

Grant Deliverables and Reporting Requirements for UTC Grants

<b>UTC Project Information</b>	
Project Title	Air pollution and equity impacts of the proposed Tampa Bay Next program from a Health in all Policies perspective
University	University of South Florida (USF)
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$60,531 USF: \$32,568
Total Project Cost	\$93,099
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	Start date: 10/01/2018 End date: 09/30/2019
Brief Description of Research Project	This project investigated the air pollution and health equity impacts of an ongoing transportation planning program in the Tampa area, Tampa Bay Next. Two aspects will be integrated. First, we estimated the changes in pollutant emissions, concentrations, population exposures, and exposure equity that may result from the roadway changes proposed, using a comprehensive modeling system. Second, we performed a qualitative analysis on the health equity impacts of the program from a Health in all Policies decision-making perspective. Results provide a case study for improving air pollution, health, and equity outcomes of large-scale metropolitan transportation infrastructure projects.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	<u>Outputs</u> Software and data products: <ul style="list-style-type: none"> <li>• Improvement of an integrated modeling framework for estimation of exposures to traffic-related air pollution in the Tampa area.</li> <li>• Development of a software tool (in R) for the calculation of several measures of overall and comparative inequality in exposures to air pollution.</li> <li>• Data on: 1) the spatiotemporal distributions of daily individual human activity, roadway emissions, pollutant</li> </ul>

concentrations, and individual exposures to traffic pollution, and 2) the social distribution of traffic pollution exposures, including measures of inequality for several racial, ethnic, and income groups.

- Findings on the potential effects of a real locally-prioritized metropolitan-scale transportation infrastructure case study program on air pollutant emissions, concentration, exposures, and exposure inequality.
- Key informant data and findings on the alignment of development of the case study project with Health in All Policies concepts.

Scholarly presentation and publication products:

- AL Stuart. Impacts of urban and transportation design on exposures to traffic-related air pollution and exposure equity. Center for Transportation, Environment and Community Health, Annual Meeting, Davis, CA. November 2018.
- T Kocak, N Menon, S Doyle, R Bertini, A Stuart. Air Pollution and Equity Impacts of the Tampa Bay Next Transportation Improvement Program for Tampa. USF Health Research Day, University of South Florida, February 22, 2019.
- TK Kocak. Investigating Air Pollution and Equity Impacts of a Proposed Transportation Improvement Program for Tampa. Master's thesis, University of South Florida. March 22, 2019.
- TK Kocak, AL Stuart. Air pollution and equity impacts of the Tampa Bay Next transportation improvement program from a Health in All Policies perspective. 2019 Air Quality Workshop, University of Florida, Gainesville, FL. March 25, 2019.
- TK Kocak, S Gurram, S Doyle, N Menon, RL Bertini, AL Stuart. Air pollution and equity impacts of the Tampa Bay Next transportation program from a Health in All Policies perspective. 2019 AEESP Research and Education Conference, Tempe, AZ. May 15, 2019.
- TK Kocak, S Gurram, RL Bertini, AL Stuart. Impacts of a metropolitan-scale freeway expansion program on air pollution and equity. Journal manuscript, submitted 2020.

Outreach/community dissemination products:

- C. Brown. COPH professor studies the inequality of air pollution exposure in Tampa Bay. USF College of Public Health News. April 4, 2019. Available at <https://hscweb3.hsc.usf.edu/health/publichealth/news/coph-professor-studies-the-inequality-of-air-pollution-exposure-in-tampa-bay/>

- USF COPH: A passion for environmental health. USF Health YouTube Video. April 8, 2019.
- TK Kocak. Investigating air pollution and equity impacts of a proposed transportation improvement program for Tampa. Florida Dept. of Transportation District 7 Office, Tampa, FL. April 24, 2019.
- TK Kocak. Investigating air pollution and equity impacts of a proposed transportation project. Hillsborough Metropolitan Planning Organization Community Advisory Board Open House. Tampa, FL. April 30, 2019.
- Air pollution unequally affects people in Tampa, study says. WUSF Public Media. News radio interview with Jessica Meszaros. Sept. 11, 2019. Available at <https://wusfnews.wusf.usf.edu/post/air-pollution-unequally-affects-people-tampa-study-says>

Educational outputs:

- One master's student in public health completed a master's thesis on the grant work.
- One master's student in bioinformatics completed a semester research assistantship related to grant work.
- One postdoctoral student in transportation engineering has been involved in research activity on the grant.

Outcomes

- Software tools developed through this research have made possible the study of impacts of transportation infrastructure and policy alternative in Tampa area on air pollution exposures and exposure inequality.
- Through the data generated and disseminated through publications, the body of knowledge has been expanded on the current state of air pollution exposure and exposure inequality in the Tampa area, as well as the potential effects of the Tampa Bay Next toll lane expansion on exposures, inequality, and health.
- Through presentations at scholarly conferences, this knowledge has been transferred to a broad array of researchers and students interested in public health impacts of transportation infrastructure.
- Presentations for the Florida Department of Transportation District 7 office and the Hillsborough Metropolitan Planning Organization Advisory Board Open House have transferred knowledge to transportation and planning sector government workers and community members, and has increased their understanding of air pollution exposure, exposure inequality,

	<p>and the potential effects of the Tampa Bay Next toll lane expansion specifically.</p> <ul style="list-style-type: none"> <li>• These presentations and other interactions have also increased the awareness of the local and state transportation and planning sector of the Health in All Policies decision-making paradigm and how it can be applied to transportation decisions in Tampa and Florida.</li> <li>• Through media articles and videos related to the project, the local public have also been engaged and empowered on this important transportation infrastructure design and implementation issue for Tampa.</li> <li>• Through the involvement and interaction of masters and postdoctoral students in the fields of public health, bioinformatics, and transportation engineering on the grant work, these students have been trained with skills and mindsets for interdisciplinary evaluation of urban transportation infrastructure that spans the areas and methods of air pollution engineering, transportation engineering, exposure analysis, inequality analysis, qualitative document review, and human subjects research.</li> </ul>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>This project has increased the general scientific knowledge on the impacts of transportation policies and infrastructure on exposures to air pollution, health, and inequality. Further, it provides evidence for toll lane expansion programs that can be used for comparison to studies in other areas and other transportation alternatives. Additionally, it provides a case study for the application of a Health in All Policies perspective to transportation infrastructure design, decision making, and implementation. The improved evidence base on outcomes of urban transportation infrastructure projects, increased awareness of health and equity-based perspectives and approaches to transportation projects, and education and training of students who are or will become transportation and public health practitioners, all will allow for improved future design and implementation of transportation projects in the State of Florida, throughout the US, and beyond. Furthermore, the increased awareness and empowerment of the public regarding impacts of such projects will enable more healthy, equitable, and sustainable transportation decisions and thus improve societal health and well-being generally.</p>
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Reports</li> <li>• Project website</li> </ul>	<p><a href="http://ctech.cee.cornell.edu/final-project-reports/">http://ctech.cee.cornell.edu/final-project-reports/</a></p>