What is particle pollution?
Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of many components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into your lungs, and some may even get into your bloodstream. Exposure to such particles can affect both your lungs and your heart. Larger particles are of less concern, although they can irritate your eyes, nose, and throat. Small particles of concern include “fine particles” (such as those found in smoke and haze), which are 2.5 micrometers in diameter or less; and “coarse particles” (such as those found in wind-blown dust), which have diameters between 2.5 and 10 micrometers.

Who is at risk from particle pollution?
Those groups that are at an increased risk include: people with heart or lung disease (such as coronary artery disease, congestive heart failure, and asthma or chronic obstructive pulmonary disease) because particles can aggravate these diseases; older adults because they may have undiagnosed heart or lung disease or diabetes; and children because their lungs are still developing, they spend more time at high activity levels, and they are more likely to have asthma or acute respiratory diseases. Exercise and physical activity causes all people to breathe faster and more deeply—and to take more particles into their lungs. Factors that increase your risk of heart attack, such as high blood pressure or elevated cholesterol levels, also may increase your risk from particles. People with diabetes also may be at increased risk, possibly because they are more likely to have underlying cardiovascular disease. In addition, scientists are evaluating new studies that suggest that exposure to high particle levels may also be associated with low birth weight in infants, pre-term deliveries, and possibly fetal and infant deaths.

How does particle pollution affect your health?
Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis—and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and acute bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short-term exposures, although they may experience temporary minor irritation when particle levels are elevated.

What are the symptoms?
Even if you are healthy, you may experience temporary symptoms, such as irritation of the eyes, nose, and throat; coughing; phlegm; chest tightness; and shortness of breath. If you have lung disease, you may not be able to breathe as deeply or as vigorously as normal, and you may experience coughing, chest discomfort, wheezing, shortness of breath, and unusual fatigue. If you have heart disease, particle exposure can cause serious problems in a short period of time—even heart attacks—with no warning signs. So don’t assume that you are safe just because you don’t have symptoms. Symptoms such as chest pain or tightness, palpitations, shortness of breath, or unusual fatigue may indicate a serious problem.

How can you avoid unhealthy exposure to particle pollution?
Your chances of being affected by particles increase the more strenuous your activity and the longer you are active outdoors. If your activity involves prolonged or heavy exertion, reduce your activity time—or substitute another that involves less exertion. Go for a walk instead of a jog, for example. Plan outdoor activities for days when particle levels are lower. And don’t exercise near busy roads; particle levels generally are higher in these areas. Particle levels can be elevated indoors, especially when outdoor particle levels are high. Certain filters and room air cleaners can help reduce indoor particle levels. You also can reduce particle levels indoors by not smoking inside, and by reducing your use of other particle sources such as candles, wood-burning stoves, and fireplaces.

To view the current Air Quality Index (AQI) in central Ohio, go to MORPC’s website at http://airquality.morpc.org/.