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| UTC Project Information | |
| Project Title | Quantification of traffic-related emissions and exposures at U.S.-Mexico Border Crossings using real-time mobile sensors |
| University | University of Texas at El Paso |
| Principal Investigator | Mayra Chavez |
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| Funding Source(s) and Amounts Provided (by each agency or organization) | Center for Advancing Research in Transportation Emissions, Energy, and Health (CARTEEH):  CARTEEH: $  Other Sources: $80,000 |
| Total Project Cost | $120,000 |
| Agency ID or Contract Number | 69A3551747128 |
| Start and End Dates | March 2021 - July 31, 2022. |
| Brief Description of Research Project | As the urban population continues to grow, a greater number of people risk exposure to traffic-related air pollution (TRAP), and therefore also risk adverse health effects. The impacts of traffic-related and regional industrial pollution on the health of community residents are of particular concern in the border cities of PdN. Traffic-related air pollution is especially prevalent in cities with multiple ports of entry (POE) such as El Paso, Texas. Border crossings present additional challenges for both sides of the border, including economic, social, and health issues. Long delays of idling commercial and passenger vehicles are common at many POE. Exposure to traffic emissions related to border crossings occurs while people are waiting in line or on foot to cross the border.  In-cabin air quality data will be collected using three different monitoring instruments. The pollutants analyzed in this study will be nitrogen dioxide, (NO2), particulate matter (PM2.5, PM10), and Ozone (O3). Ozone is an EPA regulated criteria pollutant, although not directly emitted from the vehicles but is a photochemical product involving another critical traffic pollutant, NO2. Another set of the same three air quality monitors will be placed inside the vehicle with the inlets coming through the top of the vehicle to measure the out-cab pollutant concentrations. Air pollution measurements will be conducted during 30 drives across the POE, conducted over two weeks. Instruments will collect 1 second data during each run which is estimated to be 1-2 hours, resulting in a total of around 7200 data points per run, each run will consist of a 1-mile drive in each direction, into Mexico and back.  The study will conduct community PM air monitoring on both sides of the border. This will be implemented using low-cost PM sensors (by Purple Air Inc.) to cover a larger area and provide real-time concentrations for communities to monitor. Community monitors will help calculate differences in exposure between citizens on the POE and those in the surrounding communities. |
| Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here |  |
| Impacts/Benefits of Implementation (actual, not anticipated) |  |
| Web Links   * Reports * Project website |  |