

Ozone Concentrations in the Border Region Figure 8		Type of Indicator State
		Goal and Objective: 2.1
Description of the INDICATOR		
<i>Definition</i>	Ozone ambient air concentrations in the border region by geographic monitoring areas, 2001-2005.	
<i>Importance of the indicator/purpose</i>	This indicator documents ozone 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>	ppm. Average of the 4 th highest value of ozone over three years within a geographic monitoring area.	
<i>Concepts and definitions</i>	<p>Ozone (O₃) – Ozone is a photochemical oxidant and the major component of smog formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) in the presence of sunlight. These pollutants are emitted by transportation and industrial sources. O₃ is reactive and damages lung tissue, reduces lung function, and increases sensitivity to other irritants.</p> <p>Parts per million (ppm) Design Value (DV)</p> <p>Monitoring area may also be referred to as a geographic area. Monitor or monitoring site may also be referred to as a site or a location.</p>	
<i>Coverage</i>	Yearly 2001 - 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. Air data is also available, but not included in this indicator, for outlying sites in between the geographic areas. (Figure 9-1).	
<i>Calculation</i>	<p>8-hour ozone design values (DV) 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 Ozone, obtain three years of data for each monitor in the geographic area. For example, if interested in 2001 values, obtain data for 1999, 2000, and 2001. Identify the column “4th Max 8-hour Value” concentration in ppm and divide the sum by three. This is the DV for the monitoring site. Repeat this process for each monitor. Compare the values across all monitors within a geographic monitoring area and plot the highest value of the area for the year of interest. The process is repeated for each year of interest (2001, 2002, 2003, 2004, and 2005) and for the geographic area of interest. 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.	