

PROJECT OVERVIEW REPORT

1. UTC Identifying Number
69A3551847102
2. Center Identifying Number
CAIT-UTC-REG49
3. Project Title
Post-fire Damage Assessment of Concrete Tunnel Liners
4. Principal Investigator & Contact Information
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7. Project Description
The primary goal of this project is to research post-fire damage assessment of reinforced concrete tunnel liners and provide recommendations on damage assessment procedures for application in practice. The recommendations will cover the type of data to be collected after a fire event and how the data should be processed to assess tunnel safety.
8. Implementation of Research Outcomes (or why not implemented)
The intended outcome of the project is a set of recommendations on post-fire tunnel damage assessment using a holistic approach, including (a) post-fire residual mechanical properties of concrete based on the maximum temperature reached during the fire, (b) post-fire damage assessment using common non-destructive testing methodologies, (c) simulated residual deflections of a tunnel section as a function of soil type, and (d) input from experts consisting of stakeholders and researchers. The research team will incorporate input from stakeholders and practicing engineers to align the project outputs with real-world applications and maximize the impact. The project outcomes are not only

relevant to post-fire damage assessment but can also be used as performance objectives when designing or evaluating tunnel structures using performance-based design methodologies for resilience against fire.

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

10. Dates and Budget

Start date: 2/1/2021

End date: 1/31/2022

UTC (CAIT) Dollars: \$66,902

Cost Sharing: \$68,666

Total Dollars: \$135,568

11. Keywords

Tunnel fire, concrete lining, damage, downtime, repair

12. Web Links (Reports and Project Website)

<https://cait.rutgers.edu/research/post-fire-damage-assessment-of-concrete-tunnel-liners/>