

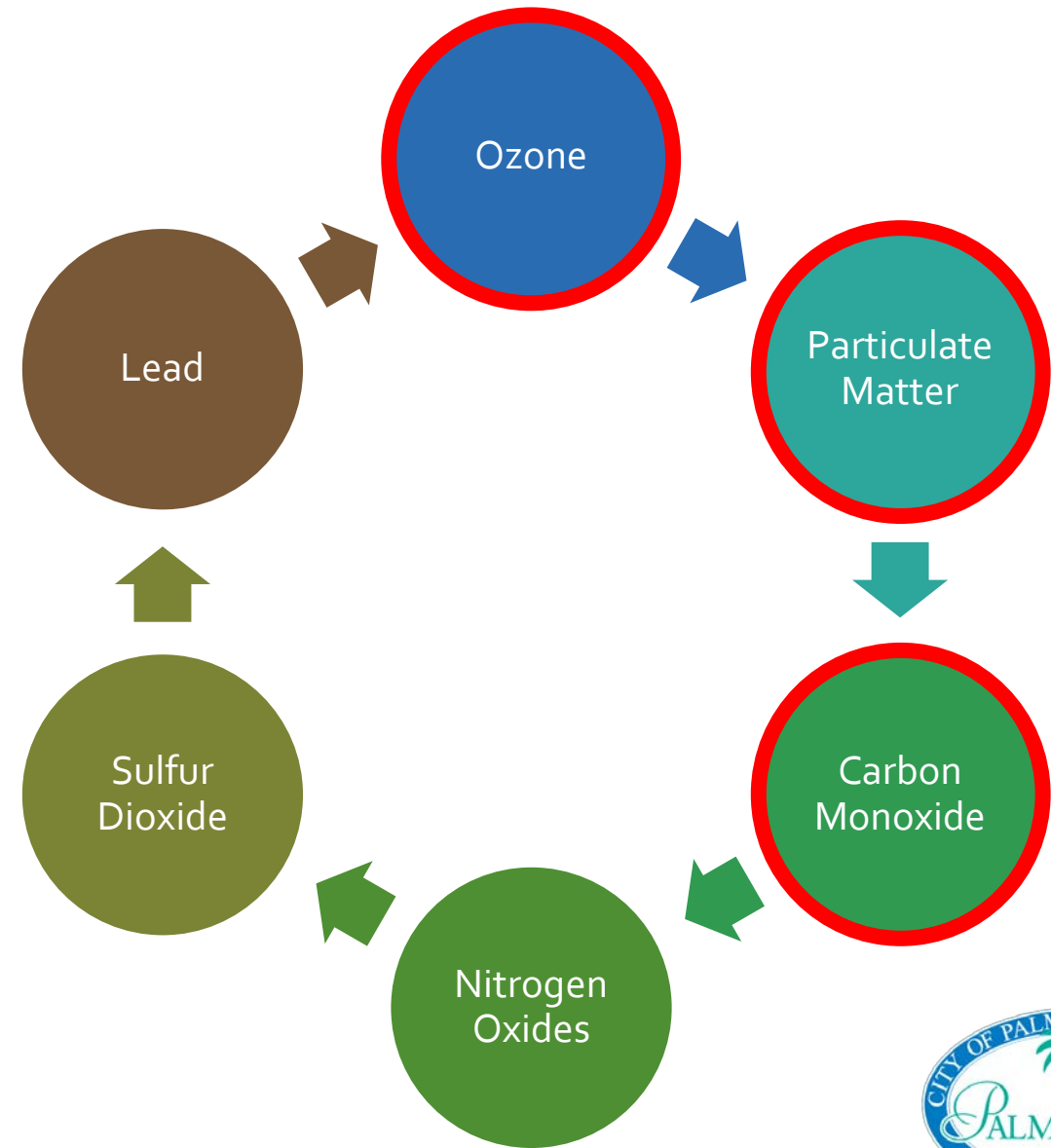
Air Quality & Traffic

August 25, 2015



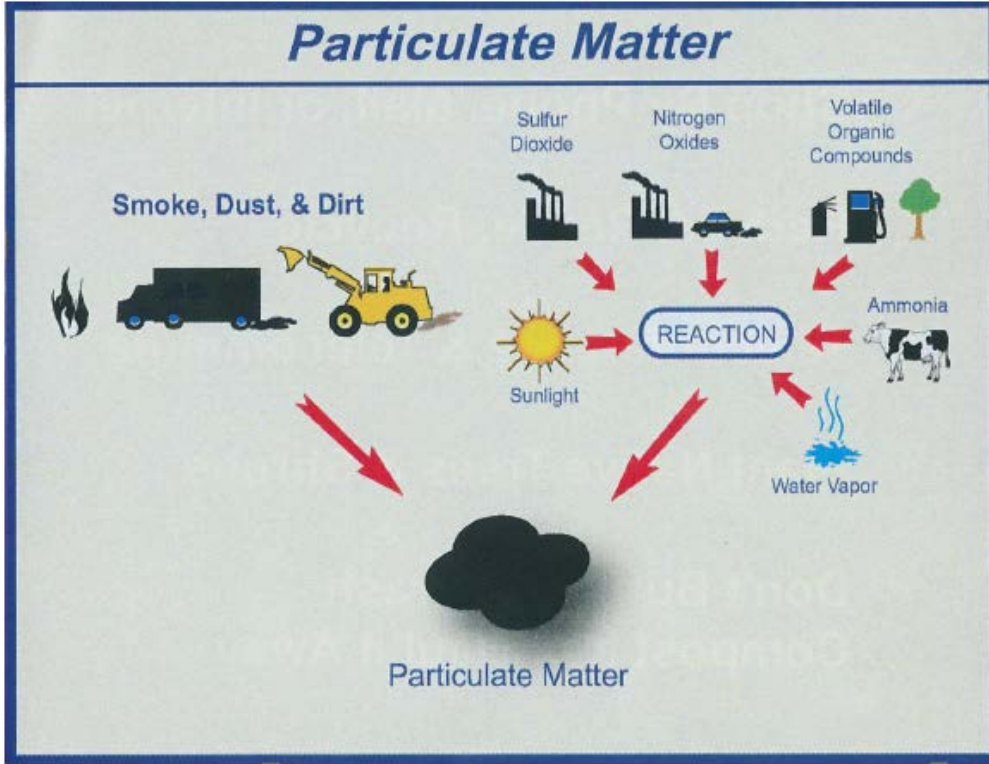
What is Air Quality?

- The Clean Air Act requires U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards for six common air pollutants.
- Florida's air quality is driven by ozone (O_3) and fine particles. To a lesser extent it is also affected by carbon monoxide (CO), nitrogen dioxide (NO_2), particle pollution 10, and sulfur dioxide (SO_2).

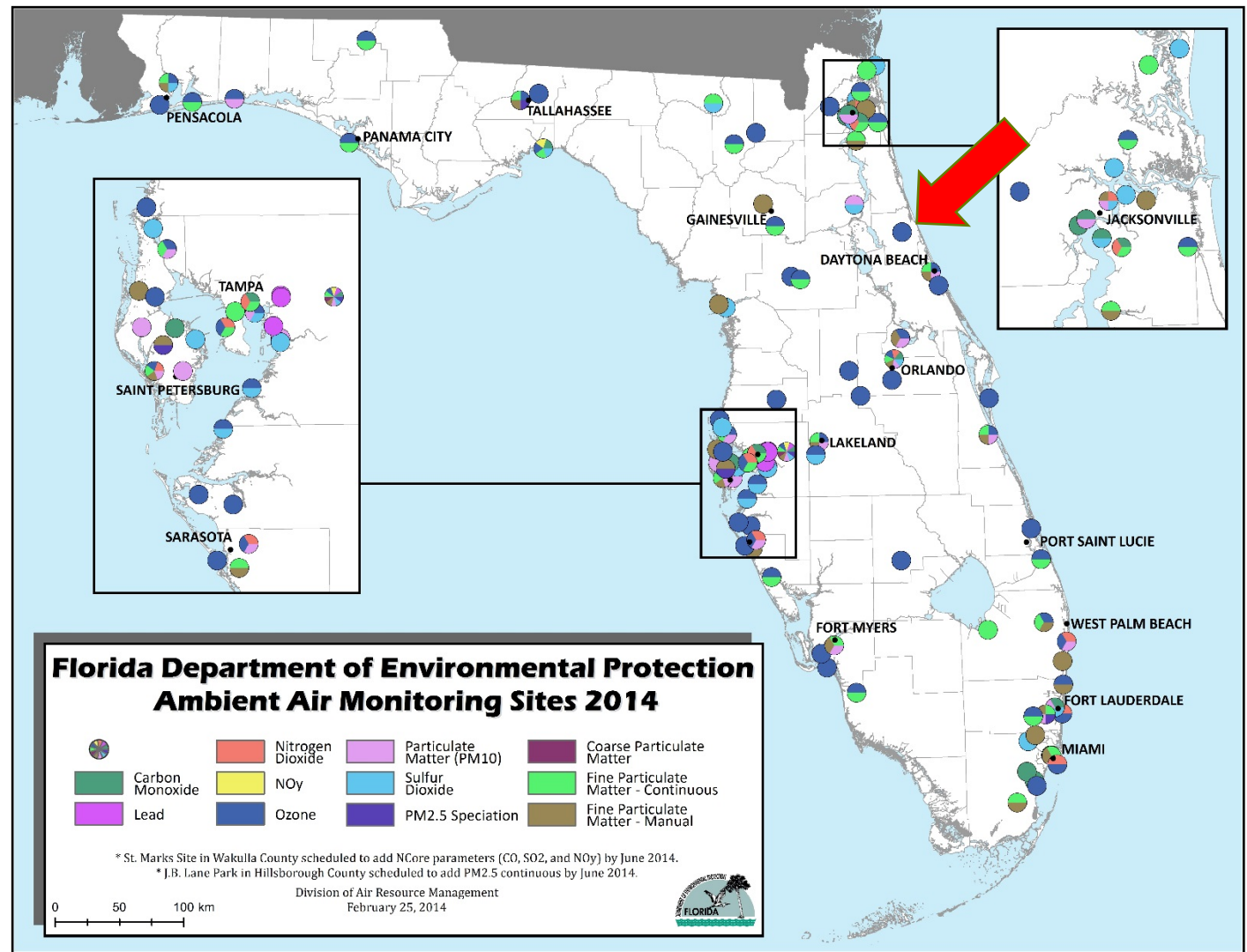


Florida's Air Quality

200 Monitoring Stations in Florida



Particles lifted into the air by the wind or ground-level ozone has long been the air pollutant of greatest concern in Florida.



Sources: US Environmental Protection Agency and Florida Department of Environmental Protection



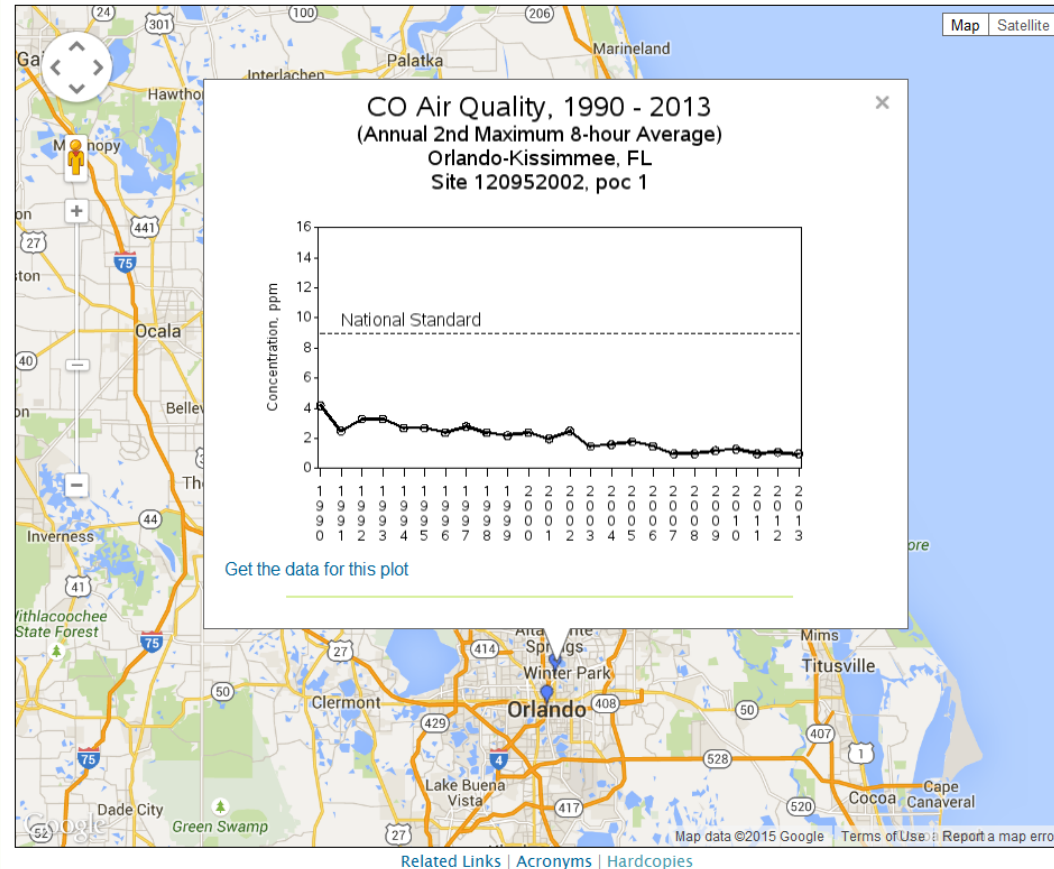
Florida's Air Quality

- Approximately 75% of nationwide CO emissions are from transportation sources.
- Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels.
- Carbon monoxide emissions from automobiles increase dramatically in cold weather.

Local Trends in CO Levels

Air quality trends can vary from one area to another. Local trends can be viewed at individual monitoring locations in the map below or in this [KML file](#) (KML, 352 KB) using Google Earth or another KML browser.

- Carbon monoxide monitors that meet minimum trends completeness criteria
- Carbon monoxide monitors that have some data during the trend period but do not meet the minimum trends completeness criteria for 1990-2012



Sources: US Environmental Protection Agency and Florida Department of Environmental Protection



Florida's Air Quality & Health Concerns

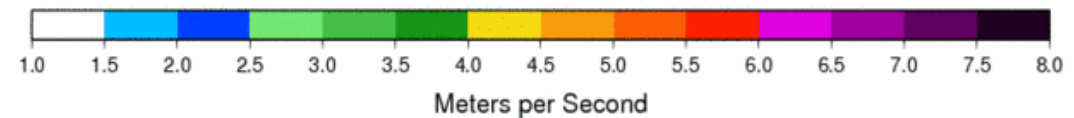
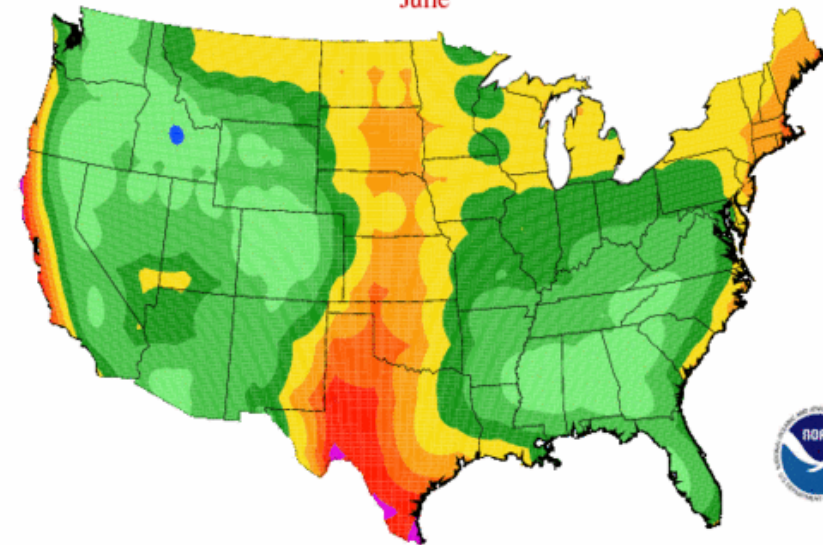
Variables:

- Meteorological influences (sunlight, mixing height, precipitation, wind speed, temperature, etc.)
- Air traps vs. Open / Green Space
- Coastal vs. Inland
- Metro vs. Rural

Susceptible population – includes, but not limited to asthmatics, have compromised cardiovascular systems, prolonged/heavy exertion outdoors, and children active outdoors

1971–2000 Mean Sigma.995 Wind Speed

June



Risk and Effects?



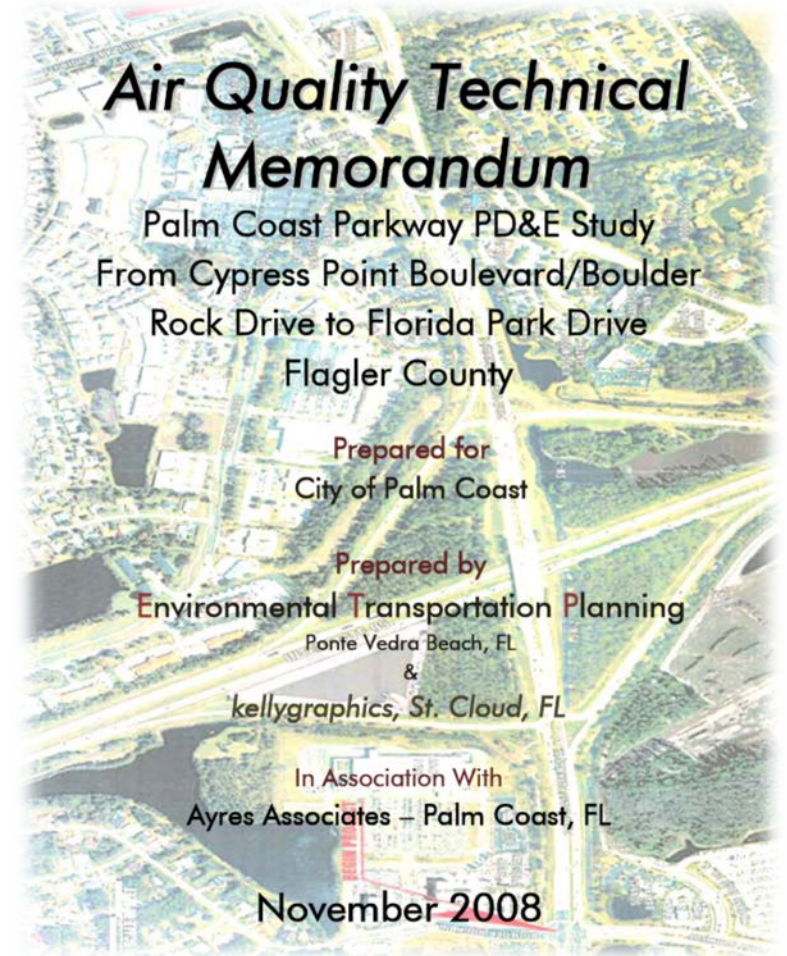
FDOT Guidelines for Air Quality

- When determining if there is an issue with air quality, a screen test is generally performed to determine the extent of any air pollution issues.
- The guidelines set forth in Chapter 16 of the PD&E manual published by the FDOT are proposed for the screening analysis.
 - The analysis requires the use of CO Florida 2012 which incorporates the U.S. EPA's Latest Software to evaluate intersections. (primarily signalized intersections)
 - Output predicts CO concentrations at varying distances utilizing worst case assumptions such as:
 - Meteorology
 - Traffic
 - Site conditions
 - Estimates made of one-hour and eight-hour CO concentrations. If CO concentrations exceed 35 parts per million (ppm) for a one-hour period or 9 ppm for an eight-hour period further analysis is required.



Measuring CO releases in Palm Coast?

- The National Ambient Air Quality Standard (NAAQS) for CO is 9ppm for an 8-hour average not to be exceeded more than once per year.
- Palm Coast Parkway was studied for impacts resulting from widening.
- Cypress Point Parkway/Boulder Rock intersection used as “worst-case scenario”.
- Both the opening year and design year (2031) traffic predictions were analyzed.
- PD&E analysis indicated that the highest related CO 1-hour and CO 8-hour levels are not predicted to meet or exceed NAAQS in any of the analyzed project alternatives.



Analysis for Florida Park Drive

- If Worst Case intersection passes screening, no additional analysis required. **This is the case for Florida Park Drive.**
- If Worst Case roadway does not pass the screening analysis, the following analysis will be performed.
 - Complete modeling utilizing the MOVES model for the entire area
 - Placement for the monitoring equipment in the field to test for different pollutants
- Analysis Types and Cost:
 - Screening Analysis / Modeling – Approximately \$5,000 to \$6,500 per pollutant
 - Monitoring equipment in the field – Approximately \$8,000 to \$10,000 per pollutant





Questions???

