

# EAST BATON ROUGE, LOUISIANA INDOOR AIR QUALITY MONITORING STUDY

*Before and After*   
*Implementation of the 2018*  
*Comprehensive Smoke-Free Ordinance*

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## Background

Prior to passing a comprehensive smoke-free ordinance, East Baton Rouge assessed indoor air quality in 11 bars and three casinos that permitted smoking. Researchers at the Roswell Park Cancer Institute conducted these assessments in 2016. The average air quality exceeded the EPA's threshold for unhealthy air, and approached the threshold for very unhealthy air. Moreover, two venues exceeded the unhealthy air levels and two exceeded hazardous levels. This report provides subsequent assessments in a subset of these venues approximately one and a half months after Baton Rouge implemented a comprehensive smoke-free ordinance on June 1st of 2018. The subset included each of the casinos assessed in 2016 and three of the bars. Not all of the bars previously assessed were included in this study due to time constraints. The three bars assessed in this study were randomly selected from the original bars.

## Methods

In July 2018, we used a TSI SidePak AM510 Personal Aerosol Monitor using the protocol developed by the Roswell Park Cancer Institute to measure the concentration of fine particle air pollution,  $PM_{2.5}$ . A minimum of 30 minutes was spent in each venue. Air quality studies typically monitor particles of this size because  $PM_{2.5}$  are released in significant amounts from burning cigarettes, are easily inhaled deep into the lungs, and cause a variety of adverse health effects including cardiovascular and respiratory morbidity and death.

### U.S. ENVIRONMENTAL PROTECTION AGENCY

Health studies have shown a significant association between exposure to fine particles and premature death from heart or lung disease. Fine particles can aggravate heart and lung diseases and have been linked to effects such as: cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; and bronchitis. These effects can result in increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days. Individuals that may be particularly sensitive to fine particle exposure include people with heart or lung disease, older adults, and children.

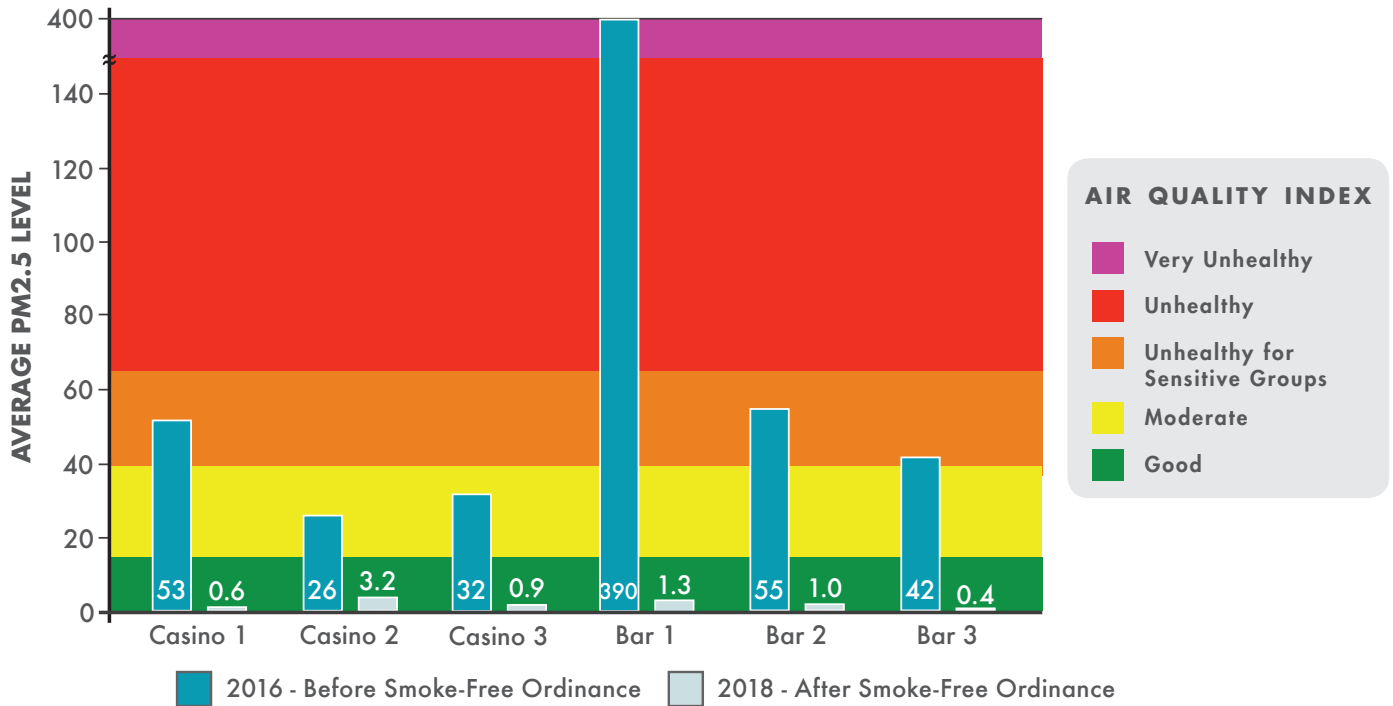
### MICROGRAMS PER CUBIC METER ( $\mu\text{G}/\text{M}^3$ )

Air quality is assessed based on Particulate Matter (PM). The size of particles is directly linked to their potential for causing health problems. Very small particles generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Air quality levels are defined as the mass of particulate matter  $\leq 2.5$  microns in diameter in a volume of air: micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). A microgram is one millionth of a gram. A cubic meter (approximately 39" X 39" X 39") describes a volume of air that is about the size of a washing machine.

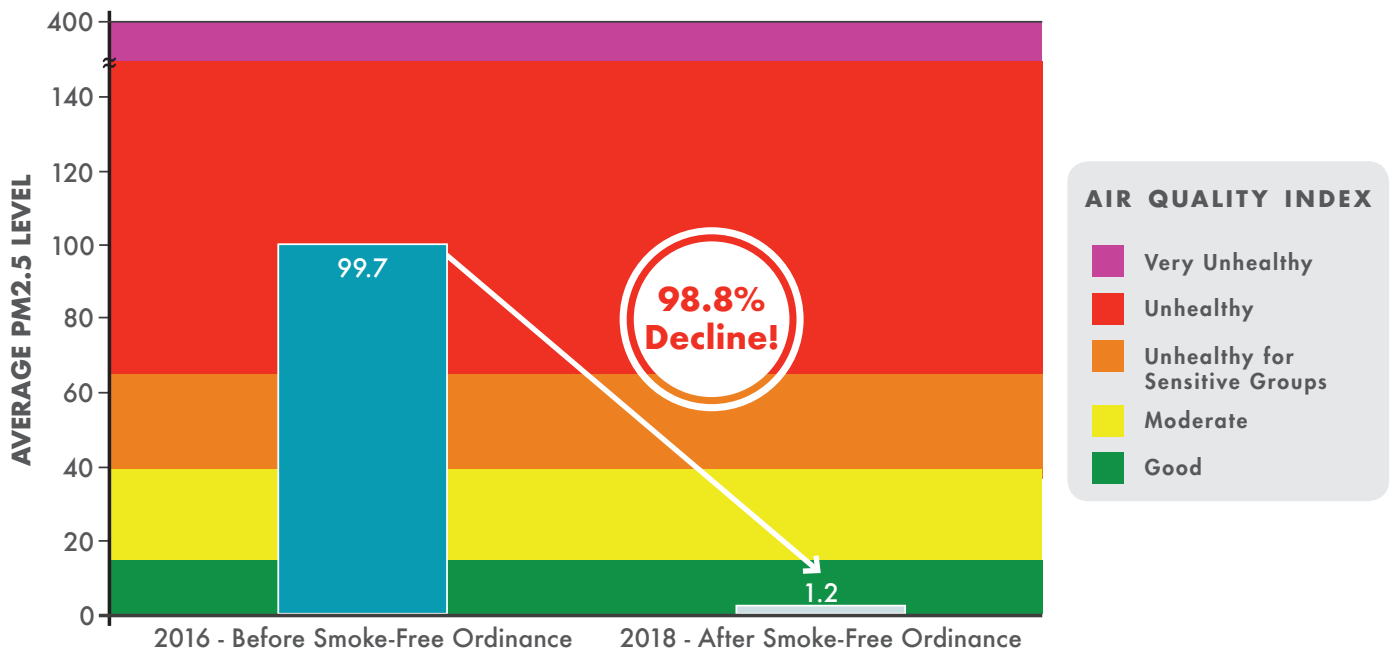
## Results

A summary of each location visited and tested is provided in the chart below. The average  $PM_{2.5}$  level in each of the six locations that allowed smoking prior to the smoke-free ordinance decreased substantially after implementation of the ordinance. In 2016, none of these venues had good air quality levels, whereas all of these venues had good air quality after the ordinance.

### AVERAGE LEVEL OF INDOOR AIR POLLUTION IN EACH VENUE



### AVERAGE LEVEL OF INDOOR AIR POLLUTION IN EAST BATON ROUGE



## US EPA AIR QUALITY INDEX

Air Quality	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Health Advisory
<b>Hazardous</b>	<b>≥251</b>	People with heart or lung disease, older adults, and children should remain indoors and keep activity levels low. Everyone else should avoid all physical activity outdoors.
<b>Very Unhealthy</b>	<b>151-250</b>	People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.
<b>Unhealthy</b>	<b>66-150</b>	People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.
<b>Unhealthy for Sensitive Groups</b>	<b>41-65</b>	People with heart or lung disease, older adults, and children should reduce prolonged or heavy exertion.
<b>Moderate</b>	<b>16-40</b>	Unusually sensitive people should consider reducing prolonged or heavy exertion.
<b>Good</b>	<b>≤15</b>	None.

### **Conclusion**

This study demonstrates that employees and patrons in Baton Rouge’s bars and casinos are no longer exposed to harmful levels of indoor air pollution resulting from indoor smoking. A comprehensive smoke-free air policy that prohibits indoor smoking in all indoor places is the only proven means to eliminate this exposure to toxic tobacco smoke pollution. This type of policy will result in improved quality of life and health outcomes for Baton Rouge workers and residents.