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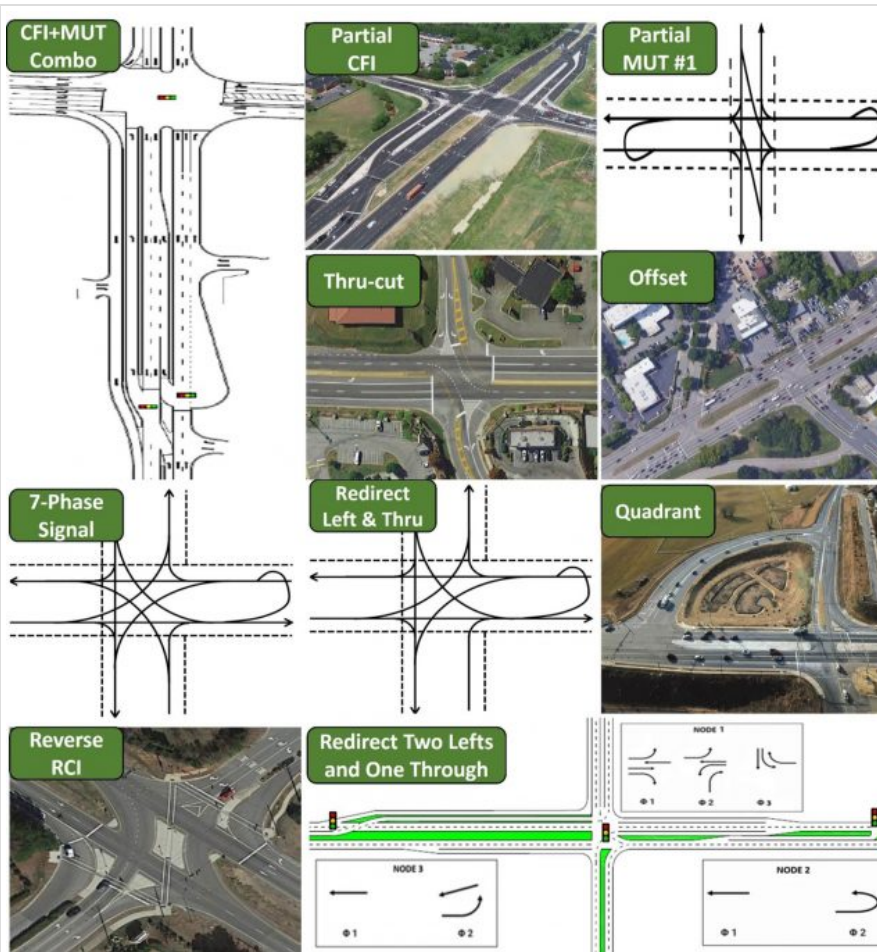
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Engineering Professor Evaluates Traffic Signal Effectiveness

Amir Mehrara Molan awarded \$99,000 grant to study benefits, drawbacks of three-phase lights

OCTOBER 5, 2022 BY EDWIN B. SMITH



Engineers use a variety of intersection designs and signaling configurations to help traffic move safely and efficiently. UM civil engineer Amir Molan is working with researchers from North Carolina State University to study the use of three-phase traffic signals in hopes of improving safety and efficiency for different uses. Submitted graphic

OXFORD, Miss. – A **University of Mississippi** civil engineer is expanding his research on what could be the next generation of U.S. intersection design.

At the heart of Amir Mehrara Molan's study is the three-phase traffic signal. A traffic phase is defined as the green, change and clearance intervals in a cycle assigned to specified movements of traffic. A cycle is the total time to complete one sequence of signals for all movements at an intersection.

Molan, assistant professor of **civil engineering**, is collaborating with researchers in North Carolina to determine the effectiveness of three-phase traffic signals at intersections.

"Almost half of all crashes in the U.S. occurs at or near intersections," he said. "In addition, intersections play a key role in terms of traffic operations. Pedestrian and bicycle safety is also another important topic related to intersections.

"We believe that our study could help transportation professionals, including designers, engineers and policymakers, improve operations and safety for all users at intersections."

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Campus Briefs

Students Learn 'Real Politics' in Washington, D.C., Winter Session

OXFORD, Miss. – Eleven University of Mississippi students spent their winter break learning about the people who work behind the scenes of the American government in Washington, D.C. Lead by Jonathan Klingler, assistant professor of political science, the students of Pol 391: Applied Politics met not with candidates, but with the people who make candidates'

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Young Alumna Gives Back to School of Accountancy

OXFORD, Miss. – Stephanie Jennings Teague, of Chicago, sees her commitment of \$100,000 to the Patterson School of Accountancy's new building at the University of Mississippi as a means of saying "thank you." "It is a way to show a small token of my appreciation to Ole Miss, the faculty and staff, and the accounting

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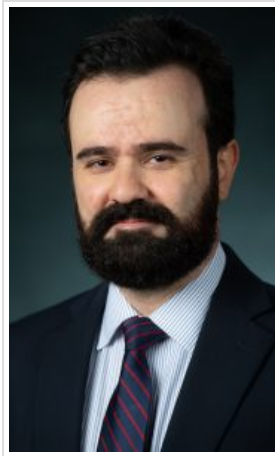
Reuters: Keep an Eye on the Money Supply

U.S. inflation roller coaster prompts fresh look at long-ignored money supply By Michael S. Derby NEW YORK – The amount of money sloshing around the U.S. economy shrank last year for the first time on record, a development that some economists believe bolsters the case for U.S. inflation pressures continuing to abate. The Federal Reserve's

The Ole Miss professor has received \$99,000 through a grant to work with William Rasdorf and Ali Hajibabei, both of North Carolina State University, on a study of the benefits and drawbacks of using three-phase traffic signals. Comparing a three-phase setup to other intersection designs, the team hopes to determine the safest, most efficient and most cost-effective designs for different uses.

The team also will develop a technical guideline to help designers and policymakers in transportation understand when and where to use three-phase designs.

Molan first became involved in the research in 2020 while advising a graduate student at California State Polytechnic State University at San Luis Obispo on his master's thesis on three-phase intersections. Based on the results, the team identified several high-potential traffic signal designs, one of which is the thru-cut design.



Amir Mehrara Molan

"Conventional intersections with high traffic demands have four traffic signal phases, and delay increases as the number of signal phases increases," Molan said. "Therefore, we will study innovative intersections with three phases – removing one phase, compared to conventional designs – to improve traffic operation and safety."

Molan became interested in further studies on this topic in June 2021, after Rasdorf invited him to collaborate on a proposal related to three-phase intersections.

"Dr. Molan was instrumental in providing assistance to the proposal writing phase of the work, which required an extensive literature review, clear ideas about what to propose and an understanding of the methodology required to do the work," Rasdorf said. "He was also a key contributor to the development and delivery of our initial project presentation to the NCDOT."

To view a video demonstrating how a cut-thru design works, click [here](#). For an executive summary of the project, click [here](#).

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