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

Prepared for the
West Michigan Clean Air Coalition

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EXECUTIVE SUMMARY

In the fall of 2003, the West Michigan Clean Air Coalition contracted with the Carl Frost Center for Social Science Research to conduct a telephone survey of Kent, Muskegon, and Ottawa County residents. The purpose of the survey was to assess respondents' awareness of Ozone Action! Days, respondents' knowledge of recommended actions to take on those days, the extent to which respondents engaged in those actions, and respondents' reasons for participating in Ozone Action! Days. The Frost Center completed a total of 597 surveys via telephone during September 2003. The survey instrument was similar to that used for the evaluation in 1998 and 2001.

Awareness of Ozone Action! Days

Respondents were asked to classify themselves as being very aware, somewhat aware, or not at all aware about Ozone Action! Days. Approximately one-third of residents (30.9%) indicated they were very aware. This was similar to 2001 (31.6%) and up noticeably from 1998, when only 19.8% indicated they were very aware. Slightly over half (54.5%) indicated they were somewhat aware. Only 14.5% indicated that they were not at all aware, which is down from 2001 (21.6%) and 1998 (24.9%). Most of the other questions in the survey were asked of those who reported they were either very aware or somewhat aware.

Knowledge Related to Ozone Action! Days

When asked to define Ozone Action! Days, the components of the definition most often identified by respondents were a day to take voluntary action (54.2%), a hot muggy day (31.2%), and a day when air pollution is high (23.1%). (These components were identified in advance. Since definitions could have more than one of these components, totals sum to more than 100%.) There were eight Ozone Action! Days called during 2003. A majority of respondents (70.4%) underestimated the actual number of days, only slightly more than the percentage of very-aware residents (67.4%). The percentage that underestimated was slightly larger in 2001 (76.5%) when there were actually twelve Ozone Action! Days, and in 2001 an even larger number of very-aware residents underestimated the number of days (80.2%).

Respondents were asked to identify any actions they could think of that were suggested on Ozone Action! Days. Interviewers from the Frost Research Center categorized these responses. As in the 2001 study, the most common categories of responses were don't mow grass (79.8%) and don't refuel/wait to refuel (78.6%).

Behaviors Related to Ozone Action! Days

Of those who indicated they could name at least one recommended activity/restraint on an Ozone Action! Day, 42.9% said they were engaged in voluntary actions on all or almost all of the Ozone Action! Days and another 26.1% indicated that they participated on most of the days. When residents were asked why they did not participate on an Ozone Action! Day, the main reason was that it was not convenient

(49.8%). When asked why they did choose to participate, the most common classification of reasons for participating was concern for the environment (67.0%).

Sources of Information Regarding Ozone Action! Days

Respondents reported that their main sources of general information about Ozone Action! Days were television news (73.2%), local radio (41.5%), and local newspapers (20.9%). This was true for receiving general information about Ozone Action! Days and also how they learned that an Ozone Action! Day had been called (69.5% for television, 45.5%for radio, 14.6% for newspapers). Most residents indicated that they learned that it was an Ozone Action! Day during the morning (69.5%), with most of the others (24.7%) learning of it the day before.

Profiles of Respondents by Different Levels of Awareness

We developed statistical profiles of the high (very aware) and low (not at all aware) levels of awareness of Ozone Action! Days. Specifically, we found that very-aware respondents were more likely to have a college degree or higher, an income of greater than $75,000 and were between 35 to 64 years old. Not-at-all aware respondents were more likely to be non-white,[1] have less than a college degree and an income of less than $75,000. The statistical difference between the two levels of awareness and gender was not significant.

[1] The non-white population was identified as the combined populations of African-American, Asian-American and Latino/Hispanic respondents. Statistical significance based on race/ethnicity is noted with caution due to the low numbers of non-white respondents (21) relative to the number of white respondents (245).

BACKGROUND

In the fall of 2003, the West Michigan Clean Air Coalition contracted with the Carl Frost Center for Social Science Research to conduct a telephone survey of Kent, Muskegon, and Ottawa County residents. The purpose of the survey was to assess 1) respondents' awareness of Ozone Action! Days, 2) knowledge of recommended actions respondents should take on those days, 3) the extent to which respondents engage in those actions, and 4) respondents' reasons for participating in Ozone Action! Days. This evaluation was similar to the evaluations conducted by the Frost Center for the West Michigan Clean Air Coalition in 1998 and 2001, with some of the same survey items used at those times. The Frost Center conducted calls during September 2003, near the end of the Ozone Action! season.

METHODS

A total of 597 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 to residents and described the project. They asked residents if they would be willing to take a few minutes and answer questions regarding Ozone Action! Days. Once they agreed to participate, residents were first asked if they lived in Kent, Muskegon, or Ottawa County. If residents 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 asked all of the questions of the respondent. However, residents 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. 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 ±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.[2]

[2] 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.

SURVEY INSTRUMENT

The survey instrument used in the 2003 evaluation was the same survey used in 2001, allowing for trends to be tracked over time. The telephone interview took approximately 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 they participate (if they do),
- their perceptions of air pollution and ground-level ozone problems in their community, and
- demographic information about the respondents.

As in the 1999 and 2001 reports, the questions regarding Ozone Action! Days were only asked of those who responded that they were "somewhat aware" or "very aware" (511 respondents) of Ozone Action! Days. Those who responded that they were "not at all aware" (87 respondents) were asked the questions regarding air pollution and ground-level ozone and the demographic information.

DATA ANALYSIS

The Frost Research Center used the software Ci3 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.

Where appropriate, we present the calculated means for such questions. Also where applicable, tables from the 2001 and 1998 reports are included for comparison. Frequencies are the number of respondents who gave specific answers to particular questions. The mean is the quantitative average response to the question. We also provide percentages of response alternatives when appropriate.

AWARENESS OF OZONE ACTION! DAYS

We asked respondents how aware they were of Ozone Action! Days. One-third (30.9%) reported they were very aware, more than half (54.5%) indicated they were somewhat aware, and 14.5% indicated they were not at all aware (Table 1a). The percentage of respondents who reported being very aware was very similar to 2001 (30.9% vs. 31.6%). The percentage who reported being somewhat aware increased by over seven percentage points and those who were not at all aware dropped by roughly the same amount since 2001. This suggests an increase in community-wide knowledge of Ozone Action! Days. Comparing 2003 to 1998 indicated an even more noticeable increase, with 30.9% today indicating that they were very aware compared to only 19.8% in 1998, and those who were not at all aware dropped from 24.9% in 1998 to 14.5% 2003. Respondents who were very aware or somewhat aware (511 respondents) answered a number of additional questions pertaining to Ozone Action! Days. We present this table first because this classification of very aware, somewhat aware, and not at all aware is used as a cross-tabulated variable in other parts of this report.

Table 1a

Respondents' Awareness of Ozone Action! Days "How Aware Are You of Ozone Action Days?" 2003 Results		
	Frequency	**Percent**
Very Aware	185	30.9%
Somewhat Aware	326	54.5
Not at All Aware	87	14.5

Table 1b

Respondents' Awareness of Ozone Action! Days 2001 Results		
	Frequency	**Percent**
Very Aware	126	31.6%
Somewhat Aware	187	46.9
Not at All Aware	86	21.6

Table 1c

Respondents' Awareness of Ozone Action! Days 1998 Results		
	Frequency	**Percent**
Very Aware	82	19.8%
Somewhat Aware	229	55.3
Not at All Aware	103	24.9

CHARACTERISTICS OF THE SAMPLE

Length of Residence

The average length of time that respondents in this sample had lived in West Michigan was 36.9 years. Over half of the respondents (60.1%) have lived in West Michigan for over 30 years (compared to 55.8% in 2001 and 48.3% in 1998), 28.1% have lived in West Michigan between 11 and 30 years, and 11.8% have lived in West Michigan for 10 years or less (Table 2a). Overall, those who have lived in West Michigan longer reported higher levels of awareness of Ozone Action! Days (Table 2b). The least informed are those who have lived in West Michigan five years or less (only 17.6% reported being very aware), compared to those who have lived in West Michigan 31-40 years (36.2%) or 41-50 years (37.3%).

Place of Residence

The majority of the sample (49.4%) were Kent County residents, 31.9% were Ottawa County residents and 18.6% were Muskegon County residents (Table 3a). These figures are consistent with 2000 Census information; overall population figures show that the tri-county area is comprised of 58.4% Kent, 24.1% Ottawa, and 17.5% Muskegon county. Tables 4a – 6a present cities and townships of the three counties in which the respondents live. Figures 1-3 present maps of each of the three counties with the survey locations indicated. Figure 4 shows all three counties together.

Age

Ages of respondents are presented in Table 7a. The distribution across age ranges is fairly even, although the largest age group (18-34) would be expected to have a larger frequency. Having younger residents underrepresented in surveys is not uncommon, and this distribution contains a better representation of younger residents than many telephone surveys. The youngest age group (18-34) and the oldest age group (65 and older) were the least informed of Ozone Action! Days (Table 7b). Only 16.9% of 18-34 year-olds reported being very aware of Ozone Action!. Similarly, only 12.0% of the 65-and-over group reported being very aware (compared to 28.8% from the 2001 survey). The 35-44 group reported the highest level of awareness, with 29.5% indicating that they were very aware.

Level of Education

Roughly the same percentage of respondents had either a high school degree (29.1%) or college degree (30.3%; Table 8a). The respondents with some college or technical school or higher were more likely to be aware of Ozone Action! Days (Table 8b). For example, 52.2% of those with a technical degree and 36.8% of those with a graduate degree reported being very aware compared to 0% of those with less than a high school education and 25.7% of those with a high school degree. The relationship of awareness and education is not directly linear, though, as evidenced by the fact that the percentage of awareness is higher for some college and for technical school than for college graduate. The distributions were similar to those found in 2001 (Table 8c). However in 2001 the percentage of very-aware respondents was higher among the less-then-high-school group (20.8% in 2001 vs.

0% in 2003), higher among the college-degree group (37.9% in 2001 vs. 30.7% in 2003), and lower in the technical-school group (35.6% in 2001 vs. 52.2% in 2003).

Ethnicity

The majority of the respondents (93.2%) in the sample are white, followed by 3.7% African American, 0.9% Hispanic, and 1.0% Asian American (Table 9a). Previous samples had almost identical racial/ethnic distributions (Table 9b – 9c). Based on three-county average percentages the majority of the total population is white (85.3%) followed by African-American (8.0%), Hispanic (5.8%) and Asian-American (1.5%).[3]

Annual Household Income

Over one-third (36.8%) chose not to answer this question (Table 10a). Of those who did answer, 27.3% have an annual household income between $25,000 and $50,000. There is a positive correlation between income and awareness, with 40.5% of the highest income group reporting they are very aware compared to 23.1% of the lowest income group (Table 10b). This relationship between income and wealth, however, was not present in the two previous surveys (Tables 10c – 10d).

Gender

Females represent 66.1% of the sample (Table 11a), slightly higher than the 61.5% from 2001. Females were slightly more likely than males to be very aware (32.7% vs.

[3] Quick Table-P3. Race and Hispanic or Latino: 2000 Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data

27.7%) of Ozone Action! Days. The gender gap was closer this year compared to 2001, when 35.0% of females and 26.1% of males reported being very aware. In 2001 and 1998, males were more likely to be not very aware (2001; 26.1% vs. 18.7% and 1998; 30.9% vs. 19.7%).

Table 2a

Number of Years Respondent Has Lived in West Michigan 2003 Results		
	Frequency	**Percent**
1-5	34	5.7%
6-10	36	6.1
11-20	55	9.3
21-30	111	18.8
31-40	117	19.8
41-50	102	17.2
Over 50	137	23.1
Total	592	100.0
Mean = 36.9 years		

Table 2b

Number of Years Respondent has Lived in West Michigan, by Awareness Level 2003 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
1-5 years	6/17.6%	23/67.6%	5/14.7%	1.97
6-10 years	10/27.8	19/52.8	7/19.4	1.92
11-20 years	15/27.3	34/61.8	6/10.9	1.84
21-30 years	30/27.0	65/58.6	16/14.4	1.87
31-40 years	42/36.2	59/50.9	15/12.9	1.77
41-50 years	38/37.3	53/52.0	11/10.8	1.74
Over 50 years	41/30.1	68/50.0	27/19.9	1.90
Column Frequency/%	182/30.8	321/54.4	87/14.7	

Table 2c

Number of Years Respondent has Lived in West Michigan, By Awareness Level 2001 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
1-5 years	9/23.7%	21/55.3%	8/21.1%	2.0
6-10 years	7/36.8	9/47.4	3/15.8	1.8
11-20 years	16/28.1	23/40.4	18/31.6	2.0
21-30 years	23/38.3	25/41.7	12/20.0	1.8
31-40 years	23/33.3	31/44.9	15/21.7	1.9
41-50 years	20/32.8	34/55.7	7/11.5	1.8
Over 50 years	26/29.2	41/46.1	22/24.7	2.0
Column Frequency/%	124/31.6	184/46.8	85/21.6	

Table 2d

Number of Years Respondent has Lived in West Michigan, by Awareness Level 1998 Results (Frequency/Percent)				
	Very Aware	**Somewhat Aware**	**Not at All Aware**	**Mean**
1-5 years	3/11.1%	18/66.7%	6/22.2%	2.1
6-10 years	9/30.0	12/40.0	9/30.0	2.0
11-20 years	5/9.6	29/55.8	18/34.6	2.3
21-30 years	8/9.4	61/71.8	16/18.8	2.1
31-40 years	20/26.6	47/62.7	8/10.7	1.8
41-50 years	12/25.5	26/55.3	9/19.1	1.9
Over 50 years	23/29.5	29/37.2	26/33.3	2.0
Column Frequency/%	80/19.3	222/53.6	92/22.2	

Table 3a

County of Residence 2003 Results		
	Frequency	**Percent**
Kent	297	49.4%
Muskegon	112	18.6
Ottawa	192	31.9
Total	603	100.0

Table 3b

County of Residence, by Awareness Level 2003 Results (Frequency/Percent)						
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**2003 Mean***	**2001 Mean***	**1999 Mean***
Kent County	89/30.3%	163/55.4%	42/14.3%	1.84	1.9	2.0
Muskegon County	28/25.0	68/60.7	16/14.3	1.89	2.3	2.3
Ottawa County	68/35.4	95/49.5	29/15.1	1.80	1.8	2.0
Column Frequency/%	185/30.9	326/54.5	87/14.5			

*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 "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 3c

County of Residence, by Awareness Level 2001 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Kent County	81/35.1%	103/44.6%	47/20.3%	1.9
Muskegon County	7/12.5	27/48.2	22/39.3	2.3
Ottawa County	38/33.9	57/50.9	17/15.2	1.8
Column Frequency/%	126/31.6	187/46.9	86/21.6	

Table 3d

County of Residence, by Awareness Level 1998 Results (Frequency/Percent)				
	Very Aware	**Somewhat Aware**	**Not at All Aware**	**Mean**
Kent County	57/24.2%	125/53.0%	54/22.9%	2.0
Muskegon County	10/11.9	43/51.2	31/36.9	2.3
Ottawa County	15/16.0	61/64.9	18/19.1	2.0
Column Frequency/%	82/19.8	229/55.3	103/24.9	

Table 4a

City or Township Respondent Lives In—Muskegon County 2003 Results		
	Frequency	**Percent**
Blue Lake Township	0	0.0%
Casnovia Township	0	0.0
Cedar Creek Township	3	2.7
Dalton Township	3	2.7
Egelston Township	3	2.7
Fruitland Township	8	7.1
Fruitport Township	5	4.5
Holton Township	0	0.0
Laketon Township	2	1.8
Montague City	1	0.9
Montague Township	2	1.8
Moorland Township	1	0.9
Muskegon City	42	37.5
Muskegon Township	14	12.5
Muskegon Heights City	1	0.9
North Muskegon City	4	3.6
Norton Shores City	13	11.6
Ravenna Township	1	0.9
Roosevelt Park City	0	0.0
Sullivan Township	0	0.0
Whitehall City	1	0.9
Whitehall Township	1	0.9
White River Township	1	0.9

Table 4b

City or Township Respondent Lives In—Muskegon County 2001 Results		
	Frequency	**Percent**
Blue Lake Township	0	0.0%
Casnovia Township	1	1.8
Cedar Creek Township	1	1.8
Dalton Township	0	0.0
Egelston Township	1	1.8
Fruitland Township	0	0.0
Fruitport Township	4	7.3
Holton Township	3	5.5
Laketon Township	3	5.5
Montague City	0	0.0
Montague Township	1	1.8
Moorland Township	0	0.0
Muskegon City	12	21.8
Muskegon Township	14	25.5
Muskegon Heights City	0	0.0
North Muskegon City	3	5.5
Norton Shores City	8	14.5
Ravenna Township	1	1.8
Roosevelt Park City	1	1.8
Sullivan Township	1	1.8
Whitehall City	1	1.8
Whitehall Township	0	0.0
White River Township	0	0.0

Table 5a

City or Township Respondent Lives In—Kent County 2003 Results		
	Frequency	**Percent**
Ada Township	9	3.0%
Algoma Township	6	2.0
Alpine Township	4	1.4
Bowne Township	3	1.0
Byron Township	15	5.1
Caledonia Township	4	1.4
Cannon Township	5	1.7
Cascade Township	8	2.7
Cedar Springs City	3	1.0
Courtland Township	1	0.3
East Grand Rapids City	7	2.4
Gaines Township	5	1.7
Grand Rapids City	89	30.1
Grand Rapids Charter Township	19	6.4
Grandville City	11	3.7
Grattan Township	2	0.7
Kentwood City	23	7.8
Lowell City	3	1.0
Lowell Township	3	1.0
Nelson Township	1	0.3
Oakfield Township	1	0.3
Plainfield Township	15	5.1
Rockford City	6	2.0
Solon Township	0	0.0
Sparta Township	3	1.0
Spencer Township	3	1.0
Tyrone Township	2	0.7
Vergennes Township	2	0.7
Walker City	10	3.4
Wyoming City	24	8.1

Table 5b

City or Township Respondent Lives In—Kent County 2001 Results		
	Frequency	**Percent**
Ada Township	12	5.2%
Algoma Township	2	0.9
Alpine Township	3	1.3
Bowne Township	1	0.4
Byron Township	10	4.4
Caledonia Township	4	1.7
Cannon Township	1	0.4
Cascade Township	4	1.7
Cedar Springs City	3	1.3
Courtland Township	4	1.7
East Grand Rapids City	2	0.9
Gaines Township	5	2.2
Grand Rapids City	77	33.6
Grand Rapids Charter Township	1	0.4
Grandville City	15	6.6
Grattan Township	0	0.0
Kentwood City	16	7.0
Lowell City	0	0.0
Lowell Township	2	0.9
Nelson Township	0	0.0
Oakfield Township	2	0.9
Plainfield Township	15	6.6
Rockford City	5	2.2
Solon Township	0	0.0
Sparta Township	6	2.6
Spencer Township	0	0.0
Tyrone Township	0	0.0
Vergennes Township	2	0.9
Walker City	8	3.5
Wyoming City	27	11.8

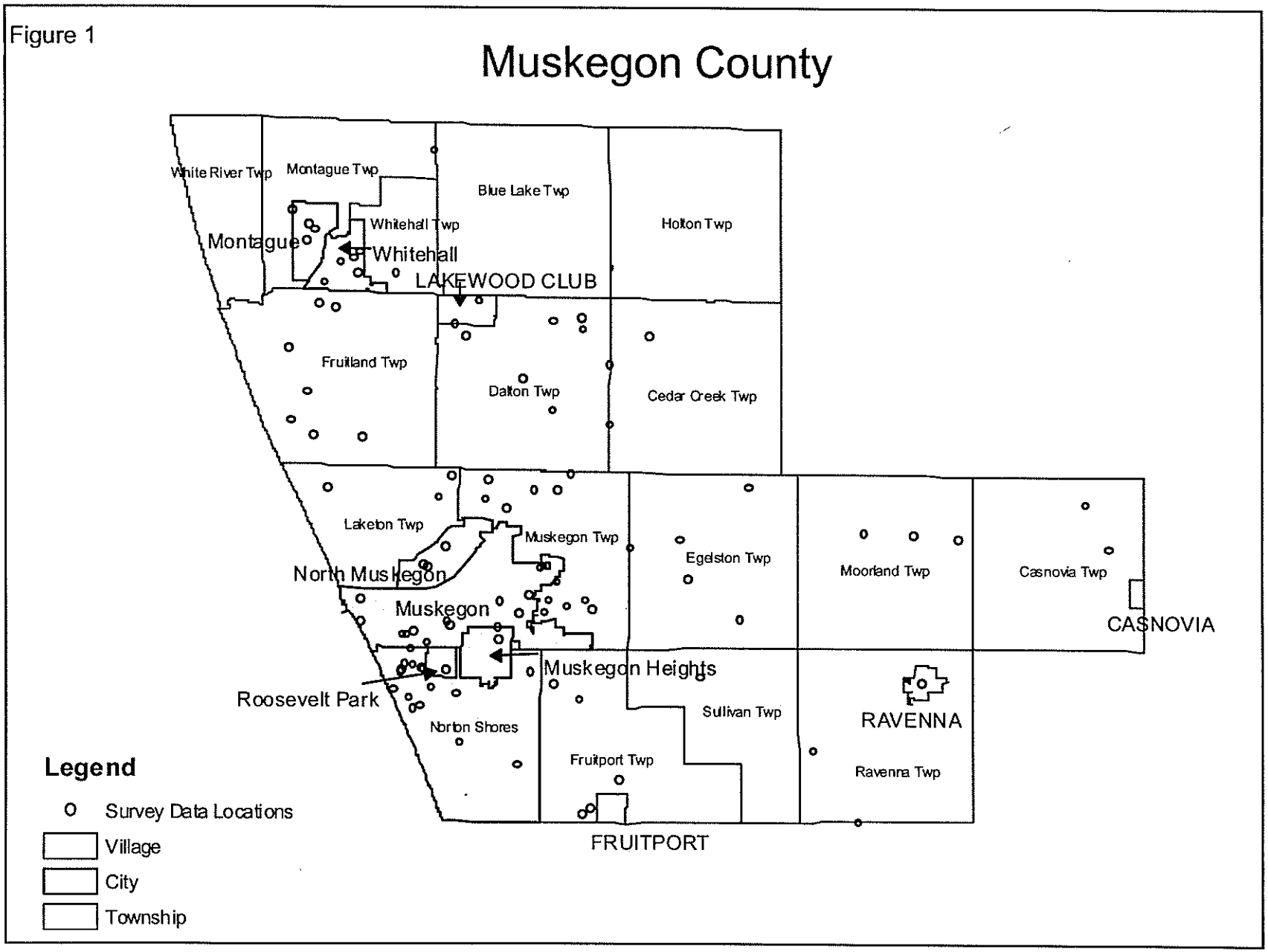
Table 6a

City or Township Respondent Lives In—Ottawa County 2003 Results		
	Frequency	**Percent**
Allendale Township	9	4.8%
Blendon Township	4	2.1
Chester Township	1	0.5
Coopersville City	3	1.6
Crockery Township	1	0.5
Ferrysburg City	3	1.6
Georgetown Township	31	16.4
Grand Haven City	13	6.9
Grand Haven Township	10	5.3
Holland City	24	12.7
Holland Township	16	8.5
Hudsonville City	15	7.9
Jamestown Township	6	3.2
Olive Township	1	0.5
Park Township	21	11.1
Polkton Township	0	0.0
Port Sheldon Township	2	1.1
Robinson Township	5	2.6
Spring Lake Township	5	2.6
Tallmadge Township	4	2.1
Wright Township	8	4.2
Zeeland City	6	3.2
Zeeland Township	1	0.5

Table 6b

City or Township Respondent Lives In—Ottawa County 2001 Results		
	Frequency	**Percent**
Allendale Township	5	4.5%
Blendon Township	2	1.8
Chester Township	0	0.0
Coopersville City	5	4.5
Crockery Township	0	0.0
Ferrysburg City	1	0.9
Georgetown Township	21	19.1
Grand Haven City	5	4.5
Grand Haven Township	7	6.4
Holland City	16	14.5
Holland Township	10	9.1
Hudsonville City	7	6.4
Jamestown Township	0	0.0
Olive Township	0	0.0
Park Township	10	9.1
Polkton Township	1	0.9
Port Sheldon Township	5	4.5
Robinson Township	2	1.8
Spring Lake Township	1	0.9
Tallmadge Township	4	3.6
Wright Township	0	0.0
Zeeland City	1	0.9
Zeeland Township	6	5.5

Figure 1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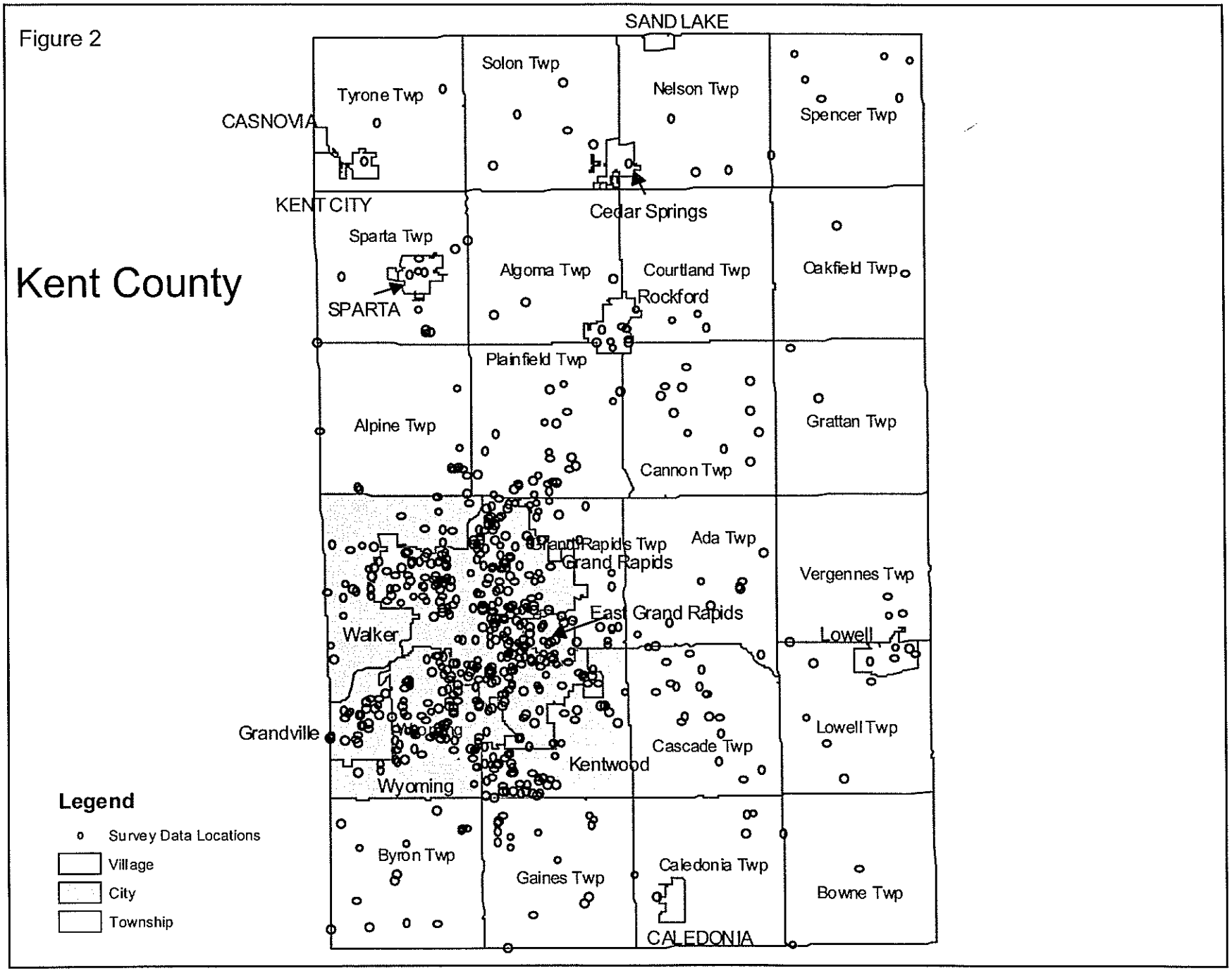
Montague Twp
Blue Lake Twp
Holton Twp
Whitehall Twp
Montague
Whitehall
LAKEWOOD CLUB
Fruitland Twp
Dalton Twp
Cedar Creek Twp
Laketon Twp
Muskegon Twp
Egelston Twp
Moorland Twp
Casnovia Twp
North Muskegon
Muskegon
CASNOVIA
Muskegon Heights
Roosevelt Park
Norton Shores
Sullivan Twp
RAVENNA
Fruitport Twp
Ravenna Twp
FRUITPORT
Legend
Survey Data Locations
Village
City
Township

Figure 2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Solon Twp
Tyrone Twp
Nelson Twp
Spencer Twp
CASNOVIA
KENT CITY
Cedar Springs
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Algoma Twp
Courtland Twp
Oakfield Twp
SPARTA
Rockford
Plainfield Twp
Alpine Twp
Grattan Twp
Cannon Twp
Grand Rapids Twp
Ada Twp
Grand Rapids
Vergennes Twp
East Grand Rapids
Walker
Lowell
Grandville
Cascade Twp
Lowell Twp
Kentwood
Wyoming
Byron Twp
Caledonia Twp
Gaines Twp
Bowne Twp
CALEDONIA
Legend
Survey Data Locations
Village
City
Township

Figure 3

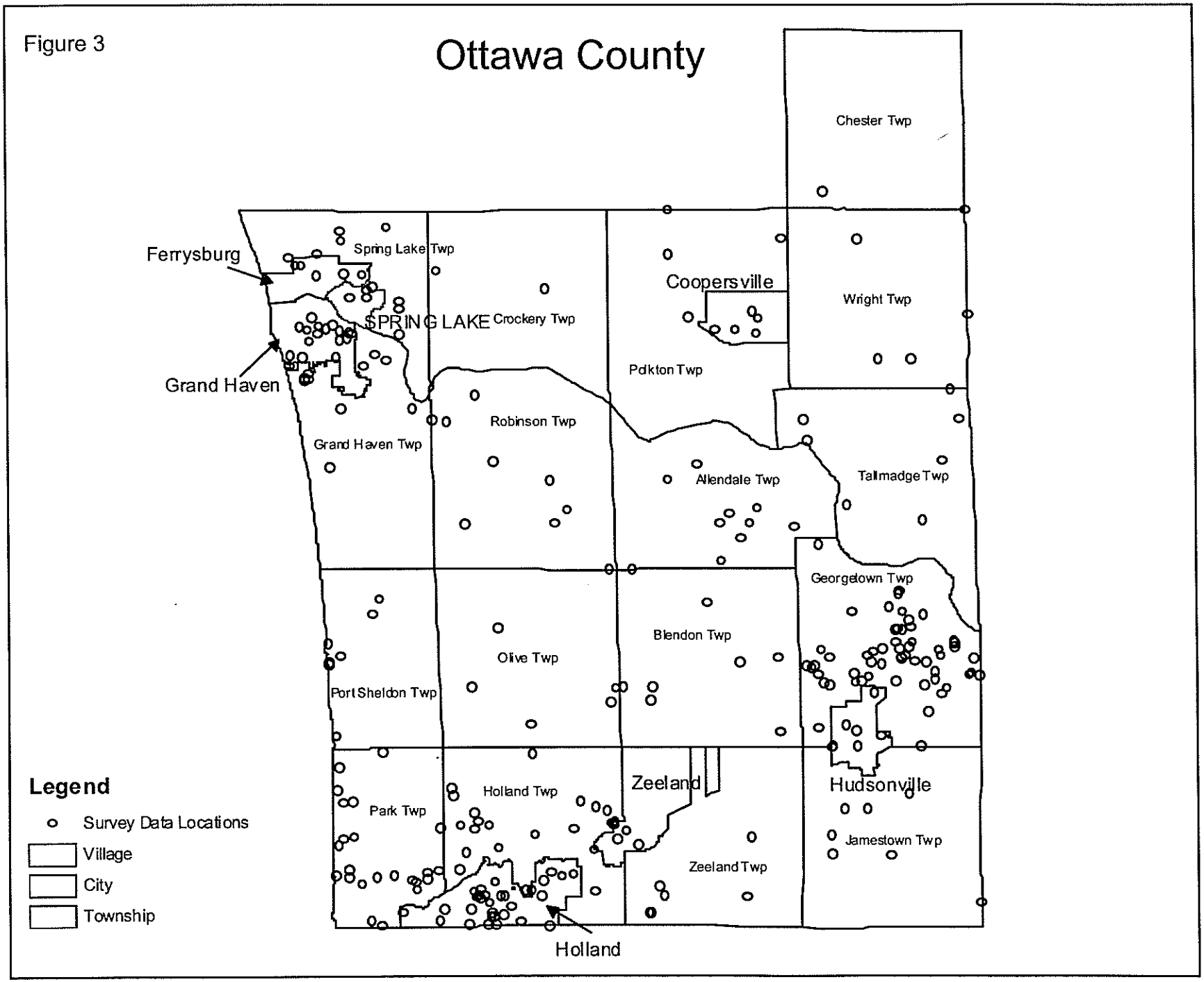
Ottawa County
Chester Twp
Ferrysburg
Spring Lake Twp
Coopersville
Wright Twp
SPRING LAKE
Crockery Twp
Polkton Twp
Grand Haven
Robinson Twp
Grand Haven Twp
Allendale Twp
Tallmadge Twp
Georgetown Twp
Blendon Twp
Olive Twp
Port Sheldon Twp
Zeeland
Hudsonville
Park Twp
Holland Twp
Jamestown Twp
Zeeland Twp
Holland
Legend
Survey Data Locations
Village
City
Township

Figure 4

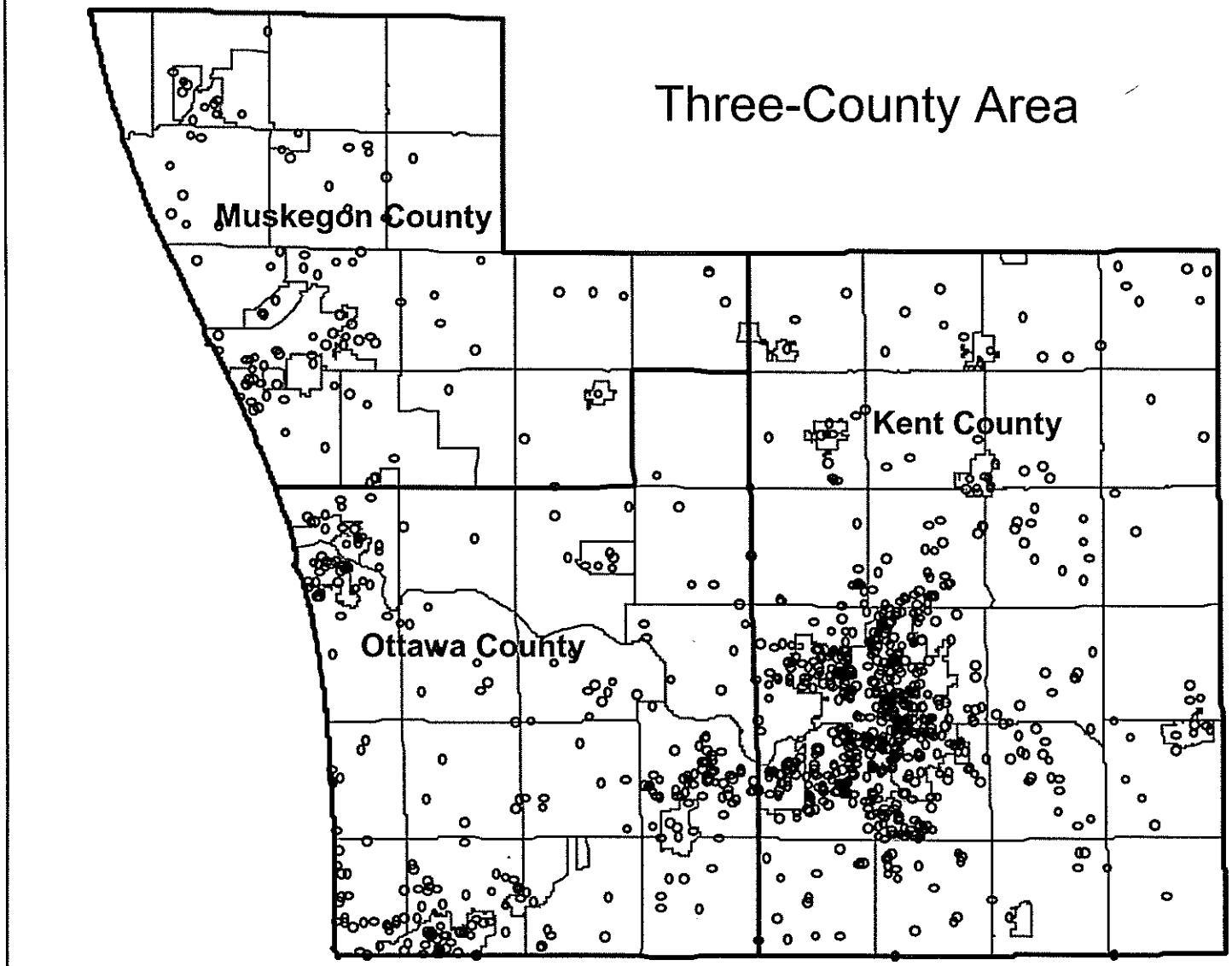
Three-County Area
Muskegon County
Kent County
Ottawa County

Table 7a

Age of Respondent 2003 Results		
	Frequency	**Percent**
18-34	131	22.2%
35-44	143	24.2
45-54	135	22.8
55-64	88	14.9
65 and over	94	15.9
Total	591	100.0

Table 7b

Age of Respondent, by Awareness Level 2003 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
18-34	31/16.9%	78/24.3%	22/25.9%	1.93
35-44	54/29.5	75/23.4	13/15.3	1.71
45-54	43/23.5	80/24.9	12/14.1	1.77
55-64	33/18.0	46/14.3	9/10.6	1.73
65 and over	22/12.0	42/13.1	29/34.1	2.08

Table 7c

Age of Respondent, by Awareness Level 2001 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
18-24	6/18.8%	13/40.6%	13/40.6%	2.2
25-34	25/31.6	40/50.6	14/17.7	1.9
35-44	29/33.3	43/49.4	15/17.2	1.8
45-54	29/42.6	27/39.7	12/17.6	1.8
55-64	11/28.9	21/55.3	6/15.8	1.9
65 and over	23/28.8	37/46.3	20/25.0	2.0
Column Frequency/%	123/32.0	181/47.1	80/20.8	

Table 7d

Age of Respondent, by Awareness Level 1998 Results (Frequency/Percent)				
	Very Aware	**Somewhat Aware**	**Not at All Aware**	**Mean**
18-24	5/6.9%	35/48.6%	32/44.4%	2.4
25-34	25/23.2	69/63.9	14/13.0	1.9
35-44	17/19.5	54/62.1	16/18.4	2.0
45-54	12/23.1	30/57.7	10/19.2	2.0
55-64	13/34.2	17/44.7	8/21.1	1.9
65 and over	10/17.5	24/42.1	23/40.3	2.2
Column Frequency/%	82/19.8	229/55.3	103/24.9	

Table 8a

Highest Level of Education Respondent has Completed 2003 Results		
	Frequency	**Percent**
Less than high school	17	2.9%
High school or GED	172	29.1
Some college/technical school	131	22.2
Technical school/associate degree	24	4.1
College degree	179	30.3
Some graduate work	11	1.9
Graduate degree	57	9.6
Total	591	100.0

Table 8b

Highest Level of Education Respondent has Completed, by Awareness Level 2003 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Less than high school	0/0.0%	7/41.2%	10/58.8%	2.59
High school or GED	44/25.7	96/56.1	31/18.1	1.92
Some college/technical school	47/35.9	68/51.9	16/12.2	1.76
Technical school/associate degree	12/52.2	9/39.1	2/8.7	1.57
College degree	55/30.7	107/59.8	17/9.5	1.79
Some graduate work	4/36.4	6/54.5	1/9.1	1.73
Graduate degree	21/36.8	28/49.1	8/14.0	1.77
Column Frequency/%	183/31.1	321/54.5	85/14.4	

Table 8c

Highest Level of Education Respondent has Completed 2001 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Less than high school	5/20.8%	8/33.3%	11/45.8%	2.3
High school or GED	27/25.7	42/40.0	36/34.3	2.1
Some college/tech or Tech/Associate Degree	42/35.6	54/45.8	22/18.6	1.8
College Degree	33/37.9	46/52.9	8/9.2	1.7
Some graduate work or higher	15/25.9	36/62.1	7/12.1	1.9
Column Frequency/%	122/31.1	186/47.4	84/21.4	

Table 8d

Highest Level of Education Respondent has Completed 1998 Results (Frequency/Percent)				
	Very Aware	**Somewhat Aware**	**Not at All Aware**	**Mean**
Less than high school	4/15.4%	12/46.2%	10/38.5%	2.2
High school or GED	22/18.5	64/53.8	33/27.7	2.1
Some college/tech or Tech/Associate Degree	17/16.2	54/51.4	34/32.4	2.2
College Degree	22/22.7	64/66.0	11/11.3	1.9
Some graduate work or higher	15/32.6	26/56.5	5/10.9	1.8
Column Frequency/%	80/19.3	220/53.1	93/22.5	

Table 9a

Race or Ethnicity of Respondent 2003 Results		
	Frequency	**Percent**
African-American	22	3.7%
Asian-American	6	1.0
Latino/Hispanic	5	0.9
American Indian/Native American	4	0.7
White	548	93.2
Other	3	0.5

Table 9b

Race or Ethnicity of Respondent 2001 Results		
	Frequency	**Percent**
African-American	10	2.6%
Asian-American	1	0.3
Latino/Hispanic	3	0.8
White	371	95.4
Other	4	1.0

Table 9c

Race or Ethnicity of Respondent 1998 Results		
	Frequency	**Percent**
African-American	16	4.0%
Asian-American	4	1.0
Hispanic	7	1.8
White	365	92.2
Other	4	1.0

Table 10a

Annual Household Income of Respondent 2003 Results		
	Frequency	**Percent**
Under $25,000	53	13.9%
$25,000-$50,000	104	27.3
$50,000-$75,000	103	27.0
$75,000 or more	121	31.8
Total	381	100.0%
Did not answer	322	36.8%*

*Percent of total sample

Table 10b

Annual Household Income of Respondent, by Awareness Level 2003 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Under $25,000	12/23.1%	26/50.0%	14/26.9%	2.04
$25,000-$50,000	31/29.8	62/59.6	11/10.6	1.81
$50,000-$75,000	36/35.3	53/52.0	13/12.7	1.77
$75,000 or more	49/40.5	63/52.1	9/7.4	1.67
Column Frequency/%	128/33.8	204/53.8	47/12.4	

Table 10c

Annual Household Income of Respondent, by Awareness Level 2001 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Under $25,000	10/34.5%	12/41.4%	7/24.1%	1.9
$25,000-$50,000	21/32.3	30/46.2	14/21.5	1.9
$50,000-$75,000	20/28.6	38/54.3	12/17.1	1.9
$75,000 or more	20/35.1	32/56.1	5/8.8	1.7
No answer	55/30.9	75/42.1	48/27.0	2.0
Column Frequency/%	126/31.6	187/46.9	86/21.6	

Table 10d

Annual Household Income of Respondent, by Awareness Level 1998 Results (Frequency/Percent)				
	Very Aware	**Somewhat Aware**	**Not at All Aware**	**Mean**
Under $25,000	17/20.5%	40/48.2%	26/31.3%	2.1
$25,000-$50,000	23/17.8	70/54.3	36/27.9	2.1
$50,000-$75,000	14/29.8	26/55.3	7/14.9	1.9
$75,000 or more	11/19.6	36/64.3	9/16.1	2.0
No answer	17/17.2	57/57.6	25/25.3	2.1
Column Frequency/%	82/19.8	229/55.3	103/24.9	

Table 11a

Gender of Respondent 2003 Results		
	Frequency	**Percent**
Female	394	66.1%
Male	202	33.9

Table 11b

Gender of Respondent, by Awareness Level 2003 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Female	128/32.7%	201/51.3%	63/16.1%	1.83
Male	56/27.7	122/60.4	24/11.9	1.84
Column Frequency/%	184/31.0	323/54.4	87/14.6	

Table 11c

Gender of Respondent, by Awareness Level 2001 Results (Frequency/Percent)				
	Very Aware (1)	**Somewhat Aware (2)**	**Not at All Aware (3)**	**Mean**
Female	86/35.0%	114/46.3%	46/18.7%	1.8
Male	40/26.1	73/47.7	40/26.1	2.0
Column Frequency/%	126/31.6	187/46.9	86/21.6	

Table 11d

Gender of Respondent, by Awareness Level 1998 Results (Frequency/Percent)				
	Very Aware	**Somewhat Aware**	**Not at All Aware**	**Mean**
Female	46/20.6%	133/59.6%	44/19.7%	2.0
Male	36/18.8	96/50.3	59/30.9	2.1
Column Frequency/%	82/19.8	229/55.3	103/24.9	

KNOWLEDGE RELATED TO OZONE ACTION! DAYS

Definition of Ozone Action! Days

We asked respondents who reported that they were either very aware or somewhat aware of Ozone Action! Days to provide a definition of Ozone Action! Days in their own words (Tables 12a – 12c). Members of the West Michigan Clean Air Coalition provided us with the components of their own definition so that we could determine which aspects of Ozone Action! Days were best known to the public. The most common categorization was that these days are ones during which people undertake voluntary actions, mentioned by 54.2% of the respondents, down slightly from 2001 (59.1%) and 1998 (64.6%). The second-most common response was that ozone is likely to be high on hot, muggy, hazy days. This was mentioned by 31.2% of the respondents, which is virtually identical in 2001 (31.3%) and up from 18.6% in 1998. A day when air pollution is high was mentioned by 23.1% of the respondents, similar to 2001 (26.5%) and up from 16.4% in 1998. Exceedence of acceptable ozone levels was mentioned by 15.4% of respondents (21.1% in 2001 and 12.5% in 1998), and a day when it is unhealthy to be outdoors was mentioned by 7.6% of respondents (10.2% in 2001 and 1.3% in 1998). The 2003 figures on both of these responses were lower than in 2001 and higher than in 1998. A total of 6.1% of the responses did not fit well into any of the pre-set categories. Appendix A shows these responses. In the first year of the survey (1998), there was generally good understanding of the "what" of Ozone Action! Days (e.g., day to take voluntary actions), but very little awareness of the "why" (e.g., pollution is high). In 2001, the "what" (voluntary actions, hot days) stayed relatively the same, but there was

increased understanding of the "why" (pollution is high, exceedence of acceptable levels). In 2003, acknowledgment of high pollution levels remains high (3.4 percentage points lower than 2001) but the number of respondents who gave the "exceedance" answer was lower in the current survey (from 21.1% to 15.4%).

It is important to keep in mind that these categorizations are made "on the fly" by Frost Center callers. Although we spend time training them and, we suspect, they got better as they gained experience, it is also true that with any coding scheme in social research there is variability between raters. We feel confident that this information is as valid as it can be, but we also recognize that such a procedure does involve judgments that show variability between people.

We took the four reasons for calling an Ozone Action! Day that were listed in the definition we received from the West Michigan Clean Air Coalition (hot/muggy/hazy day, day when air pollution is high, exceedence of acceptable ozone levels, and day when it is unhealthy to be outdoors).[3] We then calculated the number of reasons that each respondent mentioned. As you can see in Table 13a, over three in ten respondents (34.6%) failed to mention even one reason, results which are very similar to last year (Table 13b; 39.3%). However, both of these figures are lower than in 1998, when 58.5% were unable to mention one of these four reasons (Tables 13c). It is also noticeably lower among those indicating they were very aware (25.9%). One-fifth (21.9%) of the total sample could identify two or more reasons for

[3] The category *a day to take voluntary action* was not included in this analysis, because it is not part of the definition of when to call an Ozone Action! Day. It is mentioned often, so we reported it in Table 12a.

calling an Ozone day. This was slightly lower than the 2001 survey (23.4%) but noticeably higher than the 6.5% found in 1998. Very-aware respondents cited two or more reasons (25.9%) more often than somewhat-aware respondents (19.7%).

We also calculated the average number of reasons respondents gave as part of their Ozone Action! definition. There was an increase from 1998 to 2001 in the number of reasons both the very-aware and somewhat-aware were able to give. In 2001, the average among all respondents was 0.89 compared to 0.49 in 1998. Among very-aware respondents, the average was 1.13 reasons compared to 0.61 in 1998. In 2001, somewhat-aware respondents gave an average of 0.73 compared to 0.45 in 1998. The findings from 2003 were very similar to 2001, indicating this increased knowledge remains. In 2003, the average number of reasons was 0.91 for the total sample, 1.05 for very-aware residents, and 0.83 for somewhat-aware residents.

Number of Ozone Action! Days Respondents Recalled

During the 2003 Ozone Action! season, there were eight declared Ozone Action! Days in Western Michigan. A majority of respondents (70.4%) underestimated the actual number of days, only slightly more than the percentage of very-aware residents (67.4%; Table 14a). The percentage that underestimated was slightly larger in 2001 (76.5%) when there were actually twelve Ozone Action! Days, and in 2001 an even larger number of very-aware residents underestimated the number of days (80.2%). Although for respondents to know the exact number of Ozone Action!

Days is unlikely and not expected, it is interesting that in both years this question was asked a majority of respondents underestimated the actual number of days.

Another way to analyze this question is to look at the percentage of respondents indicating they remembered, within a range of plus or minus three days, the correct number of days called. Among the respondents in this sample (2003), 38.3% recalled between 5 and 11 days, which is up from the 14.0% of residents in 2001 who estimated correctly within three days. Of respondents who were very aware, 42.7% recalled between 5 and 11 days, which is again noticeably higher than the 15.1% from 2001. It appears that accurately estimating the number of days has increased in 2003, although this is still a fairly fluid measure. For one thing, it may likely be the case that estimating low-frequency events is easier than estimating high-frequency events. Since the actual number of days was lower in 2003 than 2001, this might explain part of the increased accuracy.

Awareness of Voluntary Actions

The West Michigan Clean Air Coalition suggests a number of voluntary actions respondents can take on Ozone Action! Days. We asked respondents to name the actions with which they were familiar (Table 15a). Their answers were open-ended. That is, the respondents generated them on their own rather than responding to a list we provided. Callers were trained to record categories based on respondents' responses. The two most common responses were *don't mow grass*, with 79.8% of residents indicating this was an action that should be taken (88.6% for very aware, 74.7% for somewhat aware). These figures are very similar to the 2001 data (Table

15b). The second-most frequent response was *don't refuel/wait until evening to refuel*, mentioned by 78.6% of residents (83.2% for very aware, 75.9% for somewhat aware). A total of 9.8% of the responses did not fit well into any of the pre-set categories. These responses are shown in Appendix B.

In the current study, there were five statistically significant differences between very-aware and somewhat-aware residents in familiarity with voluntary actions. Specifically, very-aware residents more often mentioned: 1) don't mow grass, 2) don't top off tank, 3) don't idle motor, 4) don't use boat, and 5) avoid drive-thru service. In 2001, there were no statistically significant differences between the very-aware and somewhat-aware residents (Table 15b). In 1998, there were six statistically significant differences between very-aware and somewhat-aware respondents (Table 15c). Specifically, in 1998 very-aware residents showed greater knowledge of 1) no mowing, 2) no/delayed refueling, 3) carpooling, 4) no lighter fluid, 5) bicycling, and 6) keeping equipment well maintained.

We tallied the number of responses each citizen offered to determine frequency of responses across people (rather than across action). When analyzing the data in this way, we found that very-aware respondents mentioned an average of 2.96 activities/restraints that should be performed on high ozone days, which is statistically higher than the average of 2.47 for somewhat-aware residents (Table 16a). These findings are similar to the 2001 and 1998 findings (Tables 16b – 16c).

Number of Years Respondents Have Been Aware of Ozone Action! Days

Ozone Action! Days have been in effect in West Michigan since 1995 (nine years). Using plus or minus two as an arbitrary marker, we find that 24.1% reported being aware of Ozone Action! Days being in existence between seven and eleven years (Table 17a). Slightly more (25.3%) of the very-aware residents reported the seven- to eleven-year range than somewhat-aware residents (20.0%).

Table 12a

Definition of an Ozone Action! Day 2003 Results (Percent of Those Who are Aware)			
	Total Frequency/Percent	**Very Aware**	**Somewhat Aware**
Day to undertake voluntary actions	327/54.2%	62.2%	65.0%
Hot, muggy, hazy days	188/31.2	44.9	32.2
Day when air pollution is high	139/23.1	29.7	25.8
Exceedence of acceptable ozone levels	93/15.4	19.5	17.5
Day when it is unhealthy to be outdoors	46/7.6	11.4	7.7
Other	37/6.1	10.8	5.2

Table 12b

Definition of an Ozone Action! Day 2001 Results (Percent of Those Who are Aware)			
	Total Frequency/Percent	**Very Aware**	**Somewhat Aware**
Day to undertake voluntary actions	185/59.1%	59.5%	58.8%
Hot, muggy, hazy days	98/31.3	31.7	31.0
Day when air pollution is high	83/26.5	39.7	17.6
Exceedence of acceptable ozone levels	66/21.1	26.2	17.6
Day when it is unhealthy to be outdoors	32/10.2	15.9	6.4
Other	34/10.9	7.9	12.8

Table 12c

Definition of an Ozone Action! Day 1998 Results (Percent of Those Who are Aware)			
	Total	**Very Aware**	**Somewhat Aware**
Day to undertake voluntary actions	201/64.6%	59.8%	66.4%
Hot, muggy, hazy days	58/18.6	25.6	16.2
Day when air pollution is high	51/16.4	19.5	15.3
Exceedence of acceptable ozone levels	39/12.5	12.2	12.7
Day when it is unhealthy to be outdoors	4/1.3	3.7	0.4
Other	22/7.1	8.5	6.6

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

Table 13a

Number of Reasons for Ozone Action! Days Respondent Can Name 2003 Results (Frequency/Percent of Those Who are Aware)			
Number of Reasons Mentioned	**Total**	**Very Aware**	**Somewhat Aware**
None	177/34.6%	48/25.9%	129/39.6%
1	222/43.4	89/48.1	133/40.8
2	93/18.2	39/21.1	54/16.6
3-4	19/3.7	9/4.8	10/3.1
Average	0.91	1.05	0.83

Table 13b

Number of Reasons for Ozone Action! Days Respondent Can Name 2001 Results (Frequency/Percent of Those Who are Aware)			
Number of Reasons Mentioned	**Total**	**Very Aware**	**Somewhat Aware**
None	123/39.3%	36/28.6%	87/46.5%
1	117/37.4	48/38.1	69/36.9
2	60/19.2	34/27.0	26/13.9
3-4	13/4.2	8/6.4	5/2.7
Average	0.89	1.13*	0.73*

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 13c

Number of Reasons for Ozone Action! Days Respondent Can Name 1998 Results (Frequency/Percent of Those Who are Aware)			
Number of Reasons Mentioned	**Total**	**Very Aware**	**Somewhat Aware**
None	182/58.5%	43/52.4%	139/60.7%
1	109/35.0	30/36.6	79/34.5
2	17/5.5	7/8.5	10/4.4
3-4	3/1.0	2/2.4	1/.4
Average	0.49	0.61	0.45

Table 14a

Number of Ozone Action! Days Respondents Recalled During the Past Summer 2003 Results (Frequency/Percent of Those Who are Aware)			
	Total	**Very Aware**	**Somewhat Aware**
None	13/2.5%	1/0.5%	12/3.7%
1	17/3.3	5/2.7	12/3.7
2	58/11.4	11/5.9	47/14.4
3	70/13.7	25/13.5	45/13.8
4	59/11.5	23/12.4	36/11.0
5	77/15.1	34/18.4	43/13.2
6	54/10.6	20/10.8	34/10.4
7	12/2.3	6/3.2	6/1.8
8 (correct number for 2003 season)	16/3.1	9/4.9	7/2.1
9	2/0.4	1/0.5	1/0.3
10	35/6.8	9/4.9	26/8.0
11	0/0.0	0/0.0	0/0.0
12	13/2.5	5/2.7	8/2.5
13	1/0.2	1/0.5	0/0.0
14	3/0.6	1/0.5	2/0.6
15	13/2.5	8/4.3	5/1.5
16	1/0.2	0/0.0	1/0.3
20	6/1.2	1/0.5	5/1.5
21	1/0.2	0/0.0	1/0.3
25	1/0.2	1/0.5	0/0.0
30	5/1.0	3/1.6	2/0.6
Don't know	54/10.6	21/11.4	33/10.1

Table 14b

Number of Ozone Action! Days Respondents Recalled During the Past Summer 2001 Results (Frequency/Percent of Those Who are Aware)			
	Total	**Very Aware**	**Somewhat Aware**
None	6/1.9%	0/0.0%	6/3.2%
1	3/1.0	1/0.8	2/1.1
2	25/8.0	5/4.0	20/10.7
3	36/11.5	11/8.7	25/13.4
4	41/13.1	21/16.7	20/10.7
5	51/16.3	23/18.3	28/15.0
6	29/9.3	14/11.1	15/8.0
7	8/2.6	4/3.2	4/2.1
8	13/4.2	11/8.7	2/1.1
9	2/0.6	1/0.8	1/0.5
10	24/7.7	10/7.9	14/7.5
11	1/0.3	0/0.0	1/0.5
12 (correct number for 2001 season)	9/2.9	3/2.4	6/3.2
13	2/0.6	0/0.0	2/1.1
14	1/0.3	1/0.8	0/0.0
15	5/1.6	4/3.2	1/0.5
17	1/0.3	0/0.0	1/0.5
18	1/0.3	0/0.0	1/0.5
20	7/2.2	5/4.0	2/1.1
21	1/0.3	1/0.8	0/0.0
24	1/0.3	1/0.8	0/0.0
25	1/0.3	0/0.0	1/0.5
28	7/2.2	1/0.8	6/3.2
30	2/0.6	2/1.6	0/0.0
40	1/0.3	1/0.8	0/0.0
Don't know	35/11.2	6/4.8	29/15.5

Table 15a

Which Voluntary Actions Familiar with, by Awareness of OAD 2003 Results (Frequency/Percent of Those Who are Aware)	Total	Very Aware	Somewhat Aware
Don't mow grass*	406/79.8%	164/88.6%	242/74.7%
Don't refuel/wait until evening to refuel	400/78.6	154/83.2	246/75.9
Don't top off or overfill gas tank*	120/23.6	61/33.0	59/18.2
Carpool	12/22.0	39/21.1	73/22.5
Don't use gasoline powered equipment	73/14.3	30/16.2	43/13.3
Bike	18/3.5	6/3.2	12/3.7
Combine business, errands or recreational trips	39/7.7	14/7.6	25/7.7
Take a bus	27/5.3	8/4.3	19/5.9
Avoid use of charcoal lighter fluid	27/5.3	10/5.4	17/5.2
Don't idle motor*	16/3.1	11/5.9	5/1.5
Don't use boat*	15/2.9	10/5.4	5/1.5
Don't use aerosols	16/3.1	8/4.3	8/2.5
Avoid use of solvent-based paints	3/0.6	1/0.5	2/0.6
Avoid use of solvent-based cleaners	3/0.6	1/0.5	2/0.6
Make sure gas cap is tightly sealed	8/1.6	3/1.6	5/1.5
Avoid drive-thru service*	9/1.8	7/3.8	2/0.6
Keep power equipment well maintained	3/0.6	1/0.5	2/0.6
Drive smoothly	7/1.4	2/1.1	5/1.5
Other	50/9.8	17/9.2	33/10.2
Don't know	32/6.3	9/4.9	23/7.1

*Indicates statistically significant difference between very-aware and somewhat-aware residents using a chi-square test of proportion.
Note: Respondents were able to provide more than one response. Thus, totals sum to more than 100%.

Table 15b

Which Voluntary Actions Familiar with, by Awareness of OAD 2001 Results (Frequency/Percent of Those Who are Aware)	Total	Very Aware	Somewhat Aware
Don't mow grass	260/83.3%	108/85.7%	152/81.3%
Don't refuel/wait until evening to refuel	231/74.0	98/77.8	133/71.1
Don't top off or overfill gas tank	73/23.4	31/24.6	42/22.5
Carpool	70/22.4	31/24.6	39/20.9
Don't use gasoline powered equipment	40/12.8	19/15.1	21/11.2
Bike	28/9.0	12/9.5	16/8.6
Combine business, errands or recreational trips	25/8.0	8/6.3	17/9.1
Take a bus	16/5.1	7/5.6	9/4.8
Avoid use of charcoal lighter fluid	15/4.8	9/7.1	6/3.2
Don't idle motor	13/4.2	8/6.3	5/2.7
Don't use boat	11/3.5	6/4.8	5/2.7
Don't use aerosols	9/2.9	3/2.4	6/3.2
Avoid use of solvent-based paints	6/1.9	3/2.4	3/1.6
Avoid use of solvent-based cleaners	5/1.6	2/1.6	3/1.6
Make sure gas cap is tightly sealed	4/1.3	3/2.4	1/0.5
Avoid drive-thru service	2/0.6	1/0.8	1/0.5
Keep power equipment well maintained	1/0.3	1/0.8	0/0.0
Drive smoothly	4/1.3	1/0.8	3/1.6
Other	27/8.7	16/12.7	11/5.9
Don't know	20/6.4	5/4.0	15/8.0

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

Table 15c

Which Voluntary Actions Familiar with, by Awareness of OAD 1998 Results (Frequency/Percent of Those Who are Aware)	Total	Very Aware	Somewhat Aware
Don't mow grass*	230/74.0%	72/87.8%	158/69.0%
Don't refuel/wait until evening to refuel*	168/54.0	57/69.5	111/48.5
Don't top off or overfill gas tank	85/27.3	28/34.1	57/24.9
Carpool*	44/14.1	18/22.0	26/11.4
Don't use gasoline powered equipment	38/12.2	16/19.5	22/9.6
Don't idle motor	29/9.3	10/12.2	19/8.3
Avoid use of charcoal lighter fluid*	25/8.0	13/15.9	12/5.2
Combine business, errands or recreational trips	17/5.5	3/3.7	14/6.1
Don't use aerosols	16/5.1	2/2.4	14/6.1
Bike*	11/3.5	6/7.3	5/2.2
Take a bus	10/3.2	3/3.7	7/3.1
Keep power equipment well maintained*	4/1.3	3/3.7	1/.4
Avoid drive-thru service	3/1.0	1/1.2	2/.9
Make sure gas cap is tightly sealed	3/1.0	2/2.4	1/.4
Avoid use of solvent-based paints	2/.6	1/1.2	1/.4
Don't use boat	2/.6	0/0.0	2/.9
Drive smoothly	1/.3	1/1.2	0/0.0
Other	26/8.4	4/4.9	22/9.6
Don't know	21/6.8	1/1.2	20/8.7

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

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

Table 16a

Number of Voluntary Actions Familiar With, by Awareness of OAD 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
None	31/6.1%	2.2%	8.3%
1	37/7.2	5.9	8.0
2	189/37.0	30.3	40.8
3	141/27.6	32.4	24.8
4	73/14.3	19.5	11.3
5 or more	40/7.8	9.7	6.8
Average*	2.65	2.96	2.47

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

Table 16b

Number of Voluntary Actions Familiar With, by Awareness of OAD 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
None	20/6.4%	5/4.0%	14/7.5%
1	22/7.0	6/4.8	16/8.6
2	129/41.1	50/39.7	79/42.2
3	78/24.8	34/27.0	44/23.5
4	36/11.5	16/12.7	20/10.7
5 or more	29/9.2	15/11.9	14/7.5
Average*	2.68	2.91	2.53

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 16c

Number of Voluntary Actions Familiar With, by Awareness of OAD 1998 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
None	21/6.8%	1/1.2%	20/8.7%
1	41/13.2	6/7.3	35/15.3
2	130/41.8	27/32.9	103/45.0
3	85/27.3	29/35.4	56/24.5
4	24/7.7	13/15.9	11/4.8
5 or more	10/3.1	6/7.3	4/1.7
Average*	2.21	2.87	1.97

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 17a

Number of Years Respondent has been Aware of Ozone Action! Days, by Awareness of OAD 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
0	3/0.6%	0/0.0%	3/0.9%
1	4/0.8	0/0.0	4/1.2
2	41/8.1	10/5.5	31/9.6
3	45/8.9	11/6.0	34/10.5
4	42/8.3	17/9.3	25/7.7
5	91/18.0	32/17.6	59/18.2
6	22/4.3	9/4.9	13/4.0
7	8/1.6	4/2.2	4/1.2
8	14/2.8	2/1.1	1/0.3
9 (Actual number of years Ozone Action! Days have been in existence)	3/0.6	2/1.1	1/0.3
10	95/18.8	38/20.9	57/17.6
11	2/0.3	0/0.0	2/0.6
Over 11	73/14.5	32/17.6	41/12.7
Don't know	63/12.5	25/13.7	38/11.7

Table 17b

Number of Years Respondent has been Aware of Ozone Action! Days, by Awareness of OAD 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
1	11/3.6%	4/3.3%	7/3.8%
2	30/9.7	6/4.9	24/12.9
3	37/12.0	15/12.2	22/11.8
4	23/7.4	15/12.2	8/4.3
5	64/20.7	29/23.6	35/18.8
6	14/4.5	7/5.7	7/3.8
7 (Actual number of years Ozone Action! Days have been in existence)	11/3.6	4/3.3	7/3.8
8	7/2.3	2/1.6	5/2.7
9	2/0.6	1/0.8	1/0.5
10	49/15.9	17/13.8	32/17.2
Over 10	39/12.6	17/13.8	22/11.8
Don't know	22/7.1	6/4.9	16/8.6

BEHAVIORS RELATED TO OZONE ACTION! DAYS

Participation in Ozone Action! Days

When respondents could name something that should be done on Ozone Action! Days, they were asked a follow-up question. Specifically, the question was, in general, how frequently did they act on their knowledge. Two-thirds (69.0%) said they engaged in voluntary actions during most, all, or almost all of the Ozone Action! Days (Table 18a). This is very similar to the 67.8% of respondents who gave these responses in 2001. Very-aware respondents were statistically more likely to take voluntary actions during more Ozone Action! Days than somewhat-aware respondents (means: 1.71 vs. 2.18). A total of 52.6% of very-aware residents reported they participated in all or almost all Ozone Action! Days compared to 37.2% of somewhat-aware residents.

Reasons Respondents Do Not Participate in Ozone Action! Days

When respondents reported that they did not always engage in an activity on a high ozone day, we asked why they or people they know were not able to participate consistently (Table 19a). Frost Center callers classified these responses based on categories specified in advance. The most common response category for both awareness groups was not convenient, with 49.8% of residents' responses falling into this category (61.4% for very-aware respondents and 45.2% for somewhat-aware respondents). The next most common response category was that respondents were not aware of Ozone Action! Days (17.1% of the total sample; 7.2% for very aware and 21.5% for somewhat aware). Ten percent (10.8%) of residents indicated that they did not care about the issue (8.4% of very-aware

residents and 11.8% of somewhat-aware residents), 4.1% reported that they don't agree with the Ozone Action! program. Curiously, more very-aware respondents (7.2%) than somewhat-aware respondents (2.7%) didn't agree with the program. Finally, 3.7% do not believe that ozone is a problem (3.6% of very aware and 3.8% of somewhat aware). A total of 14.1% of the responses were categorized as other. These additional reasons may be found in Appendix C. Respondents provided an average of 1.02 reasons for not complying with Ozone Action! recommendations (Table 20a).

Reasons Respondents Participate in Ozone Action! Days

We asked respondents who participated in at least one Ozone Action! Day their main reasons for taking action. Respondents responded freely and callers classified each response (respondents could give more than one reason) into one of six broad categories (Table 21a). Concerns related to the environment were most frequently cited (67.0% of entire sub-sample). Very-aware respondents differed from somewhat-aware respondents on their mentioning of three different reasons: more often citing general health reasons (16.6% vs. 8.6%), more often citing health reasons related to respiratory tract (13.1% vs. 5.0%), and less often citing avoiding regulatory measures. In 2001, the only difference between the very-aware and somewhat-aware groups was in *concern for children.* In the current study, 16.0% of responses were categorized as other. These additional miscellaneous reasons that did not fall under any category may be found in Appendix D.

We also calculated how many reasons respondents gave for participating. About three-fourths (73.6% of entire sub-sample) of the respondents gave only one reason for taking action (Table 22a). On average, very-aware respondents provided 1.26 reasons, and somewhat-aware respondents provided 1.03 reasons. This difference is statistically significant. These means are similar to those found in 2001 and 1998 (Tables 22b – 22c).

Willingness to Participate

Respondents who were not able to identify a particular action to take, but still indicated that they were very aware or somewhat aware of Ozone Action! Days, were asked how willing they would be to participate if they knew what no or low-cost actions to take (Table 23a). Of these residents, 43.4% would be at least somewhat willing to participate if they knew what to do. While 26.7% of the sample indicated they would be very unwilling to participate, almost all of this group was categorized as somewhat aware. Caution is urged in interpreting the findings from this question, as it is based on a very small sample (30 respondents). It might be good to consider broadening the sample in future surveys.

Table 18a

Frequency of Engaging in Voluntary Actions During Ozone Action! Days During the Past Summer, by Awareness Level 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
All or almost all Ozone Action! Days (1)	202/42.9%	92/52.6%	110/37.2%
Most of the Ozone Action! Days (2)	123/26.1	58/33.1	65/22.0
Some of the Ozone Action! Days (3)	87/18.5	9/5.1	78/26.4
None or almost none of the Ozone Action! Days (4)	59/12.5	16/9.1	43/14.5
Average**	2.01	1.71	2.18

Table 18b

Frequency of Engaging in Voluntary Actions During Ozone Action! Days During the Past Summer*, by Awareness Level 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
All or almost all Ozone Action! Days (1)	125/43.7%	67/55.8%	58/34.9%
Most of the Ozone Action! Days (2)	69/24.1	35/29.2	34/20.5
Some of the Ozone Action! Days (3)	55/19.2	12/10.0	43/25.9
None or almost none of the Ozone Action! Days (4)	37/12.9	6/5.0	31/18.7
Average**	2.1	1.6	2.3

*New question for 2001 survey.

** "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

Table 19a

Reasons You or People You Know Were Not Able to Take Voluntary Actions During All Ozone Action! Days, by Awareness Level
2003 Results*
(Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Not convenient	135/49.8%	51/61.4%	84/45.2%
Don't care	29/10.8	7/8.4	22/11.8
Not a problem	10/3.7	3/3.6	7/3.8
One person's actions don't make a difference	5/1.9	2/2.4	3/1.6
Don't agree with it	11/4.1	6/7.2	5/2.7
Didn't know it was an Ozone Action Day**	46/17.1	6/7.2	40/21.5
Don't know/Can't remember	36/13.4	6/7.2	30/16.1
Other	38/14.1	13/15.7	25/13.4

Table 19b

Reasons You or People You Know Were Not Able to Take Voluntary Actions During All Ozone Action! Days, by Awareness Level
2001 Results*
(Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Not convenient	72/44.7%	28/51.9%	44/38.6%
Don't care	9/5.6	3/5.6	6/5.3
Not a problem	7/4.3	2/3.7	5/4.4
One person's actions don't make a difference	3/1.9	0/0.0	3/2.6
Don't agree with it	2/1.2	0/0.0	2/1.8
Don't know/Can't remember	48/29.8	10/18.5	38/33.3
Other	47/29.2	17/31.5	30/26.3

*This question was first introduced in the 2001 survey.
**"Didn't know it was an Ozone Action Day" is an additional option introduced in the 2003 survey.

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

Table 20a

Number of Reasons Given for Not Taking Action, by Awareness Level 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
0	32/11.9%	5/6.0%	27/14.5%
1	205/76.2	70/84.3	135/72.6
2	27/10.0	6/7.2	21/11.3
3	5/1.9	2/2.4	3/1.6
Average	1.02	1.06	1.00

Table 20b

Number of Reasons Given for Not Taking Action*, by Awareness Level (Frequency/Percent) 2001 Results			
	Total	**Very Aware**	**Somewhat Aware**
0	37/23.0%	7/13.2%	30/27.8%
1	113/70.2	43/81.1	70/64.8
2	11/6.8	3/5.7	8/7.4
Average	.84	.92	.80

* New question for 2001 survey.

Notes:
The 2001 Results table was adjusted in 2003. The original table included the "don't know" response to the question, and the number of people not indicating any reason was not included.
Those who said they engaged in voluntary activity for all or almost all of the Ozone Action! Days were not asked this question.

Table 21a

Reasons for Participation in Ozone Action! Days, by Awareness 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Environmental-related issues	319/67.0%	123/70.3%	196/65.1%
General health reasons*	55/11.6	29/16.6	26/8.6
Concern for children	29/6.1	15/8.6	14/4.7
Health reasons related to respiratory tract*	38/8.0	23/13.1	15/5.0
Avoid regulatory measures*	7/1.5	0/0.0	7/2.3
Concern for elderly	8/1.7	4/2.3	4/1.3
Other reasons	76/16.0	27/15.4	49/16.3

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

Table 21b

Reasons for Participation in Ozone Action! Days, by Awareness 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Environmental-related issues	192/65.5%	85/70.2%	107/62.2%
General health reasons	31/10.6	14/11.6	17/5.9
Concern for children*	24/8.2	15/12.4	9/3.1
Health reasons related to respiratory tract	18/6.1	8/6.6	10/3.5
Avoid regulatory measures	16/5.5	4/3.3	12/4.2
Concern for elderly	8/2.7	4/3.3	4/1.4
Other reasons	63/21.5	24/19.8	39/13.6

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

Table 21c

Reasons for Participation in Ozone Action! Days, by Awareness 1998 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Environmental-related issues	163/52.4%	47/57.3%	116/50.7%
Concern for children*	48/15.4	19/23.2	29/12.7
General health reasons	40/12.9	11/13.4	29/12.7
Health reasons related to respiratory tract	23/7.4	7/8.5	16/7.0
Concern for elderly	2/.6	—	2/.9
Avoid regulatory measures	1/.3	—	1/.4
Other reasons	74/23.8	21/25.6	53/23.1

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

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

Table 22a

Number of Reasons for Participating Given, by Awareness Level 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
None	49/10.3%	13/7.4%	36/12.0%
1	351/73.6	119/67.6	232/77.1
2	56/11.7	34/19.3	22/7.3
3 or more	21/4.4	10/5.7	11/3.7
Average*	1.12	1.26	1.03

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 22b

Number of Reasons for Participating Given, by Awareness Level 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
None	20/6.4%	5/4.0%	15/8.0%
1	244/78.0	93/73.8	151/80.7
2	39/12.5	23/18.3	16/8.6
3	10/3.2	5/4.0	5/2.7
Average*	1.12	1.22	1.06

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 22c

Number of Reasons for Participating Given, by Awareness Level 1998 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
None	42/13.5%	4/4.9%	38/16.6%
1	201/64.6	56/68.3	145/63.3
2	55/17.7	17/20.7	38/16.6
3 or more	13/4.2	5/6.1	8/3.5
Average*	1.12	1.28	1.07

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 23a

Willingness to Participate in Ozone Action! Days If Respondent Knew What No-Cost or Low-Cost Actions to Take, by Awareness Level
2003 Results
(Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Very willing	5/16.7%	2/25.0%	3/13.6%
Somewhat willing	8/26.7	1/12.5	7/31.8
Neutral	6/20.0	1/12.5	5/22.7
Somewhat unwilling	3/10.0	3/10.0	0/0.0
Very unwilling	8/26.7	1/12.5	7/31.8

Table 23b

Willingness to Participate in Ozone Action! Days If Respondent Knew What No-Cost or Low-Cost Actions to Take, by Awareness Level 2001 Results
(Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Very willing	6/33.3%	0/0.0%	6/42.9%
Somewhat willing	8/44.4	2/50.0	6/42.9
Neutral	1/5.6	0/0.0	1/7.1
Somewhat unwilling	0/0.0	0/0.0	0/0.0
Very unwilling	3/16.7	2/50.0	1/7.1

Table 23c

Willingness to Participate in Ozone Action! Days If Respondent Knew What No-Cost or Low-Cost Actions to Take, by Awareness Level 1998 Results
(Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Very willing	3/17.6%	—	3/15.0%
Somewhat willing	17/41.2	1/100.0%	16/30.0
Neutral	1/5.9	—	1/5.0
Somewhat unwilling	2/11.8	—	2/10.0
Very unwilling	4/23.5	—	4/20.0

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

SOURCES OF INFORMATION REGARDING OZONE ACTION! DAYS

Where Respondents Receive General Information About Ozone Action! Days

Respondents reported they receive information about Ozone Action! Days from three main sources (Table 24a): local television news (73.2%), local radio (41.5%), and local newspapers (20.9%). These figures are similar to the 2001 survey, with the exception of local newspapers dropping from 29.4% (Table 24b) and 1998 (Table 24c). The 2003 frequencies did not differ as a function of being very aware versus somewhat aware. Television news is clearly the most important medium for conveying information about Ozone Action! Days. The mass media in general have been the only means by which the vast majority of respondents have learned anything about ozone. Direct interpersonal communication (through word-of-mouth, work, or display booths) has little impact on public awareness. Some of the respondents (8.3% of entire sub-sample) gave sources that did not fit the prescribed categories. These responses are found in Appendix E.

How Respondents Learn it is an Ozone Action! Day

The results of the question addressing how respondents learn a particular day is an Ozone Action! Day are similar to how they gather general information about Ozone Action! (shown in Table 24a). Respondents reported they find out that a particular day is an Ozone Action! Day from three main sources: local television news (69.5%), local radio (45.5%), and local newspapers (14.6%; Table 25a). These figures are similar to the 2001 results (Table 25b), with the exception of local newspaper dropping from 36.1% and word of mouth dropping from 9.3% to 2.8%. Again, the

mass media are the primary sources of information for respondents, with local television news the single most important medium. Very-aware respondents were more likely this year (2003) to mention local television news (73.4%) than they were in 2001 (64.3%). This 2003 level is similar to the level originally found in 1998 (74.4%; Table 25c). There were no differences between somewhat-aware and very-aware residents on the frequency of mentioning these sources.

When Respondents Learned it was an Ozone Action! Day

The majority of respondents found out it was an Ozone Action! Day during the morning (69.5%; Table 26a). Another 24.7% find out the evening before. Only 5.7% learn of the Ozone Action! Day designation later that evening. Most respondents find out early enough to take action on these days. Similar results were found in 2001 and 1998 (Tables 26b – 26c).

Table 24a

Where Respondents Receive Information About Ozone Action! Days, by Awareness Level
2003 Results
(Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Local television news	372/73.2%	143/77.7%	229/70.7%
Local radio	211/41.5	79/42.9	132/40.7
Local newspapers	106/20.9	37/20.1	69/21.3
School	10/2.0	3/1.6	7/2.2
Work	17/3.3	9/4.9	8/2.5
Word of mouth	10/2.0	5/2.7	5/1.5
Public service announcements	8/1.6	5/2.7	3/0.9
West Michigan Clean Air Coalition website	1/0.2	0/0.0	1/0.3
Display booth	1/0.2	0/0.0	1/0.3
Telephone hotline	1/0.2	1/0.5	0/0.0
Other	42/8.3	19/10.3	23/7.1

Table 24b

Where Respondents Receive Information About Ozone Action! Days 2001 Results (Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Local television news	219/70.0%	86/68.3%	133/71.1%
Local radio	125/39.9	47/37.9	78/41.7
Local newspapers	92/29.4	38/30.2	54/28.9
School	9/2.9	5/4.0	4/2.1
Work	8/2.6	4/3.2	4/2.1
Word of mouth	7/2.2	4/3.2	3/1.6
Public service announcements*	3/1.0	3/2.4	0/0.0
West Michigan Clean Air Coalition website	1/0.3	1/0.8	0/0.0
Display booth	0/0.0	0/0.0	0/0.0
Telephone hotline	0/0.0	0/0.0	0/0.0
Other	16/5.1	9/7.1	7/3.7

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

Table 24c

Where Respondents Receive Information About Ozone Action! Days 1998 Results (Frequency/Percent)

	Total	Very Aware	Somewhat Aware
Local television news	205/65.9%	59/72.0%	146/63.8%
Local radio	115/37.0	30/36.6	85/37.1
Local newspapers	106/34.1	32/39.0	74/32.3
School*	18/5.8	9/11.0	9/3.9
Word of mouth	11/3.5	3/3.7	8/3.5
Work	7/2.3	1/1.2	6/2.6
Public service announcements	5/1.6	1/1.2	4/1.7
Display booth	1/.3	—	1/.4
Other	20/6.4	8/9.8	12/5.2

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the p<.05 level.

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

Table 25a

How Do You Learn That an Ozone Action! Day Has Been Called, by Awareness Level 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Local television news	353/69.5%	135/73.4%	218/67.3%
Local radio	231/45.5	84/45.7	147/45.4
Local newspapers	74/14.6	30/16.3	44/13.6
Word of mouth	14/2.8	6/3.3	8/2.5
Internet	9/1.8	5/2.7	4/1.2
Electronic highway sign	12/2.4	4/2.2	8/2.5
Work	6/1.2	4/2.2	2/0.6
Telephone hotline	1/0.2	1/0.5	0/0.0
Other	11/2.2	4/2.2	7/2.2

Table 25b

How Do You Learn That an Ozone Action! Day Has Been Called, by Awareness Level 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Local television news	197/62.9%	81/64.3%	116/62.0%
Local newspapers	113/36.1	46/36.5	67/35.8
Local radio	82/26.2	32/25.4	50/26.7
Word of mouth	29/9.3	11/8.7	18/9.6
Internet	5/2.0	2/1.6	3/1.6
Work	3/1.0	1/0.8	2/1.1
Telephone hotline	4/1.3	2/1.6	2/1.1

Table 25c

How Do You Learn That an Ozone Action! Day Has Been Called, by Awareness Level 1998 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Local television news*	191/61.4%	61/74.4%	130/56.8%
Local radio	123/40.0	39/47.6	84/36.7
Local newspapers	93/29.9	22/26.8	71/31.0
Word of mouth	9/2.9	3/3.7	6/2.6
Work	5/1.6	2/2.4	3/1.3
Telephone hotline	1/.3	—	1/.4
Internet	1/.3	1/1.2	—
Other	17/5.5	3/3.7	14/6.1

* "Very Aware" group statistically significantly different from "Somewhat Aware" group at the $p<.05$ level.

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

Table 26a

When Do You Hear it is an Ozone Action! Day, by Awareness Level 2003 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Day before	121/24.7%	46/25.6%	75/24.3%
Morning of	340/69.5	131/72.8	209/67.6
Evening of	28/5.7	3/1.7	25/8.1

Table 26b

When Do You Hear it is an Ozone Action! Day, by Awareness Level 2001 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Day before	84/28.1%	35/28.5%	49/27.8%
Morning of	201/67.2	83/67.5	118/67.0
Evening of	14/4.7	5/4.1	9/5.1

Table 26c

When Do You Hear it is an Ozone Action! Day, by Awareness Level 1998 Results (Frequency/Percent)			
	Total	**Very Aware**	**Somewhat Aware**
Day before	87/28.0%	23/28.0%	64/27.9%
Morning of	172/55.3	48/58.5	124/54.1
Evening of	20/6.4	3/3.7	17/7.4

ALL RESPONDENTS SURVEYED

Perceptions of Air Pollution and Ground-Level Ozone Problems

We asked all respondents, including those who stated they were not at all aware of Ozone Action! Days, how much of a problem they think air pollution is in their community (Tables 27a). Overall, 60.7% of the respondents reported air pollution is a minor problem, 20.1% reported it is a major problem, and 17.1% reported it is not a problem. These figures are very similar to both 2001 and 1998. This year we included those who gave "don't know" as a response. They accounted for just 2.0% of the sample for this question.

We found a difference between level of awareness and perceived problem of air pollution. Respondents who reported they were very aware of Ozone Action! Days were more likely to think air pollution was a major problem compared with those who were somewhat aware, who in turn were more likely to think air pollution was a problem than unaware residents. If respondents were very aware or somewhat aware of Ozone Action! Days, they were more likely to perceive air pollution as a problem in their community. A total of 25.5% of very-aware respondents thought air pollution was a problem compared to 18.3% of somewhat-aware respondents and 16.1% of unaware respondents.

Respondents were also asked how much of a problem they think ground-level ozone is in their community. The "don't know" response to this question had a much larger impact than the previous question, as 145 respondents or 24.8% gave that as their

answer. Overall, 60.5% of the respondents who gave an answer to the question (Table 28a) think ground-level ozone is a minor problem (45.5% of the total sample), 18.5% think it is a major problem (13.9% of the total sample), and 21.0% think it is not a problem (15.8% of the total sample).

We found a difference between level of awareness and perceived problem of ground-level ozone. Respondents who reported they were very aware or somewhat aware of Ozone Action! Days were more likely to think ground-level ozone was a major problem compared with residents who were unaware. If respondents were very aware or somewhat aware of Ozone Action! Days, they were more likely to perceive ground-level ozone as a problem in their community. From the total sample (including those who indicated "don't know"), 16.8% of very-aware respondents and 13.6% of somewhat-aware respondents thought ground-level ozone was a problem compared to 8.0% of unaware respondents.

We compared county differences in responses to these two questions (Tables 29a and 30a). We found no county-level differences in response to the ground-level ozone question. On the air pollution question, we found Muskegon County residents saw air pollution as a bigger problem than residents in Ottawa County (Kent County residents were in the middle). Specifically, 26.1% of Muskegon residents saw air pollution as a major problem compared to 14.3% of Ottawa residents.

Table 27a

Respondents' Perception of Air Pollution Problem in Their Community, by Awareness of OAD
2003 Results
(Frequency/Percent)

	Total Sample	Very Aware	Somewhat Aware	Not at All Aware
Major problem	120/20.1%	47/25.5%	59/18.3%	14/16.1%
Minor problem	362/60.7	114/62.0	206/63.8	41/47.1
Not a problem	102/17.1	21/11.4	52/16.1	28/32.2
Don't know	12/2.0	2/1.1	6/1.9	4/4.6
Column Total		184	323	87

Table 27b

Respondents' Perception of Air Pollution Problem in Their Community, by Awareness of OAD
2001 Results
(Frequency/Percent)

	Total Sample	Very Aware	Somewhat Aware	Not at All Aware
Major problem	22.1%	27/22.1%	45/25.3%	12/15.0%
Minor problem	61.1	81/66.4	110/61.8	41/51.3
Not a problem	16.8	14/11.5	23/12.9	27/33.8
Column Total		122	157	80

Table 27c

Respondents' Perception of Air Pollution Problem in Their Community, by Awareness of OAD
1998 Results
(Frequency/Percent)

	Total Sample	Very Aware	Somewhat Aware	Not at All Aware
Major problem	24.2%	27/32.9%	48/21.8%	20/22.0%
Minor problem	61.6	46/56.1	151/68.6	45/49.5
Not a problem	14.2	9/11.0	21/9.5	26/28.6
Column Total		82	220	91

Table 28a

Respondents' Perception of Ground-Level Ozone Problem in Their Community, by Awareness of OAD
2003 Results
(Frequency/Percent)

	Total Sample	Total Percent of Who Answered	Very Aware	Somewhat Aware	Not at All Aware
Major problem	83/13.9%	18.5%	31/16.8%	44/13.6%	7/8.0%
Minor problem	271/45.5	60.5	87/47.3	161/49.8	23/26.4
Not a problem	94/15.8	21.0	27/14.7	40/12.4	27/31.0
Don't know	148/24.8	—	39/21.2	78/24.1	30/34.5
Column Total	596	448	184	323	87

Table 28b

Respondents' Perception of Ground-Level Ozone Problem in Their Community, by Awareness of OAD
2001 Results
(Frequency/Percent)

	Total Sample	Very Aware	Somewhat Aware	Not at All Aware
Major problem	22.1%	22/22.9%	31/22.8%	11/19.0%
Minor problem	57.2	61/63.5	79/58.1	26/44.8
Not a problem	20.7	13/13.5	26/19.1	21/36.2
Column Total		96	136	58

Table 28c

Respondents' Perception of Ground-Level Ozone Problem in Their Community, by Awareness of OAD
1998 Results
(Frequency/Percent)

	Total Sample	Very Aware	Somewhat Aware	Not at All Aware
Major problem	18.6%	23/32.9%	38/19.0%	3/4.1%
Minor problem	54.7	36/51.4	121/60.5	31/41.9
Not a problem	26.7	11/15.7	41/20.5	40/54.1
Column Total		70	200	74

Table 29a

Respondents' Perception of Air Pollution Problem in Their Community, by County
2003 Results
(Frequency/Percent)

	Kent	Muskegon	Ottawa
Major problem	64/21.6%	29/26.1%	27/14.3%
Minor problem	174/58.8	66/59.5	122/64.6
Not a problem	54/18.2	13/11.7	35/18.5
Don't know	4/1.4	3/2.7	5/2.6
Column Total	296	111	189

* Muskegon County residents more often viewed air pollution as a problem than Ottawa County residents.

Table 29b

Respondents' Perception of Air Pollution Problem in Their Community, by County
2001 Results
(Frequency/Percent)

	Kent	Muskegon	Ottawa
Major problem (1)	48/21.6%	15/28.3%	21/19.8%
Minor problem (2)	136/61.3	33/62.3	64/60.4
Not a problem (3)	38/17.1	5/9.4	21/19.8
Column Total	222	53	106

Table 29c

Respondents' Perception of Air Pollution Problem in Their Community, by County
1998 Results
(Frequency/Percent)

	Kent	Muskegon	Ottawa
Major problem (1)	53/24.0%	29/35.8%	13/13.8%
Minor problem (2)	137/62.0	40/49.4	65/69.1
Not a problem (3)	31/14.0	12/14.8	13/13.8
Column Total	221	81	91

Table 30a

Respondents' Perception of Ground-Level Ozone Problem in Their Community, by County
2003 Results
(Frequency/Percent)

	Kent	Muskegon	Ottawa
Major problem	48/16.2%	18/16.2%	17/9.0%
Minor problem	121/40.9	49/44.1	101/53.4
Not a problem	53/17.9	12/10.8	29/15.3
Don't know	74/25.0	32/28.8	42/22.2
Column Total	296	111	189

Table 30b

Respondents' Perception of Ground-Level Ozone Problem in Their Community, by County
2001 Results
(Frequency/Percent)

	Kent	Muskegon	Ottawa
Major problem (1)	41/24.8%	7/18.9%	16/18.2%
Minor problem (2)	94/57.0	23/62.2	49/55.7
Not a problem (3)	30/18.2	7/18.9	23/26.1
Column Total	165	37	88

Table 30c

Respondents' Perception of Ground-Level Ozone Problem in Their Community, by County
1998 Results
(Frequency/Percent)

	Kent	Muskegon	Ottawa
Major problem (1)	43/20.9%	13/21.3%	8/8.5%
Minor problem (2)	114/55.3	30/49.2	44/46.8
Not a problem (3)	49/23.8	18/29.5	25/26.6
Column Total	206	61	77

PROFILES OF RESPONDENTS BY DIFFERENT LEVELS OF AWARENESS

The following profiles were developed to provide general characterization of residents' self-ratings at the highest and lowest levels of awareness—very aware and not at all aware. The main purpose of developing these profiles was to describe respondents who currently have some awareness of Ozone Action! Days, and to identify respondents who are more likely to be unaware of Ozone Action! Days.

Very Aware Respondents:

- College degree or higher (43.7% of very-aware respondents)
- Annual household income of $75,000 or more (38.3% of very-aware respondents)

Not at All Aware Respondents:

- Less than a college degree (69.4% of not-at-all-aware respondents)
- Annual household income of less than $75,000 (80.9% of not-at-all-aware respondents)
- Age 18-24 (16.3% of not-at-all-aware residents compared to 4.8% of very-aware residents)

CONCLUSIONS

Awareness of Ozone Action! Days

There are a number of factors related to respondents' awareness of Ozone Action! Days. Respondents under the age of 25 and those over the age of 65 are more likely to report that they are not at all aware. A total of 30.9% of residents reported being very aware and only 14.5% reported being not at all aware.

Knowledge of Actions to Take

Most aware respondents can name between 2 – 3 actions in which they should engage on Ozone Action! Days; most frequently don't mow the lawn and don't fill gas tank. Since the majority of respondents know these two items, it would be interesting to investigate if these still are the two actions stressed most often by those informing the public of Ozone Action! Days.

Motivations for Taking Action

When respondents were asked why they participate in Ozone Action! Days, the most common response was concern for the environment, far exceeding the next-most common response (general health reasons). These concerns were similar to what we found in 2001 and 1998.

Information Sources

Mass media clearly does the most in informing respondents about Ozone Action! Days. Most respondents know about Ozone Action! Days from television news programs, radio, and newspapers.

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 (4)
- allergist
- Atlanta Lawn Association
- billboard on the side of the road
- church
- church publications
- city of Holland environmental board
- city smoke inspector
- doctor warned me.
- doesn't know about ozone action days
- environmental magazines
- every source of media available--internet especially
- expressway
- government
- highway signs that light up
- husband
- mail
- my brother-in-law who does ozone studies in Alaska
- never received any info before
- Newsweek
- reading different things
- science community
- Sierra Club
- 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
- thinks it is crazy to have to worry about
- through talk
- Weather Channel
- word of mouth

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

T:
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.)

I:
key 1-3

Q:v3

T:

How aware are you of Ozone Action Days?

1=very aware
2=somewhat aware
3=not at all aware

8=don't know
9=refused

I:
key 1-3,8,9
if (v3 > 2) skp v27

Q:v5

T:

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 unhealty to be outdoors
hot, muggy, hazy days
exceedence of acceptable ozone levels
other: specify

don't know
move to next question

I:
loc 7 8 1
oth 6
sel 8 1 6

Q:v7

T:

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

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

I:
num 0 99

Q:v9

T:

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	move to next question

I:
loc 9 11 1
oth 19
sel 22 1 10
if (v9 = 20) skp v17

Q:v11

T:

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

I:
key 1-4,8,9
if (v11 = 1) skp v15

Q:v13

T:

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

I:
loc 8 9 1
oth 8
sel 9 1 5

Q:v15

T:

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

I:
loc 8 9 1
oth 7

```
sel 9 1 5
if (v9 <> 20) skp v19


Q:v17

T:

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

I:
key 1-5,8,9


Q:v19

T:

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)

I:
num 0 99


Q:v21

T:

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

I:
```

loc 7 13 1
oth 11
sel 13 1 7

Q:v23

T:

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

I:
loc 7 11 1
oth 9
sel 11 1 9

Q:v25

T:

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

I:
key 1-3,8,9

Q:v27

T:

How many years have you lived in West Michigan?

(1=1 year or less, 888=don't know, 999=refused)

```
I:
num 1 999
if (v1 = 1) skp v29
if (v1 = 2) skp v31
if (v1 = 3) skp v33
```

Q:v29

T:

In which city or township do you live?

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

```
I:
num 1 33
oth 31
if (v29 > 0) skp v35
```

Q:v31

T:

In which city or township do you live?

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

```
I:
num 1 26
```

oth 24
if (v31 > 0) skp v35

Q:v33

T:

In which city or township do you live?

(Callers: Please place Jenison in Georgetown Township)

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

I:
num 1 26
oth 24

Q:v35

T:

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

I:
key 1-3,8,9

Q:v37

T:

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

I:
key 1-3,8,9

Q:v39

T:

What age range are you in?

1=18-34
2=35-44
3=45-54
4=55-64
5=65 and over

8=don't know
9=refused

I:
key 1-5,8,9

Q:v41

T:

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

I:
key 1-9

Q:v43

T:

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

I:
key 1-6,8,9
oth 6

Q:v45

T:

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

I:
key 1-4,8,9

Q:v47

T:

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

1=female
2=male

I:
key 1-2

Q:v49

T:

Thank you for taking the time to complete this survey.

Have a nice evening.

(Caller: From the sheet, CAREFULLY enter the 10-digit area code and phone number with no spaces or dashes.)

I:
opn

Q:v51

T:

Press 1 to continue

I:
key 1