BACKGROUND

- The National Highway Traffic Safety Administration estimates that 4,092 pedestrians and 630 cyclists were killed in motor vehicle crashes in 2009 and an additional 59,000 pedestrians and 51,000 cyclists were injured that year.

- Awareness of pedestrian and bicyclist safety has increased and in 2003 the NC General Assembly allocated funds to the NC DOT Division of Bicycle and Pedestrian Transportation to be distributed to municipalities in order to fund the development of comprehensive pedestrian or bicycle plans.

- Study Aim: Bicycle, pedestrian, and combined plans from 553 NC municipalities were compared to fatal and non-fatal pedestrian and bicyclist injury counts from 1997-2009 to identify whether the presence of bicycle and pedestrian plans facilitate safety in NC.

METHODS

- We included 92 plans (49 pedestrian plans, 34 bicycle plans, and 9 “combined” plans containing both pedestrian and bicycle planning components) published through 2009 for the analysis (Figure 1).

- Pedestrian and bicyclist nonfatal and fatal injury counts from motor vehicle-involved pedestrian and bicycle crashes were obtained from the NCDOT bicycle and pedestrian crash database.

- Methodology from the Durham Comprehensive Bicycle Transportation Plan (2006) was used to estimate the number of pedestrian and bicycle daily at-risk trips for each of four categories of travelers: journey-to-work commuters, school travelers, college travelers, and other travelers.

- Pedestrian and bicyclist nonfatal and fatal injury rates were calculated for the study period (1997-2009).
RESULTS

- Nonfatal, nonfatal with possible injury, and fatal pedestrian injury rates in NC decreased over the 13-year study period (Figures 2-4).

- Although there was not a change in fatal bicycle injury rates over the study period, nonfatal bicycle injury rates in NC decreased over the study period (Figures 2-4).

- In municipalities where the first plan was published between 1999 and 2007, unadjusted nonfatal and fatal injury rates among pedestrians and bicyclists were lower after plan publication than prior to plan publication.

- Adjusted rate ratios indicated that the rate of both pedestrian fatal and nonfatal injury had decreases of approximately 25% and 37% in years with publication of pedestrian or combined plans.

- The rate of fatal and nonfatal bicyclist injury did not change significantly in years with publication of bicyclist or combined plans.

CONCLUSIONS

- Pedestrian fatal and nonfatal injury rates were lower in years during which a plan was published, which demonstrates that the publication of comprehensive pedestrian plans is a strategy that may be utilized to improve safety.

- The existence of municipality-created plans may yield lower rates of fatal and nonfatal injury associated with pedestrians but not bicyclists. This may be a result of discrepancies in the content and quality of pedestrian and bicycle plans, as well as differences in behavior between pedestrians and bicyclists.

Acknowledgement: Support was provided by the Robert Wood Johnson Foundation, Active Living Research Program, the Southern Transportation Center, and the NC Physical Activity Policy Research Center, funded by the Centers for Disease Control and Prevention.