

Particulate Matter (PM₁₀) Concentrations in the Border Region Figure 9		Type of Indicator State
		Goal and Objective: 2.1
Description of the INDICATOR		
<i>Definition</i>	PM ₁₀ ambient air concentrations in the border region by geographic monitoring areas, 2001-2005.	
<i>Importance of the indicator/purpose</i>	This indicator documents PM ₁₀ air pollution trends based on direct measurements of pollutant concentrations in the ambient air from monitoring stations in the geographic areas presented. This information is useful for purposes of assessing whether air pollution is increasing or decreasing over time.	
<i>Units of measure</i>	µg/m ³ The three year average of annual mean concentrations of PM ₁₀ at highest monitoring site in a geographic monitoring area.	
<i>Concepts and definitions</i>	<p>Particulate Matter (PM) -- Particulate matter (PM) with an aerodynamic diameter of 10 microns or less (PM₁₀) consists of ground geologic material entrained into the air by agricultural processes, unpaved roadways, and quarry and cement manufacturing. Fine PM (diameter of 2.5 microns or less) or PM_{2.5} consists of sulfates, nitrates, other gases, soot and finer ground geologic materials. Exposure to PM is a major human health concern including effects on breathing, aggravation of respiratory and cardiovascular disease and premature death.</p> <p>Design Value (DV) Air Quality System (AQS)</p>	
<i>Coverage</i>	Yearly from 2001 to 2005. Five geographic monitoring areas: Tijuana/San Diego, Mexicali/Imperial Valley, Nogales/Nogales, Ciudad Juarez/El Paso, Lower Rio Grande Valley. Monitors are located on both sides of the border except in the Lower Rio Grande Valley area. (Figure 9-1).	
<i>Calculation</i>	<p>PM₁₀ annual Design Values (DVs) were calculated for each monitoring area.</p> <p>To determine the monitors within each area, run the CICA Border Air Quality Data "Monitor Values Report" for the areas of interest. (The location of air monitoring sites within these areas is depicted in Figure 9-2 for Tijuana/San Diego, Figure 9-3 for the Mexicali/Imperial Valley, Figure 9-4 for Nogales/Nogales, Figure 9-5 for Ciudad Juarez/El Paso, and Figure 9-6 for Lower Rio Grande Valley.) Since three years of data are necessary for each data value, run three reports. For example, for 2001 run reports for 1999, 2000 and 2001 and select all monitors with three consecutive years of data. Repeat the process for each year of interest to determine monitors considered. (Note: monitors are not common across the entire five year trend.)</p> <p>Using Air Quality System (AQS) AMP 450 QuickLook Report for PM₁₀, for a given monitor, sum the column "WTD ARITH MEAN" (weighted arithmetic mean) concentration for the year of interest and the two prior years. (For example, if the year of interest is 2001, sum the "WTD ARITH MEAN" concentrations for 1999, 2000, and 2001). Divide the sum by three. This is the DV for the monitor and year of interest. Repeat this process for all monitors in the geographic monitoring area and for each year of interest. Compare the DVs across all monitors within a geographic monitoring area and plot the highest value of the area for the year of interest. Repeat this process for each year of interest (2001, 2002, 2003, 2004, and 2005) and plot these values. These values are listed in Table 11-1. (Note: data flagged by the State and concurred by the regional office were excluded.)</p>	
<i>Sources of information</i>	<p>Data were provided by EPA based on a search of the U.S. EPA Air Quality System (AQS) Database. http://www.epa.gov/ttn/airs/airsaqs/sysoverview.htm This database is accessible by the public upon request.</p> <p>Border Air Quality Database. http://www.epa.gov/ttn/catc/cica/airq_e.html.</p>	
<i>References (additional information)</i>	Air Policy Forum http://www.epa.gov/border2012/org.htm#forums	
<i>Limitations of the indicator</i>	None identified.	