

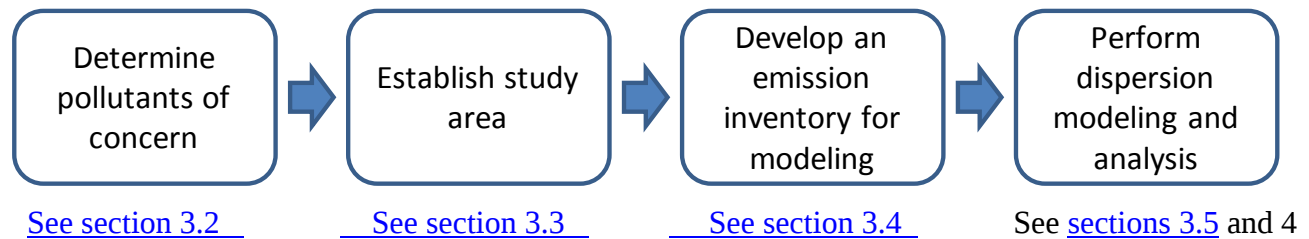
3. Study Methodology

3.1 Introduction to Study Methodology

The goal of PATS is to reduce concentrations of air toxics in the Portland metro area to Oregon's air toxics health benchmark levels in the future, where possible. DEQ has monitoring data to assess which pollutants currently exceed benchmarks near the existing air quality monitoring locations. However, monitoring locations are limited, and emissions change over time with population growth, economic growth, and regulatory emission controls. Therefore, DEQ used both modeling of future emissions and current monitoring to ascertain where air toxics concentrations are likely to exceed benchmarks in 2017. Oregon's benchmarks are described in [section 3.2](#).

Air quality modeling allows DEQ to estimate concentrations in areas where there are no air monitors and to estimate concentrations for pollutants that are not or cannot be measured at monitors. Air quality dispersion modeling is a mathematical approximation or representation of air quality using emissions data, and information about how emissions are dispersed in air (mixed and transported by wind). Steps in the technical analysis are shown in the flowchart below, Figure 3:

Figure 3: Steps in the PATS Technical Analysis



An emissions inventory is a database, by source, of the amount of pollutants discharged into the atmosphere during a given period. An emissions inventory is used as an input to the 2017 model. The model will take the emissions inventory data, locate it spatially in our PATS geographic area, and, using modeling software, estimate pollution concentrations in 2017.

These four technical steps used to develop the 2017 model results are discussed in sections 3.2 through 3.5. Section 3.6 discusses data quality and emissions inventory improvements. Section 3.7 describes 2005 monitoring results, as well as a monitor to model comparison. Results of the air dispersion modeling are described in [section 4](#).

PATS Includes the following components:

- 2005 calendar year emission inventories
- 2017 projected emission inventories
- 2005 air monitoring data for six sites
- 2006 through 2010 air monitoring data for one site
- Air dispersion modeling