

## PROJECT OVERVIEW REPORT

1. UTC Identifying Number  
DTRT13-G-UTC28
2. Center Identifying Number  
CAIT-UTC-NC59
3. Project Title  
Development of Vehicle Fleet Mix Forecast Models for Life Cycle Cost Forecast for Tunnel Ventilation Systems
4. Principal Investigator & Contact Information  
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7. Project Description  
The objective of this research is to provide tunnel ventilation systems owners and the Port Authority of NY & NJ with a vehicle fleet mix forecast model that will (1) enable realistic and practical long-term forecasts of the life cycle costs of tunnel ventilation systems, and (2) assist in optimizing the performance of tunnel ventilation systems during normal operation and emergency incidents.
8. Implementation of Research Outcomes (or why not implemented)  
This research can be ground breaking in the industry as the unintended benefit of vehicle fleet mix (zero emission + Hybrid + regular emission) and its impact on tunnel ventilation systems is yet to be studied. In order to bring the results of this research to tunnel ventilation systems owners in the NY/NJ region and nationwide, a guidebook or similar publication will be provided. With the application of the developed models, a traditional or online training program will be arranged for

professionals. A webinar on the procedures, results, and recommendations from this research is also anticipated to broaden the impacts of this research to the general public. The guidebook and training program will be prepared and organized at CAIT. The webinar can be organized at CAIT and further presented at professional societies such as ASCE and IISE.

9. Impacts/Benefits of Implementation (actual, not anticipated)

To Be Determined

10. Dates and Budget

Start date: 9/1/2018

End date: 6/30/2019

UTC (CAIT) Dollars: \$292,793

Cost Sharing: \$0

Total Dollars: \$292,793

11. Keywords

Vehicle fleet mix, forecast, exhaust emissions, tunnel, ventilation systems, life cycle cost

12. Web Links (Reports and Project Website)

<https://cait.rutgers.edu/research/development-of-vehicle-fleet-mix-forecast-models-for-life-cycle-cost-forecast-for-tunnel-ventilation-systems/>