

<b>UTC Project Information</b>	
Project Title	MPC-558 – Optimal Deployment of Dynamic Charging Lanes for Plug-in Hybrid Trucks
University	Utah State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	<p>USDOT, Research and Innovative Technology Administration \$59,734</p> <p>Faculty Salary \$59,734</p>
Total Project Cost	\$119,468
Agency ID or Contract Number	69A3551747108
Start and End Dates	December 11, 2017 to July 31, 2022
Brief Description of Research Project	<p>To effectively implement charging-while-driving (CWD) technology in trucking freight transportation, charging lanes need to be strategically deployed in the road network connecting logistics centers, such as ports, terminals, and distribution centers. The charging lane deployment problem is twofold. First, it is necessary to determine the optimal location for the construction of charging lanes. Second, one must consider the influence of deployed charging lanes on the route choice behaviors of drivers, especially drivers of PHETs (plug-in hybrid electric trucks). The behaviors of drivers in a transportation network are usually described with a user equilibrium (UE) assignment model. Although a number of studies have formulated UE models considering electric vehicles (e.g., Jiang et al., 2012, 2014; He et al., 2014, 2015, 2016; Chen et al., 2016), none of them are capable of describing the behaviors of PHET drivers in a network with charging lanes. An electric motor has much higher energy efficiency than an ICE, and as a result, PHET drivers can significantly reduce fuel costs by consuming electricity instead of petroleum fuel (Granovskii et al., 2006; Nanaki and Koroneos, 2013; USDOE, 2017).</p>

	Therefore, PHET drivers may simultaneously consider travel time and fuel costs when traveling from their origin to their destination and may prefer routes with charging lanes. These two problems should be treated simultaneously in a network setting.
Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none"><li>• Reports</li><li>• Project Website</li></ul>	