

## Project Overview Report

1. UTC Identifying Number

DTRT13-G-UTC28

2. Center Identifying Number

CAIT-UTC-NC30

3. Project Title

Infrastructure Issues Related to In-Motion Electric Wireless Power Transfer

4. Principal Investigator & Contact Information

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Logan, UT 84322

5. Rutgers/CAIT Project Manager

Patrick Szary, Ph.D.

6. Customer Principal

Tom Hales  
Project Manager  
Utah Department of Transportation

7. Project Description

This project fits within a larger initiative of developing and demonstrating In-Motion Wireless Power Transfer. From the Civil Infrastructure perspective the process can be divided into 3 parts.

- (a) Conceptual Design of several alternative in-pavement inductive coils. Within this effort includes structural modeling, thermo modeling, and electrical efficiency modeling regarding the strength, shape, and applicability of the magnetic field.
- (b) Construction and testing of several specimens under laboratory conditions.
- (c) Installation of prototype coils in the EV Select Test track for investigations of power transfer efficiency.
- (d) Future (not included in this project) installation in actual pavement on a test section of pavement.

8. Implementation of Research Outcomes (or why not implemented)

The results of this research will have a relatively long path to full adoption. However, the problems addressed in this work must be solved prior to wide adoption of the concept of electrified roadways and in-motion wireless power transfer.

The results of this particular phase of this project will answer some of the initial questions regarding feasibility of placing these units in pavement for use in long term installations. This work will also address the durability of different detailing practices so that the best practices can advance.

The Electric Vehicle Power Initiative at Utah State University will host a national conference in Logan in May 2016 where much of this work will be presented and information disseminated.

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

TBD

10. Dates and Budget

Start Date: 4/1/2016

End Date: 3/31/2017

UTC (CAIT) Dollars: \$ 25,547

Cost Sharing: \$ 29,104

Total Dollars: \$ 54,650

11. Keywords

In-Motion Wireless Power Transfer, In pavement Power Transfer, Electric Vehicle Power Transfer, Inductive Power Transfer

12. Web Links (Reports and Project Website)

<https://cait.rutgers.edu/cait/research/infrastructure-issues-related-motion-electric-wireless-power-transfer>