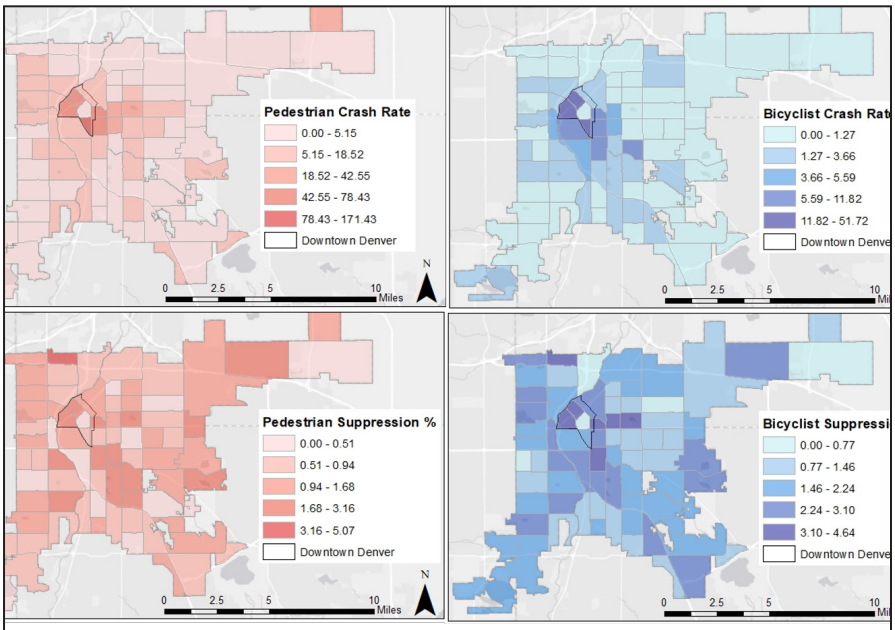
MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 19-375 (project 557) | March 2019

Reassessing Child Pedestrian Mode Choice and Safety via Perceived Parental Risk



Choropleth comparison of crash-based reactive analyses and proactive analysis

the **ISSUE**

Traditional pedestrian/bicyclist safety analyses typically examine crashes, injuries, or fatalities. This reactive approach only accounts for the places where people are currently walking/biking and those that are doing so. Would a proactive approach–examining areas where pedestrian/bicyclist activity is being suppressed because of safety concerns–illuminate other previously neglected safety issues?

the **RESEARCH**

The goal of the first section is to compare results from reactive and proactive pedestrian and bicyclist safety analyses. To accomplish this, we focus on child pedestrians and bicyclists because of the structured characteristics of their travel behavior regarding trips to school. We complete a reactive crash cluster analysis and a proactive safety analysis based on trip suppression due to traffic safety concerns for Denver, CO. A parental perception survey informs the mode choice model we create for the proactive safety analysis.

The initial result begs the question: which populations are most impacted by traffic safety issues neglected by traditional crash analyses? The second section examines, both reactively and proactively, the socio-demographics of those impacted via linear regression models and bivariate chloropleth mapping.

The final section organizes the results of the first two sections into a GIS tool that can be applied to other cities.

MOUNTAIN-PLAINS CONSORTIUM REGION 8

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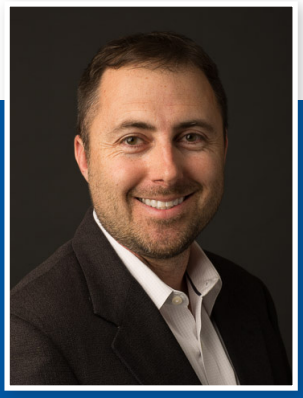

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Project Title

Reassessing Child Pedestrian Mode Choice & Safety via Perceived Parental Risk

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the FINDINGS

Findings suggest that the majority of areas identified by the proactive approach would not normally be considered unsafe for child pedestrians and bicyclists based on conventional reactive approaches. The fact that they are perceived as unsafe may be limiting usage and thereby limiting the number of crashes. To improve safety where children are currently walking and bicycling – as well as where they want to walk or bike – traditional analyses would benefit from augmentation by such a proactive safety approach. Our results also suggest that negative impacts are borne disproportionately by low-income, low-education, Hispanic, and black neighborhoods. The inequitable distribution of traffic safety issues identified in past crash-based literature – and confirmed in this work – is graver than a conventional reactive analysis would lead one to believe.

the IMPACT

Both reactive and proactive safety analyses provide unique and important perspectives on traffic safety. If our goal is to enable more people to safely walk and bike as opposed to simply reducing crashes, then it is imperative to consider active transportation traffic safety proactively. As it stands, many traffic safety issues– which act as barriers to walkability and bikability – remain unrecognized. This includes many low-income, low-education, black, and Hispanic populations that are particularly impacted by proactively-identified traffic safety issues. We also provide a toolbox that will allow cities to focus their Vision Zero efforts on designing cities for kids.

For more information on this project, download the entire report at http://www.ugpti.org/resources/reports/details.php?id=937

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7767 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.

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