Windblown dust events have a negative impact on local air quality. The magnitude of dust

events is determined by a combination of meteorological conditions and soil properties, often

governed by land use. Modeling dust behavior during these events can link dust emission

sources to regional and local distribution of dust concentrations and assess impacts of future

changes to soil properties and land use. The ability to analyze “what if” scenarios for land use

can guide government land use policies that could contribute to these events. The Community

Multi-Scale Air Quality Model (CMAQ) is an atmospheric dispersion and chemical transport

model for air pollution. Recent additions to CMAQ incorporated in version 5.3.1 (released

December 2019) provide two key improvements for dust modeling. First, CMAQ contains dust

emission, transport and deposition models that are used in conjunction with meteorological

and land use inputs from software such as WRF 4.1 to compute dust concentrations. Second,

CMAQ 5.3.1 includes the new Detailed Emissions Scaling, Isolation and Diagnostics (DESID)

module, which allows scaling of emissions from different sources and regions within CMAQ, and

can be used to efficiently conduct “what if” studies of future land use/emission source

scenarios. This poster outlines the objectives, approach, and initial results from a current

research project simulating current and future dust events in Utah, and describes the specific

computational process and modules used with CMAQ 5.3.1 to calculate dust concentrations

from meteorological and land use conditions.