

***Ozone Action! Days in West Michigan:  
2006 Citizen Awareness and Compliance***

***Prepared for the  
Macatawa Area Coordinating Council  
on behalf of the West Michigan Clean Air Coalition***

***Prepared by:  
Laurie Van Ark  
Elisha Marr***

***The Carl Frost Center for Social Science Research***



**Hope College  
November 2006**

## Table of Contents

Table of Tables .....	ii
Executive Summary .....	1
Background .....	3
Methodology and the Survey Instrument.....	4
Awareness of Ozone Action! Days.....	7
Characteristics of the Sample .....	8
Knowledge Related to Ozone Action! Days.....	13
Behaviors Related to Ozone Action! Days .....	18
Sources of Information Regarding Ozone Action! Days .....	22
Perceptions of Air Pollution and Ground-Level Ozone .....	24
Conclusion .....	28
Tables and Maps.....	30
Appendix .....	68
Copy of Survey.....	75

## Table of Tables (T) and Figures (F)

### Awareness of Ozone Action! Days

T 1	Respondents' Awareness of Ozone Action! Days (OAD).....	30
-----	---	----

### Characteristics of the Sample

T 2a-c	Number of Years Respondent Has Lived in West Michigan.....	30-31
T 3a-b	County of Residence.....	32
T 4	City or Township Respondent Lives In – Kent County.....	33
T 5	City or Township Respondent Lives In – Muskegon County.....	34
T 6	City or Township Respondent Lives In – Ottawa County.....	35
F 1	Map of Kent County.....	36
F 2	Map of Muskegon County.....	37
F 3	Map of Ottawa County.....	38
F 4	Map of Three-County Area.....	39
T 7a-b	Age of Respondent.....	40
T 8a-b	Highest Level of Education Respondent has Completed.....	41
T 9	Race or Ethnicity of Respondent.....	42
T 10a-b	Annual Household Income of Respondent.....	43
T 11a-b	Gender of Respondent.....	44

### Knowledge Related to Ozone Action! Days

T 12a-f	Definition of an Ozone Action! Day.....	45-46
T 13a-c	Number of Reasons for OAD Respondent Can Name.....	47
T 14a-b	# of Ozone Action! Days Respondents Recalled From This Summer....	48-49
T 15a-b	Which Voluntary Actions Respondent Familiar With.....	50-51
T 16a-b	Number of Voluntary Actions Familiar With.....	52
T 17a-b	# of Years Respondent has been Aware of Ozone Action! Days.....	53-54

### Behaviors Related to Ozone Action! Days

T 18	Frequency of Engaging in Voluntary Actions During OAD.....	55
------	--	----

T 19a-b	Reasons Not Able to Take Voluntary Actions During OAD .....	56
T 20a-b	Number of Reasons Given for Not Taking Action.....	57
T 21a-b	Reasons for Participation in Ozone Action! Days.....	58
T 22a-b	Number of Reasons for Participating Given .....	59
T 23a-b	Willingness to Participate in OAD if Knew What Actions to Take .....	60
T 24a-b	Where Receive Information About OAD.....	61
T 25a-b	How Do You Learn That an OAD Has Been Called .....	62
T 26a-b	When Do You Hear It Is an OAD.....	63
T 27a-b	Perception of Air Pollution Problem in Community .....	64
T 28a-b	Perception of Ground-Level Ozone Problem in Community.....	65
T 29a-b	Perception of Air Pollution Problem in Community, by County.....	66
T 30a-b	Perception of Ground-Level Ozone Problem, by County .....	67

## **EXECUTIVE SUMMARY**

The Carl Frost Center for Social Science Research contracted with the Macatawa Area Coordinating Council on behalf of the West Michigan Clean Air Coalition to conduct a telephone survey in late August, early September, 2006 of Kent, Muskegon, and Ottawa county residents to assess awareness of Ozone Action! Days. This is the fourth time the Frost Research Center conducted this survey since 1998, with the second and third surveys taking place in 2001 and 2003. This report includes information not only on citizens' knowledge of the Ozone Action! Days, but their current and potential participation in activities encouraged on Ozone Action! Days. The 522 respondents were also asked about venues of information and their personal opinions of air and ground-level ozone pollution.

### **Awareness of Ozone Action! Days**

All of the factors considered (length and place of residence, age, level of education, race, income, and gender) provide insight into differences in the awareness of Ozone Action! Days. The most significant factor seems to be the length of residence noting that newer residents were much less likely than even six-year residents to be aware of Ozone Action! Days. Additionally, those without a high school degree were also less likely to be aware of Ozone Action! Days than the other West Michigan residents.

### **Knowledge and Actions Related to Ozone Action! Days**

In general, West Michigan residents seemed to have more of an awareness of Ozone Action! Days and the voluntary activities they are encouraged to engage in since 1998.

However, convenience and not caring are two reasons why respondents think they and others failed to participate. Those who were aware showed increased familiarity of activities including a utilization of bikes, buses, and carpooling.

### **Sources of Information Regarding Ozone Action! Days**

Local television, radio and newspapers were consistently the source of information about when it is an Ozone Action! Day and what citizens are encouraged to do, indicating the vital role mass media sources play. Other sources of information more recently pursued by the WMCAC, such as the variable message signs along expressways, are also contributing to informing the public. Most respondents learn the designation of an Ozone Action! Day the morning on which it occurs.

## **BACKGROUND**

The Carl Frost Center for Social Science Research was contracted by Macatawa Area Coordinating Council to conduct a telephone survey of Kent, Muskegon, and Ottawa county residents regarding Ozone Action! Days on behalf of the West Michigan Clean Air Coalition. This is the fourth time the Frost Research Center has conducted this survey since 1998, with the second and third surveys taking place in 2001 and 2003.

The survey collected demographic information (e.g. length of residence, level of education), awareness of Ozone Action! Days, behaviors related to Ozone Action! Days and general attitudes about pollution. The survey was conducted in late August, early September 2006 towards the end of the ozone season. The survey instrument used in the 2006 evaluation is the same survey used in 2003 and 2001, allowing for trends to be tracked over time.

## **METHODOLOGY AND THE SURVEY INSTRUMENT**

A total of 522 residents participated in the telephone survey. Although the contract originally called for 400 completed telephone calls, we were able to complete extra calls and keep the costs to the MACC at the agreed-upon levels. Lists of randomly selected, directory-listed telephone numbers from Kent, Muskegon, and Ottawa counties were purchased from Survey Sampling, Inc. of Fairfield, Connecticut.

Trained telephone callers (mostly Hope College students) from the Frost Research Center introduced themselves and described the project. They asked respondents if they would be willing to take a few minutes and answer questions regarding Ozone Action! Days. Once they agreed to participate, respondents were first asked if they were at least 18 years old and if they lived in Kent, Muskegon, or Ottawa County. If they did not live in one of the three counties or were not sure, they were told the survey was of Kent, Muskegon, and Ottawa County residents and the interviewer moved on to the next phone number. Each working phone number was attempted up to four times or until a resident either completed the survey or declined to participate.

A survey was considered complete if the interviewer was able to get to the final questions with the respondent. However, respondents could choose to not answer some questions or could indicate that they were not sure. Those responses were not computed in the descriptive statistics for those particular questions. Also, if respondents were not at all aware of Ozone Action! Days, they were not asked follow-up questions pertaining to that topic. Thus, not all questions have responses from all of the participants. A margin of error on a



sample of this size (with 95% confidence) is  $\pm 4.0\%$  for two-choice questions (such as whether or not a resident was aware of a particular voluntary action).

For most questions, we examined differences to determine if sub-groups in the sample had different responses. Specifically, we examined differences between levels of awareness of Ozone Action! Days. In the tables we present these differences and note where they are statistically significant.<sup>1</sup>

The survey instrument used in the 2006 evaluation was the same survey used in 2001 and 2003, allowing for trends to be tracked over time. The telephone interview generally took under 10 minutes to complete and contained questions concerning:

- respondents' general awareness of Ozone Action! Days,
- their knowledge of what they should do on an Ozone Action! Day,
- the extent to which they participate in voluntary actions,
- the reasons people participate and don't participate in Ozone Action! Days,
- their perceptions of air pollution and ground-level ozone problems in their community, and
- demographic information about the respondents.

The questions regarding Ozone Action! Days were only asked of those who responded that they were "somewhat aware" or "very aware" (457 respondents, 87.5% of sample)

---

<sup>1</sup> A statistically significant finding is one in which the difference between two values is large enough that it is unlikely to have occurred by chance. In other words, if a difference has a probability (p) value of less than .05, it means that a difference this large will only occur by chance less than 5% of the time (upon repeated sampling of this population). This is the standard level of significance accepted by social scientists.

of Ozone Action! Days. Those who responded that they were “not at all aware” (65 respondents) were asked the questions regarding air pollution and ground-level ozone, and the demographic information.

The Frost Research Center used Ci3 software for production and completion of the telephone interviews, and the Statistical Package for the Social Sciences (SPSS) for data compilation and analysis. We created frequency tables for each question. When the survey question measured incremental responses (e.g., very aware, somewhat aware, not at all aware), a numerical value was assigned to each response alternative. This allowed for computation of mean scores for such questions, which provides ease of comparison across questions with similar response alternatives and across years of the survey.

The tables include complete data for the 2006 survey, and, where appropriate, summary data from the previous three surveys for comparison. Data includes the number of respondents who gave specific answers to particular questions (frequencies), the percentages of response alternatives, and means (quantitative average responses) where that is appropriate.

## AWARENESS OF OZONE ACTION DAYS

In response to the question, “How aware are you of Ozone Action Days?” one-third of the respondents reported that they were “very aware” (33.9%) and more than half reported that they were “somewhat aware” (53.6%, Table 1). These figures are similar to 2003 but a review of respondents reporting they are “not at all aware” shows that the percentage has decreased over time (24.9% in 1998, 12.5% in 2006) while the “very aware” has increased (19.8% in 1998, 33.9% in 2006). This suggests a compounding awareness of Ozone Action! Days. Awareness was categorized on an ordinal scale with “very aware” being assigned the value of 1, “somewhat aware” the value of 2, and “not at all aware” assigned the value of 3. The mean scores derived from these values also show that awareness has increased over time, from a mean of 2.05 in 1998 to 1.79 in 2006.

The various demographic questions (age, gender, county) were examined by awareness level.

## CHARACTERISTICS OF THE SAMPLE

### Length of Residence

In 2006 the average length of time the respondents in this sample reported they lived in West Michigan was 37.7 years (Table 2a). One-quarter of the respondents (26.5%) have lived in West Michigan for over 50 years. Less than 5% reported fewer than 6 years of residence (4.8%) and most reported years of residence between 11 and 40 years (42.3%; Table 2a).

A review of the means in Table 2b reveals that respondents who have lived in West Michigan for 31 to 50 years were more aware of Ozone Action! Days than the other groups (41-50 years mean = 1.66, 31-40 years mean = 1.69). Respondents who have lived in West Michigan for only 1-5 years were more likely to be not at all aware (36.0% not at all aware, mean = 2.04). The remaining groups' means ranged from 1.81 to 1.85.

The longitudinal perspective of Table 2c shows that for all groups, awareness has generally increased (lower means over time). Respondents who have lived in West Michigan for less than 6 years have had similar levels of awareness compared to the other categories, but awareness seems to have decreased since 2003. This could be interpreted to mean that although information on Ozone Action! Days is available, newer residents are not becoming aware at the same rate as their longer residential counterparts. It should also be kept in mind that the number of residents who have lived in West Michigan is the smallest of the various groups surveyed.

## **Place of Residence**

Of the 522 respondents, more than half of them reside in Kent County (55.4%), followed by Ottawa County (29.1%) and Muskegon (15.5%, Table 3a). These figures are consistent with the 2000 Census information on residence in the tri-county area (58.4% Kent, 24.1% Ottawa, 17.5% Muskegon). Figures 1-4 provide geographical outlines of the tri-county area and maps out where approximately 83% of the survey respondents reside. The 83% match-up was obtained by matching the addresses of survey respondents with GIS databases from ESRI Geography Network. Tables 4-6 contain details about the cities and townships of the respondents.

A majority of the respondents in each county noted they were “somewhat aware” of Ozone Action! Days (52.2% Kent, 58.0% Muskegon, 53.9% Ottawa; Table 3b). Ottawa County seems to be the most aware with only 9.9% of the respondents “not at all aware” and the greatest proportion of respondents (36.2%) noting they are “very aware” (Table 3b). This trend is also evident in a comparison of 2006 means between counties noting that although Kent (1.78) has a slightly higher mean than Ottawa (1.74), Muskegon has the highest of the three counties (1.90, Table 3b). A longitudinal review of the means shows that this county comparison has been the trend for 2003 and 2001, yet all of the counties seem to be making progress in awareness levels (Table 3b).

## **Age**

The distribution across age ranges is fairly even with the age group of 45-54 years representing one-quarter of the responses (26.7%) and the youngest group of 18-34

representing the smallest proportion (15.4%, Table 7a). Comparatively, respondents between the ages of 45-54 are the most aware (44.2% very aware, 4.3% not at all aware, lowest mean of 1.60) whereas respondents between the ages of 18-24 were the least aware (17.4% very aware, 43.5% not at all aware, highest mean of 2.26; Table 7b). The remainder of the age categories are similar in their levels of awareness although it should be noted that respondents 65 and over had the second lowest level of awareness (mean = 1.94).

For all age groups, awareness of Ozone Action! Days is higher in 2006 than it was in 1998. For the group with the highest awareness in 1998 (55-64 year olds), the difference is small, but for others, the difference is large (65 and over – 2.23 down to 1.94, 45-54 year olds – 1.96 down to 1.60, and for 35-44 year olds – 1.99 down to 1.68). It may be generally safe to consider all of the means to be decreasing over time indicating greater levels of awareness.

### **Level of Education**

Three-quarters of the respondents were split relatively evenly between the categories of high school or GED (25.4%), some college/technical school (24.9%) and college degree (24.9%, Table 8a). Around 15% noted graduate work (6.0%) or a graduate degree (9.5%), 5.8% had a technical school or associate degree, and only 3.5% responded that they did not complete high school (Table 8a). The few that did not complete high school were also the least aware of Ozone Action! Days (11.1% very aware, 33.3% not at all aware, mean = 2.22, Table 8b). Although respondents with graduate degrees could be

considered to be the most aware (40.8% very aware, 12.2% not at all aware, mean 1.71, Table 8b), the figures are similar to the other categories of education. The similarities of these groups makes it difficult to identify any correlation between level of education and ozone awareness except to state that those who did not complete high school are the least likely to be aware of Ozone Action! Days.

The longitudinal data also did not reveal any obvious trends except to reaffirm the pattern in which those without a high school degree are the least aware and those with some graduate work seem to be the most aware of Ozone Action! Days (Table 8b). The education level showing the most improvement over time is the some college/technical school group, with the highest mean in 1998 (2.16) and the second lowest in 2006 (1.73).

### **Race/Ethnicity**

Although the majority of the respondents categorized themselves as White/Caucasian in 2006 (93.0%), an increased proportion identified as Latino/a or Hispanic (0.9% in 2003, 2.3% in 2006, Table 9). The proportion of African American respondents decreased since 2003 (3.7% in 2003, 2.7% in 2006), yet the raw numbers in all categories except for White/Caucasian reveal consistency over time (Table 9).

### **Annual Household Income**

Of the 522 respondents, 149 (28.5%) chose not to answer the question about their household income, which is fairly consistent with other survey research (Table 10a).

More of the respondents who answered are represented in the \$75,000 or more category (34.0%) and those whose incomes were less than \$25,000 represented the smallest proportion (17.4%). The levels of awareness were similar for all income categories (Table 10b) with respondents in the higher income categories slightly more aware (\$75,000 or more mean = 1.68, and \$50,000 to \$74,999 mean = 1.70) than the other categories (means = 1.80). Those who chose not to answer were the least aware with the highest mean of 1.91 and almost one-fifth (18.1%) responding that they were not at all aware of Ozone Action! Days. One of the longitudinal trends identified is that awareness seems to be increasing for all income categories and all of the categories have fluctuated some over time, except the \$25,000 to \$49,999 level respondents, who have steadily increased in awareness.

## **Gender**

The female to male ratio of responses is similar to previous years with females representing 62.8% of the respondents (2003 – 66.1%, 2001 – 61.5%, Table 11a). For the first time though, females seem to be less aware of Ozone Action! Days in comparison to the male respondents with 13.4% of females not at all aware compared to 10.8% of males and a mean of 1.81 for females compared to the mean of 1.74 of males (Table 11b). Over time both genders have shown increased awareness of Ozone Action! Days, but males have shown greater improvement in awareness over time (females 1998 mean = 1.99, 2006 mean = 1.81; males 1998 mean = 2.12, 2006 mean = 1.74).



## KNOWLEDGE RELATED TO OZONE ACTION! DAYS

### Definition of Ozone Action! Days

Respondents who reported that they were either “very” or “somewhat aware” of Ozone Action! Days (457 respondents) were asked several questions about Ozone Action! Days. First they were asked to provide a definition of Ozone Action! Days in their own words (Tables 12a – 12f). Similar to previous years, a great proportion described it as a day to undertake voluntary actions (64.1% of aware respondents, Table 12a). More than one-third (42.5%, Table 12b) explained that it is a “hot, muggy, and/or hazy day”, and about one-fifth of those indicating some type of awareness described it as a day when air pollution is high or a day which exceeds the acceptable ozone levels (19.3% and 19.0% respectively, Tables 12c and 12d). Twenty-seven people indicated responses that didn’t fit into the categories indicated above (Table 12f), and their comments are listed in Appendix A.

Half of the respondents mentioned one description/reason for an Ozone Action! Day on their own (49.5%, Table 13a). Nearly forty percent mentioned 2 reasons (38.5%), one in ten noted more than 2 reasons (10.3%) and only very few could not identify a reason (8 somewhat aware respondents, 1.8%). Tables 13b and 13c show that these trends are similar to previous years’ including the fact that those indicating that they were “very aware” of Ozone Action! Days provided more reasons than respondents who are “somewhat aware,” and this difference was statistically significant at the highly significant level ( $p < .01$ ) for all three years (2006 very aware mean 1.71 reasons, somewhat aware mean 1.49 reasons; Table 13a).

### **Number of Ozone Action! Days Respondents Recalled**

There were six Ozone Action! Days in the summer of 2006, the lowest of the four survey years (1998 – 11, 2001 – 12, 2003 – 8). Respondents who had indicated an awareness of Ozone Action! Days were asked to recall the number of days in this year's Ozone Action! season. Comparable to previous years, a great proportion of these respondents underestimated the actual number of days (49.2%, Table 14a). A number of respondents (40, 8.8%) indicated they did not know how many Ozone Action! Days occurred and 34.5% overestimated the number of days. While only 7.2% indicated the actual number of Ozone Action! Days, 40% of the respondents who said that they were aware of Ozone Action! Days indicated within a 2-day margin of error (4-8 days – 184 respondents, 40.3%, Table 14a). However, looking at the data from previous years (Table 14b), very similar numbers emerge from respondents indicating there had been between four and eight Ozone Action! Days during each season (2003 – 42.7%, 2001 – 45.4%, and in 1998 – 35.0%). While it is possible that 2006 respondents were more aware of how many actual ozone days there were, it appears more likely that the number of days coincided with the normal guesses.

### **Awareness of Voluntary Actions**

The West Michigan Clean Air Coalition encourages voluntary actions which citizens can undertake on Ozone Action! Days. Respondents were not provided with the list, but prompted to recall the voluntary actions. By far the most common responses from those aware of Ozone Action! Days were refraining from mowing the grass (80.1%) and responsible refueling (refraining from refueling or waiting until evening, 67.4%, Table

15a). About one-quarter of the respondents also indicated not overfilling the gas tank and carpooling (27.4% and 26.9% respectively). Approximately 10% mentioned riding the bus (11.6%), avoiding gasoline powered equipment (10.7%), biking (9.2%), and combining errands and trips (8.5%). None of the respondents indicated avoiding the use of solvent-based paints or cleaners, suggestions from the West Michigan Clean Air Coalition. A small but notable amount of these respondents indicated other activities such as avoiding idling the motor (4.2%) and avoiding the use of charcoal lighter fluid (3.5%). Forty-one respondents (9.0%) provided a reason not easily categorized on the list and the details of their answers can be found in Appendix B.

There were differences between the “very aware” and “somewhat aware” groups. The “very aware” respondents reported a higher rate of familiarity with almost all voluntary actions. There were statistically significant differences between the two groups in three actions: don’t mow grass and take a bus were highly significant at the .01 level, and don’t refuel/wait until evening to refuel was significant at the .05 level.

Since 1998, not mowing the grass and responsible refueling are the most familiar voluntary actions among those with awareness of Ozone Action! Days (Table 15b). It should be noted that the mention of responsible refueling decreased from 2003 to 2006 (from 400 respondents, 78.6% in 2003, to 308 respondents, 67.4% in 2006).

Increasing proportions and numbers of aware respondents are familiar with some voluntary actions: carpooling (14.1% in 1998, 26.9% in 2006), taking the bus (3.2% in 1998, 11.6% in 2006), or biking (3.5% in 1998, 9.2% in 2006).

About one-third of those who were aware of Ozone Action! Days reported familiarity in two (33.7%) or three (30.9%) voluntary activities (Table 16a). A notable 7.1% listed five or more activities and a small 4.2% did not provide a voluntary activity. There was a highly statistically significant difference ( $p < .001$ ) between the “very aware” and “somewhat aware” respondents with very aware persons naming a 3.00 mean number of voluntary actions and the somewhat aware persons naming a 2.50 mean number of actions. While the average number of voluntary actions that respondents could name took a big jump from the 1998 survey (2.21) to the 2001 survey (2.68), it has not changed over the past three surveys, with a mean in 2006 of 2.69 (Table 16b).

### **Number of Years Respondent Has Been Aware of Ozone Action! Days**

Ozone Action! Days began in West Michigan twelve years ago, in 1995. Although only 0.7% accurately identified twelve as the number of years of existence, one-fifth (20.8%) of these respondents answered ten years including a greater number and proportion of those “somewhat aware” than the “very aware” (63 respondents, 25.5% somewhat aware; 32 respondents, 19.6% very aware; Table 17a). Another 8.3% of aware respondents answered fifteen years which may indicate that many of the respondents were conscious of the twelve year existence, but approximated their answer to the nearest 5<sup>th</sup> (Table 17a).

A review of Table 17b reveals a pattern in which 2006 is the first year significant numbers of respondents (22.5%) indicated more than a decade of awareness of Ozone Action! Days. A notable 6.1% responded twenty years and 5.5% responded with numbers over 20 years. This may indicate that a number of these respondents who are aware of Ozone Action! Days realize that they have been in existence for over ten years, yet are not sure of the actual number (Table 17b).

## BEHAVIORS RELATED TO OZONE ACTION! DAYS

### Participation in Ozone Action! Days

After describing the possible voluntary actions that should occur on Ozone Action! Days, the respondents who indicated awareness of Ozone Action! Days were asked how frequently they engaged in voluntary activities (Table 18). A great number of those who were “very aware” noted that they took action on almost all of the Ozone Action! Days (70 respondents, 41.2% of this group), which combined with the 58 “somewhat aware” respondents (22.1%), resulted in 29.6% of all aware respondents. One-third (33.3%) of aware respondents reported action on most days and another 20.4% took action on some days (11.8% very aware and 27.8% somewhat aware). Almost 20% of “somewhat aware” respondents (19.4%) and 10.0% of “very aware” respondents indicated they did not participate in voluntary actions on Ozone Action! Days. The difference between the very aware respondents (mean = 1.91) and the somewhat aware respondents (mean = 2.44) is highly statistically significant ( $p < .001$ ).

Although the activity level of those “somewhat aware” improved from 2001 to 2003, the mean for this group was the highest in 2006 indicating the least amount of participation (Table 18). The mean has also increased steadily for those “very aware” since 2001 (1.64 in 2001, 1.91 in 2006). These figures reveal a pattern in which voluntary actions have decreased in frequency. The overall 2.23 mean in 2006 echoes this pattern illustrating a decrease in frequency of voluntary actions since 2001 (2.01 in 2001 and 2003).

## **Reasons Citizens Do Not Participate in Ozone Action! Days**

All aware respondents were next asked for the primary reasons why they, or people they know, were not able to take voluntary actions during all of the Ozone Action! Days. This is a change from the previous survey when “very aware” respondents were not asked this question. The most common response was that it was not convenient (46.4% of aware respondents, Table 19a). About twenty percent explained that they or people they knew either did not know it was an Ozone Action! Day (18.6%) or didn’t know/couldn’t remember why they or others did not participate (19.0%, Table 19a). A significant number (16.2%) responded that they (or others) did not care (8.8%), don’t agree with it (3.5%), felt ozone isn’t a problem (2.6%), or that one person’s actions don’t make a difference (1.3%), indicating that although people may be aware of Ozone Action! Days, some choose to not participate in voluntary actions. Thirty-three respondents indicated other reasons and a complete list of those can be found in Appendix C.

All of the responses had similar proportions in comparison to the 2003 and 2001 surveys (Table 19b).

Most of those citizens who were aware of Ozone Action! Days provided only one reason for not taking action (73.3%, Table 20a). A fairly large number (75; 16.4%) did not provide a reason and one-tenth provided more than one reason (9.2% provided two reasons, 1.1% provided three reasons). These figures are similar to 2003 and 2001

with the exception that in 2001 23.0% of these respondents did not provide a reason, yet only 16.4% could not in 2006 (Table 20b).

### **Reasons Citizens Participate in Ozone Action! Days**

All aware respondents were asked what are the main reasons why citizens participate in Ozone Action! Days. Respondents could give more than one reason and their answers were classified into one of six categories or entered as an open-ended (other) response. Environmental-related issues were mentioned by three-fourths of these respondents (75.3%), followed by 24.1% for health reasons (17.1% general health; 7.0% respiratory health reasons; Table 21a). The very aware group was more likely to note general health reasons in comparison to the somewhat aware respondents (20.9% vs. 14.6%) and to provide “other” reasons (14.7% vs. 6.8%). Forty-five of the respondents’ reasons were classified as “other”, and a complete listing of their answers can be found in Appendix D.

Both the categories of environmental-related issues and general health reasons experienced an increase since 2003 and throughout the history of the survey (Table 21b). In 1998 only half (52.4%) indicated environmental-related issues, and this figure grew to three-fourths (75.3%) of respondents in 2006. General health reasons went from 12.9% in 1998 to 17.1% in 2006. Interestingly, the proportion who noted a concern for children as a reason for participating has decreased steadily since 1998. A review of the raw numbers shows that after a high of 48 respondents in 1998, an average of 26 respondents identified “concern for children” in each survey.



Most of the respondents who provided reasons for participating in voluntary actions on Ozone Action! Days reported only one reason (73.1%, Table 22a). Almost 20% reported two reasons (18.4%) and only 6.3% did not report a reason.

The mean number of reasons provided by respondents is slightly over one reason during each survey (2006 mean 1.17; Table 22a and Table 22b).

### **Willingness to Participate**

Respondents who were aware of Ozone Action! Days yet were not able to identify a particular action to take were asked about their willingness to participate if they knew of low or no-cost actions. This small group of respondents indicated a general willingness reflected in 38.5% reporting they were “somewhat willing” to participate and only two respondents, 15.4%, unwilling to participate (Table 23a). In 2003 just over one-fourth of these respondents were very unwilling (26.7%), yet the other categories were consistent with the previous years as well as the current year of 2006 (Table 23b). In 1998 a record high of seventeen respondents indicated that they were “somewhat” willing to participate in voluntary actions, yet the proportion is consistent with the proportion of respondents in future years.

## **SOURCES OF INFORMATION REGARDING OZONE ACTION! DAYS**

### **Where Citizens Receive General Information About Ozone Action! Days**

Respondents who indicated awareness of Ozone Action! Days received their information primarily from local television news (76.6%), followed by local radio (32.2%) and local newspapers (24.5%, Table 24a). A few respondents mentioned school (3.3%) or word of mouth (2.2%). The “very aware” and “somewhat aware” respondents were similar in all venues of communication. Thirty respondents indicated other sources, including other media, people and organizations and billboard and highway signs. A complete listing of these other sources can be found in Appendix E.

In comparison to 2003, those identifying local radio as a source decreased by almost 10 percentage points (41.5% in 2003, 32.2% in 2006) and local newspapers increased almost 5 percentage points (20.9% in 2003, 24.5% in 2006; Table 24b).

### **How Citizens Learn It is an Ozone Action! Day**

Similar to where they receive general information, citizens discover that an Ozone Action! Day has been designated primarily from local television news (73.5%) followed by local radio (35.4%) and local newspapers (14.4%, Table 25a). Other respondents mention word of mouth (3.5%), the Internet (2.2%), and an electronic highway sign (2.0%). A few noted “other” methods of receiving the information which can be found in Appendix F at the end of this report.

Also similar to where they receive general information on Ozone Action! Days, since 2003 there has been a 10 percentage point decrease in those identifying the local radio as the source for knowing an Ozone Action! Day has been called (45.5% in 2003, 35.4% in 2006; Table 25b). A comparison of 1998 to 2006 survey figures also shows a significant increase in local television news as the source for learning that an Ozone Action! Day has been designated (61.4% in 1998, 73.5% in 2006; Table 25b). It is also important to note that the proportion of respondents gathering information from local newspapers declined from 36.1% in 2001 to 14.6% in 2003 and 14.4% in 2006 indicating a trend in which local television is becoming even more of a primary source of information for when Ozone Action! Days are called in comparison to local newspapers.

### **When Citizens Learn it is an Ozone Action! Day**

In 2006, and throughout the history of the survey, most respondents (2006 – 67.4%) learn it is an Ozone Action! Day the morning of the actual day (Tables 26a and 26b). One-fourth of the respondents have consistently been notified the day before (27.5% in 2006, 28.0% in 1998) and very few learn that an Ozone day has been designated in the evening of the actual day (5.0% in 2006, 6.4% in 1998; Table 26b).

## PERCEPTIONS OF AIR POLLUTION AND GROUND-LEVEL OZONE

### All Citizens Surveyed

All respondents (including those who stated that they were not at all aware of Ozone Action! Days) were asked how much of a problem air pollution and ground-level ozone were in their community. They were asked to say whether they considered each to be a major problem, a minor problem, or not a problem. Numerical values were assigned to these responses, with major problem = 1, minor problem = 2, and not a problem = 3. Mean scores were then calculated to allow for comparisons among respondents and by year.

Most respondents considered air pollution to be a minor problem (67.4% overall) with those who were aware more likely to categorize it as a **minor** problem (67.2% very aware, 70.2% somewhat aware, 55.0% not at all aware; Table 27a). Similarly, although 20.0% of all respondents considered air pollution to be a **major** problem, 23.6% of very aware respondents felt this way but only 16.7% of those not at all aware categorized it as such. Mean scores range from 2.12 for the not at all aware group to 1.86 for the very aware group. The Chi-Square statistical analysis was used to examine the difference between the three groups, and it was found to be highly significant at the  $p < .01$  level.

The previously identified trends are evident in an examination of the longitudinal mean scores. In every survey year, the mean for those “not at all aware” indicates a categorization between a minor problem or not a problem (range of means 2.07-2.19, Table 27b). The means for those “very aware” or “somewhat aware” indicate that it is

minimally a minor problem or possibly a major problem (range of means 1.78-1.98, Table 27b). These comparisons illustrate that since 1998 there is a population of people not only unaware of Ozone Action! Days but who also do not consider air pollution to be a major problem (Table 27a and Table 27b).

The respondents' perception of ground-level ozone revealed that it is perceived to be slightly less of a problem than air pollution. Only 12.6% of all respondents did not consider air pollution to be a problem, yet 18.4% do not believe ground-level ozone to be a problem (Tables 27a and 28a). Also, almost one-third of the respondents in all awareness categories did not know about ground-level ozone as a problem (31.7%, Table 28a). There is no statistically significant difference between groups on this question.

It is difficult to discern a longitudinal pattern from the means because they fluctuate over time, yet it is significant to note that those "very aware" consistently consider ground-level ozone to be minimally a minor problem (mean range 1.83 to 1.94) and those "not at all aware" consistently consider ground-level ozone less than a minor problem (mean range 2.10 to 2.50, Table 28b). The overall longitudinal means reveal that ground-level ozone is considered to be a minor problem with a slightly higher mean than those indicating concern for air pollution (Tables 27b and 28b).

The respondents' categorization of air pollution and ground-level ozone problems was also stratified by county. Table 29a shows that over one-quarter of respondents from

Muskegon County consider air pollution to be a major problem (27.6%) compared to less than one-fifth of Kent and Ottawa County residents (19.3% Kent, 17.3% Ottawa). Ottawa County respondents are slightly more likely to consider air pollution to be a minor problem (71.3%) and Kent County respondents are slightly more likely not to consider air pollution to be a problem (13.9%). There is no statistical significance in the differences between counties.

A review of the longitudinal means shows that although Kent, Muskegon, and the entire group overall categorize air pollution as slightly higher than a minor problem, the strength fluctuates over time (Table 29b). Ottawa County has experienced a decrease in means since 1998 (2.00 in 1998, 1.94 in 2006) indicating a change in categorization from a minor problem to slightly more than a minor problem.

The respondents from Muskegon were also more likely to categorize ground-level ozone as a major problem (26.4%) than those in Kent (16.7%) or Ottawa (17.5%) counties, in comparison to a minor problem (54.7% of Muskegon respondents; Table 30a). The counties are similar in all other areas in 2006.

Kent County and the overall means fluctuate around the 2.00 level (minor problem) throughout the history of the survey (Table 30b). Both Muskegon and Ottawa Counties experience a decline in means since 1998 with Muskegon residents considering ground-level ozone slightly more than a minor problem in 2006 (1.92, Table 30b).

Combined with the previous results, Muskegon and Ottawa County residents considering air pollution and ground-level Ozone a problem seems to be increasing.

## **CONCLUSION**

### **Awareness of Ozone Action! Days**

All of the factors considered (length and place of residence, age, level of education, race, income, and gender) provide insight into differences in the awareness of Ozone Action! Days. The most significant factor seems to be the length of residence noting that newer residents were much less likely than even six-year residents to be aware of Ozone Action! Days. Additionally, those without a high school degree were also less likely to be aware of Ozone Action! Days than the other West Michigan residents.

### **Knowledge and Actions Related to Ozone Action! Days**

In general, West Michigan residents seemed to have more of an awareness of Ozone Action! Days and the voluntary activities they are encouraged to engage in since 1998. However, convenience and not caring are two reasons why respondents think they and others failed to participate. Those who were aware showed increased familiarity of activities including a utilization of bikes, buses, and carpooling. In addition, Ottawa County residents seem to be increasing in their concern for air pollution and ground-level ozone pollution.

### **Sources of Information Regarding Ozone Action! Days**

Local television, radio and newspapers were consistently the source of information about when it is an Ozone Action! Day and what citizens are encouraged to do.

Although newspapers are declining as the primary source of information, local television



continues to grow, which may explain the fact that most respondents learn the designation of an Ozone Action! Day the morning on which it occurs.

Table 1

<b>Respondents' Awareness of Ozone Action! Days "How Aware Are You of Ozone Action Days?"</b>				
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>Mean</b>
2006 Results	177/33.9%	280/53.6%	65/12.5%	1.79
2003 Results	185/30.9	326/54.5	87/14.5	1.84
2001 Results	126/31.6	187/46.9	86/21.6	1.90
1998 Results	82/19.8	229/55.3	103/24.9	2.05

Table 2a

<b>Number of Years Respondent Has Lived in West Michigan 2006 Results, and Means by Survey</b>		
	<b>Frequency</b>	<b>Percent</b>
1-5	25	4.8%
6-10	37	7.2%
11-20	72	13.9%
21-30	70	13.5%
31-40	77	14.9%
41-50	99	19.1%
Over 50	137	26.5%
Total	517*	100.0
<i>2006 Mean = 37.7 years</i>		<i>2001 Mean = 35.8</i>
<i>2003 Mean = 36.9 years</i>		<i>1998 Mean = unknown</i>

Table 2b

<b>Awareness Level by Number of Years Respondent has Lived in West Michigan, 2006 Results (Frequency/Percent)</b>				
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>Mean</b>
1-5 years	8/32.0%	8/32.0%	9/36.0%	2.04
6-10 years	13/35.1	18/48.6	6/16.2	1.81
11-20 years	21/29.2	41/56.9	10/13.9	1.85
21-30 years	20/28.6	41/58.6	9/12.9	1.84
31-40 years	30/39.9	41/53.2	6/7.8	1.69
41-50 years	41/41.4	51/51.5	7/7.1	1.66
Over 50 years	42/30.7	78/56.9	17/12.4	1.82
Column Frequency/%	175/33.8	278/53.8	64/12.4	

Table 2c

<b>Awareness Level by Number of Years Respondent has Lived in West Michigan, Mean Scores by Survey*</b>				
	<b>2006</b>	<b>2003</b>	<b>2001</b>	<b>1998</b>
1-5 years	2.04	1.97	1.97	2.11
6-10 years	1.81	1.92	1.79	2.00
11-20 years	1.85	1.84	2.04	2.25
21-30 years	1.84	1.87	1.82	2.09
31-40 years	1.69	1.77	1.88	1.84
41-50 years	1.66	1.74	1.79	1.94
Over 50 years	1.82	1.90	1.96	2.04

\* Very aware = 1, Somewhat aware = 2, Not at all aware = 3

Table 3a

<b>County of Residence 2006 Results</b>		
	<b>Frequency</b>	<b>Percent</b>
Kent	289	55.4%
Muskegon	81	15.5%
Ottawa	152	29.1%
Total	522	100.00%

Table 3b

<b>Awareness Level by County of Residence, 2006 Results and Means by Survey* (Frequency/Percent)</b>							
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>2006 Mean</b>	<b>2003 Mean</b>	<b>2001 Mean</b>	<b>1999 Mean</b>
Kent County	101/34.9%	151/52.2%	37/12.8%	1.78	1.84	1.85	1.99
Muskegon County	21/25.9	47/58.0	13/16.0	1.90	1.89	2.27	2.25
Ottawa County	55/36.2	82/53.9	15/9.9	1.74	1.80	1.81	2.03
Column Frequency/%	177/33.9	280/53.6	65/12.5				

\*A mean is a type of average where scores are summed and then divided by the number of observations, or in this case, the number of respondents. Each respondent in the Ozone Action! sample was assigned a score from one (1) to three (3) based on a response where 1=very aware, 2=somewhat aware and 3=not at all aware. The average scores listed in the three columns titled “2006 Mean,” “2003 Mean,” “2001 Mean,” and “1999 Mean,” provide the basis for a longitudinal comparison of average (mean) scores. Thus, in this table lower mean scores indicate an average higher level of awareness and higher scores indicate an average lower level of awareness for each of the three counties across the three survey years.

Table 4

<b>City or Township Respondent Lives In—Kent County (Frequency/Percent)</b>				
	<b>2006</b>	<b>2003</b>	<b>2001</b>	<b>1998</b>
Ada Township	7/2.4%	9/3.0%	12/5.2%	6/1.4%
Algoma Township	3/1.0	6/2.0	2/0.9	1/0.2
Alpine Township	6/2.1	4/1.4	3/1.3	3/0.7
Bowne Township	1/0.3	3/1.0	1/0.4	2/0.5
Byron Township	14/4.8	15/5.1	10/4.4	8/1.9
Caledonia Township	5/1.7	4/1.4	4/1.7	5/1.2
Cannon Township	8/2.8	5/1.7	1/0.4	4/1.0
Cascade Township	7/2.4	8/2.7	4/1.7	2/0.5
Cedar Springs City	3/1.0	3/1.0	3/1.3	7/1.7
Courtland Township	2/0.7	1/0.3	4/1.7	1/0.2
East Grand Rapids City	5/1.7	7/2.4	2/0.9	3/0.7
Gaines Township	6/2.1	5/1.7	5/2.2	10/2.4
Grand Rapids City	87/30.0	89/30.1	77/33.6	83/20.0
Grand Rapids Charter Township	14/4.8	19/6.4	1/0.4	4/1.0
Grandville City	19/6.6	11/3.7	15/6.6	6/1.4
Grattan Township	4/1.4	2/0.7	0/0.0	1/0.2
Kentwood City	20/6.9	23/7.8	16/7.0	10/2.4
Lowell City	3/1.0	3/1.0	0/0.0	1/0.2
Lowell Township	4/1.4	3/1.0	2/0.9	2/0.5
Nelson Township	2/0.7	1/0.3	0/0.0	0/0.0
Oakfield Township	1/0.3	1/0.3	2/0.9	1/0.2
Plainfield Township	14/4.8	15/5.1	15/6.6	9/2.2
Rockford City	7/2.4	6/2.0	5/2.2	3/0.7
Solon Township	2/0.7	0/0.0	0/0.0	2/0.5
Sparta Township	3/1.0	3/1.0	6/2.6	8/1.9
Spencer Township	—	3/1.0	0/0.0	2/0.5
Tyrone Township	1/0.3	2/0.7	0/0.0	1/0.2
Vergennes Township	1/0.3	2/0.7	2/0.9	2/0.5
Walker City	13/4.5	10/3.4	8/3.5	7/1.7
Wyoming City	27/9.3	24/8.1	27/11.8	30/7.2

Table 5

<b>City or Township Respondent Lives In—Muskegon County (Frequency/Percent)</b>				
	<b>2006</b>	<b>2003</b>	<b>2001</b>	<b>1998</b>
Blue Lake Township	2/2.5%	0/0.0%	0/0.0%	0/0.0%
Casnovia Township	1/1.3	0/0.0	1/1.8	3/0.7
Cedar Creek Township	1/1.3	3/2.7	1/1.8	0/0.0
Dalton Township	5/6.3	3/2.7	0/0.0	3/0.7
Egelston Township	4/5.0	3/2.7	1/1.8	4/1.0
Fruitland Township	4/5.0	8/7.1	0/0.0	3/0.7
Fruitport Township	4/5.0	5/4.5	4/7.3	6/1.4
Holton Township	1/1.3	0/0.0	3/5.5	1/0.2
Laketon Township	1/1.3	2/1.8	3/5.5	6/1.4
Montague City	—	1/0.9	0/0.0	2/0.5
Montague Township	—	2/1.8	1/1.8	2/0.5
Moorland Township	1/1.3	1/0.9	0/0.0	1/0.2
Muskegon City	14/17.5	42/37.5	12/21.8	21/5.1
Muskegon Township	22/27.5	14/12.5	14/25.5	10/2.4
Muskegon Heights City	2/2.5	1/0.9	0/0.0	1/0.2
North Muskegon City	2/2.5	4/3.6	3/5.5	3/0.7
Norton Shores City	8/10.0	13/11.6	8/14.5	10/2.4
Ravenna Township	1/1.3	1/0.9	1/1.8	2/0.5
Roosevelt Park City	1/1.3	0/0.0	1/1.8	1/0.2
Sullivan Township	2/2.5	0/0.0	1/1.8	3/0.7
Whitehall City	1/1.3	1/0.9	1/1.8	0/0.0
Whitehall Township	2/2.5	1/0.9	0/0.0	1/0.2
White River Township	1/1.3	1/0.9	0/0.0	1/0.2

Table 6

<b>City or Township Respondent Lives In—Ottawa County (Frequency/Percent)</b>				
	<b>2006</b>	<b>2003</b>	<b>2001</b>	<b>1998</b>
Allendale Township	4/2.6%	9/4.8%	5/4.5%	5/1.2%
Blendon Township	3/2.0	4/2.1	2/1.8	0/0.0
Chester Township	2/1.3	1/0.5	0/0.0	0/0.0
Coopersville City	4/2.6	3/1.6	5/4.5	5/1.2
Crockery Township	2/1.3	1/0.5	0/0.0	0/0.0
Ferrysburg City	1/0.7	3/1.6	1/0.9	1/0.2
Georgetown Township	20/13.2	31/16.4	21/19.1	18/4.3
Grand Haven City	7/4.6	13/6.9	5/4.5	4/1.7
Grand Haven Township	8/5.3	10/5.3	7/6.4	4/1.0
Holland City	19/12.5	24/12.7	16/14.5	12/2.9
Holland Township	19/12.5	16/8.5	10/9.1	4/1.0
Hudsonville City	9/5.9	15/7.9	7/6.4	2/0.5
Jamestown Township	3/2.0	6/3.2	0/0.0	1/0.2
Olive Township	3/2.0	1/0.5	0/0.0	3/0.7
Park Township	14/9.2	21/11.1	10/9.1	5/1.2
Polkton Township	1/0.7	0/0.0	1/0.9	0/0.0
Port Sheldon Township	3/2.0	2/1.1	5/4.5	3/0.7
Robinson Township	4/2.6	5/2.6	2/1.8	3/0.7
Spring Lake Township	14/9.2	5/2.6	1/0.9	7/1.7
Tallmadge Township	3/2.0	4/2.1	4/3.6	3/0.7
Wright Township	2/1.33	8/4.2	0/0.0	0/0.0
Zeeland City	2/1.3	6/3.2	1/0.9	3/0.7
Zeeland Township	3/2.0	1/0.5	6/5.5	4/1.0

Figure 1

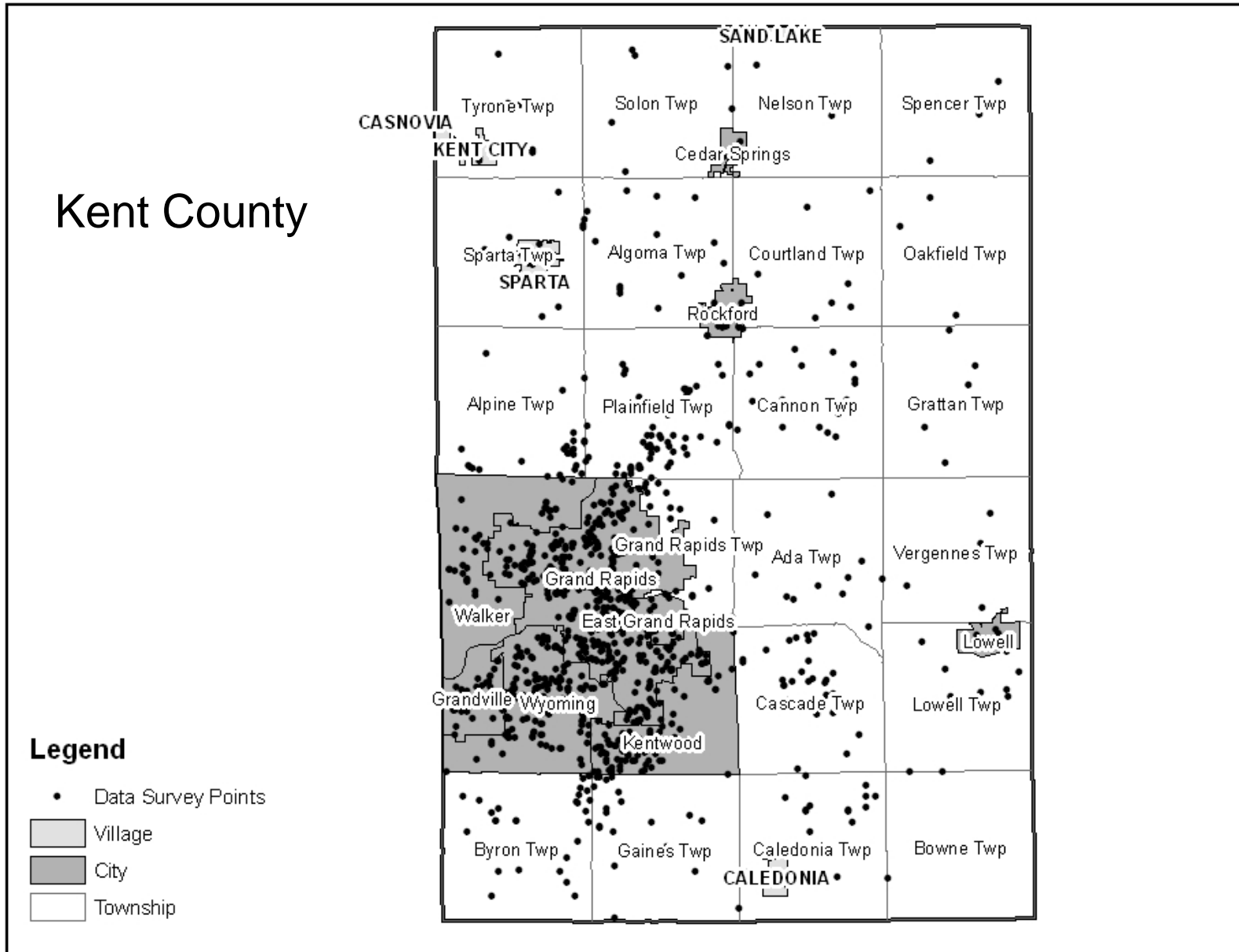




Figure 2

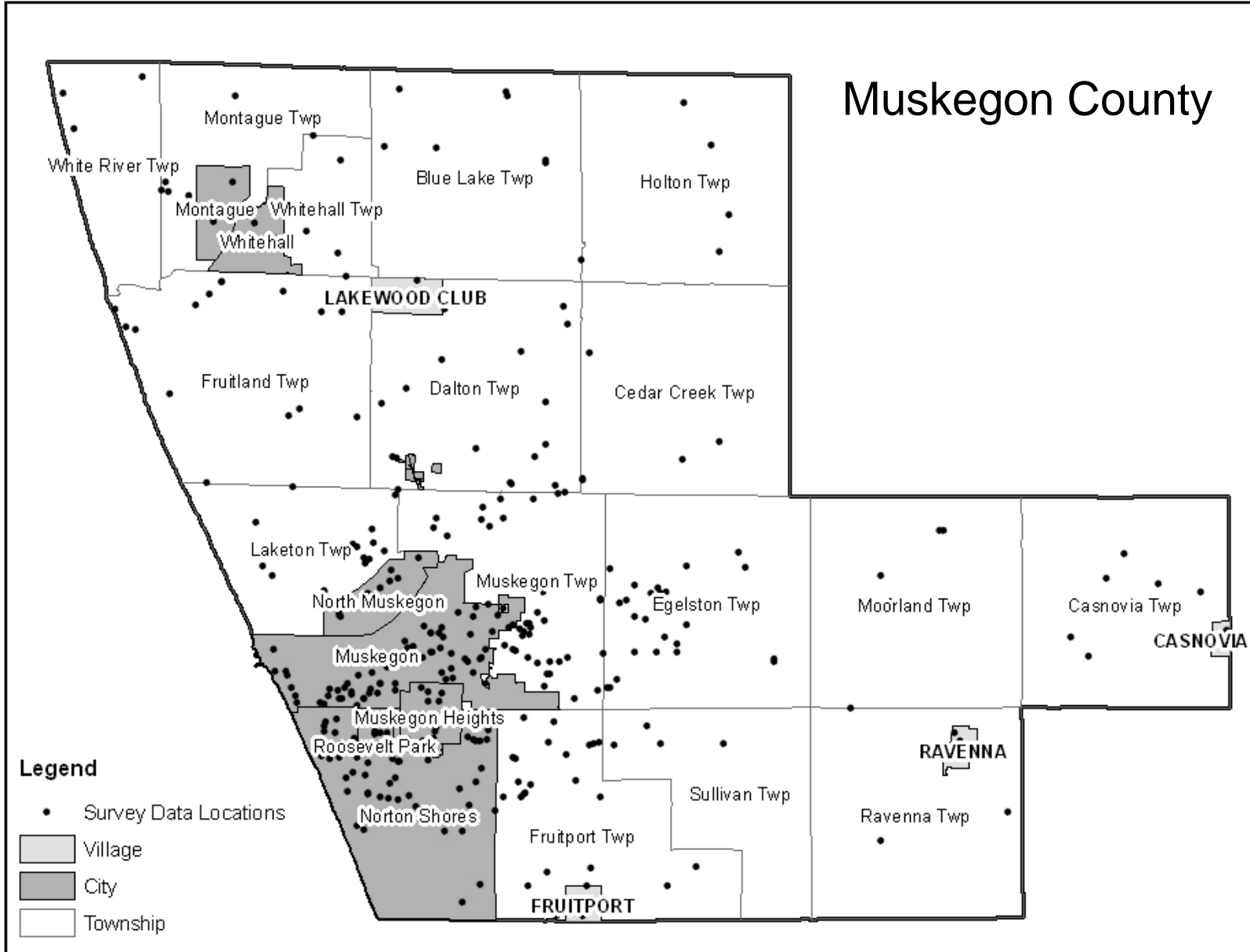


Figure 3

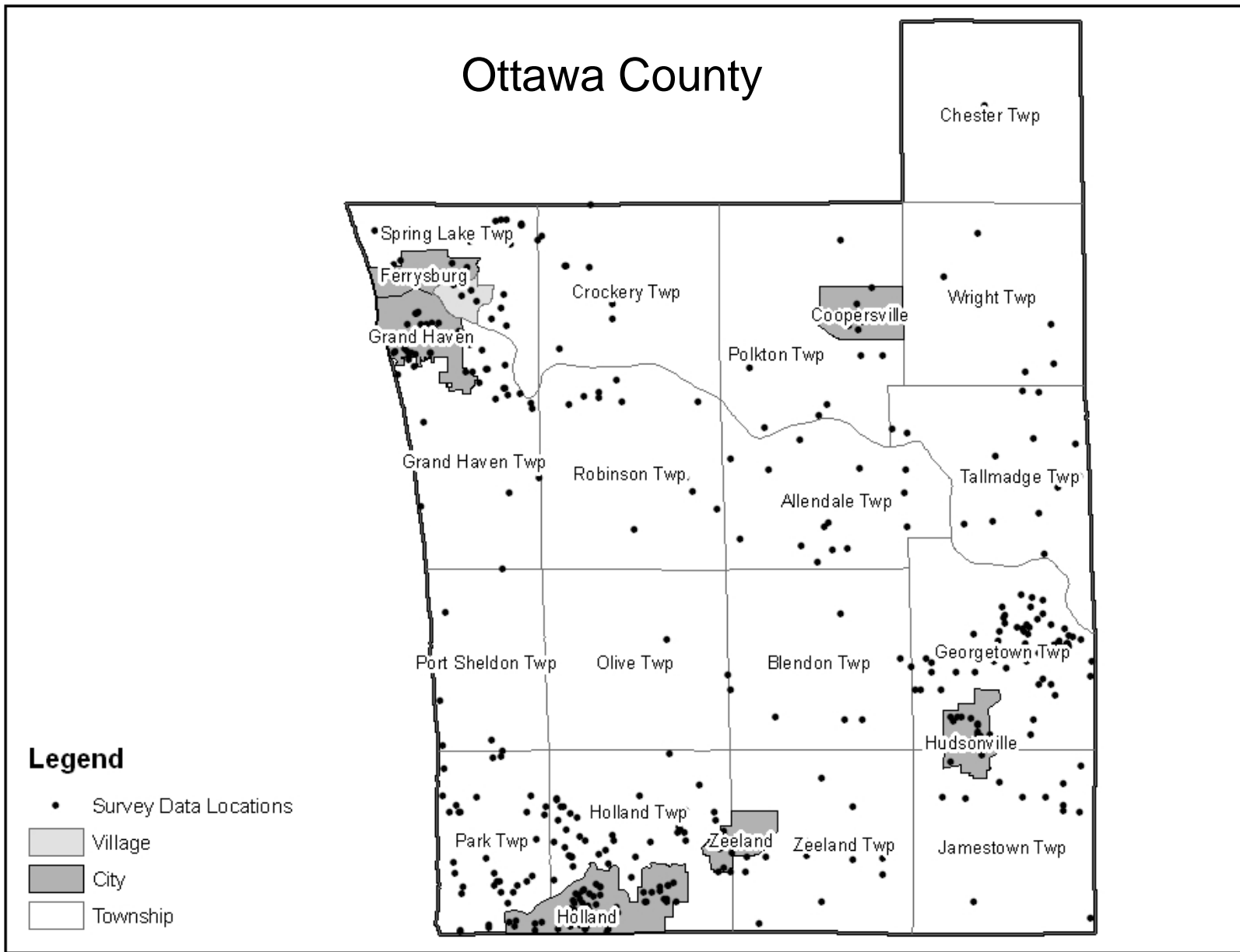


Figure 4

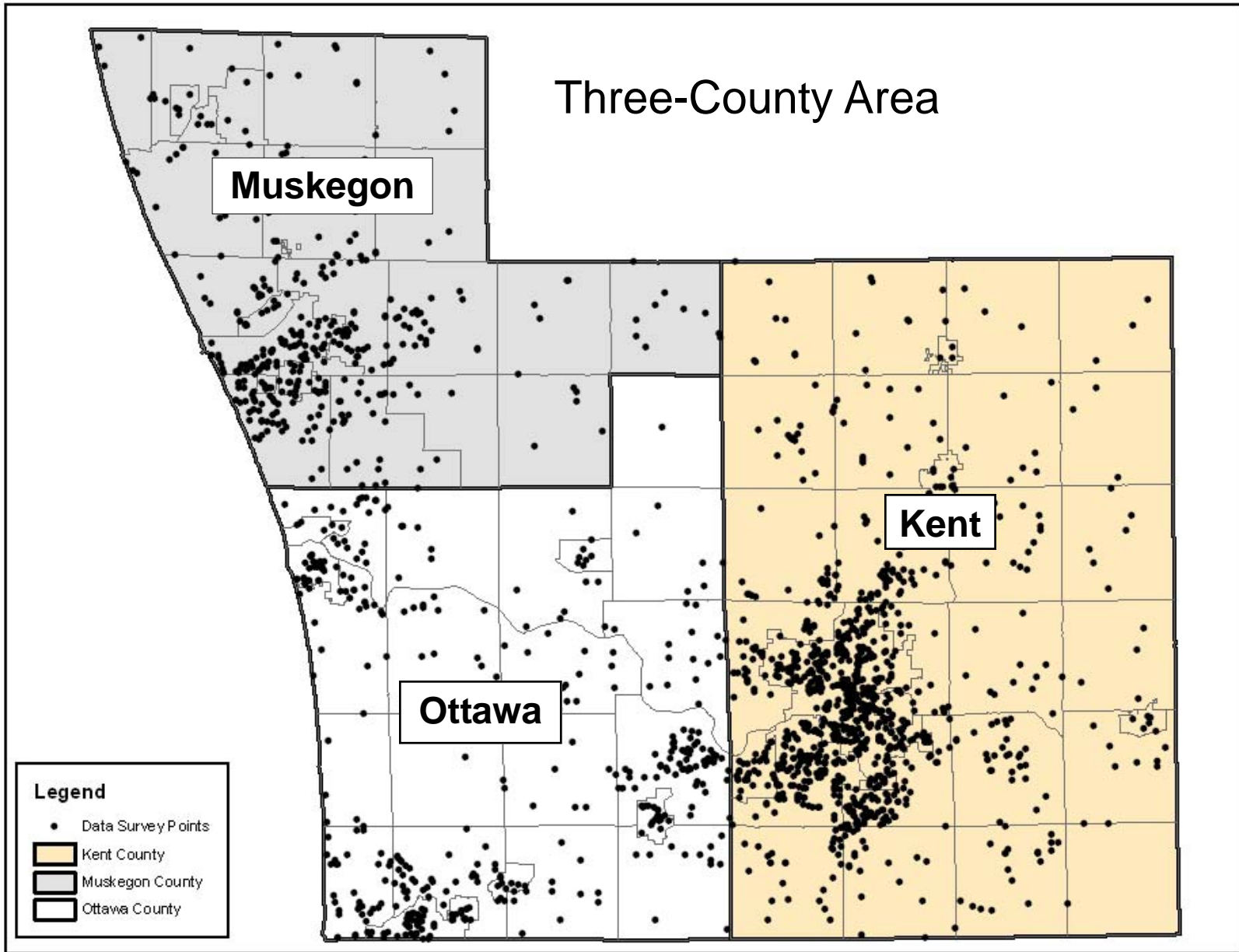


Table 7a

<b>Age of Respondent 2006 Results</b>		
	<b>Frequency</b>	<b>Percent</b>
18-34	79	15.4%
35-44	99	19.2%
45-54	138	26.7%
55-64	101	19.6%
65 and over	99	19.2%
Total	516	100.0%

Table 7b

<b>Awareness Level by Age of Respondent, 2006 Results and Means by Survey (Frequency/Percent)</b>							
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>2006 Mean</b>	<b>2003 Mean</b>	<b>2001 Mean</b>	<b>1998 Mean</b>
18-24	4/17.4%	9/39.1%	10/43.5%	2.26	—*	2.22	2.38
25-34	13/23.2	39/69.6	4/7.1	1.84	1.93*	1.86	1.90
35-44	42/42.4	47/47.5	10/10.1	1.68	1.71	1.84	1.99
45-54	61/44.2	71/51.4	6/4.3	1.60	1.77	1.75	1.96
55-64	31/30.7	55/54.5	15/14.9	1.84	1.73	1.87	1.87
65 and over	24/24.2	57/57.6	18/18.2	1.94	2.08	1.96	2.23
Column Frequency/%	175/33.9	278/53.9	63/12.2				

\*In 2003, the age range asked was 18-34.

Table 8a

<b>Highest Level of Education Respondent has Completed 2006 Results</b>		
	<b>Frequency</b>	<b>Percent</b>
Less than high school	18	3.5%
High school or GED	131	25.4%
Some college/technical school	128	24.9%
Technical school/associate degree	30	5.8%
College degree	128	24.9%
Some graduate work	31	6.0%
Graduate degree	49	9.5%
<b>Total</b>	<b>515</b>	<b>100.0%</b>

Table 8b

<b>Awareness Level by Highest Level of Education Respondent has Completed, 2006 Results and Means by Survey (Frequency/Percent)</b>							
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>2006 Mean</b>	<b>2003 Mean</b>	<b>2001 Mean</b>	<b>1998 Mean</b>
Less than high school	2/11.1%	10/55.6%	6/33.3%	2.22	2.59	2.25	2.23
High school or GED	38/29.0	77/58.8	16/12.2	1.83	1.92	2.09	2.09
Some college/ technical school	51/39.8	60/46.9	17/13.3	1.73	1.76	1.83*	2.16*
Technical school/ associate degree	10/33.3	16/53.3	4/13.3	1.80	1.57	—*	—*
College degree	45/35.2	72/56.3	11/8.6	1.73	1.79	1.71	1.87
Some graduate work	9/29.0	18/58.1	4/12.9	1.84	1.73	1.86**	1.78**
Graduate degree	20/40.8	23/46.9	6/12.2	1.71	1.77	—**	—**
Column Frequency/%	175/34.0	276/53.6	64/12.4				

\* 1998 & 2001 combined some college/tech with tech/Associate degree

\*\* 1998 & 2001 combined some graduate work or higher with graduate degree

Table 9

<b>Race or Ethnicity of Respondent for Each Survey (Frequency/Percent)</b>						
	<b>African-American</b>	<b>Asian-American</b>	<b>Latino/a/Hispanic</b>	<b>American Indian/ Native American</b>	<b>White</b>	<b>Other</b>
2006 Results	14/2.7%	3/0.6%	12/2.3%	4/0.8%	477/93.0%	3/0.6%
2003 Results	22/3.7	6/1.0	5/0.9	4/0.7	548/93.2	3/0.5
2001 Results	10/2.6	1/0.3	3/0.8	0/0.0	371/95.4	4/1.0
1998 Results	16/4.0	4/1.0	7/1.8	0/0.0	365/92.2	4/1.0

Table 10a

<b>Annual Household Income of Respondent 2006 Results</b>		
	<b>Frequency</b>	<b>Percent</b>
Under \$25,000	65	17.4%
\$25,000-\$49,000	95	25.5%
\$50,000-\$74,999	86	23.1%
\$75,000 or more	127	34.0%
Total	373	100.0%
Did not answer*	149	28.5%

\*Percent of total sample

Table 10b

<b>Awareness Level by Annual Household Income of Respondent, 2006 Results and Means by Survey (Frequency/Percent)</b>							
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>2006 Mean</b>	<b>2003 Mean</b>	<b>2001 Mean</b>	<b>1998 Mean</b>
Under \$25,000	23/35.4%	32/49.2%	10/15.4%	1.80	2.04	1.90	2.11
\$25,000-\$49,999	30/31/6	54/56.8	11/11.6	1.80	1.81	1.89	2.10
\$50,000-\$74,999	32/37.2	48/55.8	6/7.0	1.70	1.77	1.89	1.85
\$75,000 or more	52/40.9	64/50.4	11/8.7	1.68	1.67	1.65	1.96
No answer	40/26.8	82/55.0	27/18.1	1.91	1.93	1.96	2.08
Column Frequency/%	177/33.9	280/53.6	65/12.5				

Table 11a

<b>Gender of Respondent (Frequency/Percent)</b>				
	<b>2006</b>	<b>2003</b>	<b>2001</b>	<b>1998</b>
Female	328/62.8%	394/66.1%	246/61.5%	223/53.9%
Male	194/37.2	202/33.9	154/38.5	191/46.1

Table 11b

<b>Awareness Level by Gender of Respondent, 2006 Results and Means by Survey (Frequency/Percent)</b>							
	<b>Very Aware (1)</b>	<b>Somewhat Aware (2)</b>	<b>Not at All Aware (3)</b>	<b>2006 Mean</b>	<b>2003 Mean</b>	<b>2001 Mean</b>	<b>1998 Mean</b>
Female	106/32.3%	178/54.3%	44/13.4%	1.81	1.83	1.84	1.99
Male	71/36.6	102/52.6	21/10.8	1.74	1.84	2.00	2.12
Column Frequency/%	177/33.9	280/53.6	65/12.5				



**Definition of an Ozone Action! Day  
(Only Asked of Those Who Are Somewhat or Very Aware of Ozone Action! Days)**

Table 12a

<b>Day to Undertake Voluntary Actions</b>			
	<b>Total Frequency/Percent</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Results	293/64.1%	59.3%	67.1%
2003 Results	327/54.2	62.2	65.0
2001 Results	185/59.1	59.5	58.8
1998 Results	201/64.6	59.8	66.4

Table 12b

<b>Hot, Muggy, Hazy Days</b>			
	<b>Total Frequency/Percent</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Results	194/42.5%	52.0%	36.4%
2003 Results	188/31.2	44.9	32.2
2001 Results	98/31.3	31.7	31.0
1998 Results	58/18.6	25.6	16.2

Table 12c

<b>Day When Air Pollution is High</b>			
	<b>Total Frequency/Percent</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Results	88/19.3%	24.9%	15.7%
2003 Results	139/23.1	29.7	25.8
2001 Results	83/26.5	39.7	17.6
1998 Results	51/16.4	19.5	15.3

**Definition of an Ozone Action! Day  
(Percent of Those Who are Aware)**

Table 12d

<b>Exceedence of Acceptable Ozone Levels</b>			
	<b>Total Frequency/Percent</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Results	87/19.0%	20.9%	17.9%
2003 Results	93/15.4	19.5	17.5
2001 Results	66/21.1	26.2	17.6
1998 Results	39/12.5	12.2	12.7

Table 12e

<b>Day When It Is Unhealthy To Be Outdoors</b>			
	<b>Total Frequency/Percent</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Results	30/6.6%	6.2%	6.8%
2003 Results	46/7.6	11.4	7.7
2001 Results	32/10.2	15.9	6.4
1998 Results	4/1.3	3.7	0.4

Table 12f

<b>Other</b>			
	<b>Total Frequency/Percent</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Results	27/5.9%	6.8%	5.4%
2003 Results	37/6.1	10.8	5.2
2001 Results	34/10.9	7.9	12.8
1998 Results	22/7.1	8.5	6.6

Table 13a

<b>Number of Reasons for Ozone Action! Days Respondent Can Name 2006 Results (Frequency/Percent of Those Who Are Aware)</b>			
<b>Number of Reasons Mentioned</b>	<b>Total N=457</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
None	8/1.8%	0/0.0	8/2.9
1	227/49.7	82/46.3	145/51.8
2	175/38.3	66/37.3	109/38.9
3-5	47/10.3	29/16.4	18/6.4
2006 Mean*	1.57	1.71	1.49

\* Statistical Highly Significant Differences Between Groups:  $F = 10.521$ ,  $p < .01$

Table 13b

<b>Number of Reasons for Ozone Action! Days Respondent Can Name 2003 Results Revised (Frequency/Percent of Those Who Are Aware)</b>			
<b>Number of Reasons Mentioned</b>	<b>Total N=509</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
None	16/3.1%	3/1.6%	13/4.0%
1	237/46.6	71/38.4	166/51.2
2	193/37.9	80/43.2	113/34.9
3-5	63/12.4	31/16.8	32/9.9
2003 Mean**	1.62	1.78	1.53

\*\* Statistical Highly Significant Differences Between Groups:  $F = 11.642$ ,  $p < .01$

Table 13c

<b>Number of Reasons for Ozone Action! Days Respondent Can Name 2001 Results Revised* (Frequency/Percent of Those Who Are Aware)</b>			
<b>Number of Reasons Mentioned</b>	<b>Total N=313</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
None	7/2.2%	3/2.4%	4/2.1%
1	159/50.8	47/37.3	112/59.9
2	109/34.8	53/42.1	56/29.9
3-5	38/12.1	23/18.3	15/8.0
2001 Mean***	1.59	1.81	1.44

\*\*\* Statistical Highly Significant Differences Between Groups:  $F = 16.868$ ,  $p < .001$

\*The data in previous reports was incorrect for this table.

Table 14a

<b>Number of Ozone Action! Days Respondents Recalled During the Past Summer 2006 Results (Frequency/Percent of Those Who are Aware)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
None	17/3.7%	3/1.8%	14/5.6%
1	16/3.5	2/1.2	14/5.6
2	33/7.2	7/4.2	26/10.4
3	56/12.3	17/4.2	39/15.6
4	44/9.6	13/7.8	31/12.4
5	59/12.9	31/18.7	28/11.2
6 (correct number for 2006 season)	33/7.2	17/10.2	16/6.4
7	22/4.8	9/5.4	13/5.2
8	26/5.7	13/7.8	13/5.2
9	5/1.1	3/1.8	2/0.8
10	55/12.0	28/16.9	27/19.8
11	2/0.4	0/0.0	2/0.8
12	13/2.8	5/3.0	8/3.2
13	—	—	—
14	3/0.7	1/0.6	2/0.8
15	11/2.4	6/3.6	5/2.0
16	1/0.2	1/0.6	0/0.0
17	1/0.2	1/0.6	0/0.0
18	2/0.4	0/0.0	2/0.8
20	3/0.7	1/0.6	2/0.8
22	1/0.2	0/0.0	1/0.4
25	1/0.2	1/0.6	0/0.0
30	8/1.8	4/2.4	4/1.6
40	3/0.7	2/1.2	1/0.4
42	1/0.2	1/0.6	0/0.0
Don't know	40/8.8	11/6.2	29/10.4
Refused	1/0.2	0/0.0	1/0.4

Table 14b

<b>Number of Ozone Action! Days Respondents Recalled During the Past Summer</b>				
<b>Total Results by Survey</b>				
<b>(Frequency/Percent of Those Who are Aware)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
None	17/3.7%	13/2.5%	6/1.9%	36/11.6%
1	16/3.5	17/3.3	3/1.0	16/5.1
2	33/7.2	58/11.4	25/8.0	50/16.1
3	56/12.3	70/13.7	36/11.5	47/15.1
4	44/9.6	59/11.5	41/13.1	37/11.9
5	59/12.9	77/15.1	51/16.3	35/11.3
6 (correct number for 2006 season)	33/7.2	54/10.6	29/9.3	20/6.4
7	22/4.8	12/2.3	8/2.6	6/1.9
8 (Correct number for 2003)	26/5.7	16/3.1	13/4.2	11/3.5
9	5/1.1	2/0.4	2/0.6	4/1.3
10	55/12.0	35/6.8	24/7.7	12/3.9
11 (Correct number for 1998)	2/0.4	0/0.0	1/0.3	0/0.0
12 (Correct number for 2001)	13/2.8	13/2.5	9/2.9	14/4.5
13	—	1/0.2	2/0.6	0/0.0
14	3/0.7	3/0.6	1/0.3	1/0.3
15	11/2.4	13/2.5	5/1.6	8/2.6
16	1/0.2	1/0.2	0/0.0	1/0.3
17	1/0.2	0/0.0	1/0.3	0/0.0
18	2/0.4	0/0.0	1/0.3	0/0.0
20	3/0.7	6/1.2	7/2.2	8/2.6
21	—	1/0.2	1/0.3	0/0.0
22	1/0.2	—	—	—
24	—	0/0.0	1/0.3	0/0.0
25	1/0.2	1/0.2	1/0.3	1/0.3
28	—	0/0.0	7/2.2	0/0.0
30	8/1.8	5/1.0	2/0.6	4/1.3
40	3/0.7	0/0.0	1/0.3	0/0.0
42	1/0.2	—	—	—
Don't know	40/8.8	54/10.6	35/11.2	—
Refused	1/0.2	—	—	—

Table 15a

<b>Which Voluntary Actions Familiar with, by Awareness of OAD 2006 Results</b> <b>(Frequency/Percent of Those Who are Aware)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Don't mow grass ( $\chi^2 = 7.312, p < .01$ )*	366/80.1%	153/86.4%	213/76.1%
Don't refuel/refuel after 6 pm ( $\chi^2 = 5.735, p < .05$ )*	308/67.4	131/74.0	177/63.2
Don't top off or overfill gas tank	125/27.4	51/28.8	74/26.4
Carpool	123/26.9	56/31.6	67/23.9
Take a bus* ( $\chi^2 = 7.953, p < .01$ )*	53/11.6	30/16.9	23/8.2
Don't use gasoline powered equipment	49/10.7	25/14.1	24/8.6
Bike	42/9.2	20/11.3	22/7.9
Combine business, errands or recreational trips	39/8.5	27/9.6	12/6.8
Don't idle motor	19/4.2	8/4.5	11/3.9
Avoid use of charcoal lighter fluid	16/3.5	8/4.5	8/2.9
Don't use aerosols	9/2.0	5/2.8	4/1.4
Don't use boat	7/1.5	5/2.8	2/0.7
Drive smoothly	4/0.9	2/1.1	2/0.7
Make sure gas cap is tightly sealed	3/0.7	2/1.1	1/0.4
Avoid drive-thru service	3/0.7	1/0.6	2/0.7
Keep power equipment well maintained	1/0.2	0/0.0	1/0.4
Avoid use of solvent-based paints	0/0.0	0/0.0	0/0.0
Avoid use of solvent-based cleaners	0/0.0	0/0.0	0/0.0
Other	41/9.0	18/10.2	23/8.2
Stay inside**	16/3.5	4/2.3	12/4.3
No fires or outside cooking**	7/1.5	1/0.6	6/2.1
Don't know	19/4.2	6/3.4	13/4.6
Refused	1/0.2	0/0.0	1/0.4

\* Statistically significant difference between very aware and somewhat aware groups.

\*\* Voluntary actions suggested by respondents under Other, separated due to volume.

Note: Respondents could provide more than one response, so totals exceed 100%.

Table 15b

<b>Which Voluntary Actions Familiar with, by Awareness of OAD                      Total Results by Survey                      (Frequency/Percent of Those Who are Aware)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
Don't mow grass	366/80.1%	406/79.8%	260/83.3%	230/74.0%
Don't refuel/refuel after 6 pm	308/67.4	400/78.6	231/74.0	168/54.0
Don't top off or overfill gas tank	125/27.4	120/23.6	73/23.4	85/27.3
Carpool	123/26.9	112/22.0	70/22.4	44/14.1
Take a bus	53/11.6	27/5.3	16/5.1	10/3.2
Don't use gas powered equipment	49/10.7	73/14.3	40/12.8	38/12.2
Bike	42/9.2	18/3.5	28/9.0	11/3.5
Combine business, errands or recreational trips	39/8.5	39/7.7	25/8.0	17/5.5
Don't idle motor	19/4.2	16/3.1	13/4.2	29/9.3
Avoid use of charcoal lighter fluid	16/3.5	27/5.3	15/4.8	25/8.0
Don't use aerosols	9/2.0	16/3.1	9/2.9	16/5.1
Don't use boat	7/1.5	15/2.9	11/3.5	2/6
Drive smoothly	4/0.9	7/1.4	4/1.3	1/3
Make sure gas cap is tightly sealed	3/0.7	8/1.6	4/1.3	3/1.0
Avoid drive-thru service	3/0.7	9/1.8	2/0.6	3/1.0
Keep power equipment maintained	1/0.2	3/0.6	1/0.3	4/1.3
Avoid use of solvent-based paints	0/0.0	3/0.6	6/1.9	2/6
Avoid use of solvent-based cleaners	0/0.0	3/0.6	5/1.6	
Other	41/9.0	50/9.8	27/8.7	26/8.4
Stay inside	16/3.5			
No fires or outside cooking	7/1.5			
Don't know	19/4.2	32/6.3	20/6.4	21/6.8
Refused	1/0.2			

Note: Respondents could provide more than one response, so totals exceed 100%.

Table 16a

<b>Number of Voluntary Actions Familiar With, by Awareness of OAD 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
None	19/4.2%	6/3.4%	13/4.6%
1	40/8.8	9/5.1	31/11.1
2	154/33.7	43/24.3	111/39.6
3	141/30.9	67/37.9	74/26.4
4	71/15.5	36/20.3	35/12.5
5 or more	32/7.1	16/9.1	16/5.7
Mean	2.69	3.00	2.50

\* “Very Aware” group statistically significantly different from “Somewhat Aware” group,  $\chi^2 = 23.289$ ,  $p < .001$ . This analysis does not include don’t know or refused responses.

Table 16b

<b>Number of Voluntary Actions Familiar With, by Awareness of OAD Mean Number of Familiar Voluntary Actions by Survey (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Mean	2.69	3.00	2.50
2003 Mean	2.65	2.96	2.47
2001 Mean	2.68	2.91	2.53
1998 Mean	2.21	2.87	1.97



Table 17a

<b>Number of Years Respondent has been Aware of Ozone Action! Days, by Awareness of OAD 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
0	1/0.2	1/0.6	0/0.0
1	6/1.3	1/0.6	5/1.8
2	20/4.4	2/1.1	18/6.4
3	31/6.8	9/5.1	22/7.9
4	25/5.5	12/6.8	13/4.6
5	80/17.5	31/17.5	49/17.5
6	14/3.1	6/3.4	8/2.9
7	14/3.1	8/4.5	6/2.1
8	16/3.5	8/4.5	8/2.9
9	5/1.1	2/1.1	3/1.1
10	95/20.8	32/18.1	63/22.5
11	1/0.2	1/0.6	0/0.0
12 (Actual number of years Ozone Action! Days have been in existence)	3/0.7	1/0.6	2/0.7
13	2/0.4	2/1.1	0/0.0
14	1/0.2	0/0.0	1/0.4
15	38/8.3	19/10.7	19/6.8
16	2/0.4	1/0.6	1/0.4
17	1/0.2	0/0.0	1/0.4
18	2/0.4	2/1.1	0/0.0
20	28/6.1	8/4.5	20/7.1
Over 20	25/5.5	17/9.6	8/2.9
Don't know	46/10.1	14/7.9	32/11.4
Refused	1/0.2	0/0.0	1/0.4

Table 17b

<b>Number of Years Respondent has been Aware of Ozone Action! Days Total Results by Survey (Frequency/Percent)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
0	1/0.2	3/0.6%	—	—
1	6/1.3	4/0.8	11/3.6%	18/5.8%
2	20/4.4	41/8.1	30/9.7	56/18.0
3	31/6.8	45/8.9	37/12.0	49/15.8
4 (1998—Actual number of years Ozone Action! Days have been in existence)	25/5.5	42/8.3	23/7.4	29/9.3
5	80/17.5	91/18.0	64/20.7	54/17.4
6	14/3.1	22/4.3	14/4.5	7/2.3
7 (2001—Number of OAD years)	14/3.1	8/1.6	11/3.6	10/3.2
8	16/3.5	14/2.8	7/2.3	10/3.2
9 (2003—Number of OAD years)	5/1.1	3/0.6	2/0.6	3/1.0
10	95/20.8	95/18.8	49/15.9	26/8.4
Over 10	—	—	39/12.6	32/10.3
11	1/0.2	2/0.3	—	—
Over 11	—	73/14.5	—	—
12 (2006—Number of OAD years)	3/0.7	—	—	—
13	2/0.4	—	—	—
14	1/0.2	—	—	—
15	38/8.3	—	—	—
16	2/0.4	—	—	—
17	1/0.2	—	—	—
18	2/0.4	—	—	—
20	28/6.1	—	—	—
Over 20	25/5.5	—	—	—
Don't know	46/10.1	63/12.5	22/7.1	—
Refused	1/0.2	—	—	—

Table 18

<b>Frequency of Engaging in Voluntary Actions During Ozone Action!                      Days During the Past Summer, by Awareness Level                      2006 Results and Means by Survey                      (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Some- what Aware</b>
All or almost all Ozone Action! Days (1)	128/29.6%	70/41.2%	58/22.1%
Most of the Ozone Action! Days (2)	144/33.3	63/37.1	81/30.8
Some of the Ozone Action! Days (3)	93/20.4	20/11.8	73/27.8
None or almost none of the Ozone Action! Days (4)	68/14.9	17/10.0	51/19.4
2006 Mean**	2.23	1.91	2.44
2003 Mean**	2.01	1.71	2.18
2001 Mean**	2.01	1.64	2.28

New question for 2001 survey.

\*\* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the  $p < .05$  level in 2001 and 2003, and the difference is highly statistically significant in 2006 ( $\chi^2 = 32.085$ ,  $p < .001$ ).

Table 19a

<b>Reasons You or People You Know Were Not Able to Take Voluntary Actions During All Ozone Action! Days, by Awareness Level 2006 Results* (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Not convenient	212/46.4%	87/49.2%	125/44.6%
Didn't know it was an Ozone Action Day	85/18.6	25/14.1	60/21.4
Don't care	40/8.8	21/11.9	19/6.8
Had to work	20/4.4	9/5.1	11/3.9
Don't agree with it	16/3.5	8/4.5	8/2.9
Not a problem	12/2.6	6/3.4	6/2.1
Car needed gas	10/2.2	5/2.8	5/1.8
One person's actions don't make a difference	6/1.3	2/1.1	4/1.4
Other	33/7.2	15/8.5	18/6.4
Don't know/Can't remember	87/19.0	32/18.1	55/6.4

Table 19b

<b>Reasons You or People You Know Were Not Able to Take Voluntary Actions During All Ozone Action! Days Total Results by Survey (Frequency/Percent)</b>			
	<b>2006</b>	<b>2003</b>	<b>2001</b>
Not convenient	212/46.4%	135/49.8%	72/44.7%
Didn't know it was an Ozone Action Day*	85/18.6	46/17.1	*
Don't care	40/8.8	29/10.8	9/5.6
Had to work **	20/4.4	**	**
Don't agree with it	16/3.5	11/4.1	2/1.2
Not a problem	12/2.6	10/3.7	7/4.3
One person's actions don't make a difference	6/1.3	5/1.9	3/1.9
Other	33/7.2	38/14.1	47/29.2
Don't know/Can't remember	87/19.0	36/13.4	48/29.8
Car needed gas **	10/2.2	**	**

\*Option added in the 2003 table. \*\*Option added in the 2006 table.

Note: Respondents could give multiple responses to this question, so percentages exceed 100%.

Question was changed in 2001, so cannot compare to 1998 survey.

Table 20a

<b>Number of Reasons Given for Not Taking Action, by Awareness Level</b> <b>2006 Results</b> <b>(Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
0	75/16.4%	27/15.3%	48/17.1%
1	335/73.3	127/71.8	208/74.3
2	42/9.2	18/10.2	24/8.6
3	5/1.1	5/2.8	0/0.0
Mean	0.95	1.00	0.91

Table 20b

<b>Number of Reasons Given for Not Taking Action</b> <b>Total Results by Survey</b> <b>(Frequency/Percent)</b>			
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>
0	75/16.4%	32/11.9%	37/23.0%
1	335/73.3	205/76.2	113/70.2
2	42/9.2	27/10.0	11/6.8
3	5/1.1	5/1.9	—
Mean	0.95	1.02	0.84

Table 21a

<b>Reasons for Participation in Ozone Action! Days, by Awareness 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Environmental-related issues	344/75.3%	132/74.6%	212/75.7%
General health reasons	78/17.1	37/20.9	41/14.6
Concern for children	24/5.3	9/5.1	15/5.4
Health reasons related to respiratory tract	32/7.0	16/9.0	16/5.7
Avoid regulatory measures	3/0.7	0/0.0	3/1.1
Concern for elderly	7/1.5	3/1.7	4/1.4
Other reasons	45/9.8	26/14.7	19/6.8

Note: Respondents were able to provide more than one response so totals exceed 100%.

Table 21b

<b>Reasons for Participation in Ozone Action! Days Total Results by Survey (Frequency/Percent)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
Environmental-related issues	344/75.3%	319/67.0%	192/65.5%	163/52.4%
General health reasons	78/17.1	55/11.6	31/10.6	40/12.9
Concern for children	24/5.3	29/6.1	24/8.2	48/15.4
Health reasons related to respiratory tract	32/7.0	38/8.0	18/6.1	23/7.4
Avoid regulatory measures	3/0.7	7/1.5	16/5.5	1/3
Concern for elderly	7/1.5	8/1.7	8/2.7	2/6
Other reasons	45/9.8	76/16.0	63/21.5	74/23.8

Table 22a

<b>Number of Reasons for Participating Given, by Awareness Level 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
None	29/6.3%	8/4.5%	21/7.5%
1	334/73.1	123/69.5	211/75.4
2	84/18.4%	39/22.0	45/16.1
3 or more	10/2.2	7/4.0	3/1.1
2006 Mean	1.17	1.26	1.11

Table 22b

<b>Number of Reasons for Participating Given, by Awareness Level Means by Survey (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
2006 Mean	1.17	1.26	1.11
2003 Mean	1.12	1.26	1.03
2001 Mean	1.12	1.22	1.06
1998 Mean	1.12	1.28	1.07

Table 23a

<b>Willingness to Participate in Ozone Action! Days If Respondent Knew What No-Cost or Low-Cost Actions to Take, by Awareness Level 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Very willing (1)	3/23.1%	0/0.0%	3/33.3%
Somewhat willing (2)	5/38.5	1/25.0	4/44.4
Neutral (3)	3/23.1	2/50.0	1/11.1
Somewhat unwilling (4)	1/7.7	1/25.0	0/0.0
Very unwilling (5)	1/7.7	0/0.0	1/11.1
Mean	2.38	3.00	2.11

Table 23b

<b>Willingness to Participate in Ozone Action! Days If Respondent Knew What No-Cost or Low-Cost Actions to Take Total Results by Survey (Frequency/Percent)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
Very willing (1)	3/23.1%	5/16.7%	6/33.3%	3/17.6%
Somewhat willing (2)	5/38.5	8/26.7	8/44.4	17/41.2
Neutral (3)	3/23.1	6/20.0	1/5.6	1/5.9
Somewhat unwilling (4)	1/7.7	3/10.0	0/0.0	2/11.8
Very unwilling (5)	1/7.7	8/26.7	3/16.7	4/23.5
Mean	2.38	3.03	2.22	2.52

Note: Asked only of those respondents who did not identify a specific voluntary action to take during Ozone Action! days.



Table 24a

<b>Where Respondents Receive Information About Ozone Action! Days, by Awareness Level, 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Local television news	350/76.6%	140/79.1%	210/75.0%
Local radio	147/32.2	61/34.5	86/30.7
Local newspapers	112/24.5	42/23.7	70/25.0
School	15/3.3	8/4.5	7/2.5
Work	8/1.8	5/2.8	3/1.1
Word of mouth	10/2.2	9/5.1	1/0.4
Public service announcements	4/0.9	2/1.1	2/0.7
West Michigan Clean Air Coalition website	3/0.7	1/0.6	2/0.7
Display booth	3/0.7	2/1.1	1/0.4
Telephone hotline	0/0.0	0/0.0	0/0.0
Other	30/6.6	16/9.0	14/5.0

Table 24b

<b>Where Respondents Receive Information About Ozone Action! Days, Total Results by Survey (Frequency/Percent)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
Local television news	350/76.6%	372/73.2%	219/70.0%	205/65.9%
Local radio	147/32.2	211/41.5	125/39.9	115/37.0
Local newspapers	112/24.5	106/20.9	92/29.4	106/34.1
School	15/3.3	10/2.0	9/2.9	18/5.8
Work	8/1.8	17/3.3	8/2.6	7/2.3
Word of mouth	10/2.2	10/2.0	7/2.2	11/3.5
Public service announcements	4/0.9	8/1.6	3/1.0	5/1.6
West MI Clean Air Coalition website	3/0.7	1/0.2	1/0.3	—
Display booth	3/0.7	1/0.2	0/0.0	1/3
Telephone hotline	0/0.0	1/0.2	0/0.0	—
Other	30/6.6	42/8.3	16/5.1	20/6.4

Note: Respondents were able to provide more than one response so totals sum to more than 100%.

Table 25a

<b>How Do You Learn That an Ozone Action! Day Has Been Called, by Awareness Level 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Local television news	336/73.5%	138/78.0%	198/70.7%
Local radio	162/35.4	69/39.0	93/33.2
Local newspapers	66/14.4	21/11.9	45/16.1
Word of mouth	16/3.5	5/2.8	11/3.9
Internet	10/2.2	4/2.3	6/2.1
Electronic highway sign	9/2.0	5/2.8	4/1.4
Work	3/0.7	0/0.0	3/1.1
Telephone hotline	0/0.00	0/0.0	0/0.0
Other	11/2.4	5/2.8	6/2.1

Table 25b

<b>How Do You Learn That an Ozone Action! Day Has Been Called Total Results by Survey (Frequency/Percent)</b>				
	<b>2006 Total</b>	<b>2003 Total</b>	<b>2001 Total</b>	<b>1998 Total</b>
Local television news	336/73.5%	353/69.5%	197/62.9%	191/61.4%
Local radio	162/35.4	231/45.5	82/26.2	123/40.0
Local newspapers	66/14.4	74/14.6	113/36.1	93/29.9
Word of mouth	16/3.5	14/2.8	29/9.3	9/2.9
Internet	10/2.2	9/1.8	5/2.0	1/0.3
Electronic highway sign	9/2.0	12/2.4	—	—
Work	3/0.7	6/1.2	3/1.0	5/1.6
Telephone hotline	0/0.00	1/0.2	4/1.3	1/0.3
Other	11/2.4	11/2.2	—	17/5.5

Table 26a

<b>When Do You Hear it is an Ozone Action! Day, by Awareness Level 2006 Results (Frequency/Percent)</b>			
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>
Day before	120/27.5%	50/28.7%	70/26.7%
Morning of	294/67.4	118/67.8	176/67.2
Evening of	22/5.0	6/3.4	16/6.1

Table 26b

<b>When Do You Hear it is an Ozone Action! Day Total Results by Survey (Frequency/Percent)</b>			
	<b>Day Before</b>	<b>Morning Of</b>	<b>Evening Of</b>
2006 Total	120/27.5%	294/67.4%	22/5.0%
2003 Total	121/24.7	340/69.5	28/5.7
2001 Total	84/28.1	201/67.2	14/4.7
1998 Total	87/28.0	172/55.3	20/6.4

Table 27a

<b>Respondents' Perception of Air Pollution Problem in Their Community, by Awareness of OAD 2006 Results** (Frequency/Percent)</b>				
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>	<b>Not at All Aware</b>
Major problem (1)	101/20.0%	41/23.6%	50/18.4%	10/16.7%
Minor problem (2)	341/67.4	117/67.2	191/70.2	33/55.0
Not a problem (3)	64/12.6	16/9.2	31/11.4	17/28.3
Don't know*	12/2.3	3/1.7	5/1.8	4/6.3
Column Total	518	177	277	64
Mean	1.93	1.86	1.93	2.12

\* Don't Know is not part of mean calculation. Percent is of the Total Sample.

\*\* The differences between the three groups are highly statistically significant,  $\chi^2 = 17.135$ ,  $p < .01$

Table 27b

<b>Respondents' Perception of Air Pollution Problem in Their Community, by Awareness of OAD Means* by Survey (Frequency/Percent)</b>				
	<b>Total</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>	<b>Not at All Aware</b>
2006 Mean	1.93	1.86	1.93	2.12
2003 Mean	1.97	1.86	1.98	2.17
2001 Mean	1.95	1.89	1.88	2.19
1998 Mean	1.90	1.78	1.88	2.07

\* Mean calculation based on three-point scale:

Major problem = 1, Minor problem = 2, Not a problem = 3.

Table 28a

<b>Respondents' Perception of Ground-Level Ozone Problem in Their Community, by Awareness of OAD 2006 Results (Frequency/Percent)</b>				
	<b>Total Sample</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>	<b>Not at All Aware</b>
Major problem (1)	65/18.4%	27/21.8%	31/16.4%	7/17.1%
Minor problem (2)	224/63.3	78/62.9	123/65.1	23/56.1
Not a problem (3)	65/18.4	19/15.3	35/18.5	11/26.8
Don't know*	164/31.7	53/29.9	88/31.8	23/35.9
Column Total	518	177	277	64
Mean	2.00	1.94	2.02	2.10

\* Don't Know is not part of mean calculation. Percent is of the Total Sample.

Table 28b

<b>Respondents' Perception of Ground-Level Ozone Problem in Their Community, by Awareness of OAD Means* by Survey (Frequency/Percent)</b>				
	<b>Total Sample</b>	<b>Very Aware</b>	<b>Somewhat Aware</b>	<b>Not at All Aware</b>
2006 Mean	2.00	1.94	2.02	2.10
2003 Mean	2.02	1.97	1.98	2.35
2001 Mean	1.99	1.91	1.96	2.17
1998 Mean	2.08	1.83	2.02	2.50

\* Mean calculation based on three-point scale:  
Major problem = 1, Minor problem = 2, Not a problem = 3.

Table 29a

<b>Respondents' Perception of Air Pollution Problem in Their Community, by County 2006 Results (Frequency/Percent)</b>				
	<b>Total</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Ottawa</b>
Major problem (1)	101/20.0%	54/19.3%	21/27.6%	26/17.3%
Minor problem (2)	341/67.4	187/66.8	47/61.8	107/71.3
Not a problem (3)	64/12.6	39/13.9	8/10.5	17/11.3
Don't know*	12/2.3	6/2.1	5/6.2	1/8.3
Column Total	518	286	81	151
Mean	1.93	1.95	1.83	1.94

\* Don't Know is not part of mean calculation. Percent is of the Total Sample.

Table 29b

<b>Respondents' Perception of Air Pollution Problem in Their Community, by County Means by Survey (Frequency/Percent)</b>				
	<b>Total</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Ottawa</b>
2006 Mean	1.93	1.95	1.83	1.94
2003 Mean	1.97	1.97	1.85	2.04
2001 Mean	1.95	1.95	1.81	2.00
1998 Mean	1.90	1.90	1.79	2.00

Table 30a

<b>Respondents' Perception of Ground-Level Ozone Problem in Their Community, by County 2006 Results (Frequency/Percent)</b>				
	<b>Total</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Ottawa</b>
Major problem	65/18.4%	33/16.7%	14/26.4%	18/17.5%
Minor problem	224/63.3	130/65.7	29/54.7	65/63.1
Not a problem	65/18.4	35/17.7	10/18.9	20/19.4
Don't know*	164/31.7	88/30.8	28/34.6	4/31.8
Column Total	518	286	81	151
Mean	2.00	2.01	1.92	2.02

\* Don't Know is not part of mean calculation. Percent is of the Total Sample.

Table 30b

<b>Respondents' Perception of Ground-Level Ozone Problem in Their Community, by County Means by Survey (Frequency/Percent)</b>				
	<b>Total</b>	<b>Kent</b>	<b>Muskegon</b>	<b>Ottawa</b>
2006 Mean	2.00	2.01	1.92	2.02
2003 Mean	2.02	2.02	1.92	2.08
2001 Mean	1.99	1.93	2.00	2.08
1998 Mean	2.08	2.03	2.08	2.22

## Appendix A

*In your own words, what is an Ozone Action Day? (Other response)*

- a waste of time
- a way to keep from depleting the ozone layer
- day when you're trying to preserve ozone
- day when you shouldn't use things that are going to harm the ozone
- days when the atmosphere is such that they prefer that we don't contribute anymore to the deterioration of the ozone layer
- do not use gasoline
- don't cook, try to carpool
- elderly and asthmatic should not go outside
- environmentally harmful
- harmful to environment--lower and upper atmosphere reach high temperatures
- health risk for breathing
- high humidity
- how earth's crust gets burned up in the ozone layer
- I have chronic asthma, so it's a day to hide indoors.
- low cloud cover, weather/clouds holds things in place
- no pumping gas, smoking or mowing the lawn before PM
- not much
- ozone layer is weakest these days
- restrictions on circulation
- sun more damaging
- temperature, hot in the summer and car pool
- the air is not moving - everything is stagnant
- the day that the sky over polluted, you can tell when this is going to happen by the sky and that is hot!
- trouble breathing
- using small gas engines and not till after dark
- UV rays getting too "ugly"
- when air is heavy and doesn't get a chance to circulate
- When the ozone has holes in it
- when there is ozone in the air



## Appendix B

*The West Michigan Clean Air Coalition suggests a number of voluntary actions citizens can take on Ozone Action Days. Please tell me which actions you are familiar with.*  
(Other response)

- don't burn anything/no outdoor fires (6)
- don't run the air conditioner (4)
- driving down to a minimum/unless necessary (4)
- air conditioner (2)
- do not go outside/stay inside (2)
- don't be outside if you have respiratory problems (2)
- don't run/over-run air-conditioning much (2)
- stay out of sun (2)
- use sunscreen/skin protection (2)
- a little more education
- and don't breathe (laughs)
- anything that will produce carbon monoxide or using fossil fuels
- cut down on electricity use
- don't drive go-karts
- don't put pollutants in the air
- don't run extra water or water the lawn
- I really try to use my head about going indoors and taking trips on those days
- keep exhaust and extra emissions going into the atmosphere to a minimum
- keep your windows closed
- maintain your car
- maybe not watering the lawn too much
- restrict water usage
- safety of elderly
- tell the people in Wisconsin and Chicago to keep their pollution there
- walk
- wear sun block and stay in the shade

## Appendix C

*What are the primary reasons you or people you know were not able to take voluntary actions during all of the Ozone Action Days? (Other response)*

- certain time that things have to be done
- chose not to
- comfort, necessity
- denial
- did not know ahead of time and needed gas to get to work that morning
- doesn't cut grass or put gas in car, she is too old to mow and drive
- during work day
- forget about it/slips your mind
- forgot about it
- forgot and didn't pay attention
- go on vacation
- golfing
- had to drive to work
- had to mow
- I don't really contribute to the ozone problem, I think--so I can't do anything
- I just stay inside
- I totally ignore it, I think it's a waste of time
- I'm in poor health, paraplegic and I don't do much
- isn't responsible for cutting grass or filling the car with gas
- job requires to drive
- just driving--I had prior commitments those days
- lazy
- mow grass for a living
- my husband was cutting the grass
- necessity (2)
- need gas
- no lawn
- no newspaper
- not a lot I can do, I live in an apartment and only drive to work
- not enough time to plan ahead (as far as getting gas goes) also has lawn service and has no control over it
- not thinking about it
- restricting fundamental freedoms, asking to change behavior to push an agenda
- sales people or landscaping companies
- schedule and time constraints
- travel for distance, have to drive
- was not around

## Appendix D

*There are a number of reasons why citizens participate in Ozone Action Days. What are the main reasons for taking action? (Other response)*

- too hot (4)
- coincidence (3)
- asthma (2)
- because they tell you to (2)
- don't drive (2)
- makes sense (2)
- thinks its the right thing to do (2)
- too hot to do any thing (2)
- all have to work together to work.
- convenient that day
- do what you can to help the problem
- doing my part
- don't cut the grass and don't work
- don't drive car, mow lawn
- don't want vehicle emission inspections--just want to stay at EPA regulated levels
- earth is clean
- end up paying for it in the end
- good excuse not to mow the lawn
- guilty, want to help atmosphere
- hot and doesn't want to add to the pollution
- husband was in charge of it
- I care about the future
- I didn't have to do anything that messed up the ozone those days anyway
- I don't want to mess anything up with the ozone
- I thought that one person can make a difference
- I try to be aware and help
- it's an easy enough thing to do
- it's convenient
- it's the right thing to do
- it's the smart thing to do, and it's easy, too. We NEED clean air!
- just because I know it's not good
- just trying to do the right thing
- laid back and can do it
- laws will be made
- live on the lake
- lived in a condo
- my duty
- no main reason

- not home during day
- preventive measure
- protect ozone layer
- protect us, plants trees
- running equipment outside
- skin cancer
- slowing down in the heat and humidity
- something that I can do and it does not require a lot of hard work
- something that needs to happen
- that's what they want, so it will fix the ozone layer
- the fumes in the air and the hole in the ozone layer
- the trees to breath the air and the oxygen
- they ask us to do it
- to be a good citizen and to try to preserve our Earth
- try to do her part to not make the air worse
- trying to help out, I know it's good to do
- well, I don't get out of work until late anyway, so I naturally wait to mow the lawn until evening

## Appendix E

*Where have you received information about Ozone Action Days? (Other response)*

### Internet/Other Media

- Internet (4)
- environmental magazines
- every source of media available--Internet especially
- mail
- Newsweek
- reading different things
- Weather Channel

### People

- Allergist
- doctor warned me.
- husband
- my brother-in-law who does ozone studies in Alaska
- through talk
- word of mouth

### Organizations

- Atlanta Lawn Association
- church
- church publications
- city of Holland environmental board
- city smoke inspector
- government
- science community
- Sierra Club

### Billboards/Highway Signs

- billboard on the side of the road
- expressway
- highway signs that light up
- that fancy little billboard that lights up on the US-31 highway both ways (2)
- the billboard on the S-curve mentioned it once
- the S-curve sign

### Other Comments

- doesn't know about ozone action days
- never received any info before
- thinks it is crazy to have to worry about

## Appendix F

v23 – When an Ozone Action Day has been called, how do you learn that it has been called? (Other response)

- customers
- highway signs
- husband
- she is aware considering the atmospheric conditions
- Weather reports--in the AM I turn on the Weather Channel.
- Word of mouth

Q:v1

Hello, I'm \_\_\_\_\_ from the Frost Research Center at Hope College. On behalf of the West Michigan Clean Air Coalition, we are conducting a survey about Ozone Action Days. The survey only takes 3-4 minutes to complete. Your phone number has been randomly selected. All of your answers will be anonymous and confidential. Would you be willing to answer a few questions about Ozone Action Days?

Are you at least 18 years of age?

(If no, ask if someone age 18 or older is present who could take the survey.)

In which county do you currently live?

1=Kent County

2=Muskegon County

3=Ottawa County

(If none of the above, thank person on the phone and move to the next number on your sheet. You may leave this screen up until you find a resident who will participate.)

Q:v3

How aware are you of Ozone Action Days?

1=very aware

2=somewhat aware

3=not at all aware

if (v3 > 2) skip v27

Q:v5

In your own words, what is an Ozone Action Day?

(Callers, let respondent provide answers. Do not read list to respondent. Mark all that apply.)

day when you undertake voluntary actions (don't mow, refuel after 6pm)

day when air pollution is high

day when it is unhealthy to be outdoors

hot, muggy, hazy days

exceedence of acceptable ozone levels

other: specify

don't know

move to next question

Q:v7

How many Ozone Action Days do you recall during the past summer (2006)?

(type in number given and press "enter") (88=don't know, 99=refused)

Q:v9

The West Michigan Clean Air Coalition suggests a number of voluntary actions citizens can take on Ozone Action Days. Please tell me which actions you are familiar with.  
(Select all that apply. Do not read list to respondent)

don't refuel/refuel after 6pm	gas cap tightly sealed
don't top off/overfill gas tank	avoid charcoal lighter fluid
don't mow grass	avoid solvent-based paints
carpool	avoid solvent-based cleaners
take a bus	combine car trips
bike	avoid drive-thru service
don't use aerosols	drive smoothly
don't use gas powered equipment	other: specify
don't use boat	don't know
don't idle motor	refused
keep equipment well maintained	

if (v9 = 20) skip v13

Q:v11

Considering all Ozone Action Days this summer, how frequently did you engage in voluntary actions suggested by the Ozone Action Days program?

1=all or almost all of the Ozone Action Days  
2=most of the Ozone Action Days  
3=some of the Ozone Action Days  
4=none or almost none of the Ozone Action Days

8=don't know  
9=refused

Q:v13

What are the primary reasons you or people you know were not able to take voluntary actions during all of the Ozone Action Days?

(Select all that apply. Do not read list to respondent.)

not convenient  
don't agree with it  
not a problem  
believe that one person's actions don't make a difference  
don't care  
wasn't aware of OAD  
don't know  
other: specify  
move to next question



Q:v15

There are a number of reasons why citizens participate in Ozone Action Days. What are the main reasons for taking action?

(Select all that apply. Do not read list to respondent.)

general health reasons

health reasons related to respiratory tract

concern for children

concern for elderly

environmental-related issues

avoid regulatory measures

other: specify

don't know/not applicable/do not participate

move to next question

if (v9 <> 20) skip v19

Q:v17

How willing would you be to participate if you knew what no-cost or low-cost actions to take?

1=very willing

2=somewhat willing

3=neutral

4=somewhat unwilling

5=very unwilling

8=don't know

9=refused

Q:v19

For how many years have you been aware of Ozone Action Days?

(type in number given and press "enter")

(88=don't know, 99=refused)

Q:v21

Where have you received information about Ozone Action Days?

(Select all that apply. Do not read list to respondent.)

work

school

word of mouth

local television news

local newspapers

local radio

West Michigan Clean Air Coalition website

public service announcement

display booth  
telephone hotline  
other: specify  
don't know  
move to next question

Q:v23

When an Ozone Action Day has been called, how do you learn that it has been called?  
(Select all that apply. Do not read list to respondent.)

word of mouth  
local television news  
local newspapers  
local radio  
electronic highway sign  
work  
internet  
telephone hotline  
other: specify  
don't know  
move to next question

Q:v25

When do you hear it is an Ozone Action Day?

1=day before  
2=morning of  
3=evening of

8=don't know  
9=refused

Q:v27

How many years have you lived in West Michigan?  
(1=1 year or less, 888=don't know, 999=refused)

if (v1 = 1) skip v29  
if (v1 = 2) skip v31  
if (v1 = 3) skip v33

Q:v29

In which city or township do you live?

- |                                  |                        |
|----------------------------------|------------------------|
| 1=Ada Township                   | 17=Kentwood City       |
| 2=Algoma Township                | 18=Lowell City         |
| 3=Alpine Township                | 19=Lowell Township     |
| 4=Bowne Township                 | 20=Nelson Township     |
| 5=Byron Township                 | 21=Oakfield Township   |
| 6=Caledonia Township             | 22=Plainfield Township |
| 7=Cannon Township                | 23=Rockford City       |
| 8=Cascade Township               | 24=Solon Township      |
| 9=Cedar Springs City             | 25=Sparta Township     |
| 10=Courtland Township            | 26=Spencer Township    |
| 11=East Grand Rapids City        | 27=Tyrone Township     |
| 12=Gaines Township               | 28=Vergennes Township  |
| 13=Grand Rapids City             | 29=Walker City         |
| 14=Grand Rapids Charter Township | 30=Wyoming City        |
| 15=Grandville City               | 31=other: specify      |
| 16=Grattan Township              | 32=don't know          |
|                                  | 33=refused             |

if (v29 > 0) skip v35

Q:v31

In which city or township do you live?

- |                        |                          |
|------------------------|--------------------------|
| 1=Blue Lake Township   | 14=Muskegon Township     |
| 2=Casnovia Township    | 15=Muskegon Heights City |
| 3=Cedar Creek Township | 16=North Muskegon City   |
| 4=Dalton Township      | 17=Norton Shores City    |
| 5=Egelston Township    | 18=Ravenna Township      |
| 6=Fruitland Township   | 19=Roosevelt Park City   |
| 7=Fruitport Township   | 20=Sullivan Township     |
| 8=Holton Township      | 21=Whitehall City        |
| 9=Laketon Township     | 22=Whitehall Township    |
| 10=Montague City       | 23=White River Township  |
| 11=Montague Township   | 24=other: specify        |
| 12=Moorland Township   | 25=don't know            |
| 13=Muskegon City       | 26=refused               |

if (v31 > 0) skip v35

Q:v33

In which city or township do you live?

(Callers: Please place Jenison in Georgetown Township)

- |                                 |                          |
|---------------------------------|--------------------------|
| 1=Allendale Township            | 14=Olive Township        |
| 2=Blendon Township              | 15=Park Township         |
| 3=Chester Township              | 16=Polkton Township      |
| 4=Coopersville City             | 17=Port Sheldon Township |
| 5=Crockery Township             | 18=Robinson Township     |
| 6=Ferrysburg City               | 19=Spring Lake Township  |
| 7=Georgetown Township (Jenison) | 20=Tallmadge Township    |
| 8=Grand Haven City              | 21=Wright Township       |
| 9=Grand Haven Township          | 22=Zeeland City          |
| 10=Holland City                 | 23=Zeeland Township      |
| 11=Holland Township             | 24=other: specify        |
| 12=Hudsonville City             | 25=don't know            |
| 13=Jamestown Township           | 26=refused               |

Q:v35

How much of a problem do you think air pollution is in your community?

- 1=major problem
- 2=minor problem
- 3=not a problem

- 8=don't know
- 9=refused

Q:v37

How much of a problem do you think ground level ozone is in your community?

- 1=major problem
- 2=minor problem
- 3=not a problem

- 8=don't know
- 9=refused

Q:v39

What age range are you in?

- 1=18-24
- 2=25-34
- 3=35-44
- 4=45-54
- 5=55-64

6=65 and over

8=don't know

9=refused

Q:v41

What is the highest level of education you have completed?

1=less than high school

2=high school or GED

3=some college or technical school

4=technical or Associate degree

5=college degree

6=some graduate work

7=graduate degree

8=don't know

9=refused

Q:v43

What is your race or ethnicity?

1=African American

2=Asian American

3=Latino/Hispanic

4=American Indian/Native American

5=White

6=other: specify

8=don't know

9=refused

Q:v45

What is your annual household income?

1=under \$25,000

2=\$25,000-\$49,999

3=\$50,000-\$74,999

4=\$75,000 or more

8=don't know

9=refused

Q:v47

sex of respondent (callers, ask only if you DO NOT know)

1=female

2=male

Q:v49

Thank you for taking the time to complete this survey.

Have a nice evening.

(Caller: From the sheet, choose the area code of the number you called.)

1=231

2=616

Q:v50

Caller: PLEASE - CAREFULLY - enter the 7-digit phone number, with NO spaces or dashes.

I:

num 1000000 9999999