

Grant Deliverables and Reporting Requirements for UTC Grants

UTC Project Information	
Project Title	Assessing Children’s Spatiotemporal Exposures to Transportation Pollutants in Near-Road Communities
University	The University of Texas at El Paso
Principal Investigator	Wen-Whai Li
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDO: \$81,000 Local match: \$40,500
Total Project Cost	\$121,500
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	Start date: 1/1/2018 End date: 7/31/2019
Brief Description of Research Project	<p>Children living in near-road communities are constantly exposed to traffic-related air pollutants. Their health could be severely impacted by these pollutants both chronically and acutely. Children’s health outcome research typically attempts to build associations between time-resolved pollutant concentrations and specific health outcomes measured at a specific time. The time-resolved concentration may mask the short-term effect of a pollutant on children’s health. A temporal and spatial characterization of children’s exposures would fill out the data gap between the exposure concentrations and health outcome measurements.</p> <p>This project will conduct air pollution measurements and air dispersion modeling in a near-road community defined as an area of 1.0 mile by 1.0 miles with an interstate highway and several arterial roads. The air quality measurements will be conducted at 3 locations, including at least 1 at a near-road elementary school and 1 at a community location. Emissions of traffic pollutants from all interstate highway, arterial roads, and frequently traveled surface roads will be estimated using the EPA’s MOVES emission model. Microscale concentration surfaces</p>

	<p>will be established and concentrations at discrete receptor locations will be quantified to study the total exposures for a number of (tentatively 23 children) asthmatic children attending the near-road elementary school using the AERMOD air dispersion model. Pollutant air concentrations will be used to calibrate the dispersion model and to apportion the contributions of emissions from interstate highway as well as arterial roads. Background concentrations for the study domain will be estimated from regional air quality monitors. The temporal concentration variation of three criteria pollutants (PM2.5, NO2, and ozone) will be developed for the model domain so that children’s exposures to the traffic pollutants can be documented spatially and temporally.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>This study will help address the spatial and temporal concentration variations in a near-road community. The information will provide insights for understanding children’s exposure to traffic pollutants on a microscale, particularly in conjunction with children’s activity data, if available.</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	