

<b>UTC Project Information</b>	
Project Title	MPC-553 – Multi-Business Commute Optimization System: System Development and Pilot Case Study
University	University of Colorado Denver
Principal Investigator	Moatassem Abdallah Caroline Clevenger
PI Contact Information	<p>Moatassem Abdallah Assistant Professor University of Colorado Denver Phone: (303) 556-5287 Email: moatassem.abdallah@ucdenver.edu ORCID: 0000-0002-3077-6518</p> <p>Caroline Clevenger Associate Professor University of Colorado Denver Phone: (303) 556-5834 Email: caroline.clevenger@ucdenver.edu ORCID: 0000-0003-2265-8447</p>
Funding Source(s) and Amounts Provided (by each agency or organization)	<p>USDOT, Research and Innovative Technology Administration \$59,994</p> <p>Academic and summer salaries. \$60,337</p>
Total Project Cost	\$120,361
Agency ID or Contract Number	69A3551747108
Start and End Dates	December 11, 2017 to July 31, 2022
Brief Description of Research Project	<p>The main goal of this research work focuses on the preliminary development of an innovative system named, Multi-Business Commute Optimization System (MBCOS). This system is capable of identifying incentivized optimal selection of commute alternatives for commuters commuting to a number of businesses that are co-located or closely located to minimize GHG emissions, air pollution, energy use, traffic congestion, and total commute time and cost while maximizing health benefits and maintaining convenience. By analyzing alternatives for each commuter with a common employer or closely located employers, MBCOS provides an optimized commute plan that complies with departure and arrival times, availability of commute alternatives, availability of budgets for incentivizing commuters, flexibility in commute time, and convenience by studying and analyzing all possible commute options, including driving existing vehicles, upgrading to hybrid or electric vehicles, carpooling, using public transportation, biking, walking, and combinations of these alternatives.</p>

<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>The developed algorithms for identifying optimal commute plans for multiple businesses that are closely located are currently integrated in a website where business can use it. Businesses employees can sign up for the service and receive personalized recommendations on how to commute to their businesses. Employers will be able to set budgets to incentivize employees to adopt the recommended commute plans by the system and cover potential inconveniences such as increase in commute duration.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>The widespread application of the system is expected to reduce GHG and air pollution emissions, VMT, congestion, and commuting time and cost. Based on the conducted analysis in the report, 9.3% reduction in business related emissions and 4% reduction in VMT are possible in Colorado with the widespread application of the system within 3 to 6 years.</p>
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Reports</li> <li>• Project Website</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">MPC Research Report</a></li> <li>• <a href="#">BCOS website</a> – where the new system (MBCOS) can be used</li> </ul>