Indiana Department of Environmental Management

# The States' View of the Air

## State of Indiana

## Minnesota Section with Introduction

2015

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*Office of Air Quality*
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# EXECUTIVE SUMMARY

**Air quality across the nation has improved over the past ten years or more. The publication of misleading reports, and stories about them in the press, can unfortunately lead the public to believe otherwise. This analysis demonstrates the progress made from 2000 through 2013 for ozone and fine particles (PM-2.5).**

**Figures 1 through 3 show the progress made for ozone, 24-hour PM-2.5 and annual PM-2.5. The bars represent the population of each period (based on the last year in the period). The portion that is green represents the number of people living in counties that measure air quality better than the standard. The portion of the bar that is red represents the number of people living in counties that measure air quality at levels above the standard. The blue portion of the bar represents the number of people that live in counties where air quality is not measured.**

**These assessments have been based on results of individual monitors. For example, if a county has two ozone monitors and data for one is rated as a C and the other as a D, the population of the county is split in half and half is assigned to each category; meeting the standard and not meeting the standard. This is a change in this report from previous years where the average design value was used to assign populations.**

**Compliance with standards is determined on a three year basis. In 2000 – 2002 approximately 53 million people lived in counties that measured ozone air quality levels better than the standard. By 2011 – 2013 this had increased to 150 million people.**

**The situation for fine particles (PM-2.5) is very similar. In 2000 – 2002, 115 million people lived in counties where 24-hour PM-2.5 levels were measured below the standard. By 2011 – 2013 this had increased to 185 million people. Of note, is that monitoring for PM-2.5 is only conducted in counties with a total of 192 million people.**

**In the 2000 – 2002 period, 138 million people lived in counties where annual PM-2.5 levels were measured below the standard. By 2011 – 2013 this had increased to 178 million people. Approximately 14.5 million people lived in counties where annual PM-2.5 levels were measured above the standard. Much of this increase is due to the implementation of the new annual PM-2.5 standard.**

**Even with the improvements made in air quality, there are still areas of the country that need further improvement. Figure 4 shows states that have 8 hour ozone nonattainment areas based on 2011 – 2013 data. Ten states are included.**

**Figure 5 shows those states that violate the 24-hour PM-2.5 standard based on 2011 – 2013 data. Only six states are included.**

**Figure 6 shows those states that violate the annual PM-2.5 standard based on 2011 – 2013 data. Only California, Indiana, Maryland, Ohio, Pennsylvania and Tennessee are included.**

**The bottom line is that most areas of the country were meeting the PM-2.5 standard at the 2011 – 2013 review. There are still several areas of the country that violate the current ozone standard. Many areas have made considerable progress in lowering ozone levels, but further work remains to be done. During 2012, U.S. EPA lowered the annual PM-2.5 standard. This analysis compares historical air quality levels with this new standard.**

Figure 1

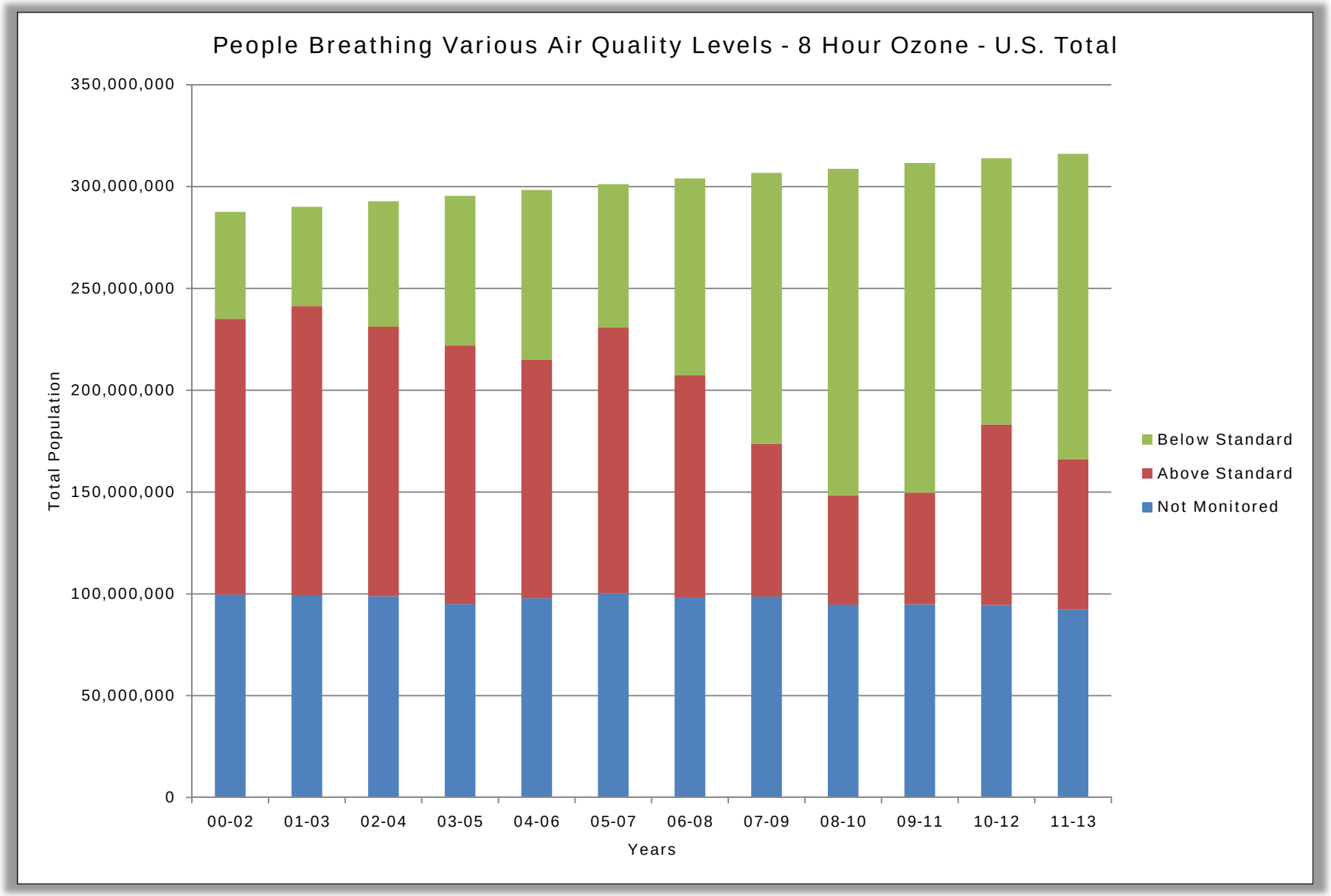

People Breathing Various Air Quality Levels - 8 Hour Ozone - U.S. Total
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
Total Population
00-02
01-03
02-04
03-05
04-06
05-07
06-08
07-09
08-10
09-11
10-12
11-13
Years
Below Standard
Above Standard
Not Monitored

Figure 2

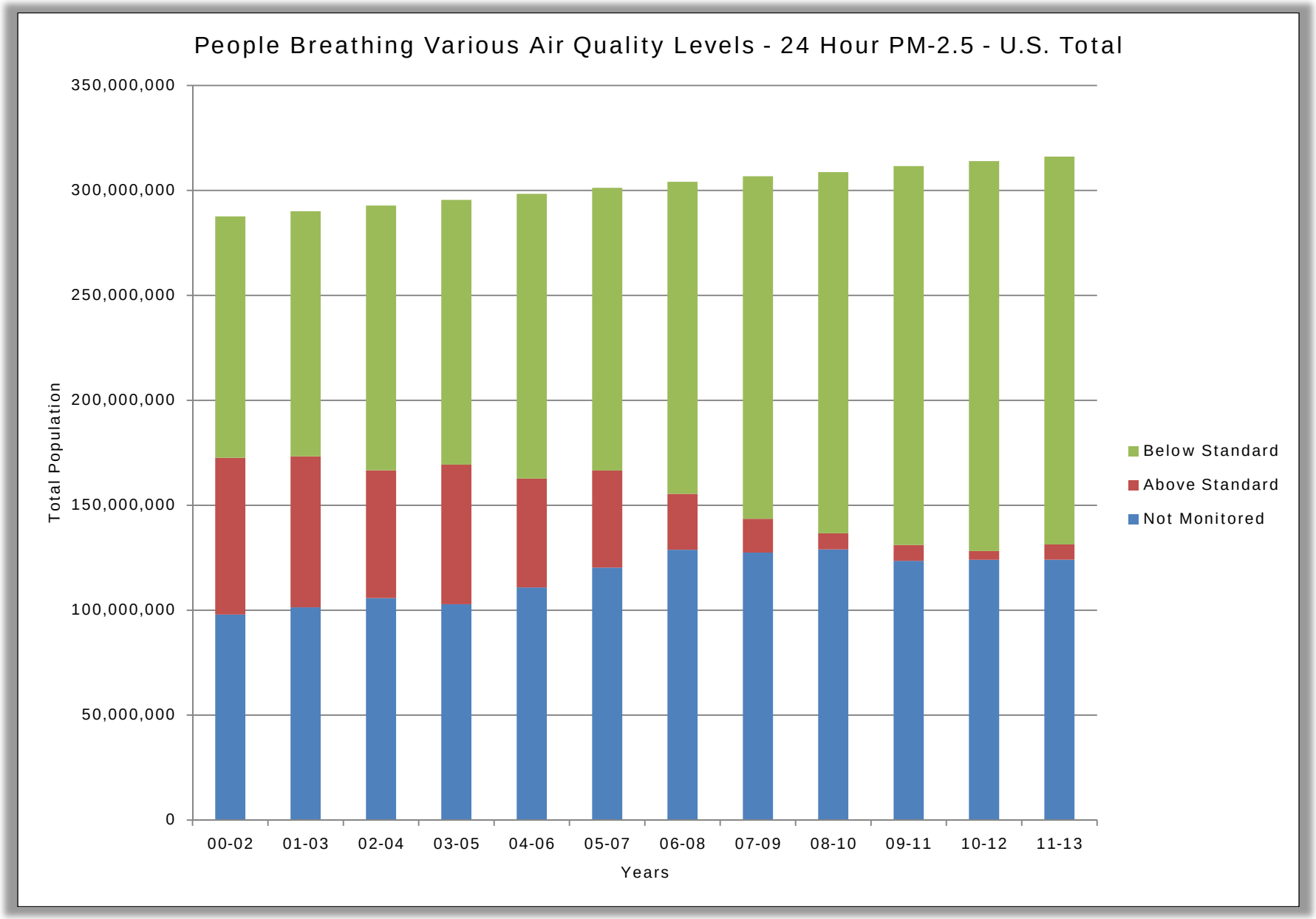

People Breathing Various Air Quality Levels - 24 Hour PM-2.5 - U.S. Total
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
Total Population
00-02
01-03
02-04
03-05
04-06
05-07
06-08
07-09
08-10
09-11
10-12
11-13
Years
Below Standard
Above Standard
Not Monitored

Figure 3

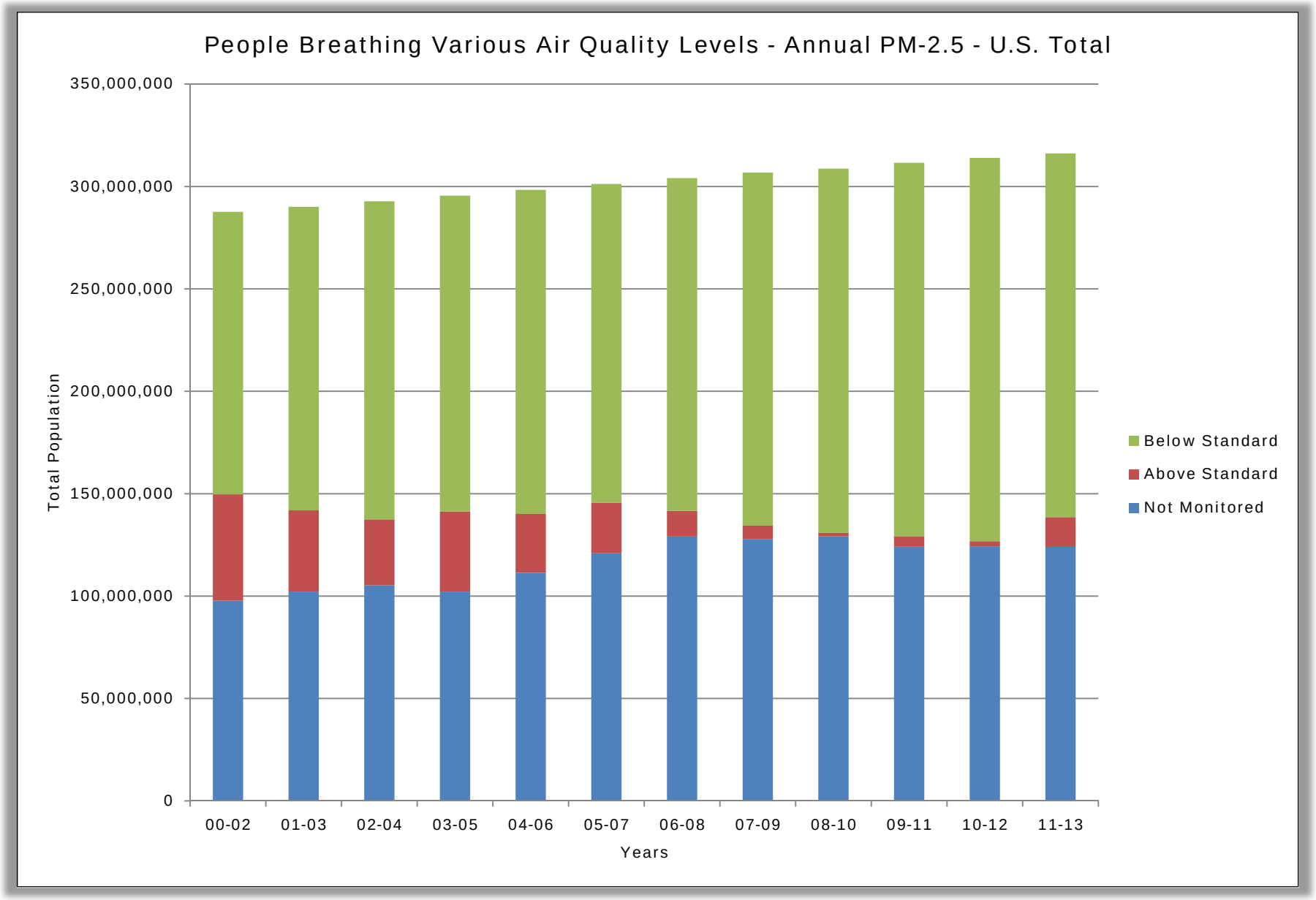

People Breathing Various Air Quality Levels - Annual PM-2.5 - U.S. Total
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
Total Population
00-02
01-03
02-04
03-05
04-06
05-07
06-08
07-09
08-10
09-11
10-12
11-13
Years
Below Standard
Above Standard
Not Monitored

Figure 4

Non-Attainment States - 8 Hour Ozone (Map 1)

2011-2013

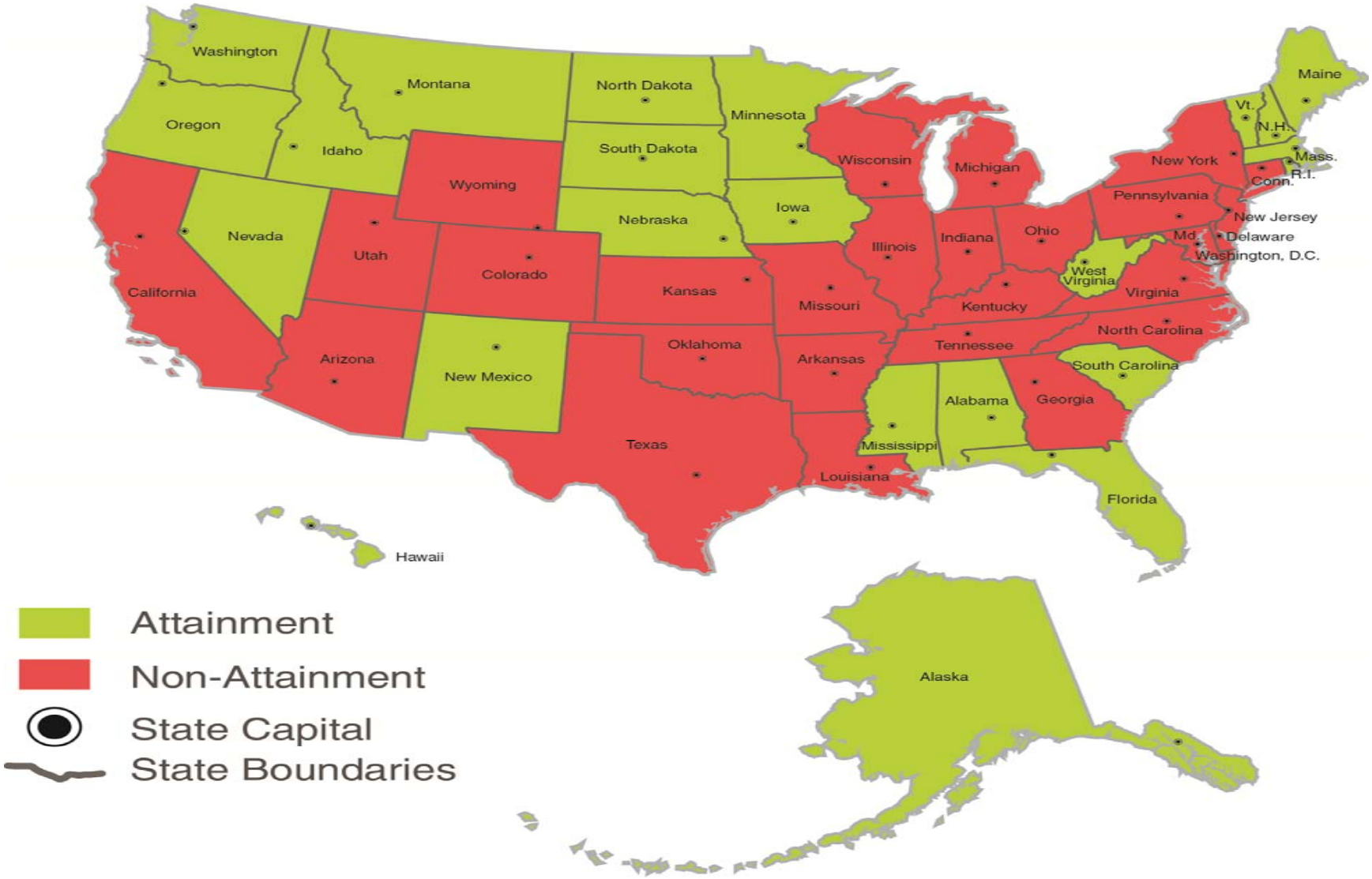


Figure 5

Non-Attainment States – 24 Hour PM-2.5 (Map 2)
2011-2013

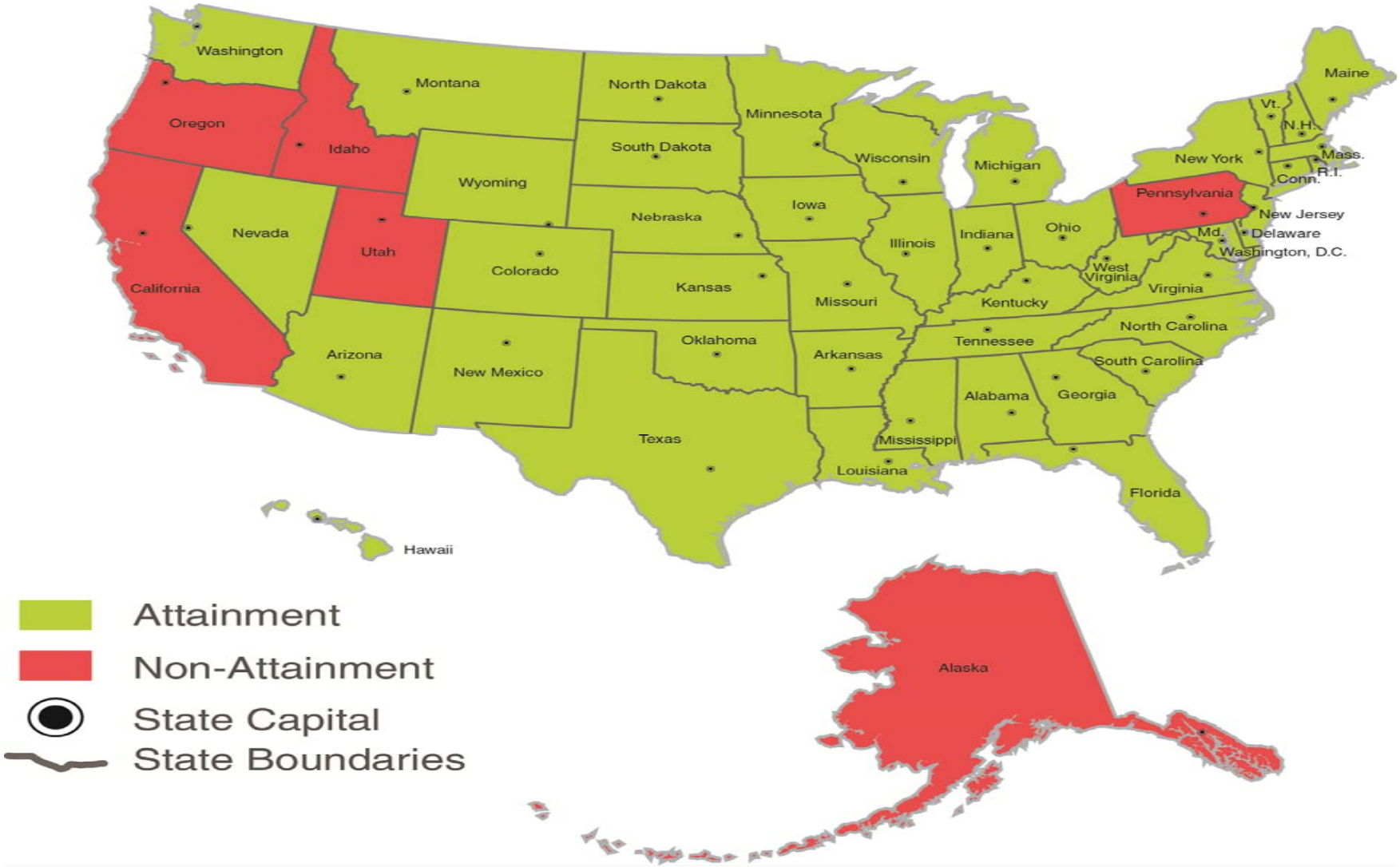
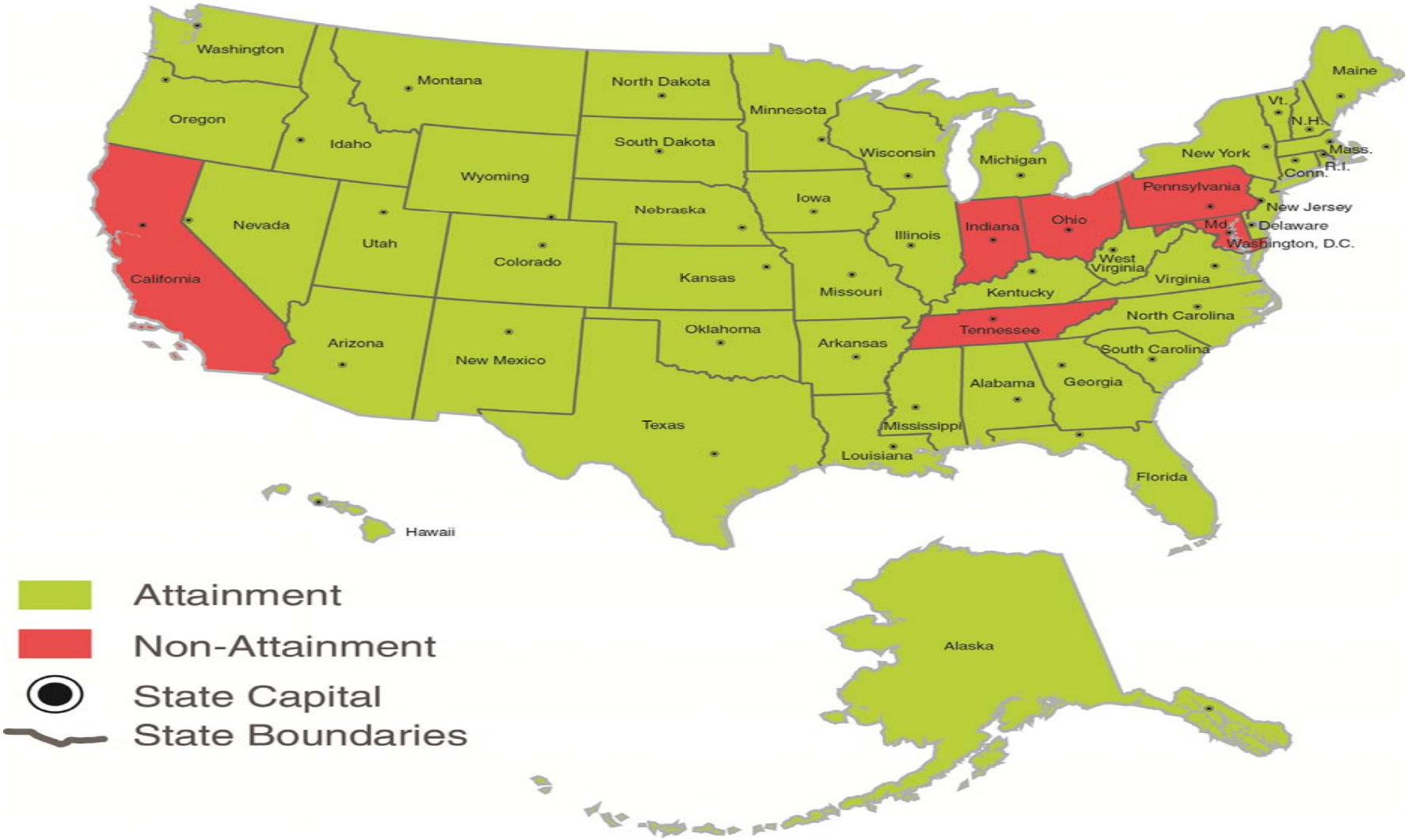


Figure 6

Non-Attainment States - Annual PM-2.5 (Map 3)
2011-2013



# The States' View of the Air – 2015

**This is the third year for this report. It was originally intended as a complimentary document to the American Lung Association's (ALA) annual report called "The State of the Air."**

**This report starts with the same air quality data used by the ALA except for Figures 1 through 6. For this report, it includes data for the period of 2000 – 2013. The review of data in this report differs from the ALA in a few significant ways. First, the design values used for both ozone and PM-2.5 are based on average values for each county. Average values are used to compare between cities or county ratings. However, when determining whether the population is exposed to air quality above or below the standard, the population is split based on values from individual monitors. This is an important distinction. While U.S. EPA's guidance for attainment/nonattainment designation purposes focuses on the worst design value for a county, this is not consistent with what people are breathing. For example, if a county has ten monitors and nine have design values below the standard and one is slightly above the standard, U.S. EPA and ALA would assume that everyone in the county were breathing air at levels above the standard. That is obviously not correct. If you combine counties into metropolitan statistical areas (cities) consisting of several counties, the entire area would be assumed to be above the standard based on the one monitor described above. This report averages design values for all monitors in a county to determine the average level that is breathed by the residents of that county. This is not to say that some individuals could not be exposed to higher levels. However, not all residents in a county are exposed to levels associated with the highest monitor. This average design value is used only to compare between different states.**

**A second difference is that when design values for a number of counties are being grouped to determine the overall value for a metropolitan statistical area, the individual design values for each county are weighted by the population of that county to determine a population weighted average value. This value is more consistent with what the population is being exposed to and is in line with what health research professionals use in their analyses.**

**A grading system has been established for ozone and PM-2.5 in this report. Any grading system is arbitrary in nature. The key to this grading system is that any area meeting the national ambient air quality standards should not be rated lower than a "C". In essence, we have set the standard as a "C". Any level between 90 and 100% of the standard is rated a "C". Any level between 80 and 90% of the standard is rated as "B". Any level below 80% is set as an "A". Any level between 101 and 110% of the standard is set as a "D". Any level above 110% of the standard is rated as an "F". This translates into the following ranges.**

Table 1
Grading Scheme

| Grade | Ozone (ppm) | 24-hr PM-2.5 (µg/m3) | Annual PM-2.5 (µg/m3) |
|---|---|---|---|
| A | < 0.060 | < 28.0 | < 9.6 |
| B | 0.060 – 0.067 | 28.0 – 31.4 | 9.6 – 10.7 |
| C | 0.068 – 0.075 | 31.5 – 35.0 | 10.8 – 12.0 |
| D | 0.076 – 0.082 | 35.1 – 38.5 | 12.1 – 13.2 |
| F | ➢ 0.082 | ➢ 38.5 | ➢ 13.2 |

**This grading scale has been revised since last year because the national ambient air quality standard for annual PM-2.5 was revised. These are the appropriate levels for the standards that were in place during the time period (2011 – 2013).**

**This report will not report population groups by county or state (those less than 18 or 65 and older, diabetics, etc.). It is very difficult to obtain this data for each state. Also, the methodology**

**which apportions state totals to individual counties is questionable. It is based solely upon a comparison of age distribution of the state versus the county. In many cases other variables, may be important in making these allocations more accurately.**

**Information on health effects is not included in this report. Instead we provide links to U.S. EPA websites that contain this information.**

Ozone: **http://epa.gov/airquality/ozonepollution/health.html**

PM-2.5: **http://epa.gov/airquality/particlepollution/health.html**

**The remainder of this report contains tables that are similar to those that are in the ALA report. The ALA report focuses solely on a three year block of data and does not provide any perspective. Our report looks at three year blocks of data from 2000 through 2013 so that the reader can see how the air quality is changing over time.**

## Ozone

**In the 2000 – 2002 period approximately 53 million people (18.3% of the U.S. population) lived in counties that met the ozone standard. During the same time period approximately 100 million people (34.6%) lived in counties where ozone was not monitored. By the 2011 – 2013 period 150 million people (47.4%) lived in counties that met the ozone standard. During the same time period over 91 million people (28.8%) lived in counties where ozone was not monitored. Figure 1 shows the distribution of people by year.**

## 24 – Hour PM-2.5

**In the 2000 – 2002 period approximately 115 million people (40.0% of the U.S. population) lived in counties that met the 24-hour PM-2.5 standard. During this same time period approximately 98 million people (34.1%) lived in counties where PM-2.5 was not monitored. By the 2011 – 2013 period over 185 million people (58.1%) lived in counties that met the 24-hour PM-2.5 standard. During the same time period nearly 124 million people (39.3%) lived in counties where PM-2.5 was not monitored. Figure 2 shows the distribution of people by year.**

## Annual PM-2.5

**In the 2000 – 2002 period approximately 138 million people (47.9% of the U.S. population) lived in counties that met the annual PM-2.5 standard. During the same time period approximately 98 million people (34.1%) lived in counties where PM-2.5 was not monitored. By the 2011 - 2013 period nearly 178 million people (56.2%) lived in counties that met the annual PM-2.5 standard. During the same time period nearly 124 million people (39.3%) lived in counties where PM-2.5 was not monitored. Figure 3 shows the distribution of people by year.**

## Note:

**For the state summaries, the first table shows monitoring totals at the bottom that include county totals for areas that measure either Ozone or PM-2.5. The second set of tables includes totals monitored by pollutant.**

Table 2

People Breathing Ozone

| Grades | 2000-2002 | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 | 2009-2011 | 2010-2012 | 2011-2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 10,131,523 | 6,376,588 | 6,564,989 | 7,179,887 | 7,438,778 | 9,108,266 | 9,329,550 | 11,697,719 | 12,873,435 | 17,116,889 | 17,577,711 | 17,588,417 |
| B | 10,934,876 | 10,379,229 | 15,360,917 | 14,281,887 | 16,738,616 | 17,327,984 | 26,008,122 | 38,548,375 | 51,404,139 | 50,594,617 | 34,461,410 | 45,163,198 |
| C | 31,457,264 | 32,021,777 | 39,633,626 | 51,990,459 | 59,279,810 | 43,946,615 | 61,381,814 | 82,753,537 | 96,126,505 | 94,200,993 | 78,782,851 | 87,192,869 |
| D | 39,798,643 | 42,296,781 | 44,910,528 | 64,018,708 | 61,416,817 | 64,353,908 | 64,816,984 | 52,256,925 | 37,600,509 | 40,633,207 | 64,379,495 | 56,190,199 |
| F | 95,662,347 | 99,999,209 | 87,448,733 | 63,070,320 | 55,634,742 | 66,212,862 | 44,238,249 | 22,829,013 | 16,042,793 | 14,155,462 | 24,254,213 | 17,728,174 |
| Subtotals | 187,984,653 | 191,073,584 | 193,918,793 | 200,541,261 | 200,508,763 | 200,949,635 | 205,774,719 | 208,085,569 | 214,047,381 | 216,712,168 | 219,455,680 | 223,862,857 |
| Not Monitored | 99,640,540 | 99,034,349 | 98,886,505 | 94,975,338 | 97,871,149 | 100,281,572 | 98,319,247 | 98,685,960 | 94,698,157 | 94,879,749 | 94,548,360 | 92,265,982 |
| Totals | 287,625,193 | 290,107,933 | 292,805,298 | 295,516,599 | 298,379,912 | 301,231,207 | 304,093,966 | 306,771,529 | 308,745,538 | 311,591,917 | 314,004,040 | 316,128,839 |

Table 3

People Breathing Short-term Particle Pollution (24-hour PM-2.5)

| Grades | 2000-2002 | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 | 2009-2011 | 2010-2012 | 2011-2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 39,881,763 | 47,887,689 | 49,231,738 | 45,397,201 | 52,283,496 | 56,454,021 | 73,299,289 | 100,515,234 | 123,740,873 | 140,662,435 | 158,596,598 | 164,160,356 |
| B | 36,431,942 | 30,082,632 | 34,646,612 | 35,162,480 | 36,377,810 | 36,503,487 | 45,877,264 | 42,834,521 | 37,211,482 | 27,743,252 | 23,728,800 | 14,120,383 |
| C | 38,677,918 | 38,809,795 | 42,267,519 | 45,596,607 | 46,980,855 | 41,705,298 | 29,459,586 | 19,860,604 | 11,157,556 | 12,113,406 | 3,468,212 | 6,524,086 |
| D | 26,102,105 | 24,031,712 | 25,444,744 | 28,827,340 | 21,462,979 | 21,559,722 | 13,086,958 | 4,857,812 | 4,478,582 | 1,242,344 | 1,072,537 | 1,254,409 |
| F | 48,603,338 | 47,902,446 | 35,461,117 | 37,701,675 | 30,439,705 | 24,695,846 | 13,462,714 | 11,217,210 | 3,182,497 | 6,292,520 | 3,122,749 | 6,007,513 |
| Subtotals | 189,697,066 | 188,714,274 | 187,051,725 | 192,685,303 | 187,544,845 | 180,918,374 | 175,285,811 | 179,285,481 | 179,770,990 | 188,053,957 | 189,988,896 | 192,066,747 |
| Not Monitored | 97,928,127 | 101,393,659 | 105,753,573 | 102,831,296 | 110,835,067 | 120,312,833 | 128,808,155 | 127,486,148 | 128,974,548 | 123,537,960 | 124,015,144 | 124,062,092 |
| Totals | 287,625,193 | 290,107,933 | 292,805,298 | 295,516,599 | 298,379,912 | 301,231,207 | 304,093,966 | 306,771,629 | 308,745,538 | 311,591,917 | 314,004,040 | 316,128,839 |

Table 4

People Breathing Year Round Particle Pollution (Annual PM-2.5)

| Grades | 2000-2002 | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 | 2009-2011 | 2010-2012 | 2011-2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 65,326,851 | 70,127,621 | 80,452,773 | 60,204,962 | 82,674,701 | 87,498,801 | 96,640,186 | 121,852,039 | 151,225,649 | 164,746,645 | 170,012,770 | 113,784,047 |
| B | 34,521,401 | 36,264,896 | 36,541,564 | 39,483,688 | 39,249,507 | 32,830,328 | 38,732,333 | 36,788,172 | 19,844,125 | 13,048,977 | 15,087,987 | 39,133,366 |
| C | 38,049,342 | 41,868,373 | 38,353,168 | 34,474,313 | 36,334,814 | 35,279,983 | 27,076,409 | 13,762,659 | 6,813,460 | 4,517,511 | 2,105,166 | 24,659,204 |
| D | 23,184,888 | 19,155,969 | 14,856,077 | 21,734,832 | 16,037,478 | 14,515,489 | 7,880,525 | 4,785,715 | 1,146,913 | 1,986,357 | 1,906,695 | 8,208,984 |
| F | 28,786,860 | 20,471,466 | 17,349,069 | 17,383,298 | 12,734,577 | 10,201,029 | 4,669,777 | 1,709,042 | 503,779 | 3,165,892 | 530,349 | 6,281,149 |
| Subtotals | 189,869,342 | 187,888,325 | 187,552,651 | 193,281,093 | 187,031,077 | 180,325,630 | 174,999,230 | 178,897,727 | 179,534,926 | 187,465,382 | 189,642,967 | 192,066,750 |
| Not Monitored | 97,755,851 | 102,219,608 | 105,252,647 | 102,235,506 | 111,348,835 | 120,905,577 | 129,094,736 | 127,873,902 | 129,211,612 | 124,126,535 | 124,361,073 | 124,062,089 |
| Totals | 287,625,193 | 290,107,933 | 292,805,298 | 295,516,599 | 298,379,912 | 301,231,207 | 304,093,966 | 306,771,629 | 308,746,538 | 311,591,917 | 314,004,040 | 316,128,839 |

Table 5
High Cities - Year Round Particle Pollution (Annual PM-2.5)
(2011 - 2013)

| Rank | MSA | PW DV | Grade | 2013 Population |
|---|---|---|---|---|
| **1** | **Hanford, CA** | **17.0** | **F** | **150,960** |
| **2** | **Visalia, CA** | **16.6** | **F** | **454,143** |
| **3** | **Modesto, CA** | **14.7** | **F** | **525,491** |
| **4** | **Bakersfield, CA** | **13.7** | **F** | **864,924** |
| **5** | **Merced, CA** | **13.3** | **F** | **263,228** |
| **6** | **Madera, CA** | **13.2** | **D** | **152,389** |
| **7** | **Johnstown, PA** | **12.3** | **D** | **140,499** |
| **8** | **Fresno, CA** | **12.2** | **D** | **955,272** |
| **9** | **Scranton, PA** | **12.1** | **D** | **562,037** |
| 10 | Stockton, CA | 12.0 | C | 704,379 |
| 10 | Los Angeles, CA | 12.0 | C | 13,131,431 |
| 10 | Harrisburg, PA | 12.0 | C | 967,711 |
| 13 | Altoona, PA | 11.9 | C | 126,314 |
| 14 | York, PA | 11.7 | C | 438,965 |
| 15 | Shreveport, LA | 11.6 | C | 405,793 |
| 15 | Reading, PA | 11.6 | C | 413,521 |
| 15 | Erie, PA | 11.6 | C | 280,294 |
| 15 | Cincinnati, PH | 11.6 | C | 2,153,080 |
| 19 | Indianapolis, IN | 11.5 | C | 1,823,479 |
| 19 | Canton, OH | 11.5 | C | 403,707 |
| 21 | Riverside, CA | 11.2 | C | 4,380,878 |
| 21 | Houston, TX | 11.2 | C | 6,340,014 |
| 23 | Terre Haute, IN | 11.1 | C | 172,195 |
| 24 | Little Rock, AR | 11.1 | C | 724,385 |

MSA – Metropolitan Statistical Area PW – Population Weighted DV – Design Value

Of the top 24 cities, nine have air quality that exceeds the revised national ambient air quality standard. Fifteen cities are rated as C.

Table 6
Highest Cities – Short Term Particle Pollution (24-hour PM-2.5)
(2011 - 2013)

| Rank | MSA | PW DV | Grade | 2013 Population |
|---|---|---|---|---|
| **1** | **Hanford, CA** | **60** | **F** | **150,960** |
| **2** | **Visalia, CA** | **56** | **F** | **454,143** |
| **3** | **Modesto, CA** | **52** | **F** | **525,491** |
| **4** | **Bakersfield, CA** | **49** | **F** | **864,924** |
| **5** | **Logan, UT** | **45** | **F** | **129,763** |
| **5** | **Provo, UT** | **45** | **F** | **562,239** |
| **7** | **Fresno, CA** | **44** | **F** | **955,272** |
| **8** | **Boise City, ID** | **43** | **F** | **550,288** |
| **9** | **Merced, CA** | **42** | **F** | **263,228** |
| **10** | **Stockton, CA** | **41** | **F** | **704,379** |
| **10** | **Fairbanks, AK** | **41** | **F** | **100,436** |
| **12** | **Madera, CA** | **38** | **D** | **152,389** |
| **13** | **Salt Lake City, UT** | **37** | **D** | **1,178,969** |
| **14** | **Ogden, UT** | **36** | **D** | **570,786** |
| 15 | Harrisburg, PA | 34 | C | 967,711 |
| 15 | Medford, PR | 34 | C | 208,545 |
| 17 | Yakima, WA | 33 | C | 247,044 |
| 17 | Portland, OR | 33 | C | 2,314,554 |
| 19 | Reading, PA | 31 | B | 413,521 |
| 20 | Johnstown, PA | 30 | B | 140,499 |
| 20 | Scranton, PA | 30 | B | 562,037 |
| 20 | Altoona, PA | 30 | B | 126,314 |
| 20 | Sacramento, CA | 30 | B | 2,215,770 |
| | | | | |

MSA – Metropolitan Statistical Area PW – Population Weighted DV – Design Value

Of the 23 highest cities, 11 have ratings of F, 3 are a D, 4 are C and 5 are B.

Table 7
Highest 8-Hour Ozone Cities
(2011 - 2013)

| Rank | MSA | PW DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Riverside, CA | 0.090 | F | 4,380,878 |
| 2 | Fresno, CA | 0.089 | F | 955,272 |
| 3 | Visalia, CA | 0.086 | F | 454,143 |
| 4 | Sheboygan, WI | 0.085 | F | 114,922 |
| 4 | Bridgeport, CT | 0.085 | F | 939,904 |
| 6 | Bakersfield, CA | 0.084 | F | 864,924 |
| 6 | Norwich, CT | 0.084 | F | 274,150 |
| 8 | Dallas, TX | 0.082 | D | 6,754,588 |
| 8 | Niles, MI | 0.082 | D | 155,252 |
| 10 | Muskegon, MI | 0.081 | D | 171,008 |
| 10 | Merced, CA | 0.081 | D | 263,228 |
| 10 | Madera, CA | 0.081 | D | 152,389 |
| 13 | Modesto, CA | 0.080 | D | 525,491 |
| 14 | New Haven, CT | 0.078 | D | 862,287 |
| 14 | Tulsa, OK | 0.078 | D | 461,561 |
| 16 | Baltimore, MD | 0.077 | D | 2,770,738 |
| 16 | Racine, WI | 0.077 | D | 195,041 |
| 16 | Longview, TX | 0.077 | D | 216,530 |
| 16 | Lawton, OK | 0.077 | D | 124,937 |
| 16 | Joplin, MO | 0.077 | D | 175,243 |
| 16 | Los Angeles, CA | 0.077 | D | 13,131,431 |
| 16 | Owensboro, KY | 0.077 | D | 116,401 |
| 16 | St. Louis, MO | 0.077 | D | 2,850,771 |
| 16 | Shreveport, LA | 0.077 | D | 405,793 |
| 16 | Louisville, KY | 0.077 | D | 1,312,039 |
| 16 | Holland, MI | 0.077 | D | 272,701 |
| 16 | Houston, TX | 0.077 | D | 6,340,014 |
| 16 | Michigan City, IN | 0.077 | D | 111,281 |
| 16 | Oklahoma City, OK | 0.077 | D | 1,319,677 |
| 16 | Cincinnati, OH | 0.077 | D | 2,153,080 |

MSA – Metropolitan Statistical Area PW – Population Weighted DV – Design Value

Of the 30 highest rated cities, seven are rated F, while 23 are rated D.

Table 8

Highest Counties - Short Term Particle Pollution (24-hour PM-2.5)

(2011 - 2013)

| Rank | County/State | DV | Grade | 2013 Population |
|---|---|---|---|---|
| **1** | **Kings, CA** | **60** | **F** | **150,960** |
| **2** | **Lake, OR** | **56** | **F** | **7,820** |
| **2** | **Tulare, CA** | **56** | **F** | **454,143** |
| **4** | **Stanislaus, CA** | **52** | **F** | **525,491** |
| **5** | **Kern, CA** | **49** | **F** | **864,924** |
| **6** | **Ada, ID** | **46** | **F** | **416,464** |
| **7** | **Utah, UT** | **45** | **F** | **551,891** |
| **7** | **Cache, UT** | **45** | **F** | **116,909** |
| **9** | **Fresno, CA** | **44** | **F** | **955,272** |
| **10** | **Franklin, ID** | **43** | **F** | **12,854** |
| **11** | **Merced, CA** | **42** | **F** | **263,228** |
| **12** | **Fairbanks, AK** | **41** | **F** | **100,436** |
| **12** | **San Joaquin, CA** | **41** | **F** | **704,379** |
| **14** | **Crook, OR** | **38** | **D** | **20,815** |
| **14** | **Madera, CA** | **38** | **D** | **152,389** |
| **16** | **Salt Lake, UT** | **37** | **D** | **1,079,721** |
| **16** | **Box Elder, UT** | **37** | **D** | **50,794** |
| **18** | **Plumas, CA** | **36** | **D** | **18,859** |
| **18** | **Lemhi, ID** | **36** | **D** | **7,712** |
| **18** | **Klamath, OR** | **36** | **D** | **65,910** |
| **18** | **Weber, UT** | **36** | **D** | **238,519** |
| 22 | Carbon, UT | 35 | C | 20,988 |
| 23 | Cumberland, PA | 34 | C | 241,212 |
| 23 | Inyo, CA | 34 | C | 18,467 |
| 23 | Jackson, OR | 34 | C | 208,545 |
| 23 | Washington, OR | 34 | C | 554,996 |

DV – Design Value

Of the 26 highest counties, 13 are rated F, eight are D, and five are C.

Table 9
Highest Counties Year Round Particle Pollution (Annual PM-2.5)
(2011 - 2013)

| Rank | County/State | DV | Grade | 2013 Population |
|---|---|---|---|---|
| **1** | **Kings, CA** | **17.0** | **F** | **150,960** |
| **2** | **Tulare, CA** | **16.6** | **F** | **454,143** |
| **3** | **Stanislaus, CA** | **14.7** | **F** | **525,491** |
| **4** | **Kern, CA** | **13.7** | **F** | **864,924** |
| **5** | **Merced, CA** | **13.3** | **F** | **263,228** |
| **6** | **Madera, CA** | **13.2** | **D** | **152,389** |
| **7** | **Cambria, PA** | **12.3** | **D** | **140,499** |
| **8** | **Fresno, CA** | **12.2** | **D** | **755,272** |
| **8** | **Los Angeles, CA** | **12.2** | **D** | **10,017,068** |
| **8** | **Butler, OH** | **12.2** | **D** | **371,272** |
| **11** | **Lackawanna, PA** | **12.1** | **D** | **213,931** |
| **12** | San Joaquin, CA | 12.0 | C | 704,379 |
| **12** | Cumberland, PA | 12.0 | C | 241,212 |
| **12** | Madison, IL | 12.0 | C | 267,225 |
| **15** | Northampton, PA | 11.9 | C | 94,076 |
| **15** | Blair, PA | 11.9 | C | 126,314 |
| **17** | York, PA | 11.7 | C | 438,965 |
| **18** | Berks, PA | 11.6 | C | 413,521 |
| **18** | Erie, PA | 11.6 | C | 280,294 |
| **18** | Brooke, WV | 11.6 | C | 23,737 |
| **18** | Marshall, WV | 11.6 | C | 32,459 |
| **18** | Roane, TN | 11.6 | C | 53,047 |
| **18** | Caddo, LA | 11.6 | C | 254,887 |

DV – Design Value

Of the 23 highest counties, five are rated a F and six are D. All others meet the National Ambient Air Quality Standards with 12 being rated as C.

Table 10
Highest Ozone Counties
(2011 - 2013)

| Rank | County/State | DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Uintah, UT | 0.097 | F | 35,555 |
| 2 | San Bernardino, CA | 0.094 | F | 2,088,371 |
| 3 | Fresno, CA | 0.089 | F | 955,272 |
| 4 | Riverside, CA | 0.087 | F | 2,292,507 |
| 5 | Tulare, CA | 0.086 | F | 454,143 |
| 5 | Allegan, MI | 0.086 | F | 112,531 |
| 7 | Fairfield, CT | 0.085 | F | 939,904 |
| 7 | Denton, TX | 0.085 | F | 726,799 |
| 10 | Sheboygan, WI | 0.085 | F | 114,922 |
| 10 | Kern, CA | 0.084 | F | 864,924 |
| 10 | New London, CT | 0.084 | F | 274,150 |
| 10 | Gloucester, NJ | 0.084 | F | 290,265 |
| 14 | Collin, TX | 0.084 | F | 854,778 |
| 15 | El Dorado, CA | 0.083 | F | 181,737 |
| 15 | Oldham, KY | 0.082 | D | 62,364 |
| 15 | Cecil, MD | 0.082 | D | 101,913 |
| 15 | Berrien, MI | 0<br>093 | D | 155,252 |
| 15 | Dallas, TX | 0.082 | D | 2,480,331 |
| 15 | Tarrant, TX | 0.082 | D | 1,911,541 |
| 15 | Kenosha, WI | 0.082 | D | 167,757 |
| 21 | Madera, CA | 0.081 | D | 152,389 |
| 21 | Merced, CA | 0.081 | D | 263,228 |
| 21 | Douglas, CO | 0.081 | D | 305,963 |
| 21 | Middlesex, CT | 0.081 | D | 165,562 |
| 21 | Anne Arundel, MD | 0.081 | D | 555,743 |
| 21 | Harford, MD | 0.081 | D | 249,215 |
| 21 | Muskegon, MI | 0.081 | D | 171,008 |
| 21 | Camden, NJ | 0.081 | D | 512,854 |

DV – Design Value

Of the top 28 counties, 14 are rated as F and 14 are rated as D.

Table 11
Cleanest U.S. Cities for Short-term Particle Pollution (24-hr PM-2.5)
(2011 - 2013)

| Rank | MSA | PW DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Prescott, AZ | 10 | A | 215,133 |
| 1 | Miami, FL | 10 | A | 5,828,191 |
| 3 | Santa Fe, NM | 11 | A | 147,423 |
| 4 | Flagstaff, AZ | 12 | A | 136,539 |
| 4 | Tucson, AZ | 12 | A | 996,554 |
| 6 | Farmington, NM | 13 | A | 126,503 |
| 6 | Honolulu, HI | 13 | A | 983,429 |
| 6 | Santa Cruz, CA | 13 | A | 269,419 |
| 9 | Casper, WY | 14 | A | 80,973 |
| 9 | Rapid City, SD | 14 | A | 132,963 |
| 9 | Salinas, CA | 14 | A | 428,826 |
| 12 | Cheyenne, WY | 15 | A | 95,809 |
| 12 | Bismarck, ND | 15 | A | 117,447 |
| 12 | Las Cruces, NM | 15 | A | 213,460 |
| 12 | Cape Coral, FL | 15 | A | 661,115 |
| 12 | Lakeland, FL | 15 | A | 623,009 |
| 17 | Boulder, CO | 16 | A | 310,048 |
| 17 | Pueblo, CO | 16 | A | 161,451 |
| 17 | North Port, FL | 16 | A | 732,535 |
| 17 | Orlando, FL | 16 | A | 2,237,846 |
| 17 | Deltona, FL | 16 | A | 500,800 |
| 17 | Tampa, FL | 16 | A | 2,870,569 |
| 17 | Kingsport, TN | 16 | A | 308,283 |

MSA – Metropolitan Statistical Area PW – Population Weighted DV – Design Value

Of the 23 cleanest cities, all are rated as A.

Table 12
Cleanest U.S. Cities for Year Round Particle Pollution (Annual PM-2.5)
(2011 - 2013)

| Rank | MSA | PW DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Prescott, AZ | 4.1 | A | 215,133 |
| 2 | Casper, WY | 4.7 | A | 80,973 |
| 2 | Farmington, NM | 4.7 | A | 26,503 |
| 4 | Santa Fe, NM | 4.8 | A | 147,423 |
| 5 | Cheyenne, WY | 4.9 | A | 95,809 |
| 6 | Anchorage, AK | 5.1 | A | 396,142 |
| 7 | Flagstaff, AZ | 5.3 | A | 136,539 |
| 8 | Pocatello, ID | 5.6 | A | 90,968 |
| 8 | Tucson, AZ | 5.6 | A | 996,554 |
| 10 | Honolulu, HI | 5.7 | A | 983,429 |
| 10 | Redding, CA | 5.7 | A | 178,980 |
| 12 | Duluth, MN | 5.9 | A | 279,887 |
| 13 | Boulder, CO | 6.0 | A | 310,048 |
| 13 | Rapid City, SD | 6.0 | A | 132,963 |
| 15 | Burlington, VT | 6.1 | A | 214,796 |
| 15 | Palm Bay, FL | 6.1 | A | 550,823 |
| 15 | Salinas, CA | 6.1 | A | 428,826 |
| 18 | Bismarck, ND | 6.2 | A | 117,447 |
| 18 | Manchester, OH | 6.2 | A | 403,985 |
| 20 | Colorado Springs, CO | 6.3 | A | 678,319 |
| 20 | Las Cruces, NM | 6.3 | A | 213,460 |
| 20 | Pueblo, CO | 6.3 | A | 161,451 |
| 20 | Santa Cruz, CA | 6.3 | A | 269,419 |
| 24 | Miami, FL | 6.5 | A | 5,828,191 |

MSA – Metropolitan Statistical Area PW – Population Weighted DV – Design Value

Of the 24 cleanest cities all are rated as A.

Table 13
Cleanest U.S. Cities for Ozone Air Pollution
(2011 - 2013)

| Rank | MSA | PW DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Bellingham, WA | 0.044 | A | 206,353 |
| 1 | Mount Vernon, WA | 0.044 | A | 118,837 |
| 3 | Honolulu, HI | 0.045 | A | 983,429 |
| 4 | Santa Rosa, CA | 0.047 | A | 495,025 |
| 5 | Santa Cruz, CA | 0.051 | A | 269,419 |
| 6 | Duluth, MN | 0.054 | A | 279,887 |
| 6 | Salinas, CA | 0.054 | A | 428,826 |
| 6 | San Francisco, CA | 0.054 | A | 4,516,076 |
| 6 | Seattle, WA | 0.054 | A | 3,610,105 |
| 10 | Lincoln, NE | 0.055 | A | 314,125 |
| 10 | Olympia, WA | 0.055 | A | 262,388 |
| 12 | Portland, OR | 0.057 | A | 2,314,554 |
| 12 | Santa Barbara, CA | 0.057 | A | 435,697 |
| 14 | Bend, OR | 0.058 | A | 165,954 |
| 14 | Bismarck, ND | 0.058 | A | 117,447 |
| 14 | Brunswick, GA | 0.058 | A | 113,807 |
| 14 | Eugene, OR | 0.058 | A | 356,212 |
| 14 | Salem, OR | 0.058 | A | 400,408 |
| 19 | Bangor, ME | 0.059 | A | 153,364 |
| 19 | Fargo, ND | 0.059 | A | 178,231 |
| 19 | Napa, CA | 0.059 | A | 140,326 |
| 19 | Tuscaloosa, AL | 0.059 | A | 224,671 |
| 23 | Brownsville, TX | 0.060 | B | 417,276 |
| 23 | Naples, FL | 0.060 | B | 339,642 |
| 23 | Spokane, WA | 0.060 | B | 474,398 |

MSA – Metropolitan Statistical Area PW – Population Weighted DV – Design Value

Of the cleanest 25 cities, 22 are rated A, while 3 are rated B.

Table 14
Cleanest Counties – Short Term Particle Pollution (24-hour PM-2.5)
(2011 - 2013)

| Rank | County/State | DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Lake, CA | 10 | A | 63,860 |
| 1 | Yavapai, AZ | 10 | A | 215,133 |
| 3 | Billings, ND | 11 | A | 874 |
| 3 | Santa Fe, NM | 11 | A | 147,423 |
| 5 | Jackson, SD | 12 | A | 3,216 |
| 5 | Custer, SD | 12 | A | 8,468 |
| 5 | Sweetwater, WY | 12 | A | 45,237 |
| 5 | Hancock, ME | 12 | A | 54,845 |
| 5 | Pima, AZ | 12 | A | 996,554 |
| 5 | Coconino, AZ | 12 | A | 136,539 |
| 5 | Albany, WY | 12 | A | 37,422 |
| 5 | Hawaii, HI | 12 | A | 190,621 |
| 13 | Honolulu, HI | 13 | A | 983,429 |
| 13 | Santa Cruz, CA | 13 | A | 269,419 |
| 13 | Montezuma, CO | 13 | A | 25,642 |
| 13 | San Juan, NM | 13 | A | 126,503 |
| 13 | Teton, WY | 13 | A | 22,268 |
| 13 | Maui, HI | 13 | A | 160,202 |
| 19 | Monterey, CA | 14 | A | 428,826 |
| 19 | Palm Beach, FL | 14 | A | 1,372,171 |
| 19 | Miami, Dade, FL | 14 | A | 2,617,176 |
| 19 | Essex, NY | 14 | A | 38,762 |
| 19 | Park, WY | 14 | A | 29,227 |
| 19 | Natrona, WY | 14 | A | 80,973 |
| 19 | Pennington, SD | 14 | A | 105,761 |

DV – Design Value

The cleanest 25 counties are all rated as A.

Table 15
Cleanest Counties - Year Round Particle Pollution (Annual PM-2.5)
(2011 - 2013)

| Rank | County/State | DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Lake, CA | 3.8 | A | 63,860 |
| 2 | Custer, SD | 3.9 | A | 8,468 |
| 3 | Yavapai, AZ | 4.1 | A | 215,133 |
| 3 | La Plata, CO | 4.1 | A | 53,284 |
| 5 | Jackson, SD | 4.3 | A | 3,216 |
| 5 | Essex, NY | 4.3 | A | 38,762 |
| 7 | Billings, ND | 4.4 | A | 874 |
| 8 | Sweetwater, WY | 4.6 | A | 45,237 |
| 8 | Hancock, ME | 4.6 | A | 54,845 |
| 8 | Park, WY | 4.6 | A | 29,227 |
| 12 | Matanuska, AK | 4.6 | A | 95,192 |
| 12 | San Juan, NM | 4.7 | A | 126,503 |
| 14 | Natrona, WY | 4.7 | A | 80,973 |
| 15 | Santa Fe, NM | 4.8 | A | 147,423 |
| 15 | Albany, WY | 4.9 | A | 37,422 |
| 15 | Laramie, WY | 4.9 | A | 95,809 |
| 17 | Ashland, WI | 5.1 | A | 16,016 |
| 18 | Teton, WY | 5.2 | A | 22,268 |
| 19 | Coconino, AZ | 5.3 | A | 136,539 |
| 19 | Anchorage, AK | 5.3 | A | 300,950 |
| 21 | Lewis & Clark, MT | 5.4 | A | 65,336 |
| 22 | Dunn, ND | 5.5 | A | 4,162 |
| 22 | San Benito, CA | 5.5 | A | 57,600 |
| 22 | Litchfield, CT | 5.5 | A | 186,924 |
| 22 | Arapahoe, CO | 5.5 | A | 607,070 |

DV – Design Value

The cleanest 25 counties are all rated as A.

Table 16
Cleanest Counties - Ozone Air Pollution
(2011 - 2013)

| Rank | County/State | DV | Grade | 2013 Population |
|---|---|---|---|---|
| 1 | Whatcom, WA | 0.044 | A | 206,353 |
| 1 | Skagit, WA | 0.044 | A | 118,837 |
| 3 | Honolulu, HI | 0.045 | A | 983,429 |
| 3 | Humboldt, CA | 0.045 | A | 134,493 |
| 5 | San Francisco, CA | 0.046 | A | 837,442 |
| 6 | Sonoma, CA | 0.047 | A | 495,025 |
| 7 | Columbia, OR | 0.050 | A | 49,344 |
| 8 | Aroostook, ME | 0.051 | A | 70,055 |
| 8 | Santa Cruz, CA | 0.051 | A | 269,419 |
| 10 | Denali, AK | 0.052 | A | 1,867 |
| 11 | King, WA | 0.053 | A | 2,044,449 |
| 11 | San Mateo, CA | 0.053 | A | 747,373 |
| 11 | Marin, CA | 0.053 | A | 258,365 |
| 14 | Lewis & Clark, MT | 0.054 | A | 65,338 |
| 14 | Flathead, MT | 0.054 | A | 93,069 |
| 14 | St. Louis, MN | 0.054 | A | 200,540 |
| 14 | Oxford, ME | 0.054 | A | 57,277 |
| 14 | Monterey, CA | 0.054 | A | 428,826 |
| 14 | Alameda, CA | 0.054 | A | 1,578,891 |
| 20 | Thurston, WA | 0.055 | A | 262,388 |
| 20 | Pierce, WA | 0.055 | A | 819,743 |
| 20 | Lancaster, NE | 0.055 | A | 297,036 |
| 20 | Rosebud, MT | 0.055 | A | 9,329 |
| 20 | Powder River, MT | 0.055 | A | 1,748 |
| 20 | Washington, ME | 0.055 | A | 32,190 |

DV – Design Value

Of the 25 cleanest counties, all are rated A.

# MINNESOTA

## Ozone

**Ozone levels in Minnesota have historically been better than the standard. In the 2000 – 2002 time period, approximately 1.1 million people (21.9%) lived in counties that met the ozone standard. By 2011 – 2013 this had increased to approximately 1.3 million people (24.9%). The remainder of the population lived in counties where ozone was not measured. Figure MN-1 shows the distribution of people by year.**

## 24-Hour PM-2.5

**24-hour PM-2.5 levels in Minnesota have generally been better than the standard. In the 2000 – 2002 time period, approximately 2.3 million people (46.9%) lived in counties where 24-hour PM-2.5 levels met the standard. By 2011 - 2013 this was approximately 3.1 million people (57.9%). The remainder of the population lived in counties where PM-2.5 was not measured. Figure MN-2 shows the distribution of people by year.**

## Annual PM-2.5

**Annual PM-2.5 levels in Minnesota have historically been better than the standard. In the 2000 – 2002 time period, approximately 2.4 million people (47.0%) lived in counties where annual PM-2.5 levels met the standard. By 2011 – 2013 this had increased to approximately 3.1 million people (57.9%). The remainder of the population lived in counties where PM-2.5 was not measured. Figure MN-3 shows the distribution of people by year.**

Table MN-1

2011 – 2013

| | | OZONE | | | PARTICLE POLLUTION (PM-2.5) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| County | Population | Avg. DV | Grade | MM | Avg. 24-Hr DV | Grade | Avg. Ann DV | Grade | MM |
| Anoka | 339,534 | 0.065 | B | Y | 23 | A | 8.1 | A | N |
| Becker | 33,231 | 0.061 | B | N | ND | -- | ND | -- | -- |
| Carlton | 35,460 | 0.056 | A | N | ND | -- | ND | -- | -- |
| Crow Wing | 63,208 | 0.062 | B | N | ND | -- | ND | -- | -- |
| Dakota | 408,509 | ND | -- | -- | 21 | A | 8.8 | A | N |
| Goodhue | 46,464 | 0.063 | B | N | ND | -- | ND | -- | -- |
| Hennepin | 1,198,778 | ND | -- | -- | 23 | A | 8.8 | A | Y |
| Lake | 10,777 | 0.058 | A | N | ND | -- | ND | -- | -- |
| Lyon | 25,487 | 0.065 | B | N | 20 | A | 7.1 | A | N |
| Mille Lacs | 25,833 | 0.060 | B | N | ND | -- | ND | -- | -- |
| Olmsted | 149,226 | 0.064 | B | N | 22 | A | 8.3 | A | N |
| Ramsey | 526,714 | ND | -- | -- | 25 | A | 9.2 | A | Y |
| St Louis | 200,540 | 0.054 | A | Y | 17 | A | 5.9 | A | Y |
| Scott | 137,232 | 0.065 | B | N | 22 | A | 8.4 | A | N |
| Stearns | 152,092 | 0.062 | B | N | 22 | A | 7.4 | A | N |
| Wright | 128,470 | 0.063 | B | N | ND | -- | ND | -- | -- |
| **Subtotal** | **3,481,555** | | | | | | | | |
| Not Monitored | 1,938,825 | | | | | | | | |
| **Total** | **5,420,380** | | | | | | | | |

DV – Design Value ND - No Data MM – Multiple Monitors

# MINNESOTA

## Table MN-2

### People Breathing Ozone

| Grade | 2000-2002 | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 | 2009-2011 | 2010-2012 | 2011-2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0 | 0 | 11,100 | 0 | 227,973 | 198,903 | 199,745 | 380,301 | 420,335 | 356,507 | 256,326 | 246,777 |
| B | 579,899 | 211,238 | 824,163 | 637,701 | 776,813 | 492,187 | 770,045 | 1,095,159 | 1,076,539 | 1,188,290 | 1,191,234 | 1,100,777 |
| C | 518,883 | 898,037 | 532,580 | 675,880 | 276,987 | 963,685 | 354,859 | 0 | 0 | 0 | 0 | 0 |
| D | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| F | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal | 1,098,782 | 1,109,275 | 1,367,843 | 1,313,591 | 1,281,771 | 1,654,775 | 1,324,649 | 1,475,460 | 1,496,874 | 1,544,797 | 1,337,550 | 1,347,554 |
| NM | 3,920,153 | 3,944,297 | 3,719,870 | 3,806,007 | 3,881,782 | 3,552,428 | 3,922,369 | 3,805,743 | 3,807,051 | 3,800,064 | 4,041,579 | 4,072,826 |
| Total | 5,018,935 | 5,053,572 | 5,087,713 | 5,119,598 | 5,163,553 | 5,207,203 | 5,247,018 | 5,281,203 | 5,303,925 | 5,344,861 | 5,379,139 | 5,420,380 |

### People Breathing Short-term Particle Pollution (24-Hour PM-2.5)

| Grade | 2000-2002 | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 | 2009-2011 | 2010-2012 | 2011-2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 224,099 | 1,939,459 | 2,441,576 | 1,803,429 | 2,168,851 | 2,451,470 | 2,561,332 | 504,551 | 350,868 | 351,598 | 2,560,221 | 3,138,112 |
| B | 1,873,405 | 659,333 | 167,035 | 838,998 | 352,304 | 0 | 0 | 1,940,443 | 1,825,153 | 1,648,762 | 520,152 | 0 |
| C | 255,291 | 0 | 0 | 0 | 0 | 0 | 0 | 253,295 | 0 | 514,696 | 0 | 0 |
| D | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 508,640 | 0 | 0 | 0 |
| F | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal | 2,352,795 | 2,598,792 | 2,617,611 | 2,642,427 | 2,221.,153 | 2,451,470 | 2,564,332 | 2,698,289 | 2,484,661 | 2,715,256 | 3,082,373 | 3,138,114 |
| NM | 2,666,140 | 2,454,780 | 2,470,102 | 2,477,171 | 2,942,400 | 2,755,733 | 2,685,686 | 2,582,914 | 2,819,264 | 2,629,605 | 2,296,766 | 2,282,268 |
| Total | 5,018,935 | 5,053,572 | 5,087,713 | 5,119,598 | 5,163,553 | 5,207,203 | 5,247,018 | 5,281,203 | 5,303,925 | 5,344,861 | 5,379,139 | 5,420,380 |

### People Breathing Year Round Particle Pollution (Annual PM-2.5)

| Grade | 2000-2002 | 2001-2003 | 2002-2004 | 2003-2005 | 2004-2006 | 2005-2007 | 2006-2008 | 2007-2009 | 2008-2010 | 2009-2011 | 2010-2012 | 2011-2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1,968,372 | 2,345,813 | 2,508,611 | 2,642,427 | 2,521,155 | 2,451,470 | 2,561,332 | 2,698,289 | 2,684,661 | 2,715,056 | 3,080,373 | 3,138,112 |
| B | 384,423 | 252,979 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| D | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| F | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal | 2,352,795 | 2,598,792 | 2,608,611 | 2,642,427 | 2,521,147 | 2,451,470 | 2,561,332 | 2,698,289 | 2,684,661 | 2,715,056 | 3,080,353 | 3,138,112 |
| NM | 2,666,140 | 2,454,780 | 2,479,102 | 2,477,171 | 2,642,406 | 2,755,733 | 2,685,686 | 2,582,914 | 2,619,264 | 2,629,805 | 2,298,786 | 2,282,268 |
| Total | 5,018,935 | 5,053,572 | 5,087,713 | 5,119,598 | 5,163,553 | 5,207,203 | 5,247,018 | 5,281,203 | 5,303,925 | 5,344,861 | 5,379,139 | 5,420,380 |

NM – Not Monitored

Figure MN-1

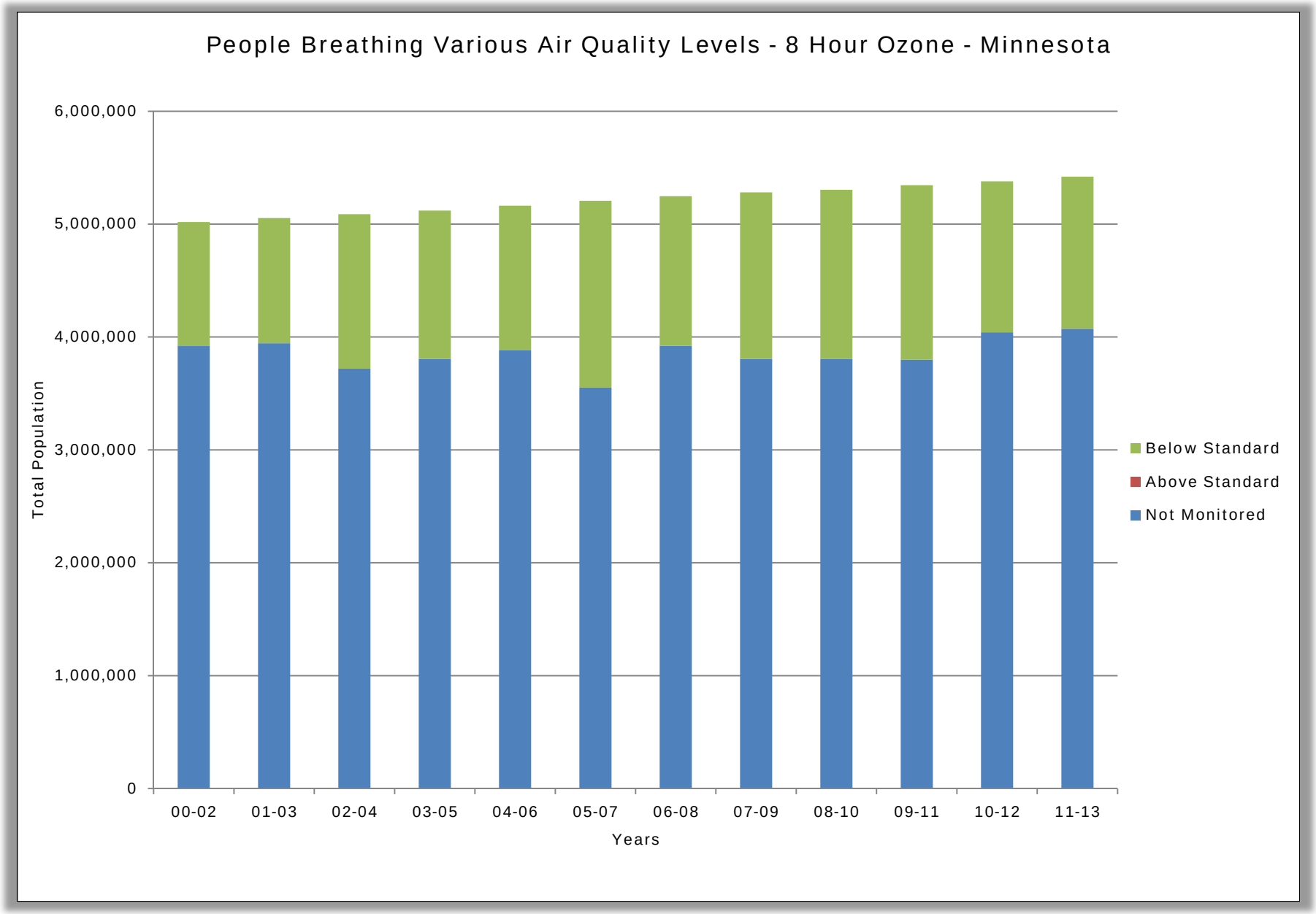

People Breathing Various Air Quality Levels - 8 Hour Ozone - Minnesota
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
Total Population
00-02
01-03
02-04
03-05
04-06
05-07
06-08
07-09
08-10
09-11
10-12
11-13
Years
Below Standard
Above Standard
Not Monitored

Figure MN-2

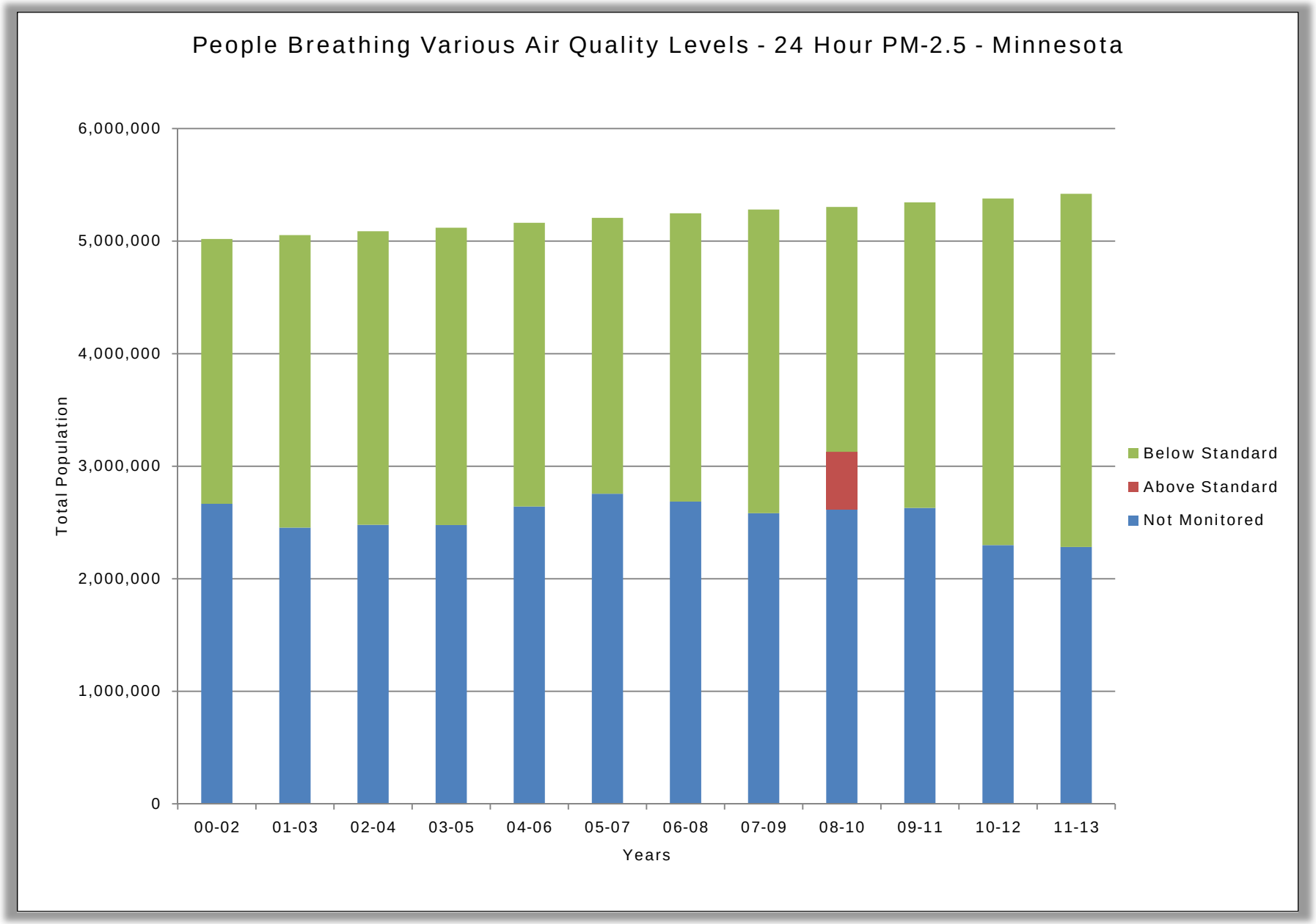
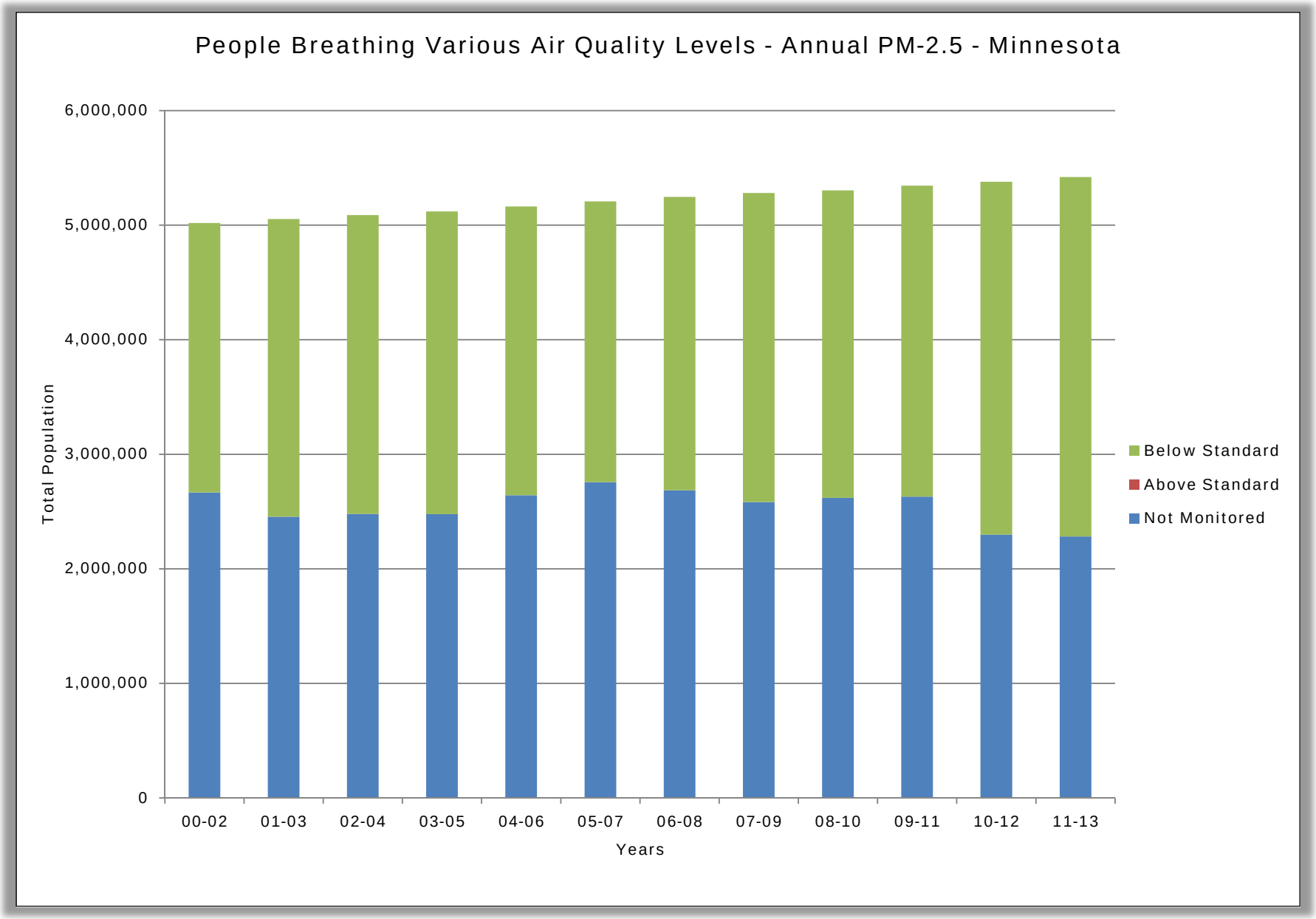

People Breathing Various Air Quality Levels - 24 Hour PM-2.5 - Minnesota
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
Total Population
00-02
01-03
02-04
03-05
04-06
05-07
06-08
07-09
08-10
09-11
10-12
11-13
Years
Below Standard
Above Standard
Not Monitored

Figure MN-3


People Breathing Various Air Quality Levels - Annual PM-2.5 - Minnesota
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
Total Population
00-02
01-03
02-04
03-05
04-06
05-07
06-08
07-09
08-10
09-11
10-12
11-13
Years
Below Standard
Above Standard
Not Monitored