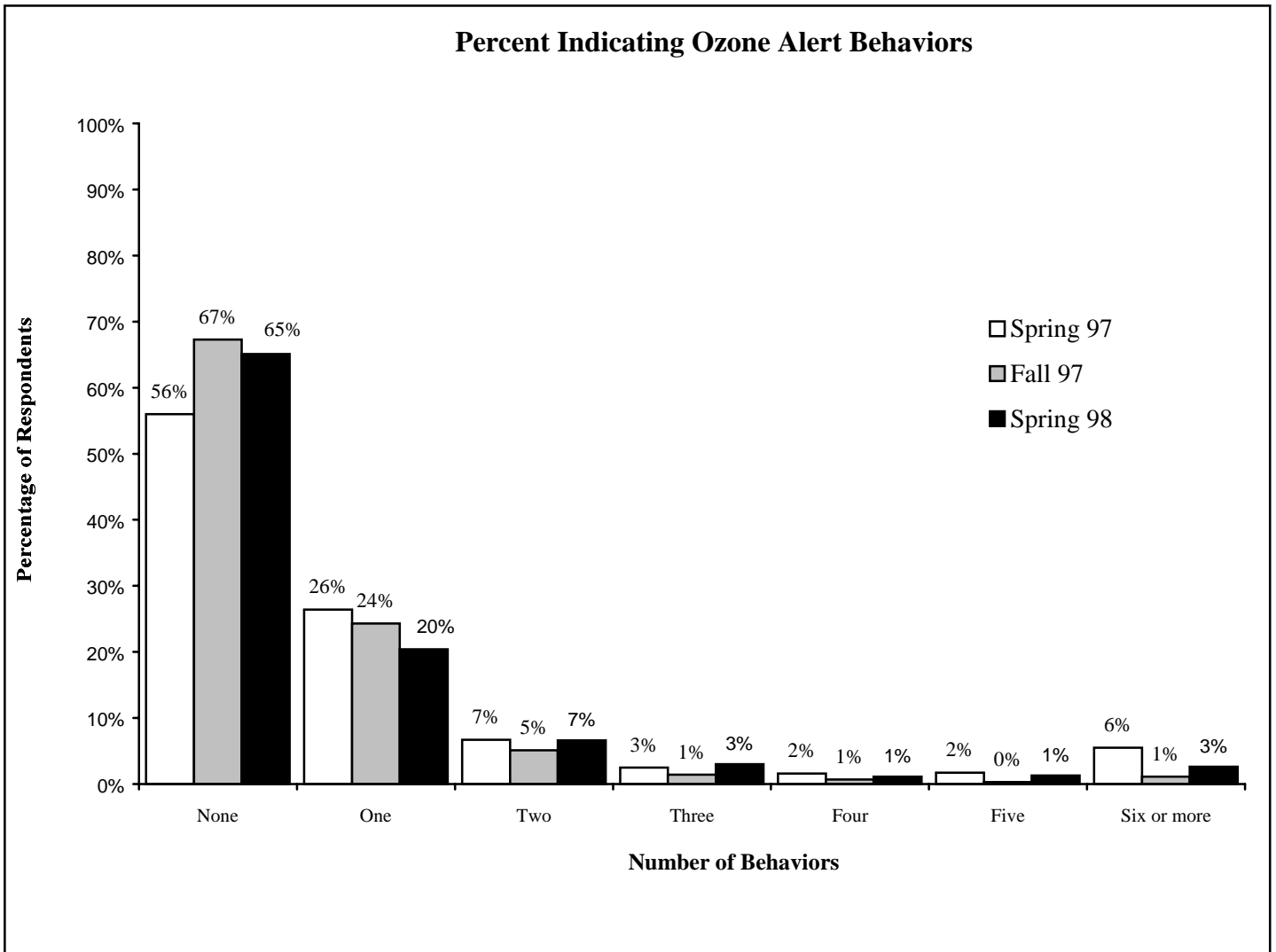
Relationship between “Attentiveness” and Ground Level Ozone Awareness

In the Spring 1998 survey, respondents were also questioned about the level of attention given to state and local policy issues. Not surprisingly, the 53% of respondents who reported paying attention to newspaper articles about state and local policy exhibited higher levels of awareness of ground level ozone. Of these, 50% had heard about an ozone alert last summer, compared to 31% among those not paying attention. The “attentive” group also felt more informed about ozone issues, with 53% indicating they “felt well-informed,” compared to 23% of those who do not pay attention to state and local issues feeling “well-informed about ozone issues.”

Behavioral Measures Taken in Response to Ozone Warnings

The ultimate goal of the VOAP is to decrease ground level ozone and to change behaviors that produce ground level ozone. As evidence of progress toward that goal, some respondents—without prompting--cited several actions that they had taken in response to the alerts. For example, some respondents reported that they had limited their driving, reduced the use of aerosol cans, and consolidated errands. With regard to the number of different behaviors exhibited, however, respondents did not exhibit notable changes from Spring 1997 to Spring 1998. Differences between Spring 1997 to Spring 1998 and between Fall 1997 to Spring 1998 were statistically significant, however.

In fact, the percentages of respondents reporting specific behavioral changes appear to have declined over time, while the proportion noting no behavioral change has increased. Of the behaviors cited in Spring 1998, respondents most frequently reported going outdoors less (10%), carpooling (9%), walking (7%), and taking mass transit (6%). In general, these percentages represent increases from those reported in the Fall 1997 survey and small changes from the percentages citing these behaviors in the Spring 1997 survey. For example, while 9% reported carpooling in response to an alert in Spring 1998 and Spring 1997, only 2% cited that behavior in Fall 1997.



Behaviors Causing Ground Level Ozone

Car Availability, Mileage, and Trips

Although lower percentages of respondents reported having access to a car in Spring 1998 than in the previous fall or spring, more of those with a car are driving long distances each day. In Spring 1997, only 18% had driven 50 miles or more in the previous 24 hours. In Fall 1997, this proportion rose to 42% in Fall 1997 and stayed close to that in Spring 1998. Concurrently, the average number of miles driven in the previous 24 hours jumped from 27 miles in Spring 1997 to 57 miles in Fall 1997, and dropped only slightly to 52 miles in Spring 1998.

Residents of the metro region also appear to be taking more trips in their car each day, on average. Only 5% reported (without prompting) that they have combined trips in response to ozone alerts in Spring 1998. Furthermore, the percentage of respondents taking at least five car trips in the previous 24 hours rose steadily from Spring 1997 to Spring 1998.

	Spring 97	Fall 97	Spring 98
Availability			
• Have access to a car that they drive frequently	91%	91%	84% ^{1,2}
• Work outside the home	N/A	67%	67%
Mileage			
Of respondents with access to a car that they drive frequently			
• Drove at least 50 miles in the last 24 hours	18%	42%	39% ^{1,2}
• Number of miles driven: 25 th percentile	0	16	15
• Number of miles driven: 50 th percentile	15	40	35
• Number of miles driven: 75 th percentile	35	70	70
• Average number of miles driven in the last 24 hours	27	57	52 ¹
Number of Trips in the Last 24 Hours			
Of those respondents with access to a car that they drive frequently:			
• Took at least one trip in their car in the last 24 hours	93%	94%	95% ^{1,2}
• Took at least five trips in their car in the last 24 hours	33%	36%	42%
• Median number of trips in the last 24 hours	4.0	4.0	4.0
• Average number of trips in the last 24 hours	4.4	5.0	5.2 ¹

¹ Denotes statistically significant difference from Spring 1997 to Spring 1998.

² Denotes statistically significant difference from Fall 1997 to Spring 1998.

Commuting Behaviors

While the goal of VOAP is to reduce behaviors causing ground level ozone, the commuting behaviors of Atlanta metro residents do not seem to be changing for the better. In particular, higher proportions of residents drive to work alone every day. This information, taken in conjunction with the longer distances driven, does not bode well for reducing ground level ozone.

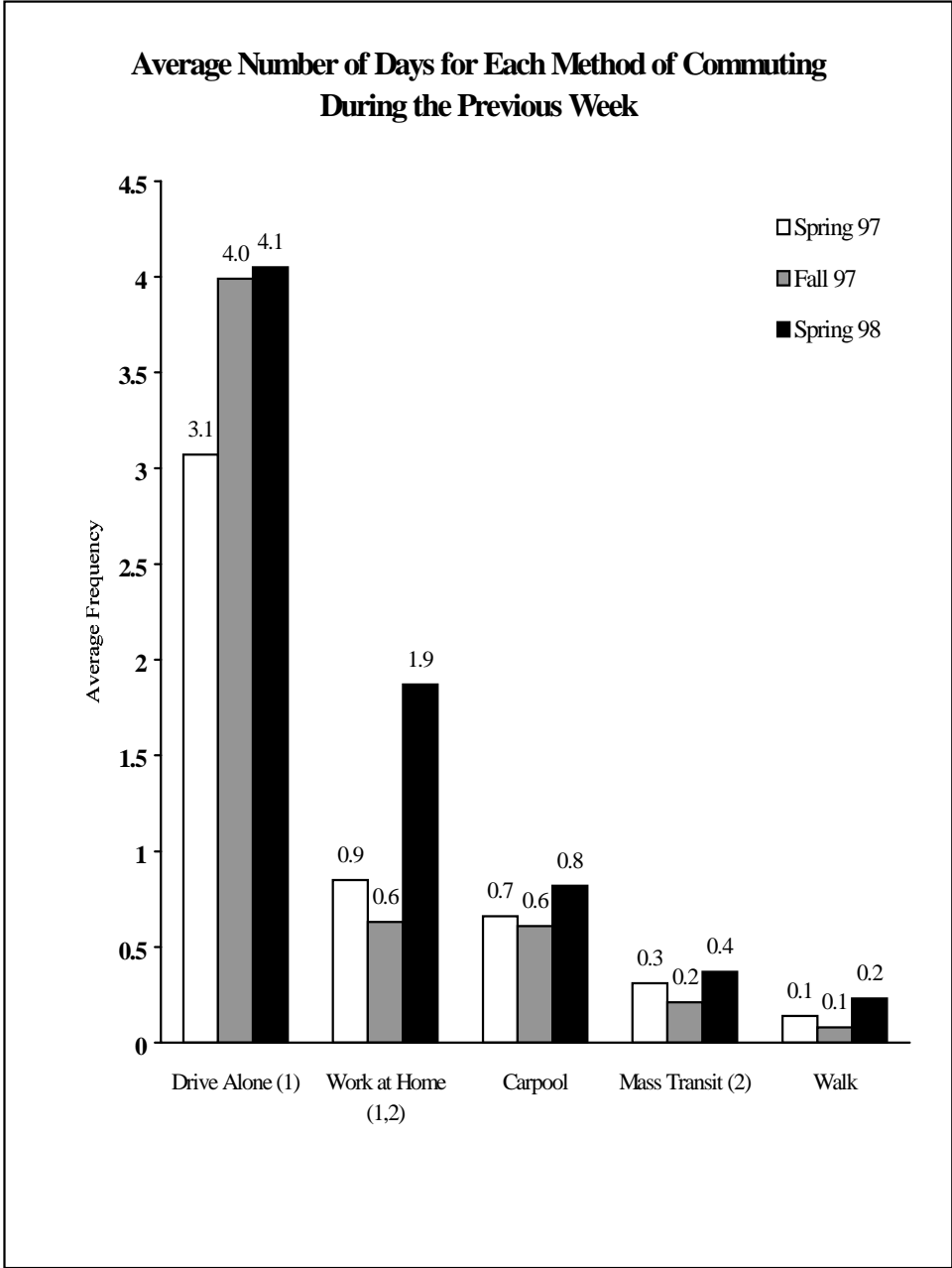
The information about the percentages of respondents working from home—the one commuting behavior exhibiting substantial increases in frequency—is inconclusive at this time as far as trends since Spring 1997. See note below.

	Spring 97	Fall 97	Spring 98
Rush Hour Driving			
Of those who had access to a car that they drive frequently:			
• Drove during morning rush hour	48%	48%	65% ^{1,2}
• Drove during evening rush hour	41%	38%	62% ^{1,2}
• Drove during both morning and evening rush hour	32%	23%	32% ^{1,2}
Methods of Commuting to Work			
Of all respondents:			
• Drove alone 5 or more days during the previous week	46%	66%	66% ^{1,2}
• Carpooled 5 or more days during the previous week	7%	7%	8% ¹
• Took mass transit 5 or more days during the previous week	4%	3%	5% ^{1,2}
• Walked or rode a bike 5 or more days during the previous week	2%	1%	2%
• Worked from home 5 or more days during the previous week*	11%	8%	31% ^{1,2}
• Drove alone at least 1 day during the previous week	69%	84%	87% ^{1,2}
• Carpooled at least 1 day during the previous week	18%	17%	21% ¹
• Took mass transit at least 1 day during the previous week	8%	6%	11% ^{1,2}
• Walked or rode a bike at least 1 day during the previous week	4%	2%	5%
• Worked from home at least 1 day during the previous week*	20%	15%	78% ^{1,2}
• At least one member of their household worked for an employer offering car pooling, van pooling or another program encouraging employees to drive less.	12%	10%	12%

*The Spring 1998 survey changed the format of the question concerning working at home. In Spring and Fall 1997, respondents were asked, "In the past week, how many days did you work from home?" In Spring 1998, respondents were first asked if they had performed any work from home for which they received pay. Of the 14% responding affirmatively to this question (N=639), 31% indicated that they worked from home 5 or more days during the previous week and 78% reported working from home at least 1 day during the previous week (N=92).

¹ Denotes statistically significant difference from Spring 1997 to Spring 1998.

² Denotes statistically significant difference from Fall 1997 to Spring 1998.



⁽¹⁾ Denotes statistically significant difference from Spring 1997 to Spring 1998.

⁽²⁾ Denotes statistically significant difference from Fall 1997 to Spring 1998.

Automobile Maintenance

While changing the commuting behaviors of Atlanta metro residents might seem especially difficult, education efforts can focus on changing other behaviors that create ground level ozone. The Spring 98 survey reveals both good and bad news regarding behaviors toward automobile maintenance and driving tendencies.

Although the majority of respondents report that they purchase gas between 7:30am and 6:30pm on weekdays, the percentage doing so declined slightly from Fall 1997 to Spring 1998. The proportions reporting other ozone-producing habits also dropped for a few behaviors: exceeding the speed limit, driving to lunch, and quick-starting at intersections.

	Spring 97	Fall 97	Spring 98
Of those respondents with regular access to car:			
• had not had a tune-up in the last three months	35%	41%	41% ¹
• did not know the last time their car was tuned	4%	10%	6% ¹
• were required to have repairs as a result of their last emissions test	12%	8%	13% ²
• purchased gas in the last week on a weekday between 7:30am and 6:30pm	N/A	69%	63% ²
• reported using unleaded fuel	N/A	98%	95% ²

Respondent Driving Tendencies

In addition to asking respondents when and how often they drive and get gas, they were asked how frequently they practice other driving-related behavioral tendencies (or habits). Each respondent rated how frequently they engaged in each behavior on a scale from 1 (Almost Never) to 4 (Almost All the Time).

	Spring 97	Fall 97	Spring 98
• Almost never check the tire pressure	41%	38%	42% ¹
• Almost always exceed the speed limit	35%	33%	29% ^{1,2}
• Almost always top-off the gas tank	31%	36%	32% ^{1,2}
• Almost always drive to lunch	16%	21%	11% ^{1,2}
• Almost always quick-start at intersections	14%	12%	9% ^{1,2}
• Almost never turn off lights and equipment when not in use	10%	10%	13% ^{1,2}
• Almost never consolidate errands	9%	6%	5% ^{1,2}

¹ Denotes statistically significant difference from Spring 1997 to Spring 1998.

² Denotes statistically significant difference from Fall 1997 to Spring 1998.

Lawn Care, Grilling, and Other Behaviors

Regarding lawn maintenance and related behaviors that create ground level ozone, the Spring 1998 data reveal that the percentage of respondents responsible for upkeep of a lawn declined since Spring 1997 and Fall 1997. Despite this decrease, the vast majority of respondents continue to use gas-powered mowers, although the proportion using gasoline-powered equipment dropped since Spring 1997. The increase in the percentage mowing from Fall 1997 to Spring 1998 probably signifies changes in seasonal habits rather than a jump in the percentage using gas mowers. Changes in the percentage of respondents using specific gasoline-powered equipment were not significant from Spring 1997 to Spring 1998 or from Fall 1997 to Spring 1998.

The proportion of respondents using charcoal grills dropped between Spring 1997 and Fall 1997, but in Spring 1998 returned almost to the Spring 1997-level, again suggesting a seasonal change in behavior rather than a knowledge-induced change.

The proportion of respondents suffering from asthma or with a household member suffering from asthma decreased from Spring 1997 to Fall 1997, but in Spring 1998 remained close to Spring 1997 levels.

	Spring 97	Fall 97	Spring 98
Lawn Care			
• Responsible for the upkeep of a lawn	67%	63%	57% ^{1,2}
• Used gasoline powered equipment in the last week (e.g., mowers, weed cutters, leaf blowers and chain saws).	83%	68%	69% ¹
• Used a gasoline powered lawn mower in the last week.	N/A	81%	89% ²
• Used a gasoline powered weed cutter in the last week.	30%	27%	35%
• Used a gasoline powered leaf blower in the last week	18%	22%	21%
• Used a gasoline powered chain saw in the last week.	8%	7%	10%
 Grilling			
• Used a charcoal grill.	40%	23%	39% ^{1,2}
• Of those who used a grill, the percentage who used it on a weekday between 7:30am and 6:30pm	26%	34%	33%
 Household			
Of all respondents			
• Used oil-based paint or stain in the last week during the daytime	8%	4%	6%
• Used an aerosol spray can in the last week during the daytime.	N/A	31%	33%
 Health			
• Suffer from respiratory problems such as asthma or allergies	37%	33%	29% ¹
• A member of the household suffers from asthma or allergies	39%	33%	32% ¹

¹ Denotes statistically significant difference from Spring 1997 to Spring 1998.

² Denotes statistically significant difference from Fall 1997 to Spring 1998.

Knowledge of Ground Level Ozone Pollution

While the knowledge of Atlanta area residents improved in some areas since Spring and Fall 1997, overall the same information needs emerged in the Spring 1998 survey as in past surveys. Specifically, the lowest percentage of correct answers occurred on questions concerning 1)the seasonal nature of ground level ozone, 2)the relationship between ground level ozone and aerosol spray cans, and 3)the distinction between ground level ozone and the ozone layer. In addition, less than half of the respondents appear to understand the impact of filling up with gas on weekdays on ozone pollution.

Overall, respondents' knowledge about ground level ozone does not appear to have changed from Spring 1997 to Fall 1997. While the percentages of respondents answering questions correctly rose for specific questions, the increases occurred mostly for questions with small percentages of correct answers. For example, the percentage of respondents indicating that the CFCs in aerosol spray cans do not cause ground level ozone increased from Spring 1997 to Spring 1998; yet, only 16% answered correctly in Spring 1998.

	Correct Answer	% Correct			% Don't Know		
		Spring 97	Fall 97	Spring 98	Spring 97	Fall 97	Spring 98
Ground level ozone causes the hole in the ozone layer to decrease in size.	False	45%	50%	44% ^{1,2}	20%	21%	14%
Ground level ozone pollution is caused by gasoline powered engines such lawn mowers and leaf blowers.	True	80%	74%	77% ¹	11%	11%	9%
Ground level ozone pollution causes severe respiratory problems for some people.	True	86%	84%	88%	8%	8%	9%
Ground level ozone is caused by the CFCs contained in aerosol spray cans.	False	8%	19%	16% ¹	7%	11%	13%
Ground level ozone pollution is high throughout the year in Atlanta	False	13%	13%	15%	13%	13%	12%
Ground level ozone pollution is worse in the winter months (December through February).	False	54%	58%	49% ^{1,2}	21%	19%	18%
Emissions from cars are major causes of ground-level ozone pollution.	True	83%	81%	81%	6%	8%	7%
Mass Transit (for example MARTA and bus) and car pooling produce less ground-level ozone than driving to work.	True	N/A	81%	76% ²	N/A	7%	7%
Driving to work during rush hour	True	N/A	81%	80% ²	N/A	9%	7%

significantly increases ground level ozone.

Use of gas-powered lawn equipment doesn't lead to ground level ozone.	False	N/A	63%	60% ²	N/A	13%	11%
Filling up with gas during weekdays has no impact on ground level ozone.	False	N/A	44%	48%	N/A	22%	20%
Natural gas grills cause just as much ground level ozone production as charcoal grills.	False	N/A	56%	46% ²	N/A	19%	20%
Ground-level ozone has been linked to serious health problems.	True	N/A	81%	81%	N/A	9%	11%
Telecommuting can reduce ground-level ozone	True	N/A	81%	81%	N/A	8%	8%

¹ Denotes statistically significant difference from Spring 1997 to Spring 1998.

² Denotes statistically significant difference from Fall 1997 to Spring 1998.

Attitudes about Outcomes of Ground Level Ozone

While the majority of respondents agree that reducing ground level ozone will reduce respiratory problems, they do not view Atlanta's air problems on the same level as those in other cities. This combination of attitudes might signify that education efforts should focus on establishing a link between the health impacts of ground level ozone and the intensity of the problem in Atlanta. The fact that 36% of respondents recognize that Atlanta's air quality is not good suggests that residents do perceive the problem, but not of the same magnitude as in other places. As a result, it is not surprising that the majority of respondents do not see ground level ozone as a pressing issue.

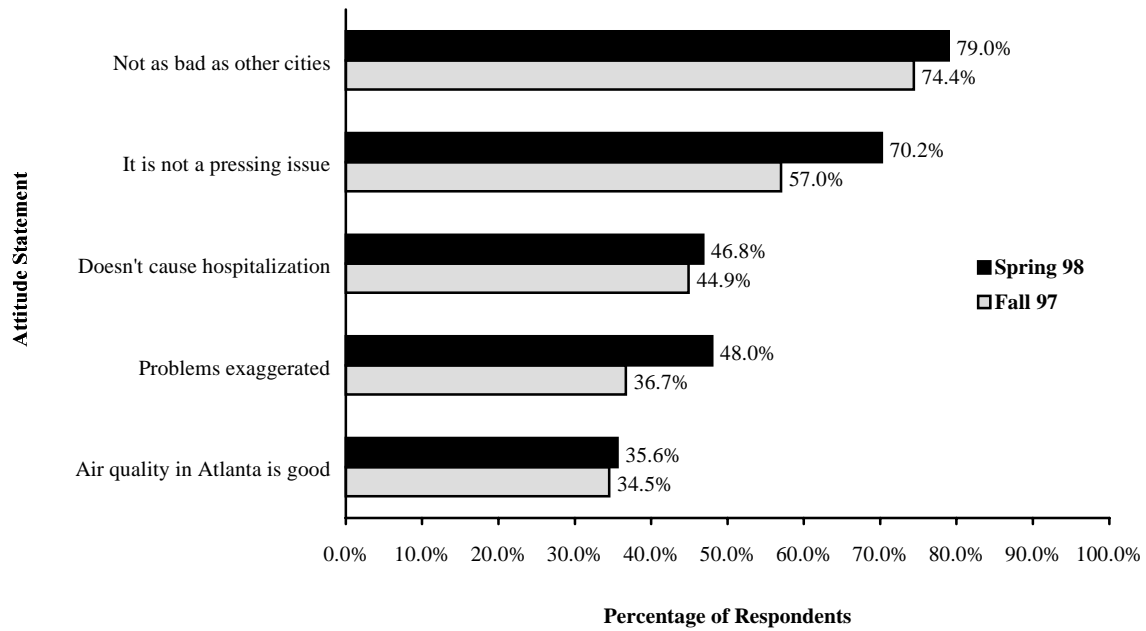
The following questions required the assignment of a rating of agreement of each item by respondents ranging from **1 (Strongly Agree)** to **5 (Strongly Disagree)**. Mean responses are reported for each question:

	Average for Spring 97	Average for Fall 98	Average for Spring 98
• Problems from ozone pollution are really exaggerated.	3.3	3.5	3.2 ²
• The air quality in Atlanta is very good.	3.6	3.6	3.5
• Air quality in Atlanta will cause businesses to locate elsewhere.	3.3	3.3	3.2 ^{1,2}
• Reducing ground level ozone will reduce respiratory problems for many children and adults.	1.9	2.0	2.0
• Ground level ozone doesn't seem to cause people to be hospitalized.	3.4	3.4	3.3
• Air quality makes Atlanta a less pleasant place to live.	3.0	2.9	2.9
• The air problem in Atlanta is not as bad as other major metropolitan cities.	N/A	2.6	2.4 ²
• While air pollution is a problem in Atlanta, it is not a pressing, everyday issue.	N/A	3.0	2.7 ²
• My behavior can have an impact on ground-level ozone.	N/A	2.1	2.2

¹ Denotes statistically significant difference from Spring 1997 to Spring 1998.

² Denotes statistically significant difference from Fall 1997 to Spring 1998.

Percent Agreement with each Negative Outcome Attitude Statement



Percent Agreement with each Positive Outcome Attitude Statement

