



CENTER FOR CONNECTED AND AUTOMATED TRANSPORTATION

Project Title	Lane Management in the Era of CAV Deployment		
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Most relevant CCAT research thrusts	<input type="checkbox"/> Control & Operations <input type="checkbox"/> Enabling Technology <input type="checkbox"/> Human Factors <input checked="" type="checkbox"/> Infrastructure Design & Management <input checked="" type="checkbox"/> Modeling & Implementation <input checked="" type="checkbox"/> Policy & Planning		
Funding Request	\$100,000		
Matching Funds	\$100,000 (Indiana DOT)		
Total Cost	\$200,000		
Contract Nr.	69A3551747105		
Project dates	April 1, 2022 – March 31, 2023		
Project Abstract	<p>Smaller headways between vehicles provide an opportunity to address traffic congestion and its attendant adverse impacts. CAV-dedicated lanes can help reduce headway. However, building new lanes for CAV use, is costly. Such cost can be reduced by redistributing/reallocating existing roadway space to HDV and CAV lanes. In doing this however, the road agency must address planning-level questions on the influence of CAV market demand on CAV dedicated lane deployment feasibility and sustainability impacts, and operations-level issues regarding the impacts of the value of time, early/late arrival penalties on departure time choices of CAV and HDV commuters and congestion. This research first incorporates CAV market size uncertainties and width differentials between CAV and HDV lanes. The research develops and tests a solution algorithm on real road networks. Secondly, this project addresses a specific but common context of highway operations – a road section that has limited capacity and multiple lanes, commuters using either CAV or HDV during the morning peak period, with identical desired arrival times, early/late arrival penalty but different values of time.</p>		
High-level implementation plan	<p>The research product will be a decision-support framework that agencies can use for long-term deployment scheduling of CAV-dedicated lanes at candidate links on existing road networks. The case study results can help ascertain the extent to which CAV-dedicated lane deployment and demand uncertainty influence mobility and emissions.</p>		
Project Metrics	<p>Nr. of conference presentations; Nr. of journal publications, Nr. of newspaper articles; Nr. of media engagements; Nr. of public outreach events.</p>		
Web Links:	ccat.umtri.umich.edu ; https://engineering.purdue.edu/ccat https://www.purdue.edu/discoverypark/cav/nextrans/index.php		





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