# Collaborative Sciences Center for Road Safety

## PROCEEDINGS from “From the Ground Up: Safe Systems from a City Planning Perspective”

## Dr. Noreen McDonald

## April 3, 2018

So far, the Collaborative Sciences Center for Road Safety has had conversations about policy, transportation engineering, public health, injury prevention, and safe systems. Yet despite these road safety conversations being hosted at the University of North Carolina at Chapel Hill’s Department of City & Regional Planning, there is one topic that has been missing…planning.

Dr. Noreen McDonald, chair of the Department and Associate Director of CSCRS, asks us about planning this week: is there a connection between so-called classic land use planning and road safety? McDonald argues that there is definitely a connection.

Studies like NHTSA’s in 2015 report that drivers are the critical reason for 94 percent of crashes[1], which seem to suggest that talking to planners is pointless and that we should focus on *individual*, driver-oriented solutions: training, legal sanctions, and safer cars. However, we know that humans make mistakes. Australia and other “safe systems” countries and cities understand this, and design their road systems to be forgiving of that human error. These places understand that we cannot get rid of human error entirely, but that we can mitigate it as part of our system. Scholars like Eric Dumbaugh at Florida Atlantic University acknowledge that road safety must include planning to mitigate human error. In his models of road safety, Dumbaugh includes an “environmental” box that has geometric design, traffic control, driveway policies, and ROW allocation [2].

McDonald recalls how Dumbaugh cites a news story from 2011 about a Georgia mother who was sentenced for manslaughter when her son was hit crossing the street [3]. While the media and law enforcement blamed the mother, Dumbaugh was thinking: someone designed this street. Someone sited this bus stop to be inaccessible. Someone built a multi-family development where people are more likely to use transit. Someone permitted it and didn’t consider the placement of the bus stop. The system itself was planned and setup to force that mother’s decision to cross the street where she did. As a result of this line of thinking, Dumbaugh also includes an “organizational” box to his road safety model that has zoning ordinances, regional development plans, functional classes of roadways, performance measures such as Level of Service, and subdivision regulations. These classic land use planning tools have serious implications for road safety but are often missed in our conversations.

McDonald is interested in how the attendees of Coffee & Conversation understand land use planning tools and techniques and how they connect to road safety. She offers five areas for us to examine and discuss. The results of that conversation are in the table below.

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| Table 1. Land Use Planning Tools and Techniques and their Impact on Road Safety (Debrief from Coffee & Conversation, April 3, 2018) |
|  | **How does this impact road safety?** | **How could road safety be accounted for?** |
| Development Approval Process | * Involves the community and the city
* New developments will affect road volumes, all of the local parts connected to it – right now, development review is focused on vehicle throughput
* Landscaping and connections make roads more or less safe, how many turns
 | * Increase the number of departments involved in site approval
* Add a health impact/injury impact assessment
* Incentivize developers to invest in things to improve safety
* Multi-modal LOS
* Thresholds for road safety audits – do more people live here now?

*Example: San Francisco, CA using safety performance functions* |
| Comprehensive Plans | * Plans for the future impact mode choice and future travel
 | * Could change city ordinances to mandate how things are done – e.g., curb cuts a certain number of feet apart, single family street widths
* In the visioning chapter for transportation, could be incorporated as a goal
* Include vision zero principles in comprehensive planning
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| Street Standards | * Clear link between safety and street design
* DOTs may set street standards
* Are the facilities meeting the needs of those traveling through?
 | * Block length considerations
* Better accounted for – take transit use and stop placement into account
* More meaningful community engagement and addressing disparities in underserved communities
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| Value-Based Planning | * Safety < traffic flow
* DOT sued the Raleigh community for practicing engineering without a license
* Public voice – economic voices of pavement and developer groups donating to campaigns  but this doesn’t mean we’re at odds. These are mostly local streets
* What we measure, like speed, shows our values
 | * Build road safety into your values
* Bi-directional engagement. Does the institution want to engage with the community, and then community upwards
* Replicate tools from land use planning and forecasting that work, not ones that contribute to unsafe systems

*Example: Cary, NC valued greenways and built that into their plans* |

**References**

[1] S. Singh, “Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey,” National Highway Traffic Safety Administration, Washington, DC, DOT HS 812 115, Feb. 2015.

[2] R. Ewing and E. Dumbaugh, “The built environment and traffic safety: a review of empirical evidence,” *J. Plan. Lit.*, vol. 23, no. 4, pp. 347–367, 2009.

[3] T. Snyder, “Georgia Mom Convicted of Vehicular Homicide For Crossing Street With Kids,” *Streetsblog USA*, 14-Jul-2011. .