



Project Number
BDV24-977-34

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Identifying Mental Frameworks Underlying Driver Behavior in Urban Contexts

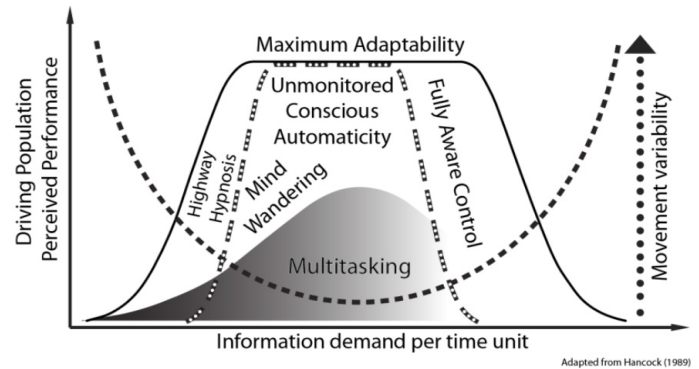
August 2024

Current Situation

Why do people drive differently on a dense urban street than a suburban roadway or highway?

Some research points to the built environment—roadway features that compel drivers to behave a certain way. For example, narrowed roads commonly constructed downtown compel drivers to slow down and drive more cautiously. Despite high-density traffic and multiple modes of travel, this downtown street design contributes to saving lives of all road users.

FDOT is now considering the mental frameworks that compel drivers to react to that built environment in a particular way. More information about the psychological aspects of good driver behavior could lead to roadway features that compel drivers in various road settings to replicate the same life-saving driver behavior.



This figure summarizes drivers' sustained attention while driving.

Research Objective

The objective of this research was to explore the social and psychological principles that uniquely apply to face-to-face urban transportation systems and apply those to the design of the roadway.

Project Activities

Through a literature review of major historical summaries on driving theory, the University of Central Florida research team identified several mental frameworks and documented concepts that had critical implications for how people behave in a Complete Streets environment.

The research team then prepared the history and a critique of the evolution of the non-motorized design standard from the Florida GreenBook, the AASHTO GreenBook, and the Florida Design Manual. Next, they crafted a new strategic approach to address the regional needs of vulnerable road users, based on the results of this research.

Using SHARP2 data, the team analyzed actual driver behavior in a range of contexts to “ground truth” the research assumptions. They then tested these assumptions using surveys of urban design professionals (engineers, planners, and law enforcement).

Project Conclusions and Benefits

This project delivered data that exposed misunderstandings about urban driver behavior in ways that can have a concrete impact on design practices. A key finding of this research was human presence enlists automatic mental resources that can help drivers resist distractions. Also, the research suggested roadways should be broken into segments (salient interruptions) to prevent an attentive driver from reaching fatigue or frustration.

With this information, FDOT is poised to consider a new perspective on Complete Streets that incorporates non-motorized travel modes as a driving force behind the policy.

For more information, please see fdot.gov/research.