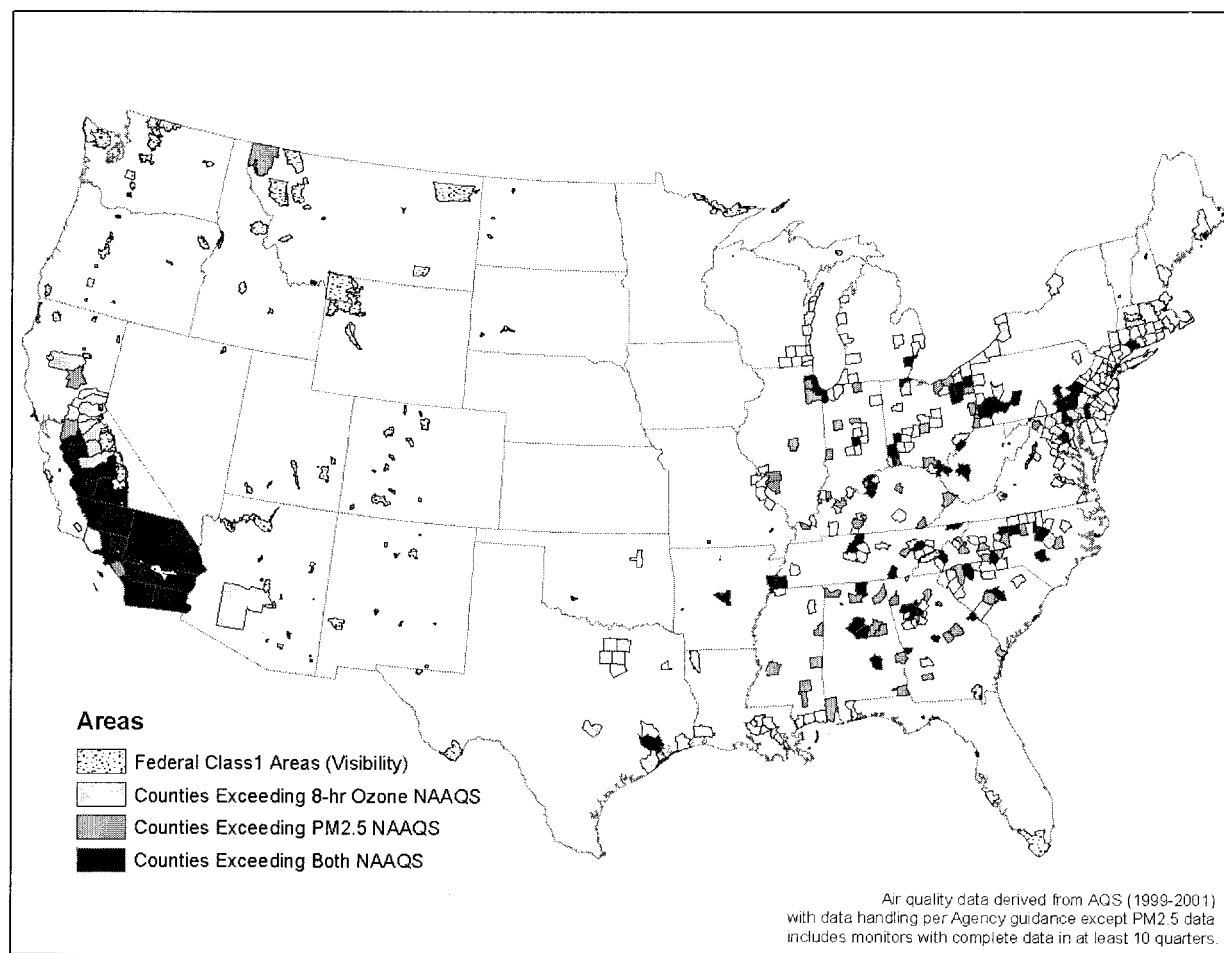


FIGURE III-1 -- AIR QUALITY PROBLEMS ARE WIDESPREAD



### A. Public Health Impacts

#### 1. Ozone

a. *What are the health effects of ozone pollution?* Ground-level ozone pollution (sometimes called “smog”) is formed by the reaction of nitrogen oxides ( $\text{NO}_x$ ) and volatile organic compounds (VOC) in the atmosphere in the presence of heat and sunlight.<sup>24</sup> Ozone can irritate the respiratory system, causing coughing, throat irritation, and/or uncomfortable sensation in the chest.<sup>25,26</sup> Ozone can reduce lung function and make it more difficult to breathe deeply, and breathing may become more rapid and shallow than normal, thereby limiting a person’s normal activity. Ozone also can aggravate asthma, leading to more

asthma attacks that require a doctor’s attention and/or the use of additional medication. In addition, ozone can inflame and damage the lining of the lungs, which may lead to permanent changes in lung tissue, irreversible reductions in lung function, and a lower quality of life if the inflammation occurs repeatedly over a long time period (months, years, a lifetime). People who are of particular concern with respect to ozone exposures include children and adults who are active outdoors. Those people particularly susceptible to ozone effects are people with respiratory disease, such as asthma, and people with unusual sensitivity to ozone, and children. Beyond its human health effects, ozone has been shown to injure plants, which has the effect of reducing

crop yields and reducing productivity in forest ecosystems.<sup>27,28</sup>

The 8-hour ozone standard, established by EPA in 1997, is based on well-documented science demonstrating that more people are experiencing adverse health effects at lower levels of exertion, over longer periods, and at lower ozone concentrations than addressed by the one-hour ozone standard. (See, e.g., 62 FR 38861–38862, July 18, 1997). The 8-hour standard addresses ozone exposures of concern for the general population and populations most at risk, including

<sup>24</sup> U.S. EPA, “Nitrogen Oxides: Impacts on Public Health and the Environment,” EPA 452/R-97-002, August 1997. A copy of this document is available in Docket No. OAR 2002-0030.

<sup>25</sup> U.S. EPA (1996). Air Quality Criteria for Ozone and Related Photochemical Oxidants, EPA/600/P-93/004aF. Docket No. A-99-06. Document Nos. II-A-15 to 17.

<sup>26</sup> U.S. EPA. (1996). Review of National Ambient Air Quality Standards for Ozone, Assessment of Scientific and Technical Information, OAQPS Staff Paper, EPA-452/R-96-007. Docket No. A-99-06. Document No. II-A-22.

<sup>27</sup> U.S. EPA (1996). Air Quality Criteria for Ozone and Related Photochemical Oxidants, EPA/600/P-93/004aF. Docket No. A-99-06. Document Nos. II-A-15 to 17.

<sup>28</sup> U.S. EPA. (1996). Review of National Ambient Air Quality Standards for Ozone, Assessment of Scientific and Technical Information, OAQPS Staff Paper, EPA-452/R-96-007. Docket No. A-99-06. Document No. II-A-22.