

| UTC Project Information | |
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| Project Title | MPC-489 – The Unresolved Relationship between Street Trees and Road Safety |
| University | University of Colorado Denver |
| Principal Investigator | Wesley Marshall Bruce Janson |
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| Funding Agencies | USDOT, Research and Innovation Technology Administration |
| Agency ID or Contract Number | DTRT13-G-UTC38 |
| Project Cost | \$270,746.00 |
| Start and End Dates | September 30, 2013 to September 30, 2018 |
| Project Duration | September 30, 2013 to September 30, 2018 |
| Brief Description of Research Project | Despite standard design practice, the research remains conflicted over the true association between street trees and road safety (Zeigler 1986, Turner and Mansfield 1989, Dumbaugh 2005, Gattis 2005, Ivan et al. 1999, Naderi, Kweon, and Maghelal 2008, Ossenbruggen, Pendharkar, and Ivan 2001, Wolf and Bratton 2006). This proposed research seeks to better understand this issue by: i) developing a methodology for deriving tree canopy data via remotely sensed data; ii) collecting an extensive database of road crashes, traffic counts, and other relevant crash factors; and iii) conducting a statistical analysis of roadside trees and road safety. The goal is to shed light on the true relationship between street trees and road safety outcomes. |
| Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here | <p>All of the following research objectives were implemented:</p> <ol style="list-style-type: none"> 1. Collect and geocode a crash database for the Denver metropolitan area; 2. Collect relevant socio-demographic and socioeconomic data, land use data, built environment data, and traffic exposure data; 3. Create a tree canopy GIS layer using remotely-sensed data; 4. Statistically investigate the relationship between trees and overall road safety; |

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| | <ol style="list-style-type: none"> 5. Characterize the influence of the other variables on road safety and the interaction of these variables on the tree/safety association; 6. Advance knowledge by carrying out analyses to answer our research questions; 7. Advance policy and practice with respect to building safer cities; 8. Advance education through the training of students; and 9. Build an evidence base by disseminating findings through publications and presentations. |
| <p>Impacts/Benefits of Implementation (actual, not anticipated)</p> | <p>When assessing the safety impact of street trees in the clear zone, especially in urban areas, municipalities and transportation agencies need to be more cognizant of context and the potential influence of street design changes to road user behaviors, particularly related to issues that more directly affect safety such as travel speeds and driver awareness. Beyond their economic and environmental benefits, street trees have long been a staple of good urban design and shaping more livable spaces. They may also support slower speeds, greater road user awareness, and in turn, improved road safety outcomes.</p> |
| <p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project Website | <p>https://www.ugpti.org/resources/reports/details.php?id=953</p> |