COLUMBIA, MISSOURI:
LOWERING THE POSTED SPEED LIMIT ON RESIDENTIAL STREETS[1]

A Community Speed Reduction Case Study

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Credit: CDC / Amanda Mills

THE PROBLEM

Columbia is a city of 110,000 people located in central Missouri. The population is supplemented by 40,000 students who live in Columbia, most of whom attend the University of Missouri — Columbia. For years, members of the Columbia City Council commonly received complaints about cars speeding in neighborhoods.[2] The Department of Public Works' (DPW) typical response to speeding complaints included a two-step process: conducting a speed study and, if the collected speed data indicated a speeding problem, installing traffic calming devices.

In 2002, seeking a new way to reduce speeds on residential roads, the City Council researched the policies of similarly sized municipalities to determine the effectiveness of lowering posted speed limits. That research, and a subsequent 2006 DPW report, resulted in DPW recommendations that the City Council take no action on lowering the speed limit.[3] In 2008, when high speeds in residential areas remained the number one complaint from Columbia residents,[2] one councilor looked for additional data to inform how to address the problem.

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THE SOLUTION

Identification of an approach

In 2009, in order to slow traffic speeds, the City of Columbia reduced the speed limit on residential roads from 30 mph to 25 mph. The approach was informed by a literature review and research in Springfield, MO and Columbia, MO. Previous conclusions, by the City of Columbia DPW and by others across the country, focused primarily on higher volume/higher speed roads, and research indicated that lowering speed limits did not lead to measureable reductions in speed. Few studies had been conducted on the effects of lowering speed limits on residential roads — defined as those with a volume of less than 1,000 cars per day, low speeds and high residential density. However, a 2005 pilot project in similarly sized Springfield, MO demonstrated lower average speeds on residential roads were achieved when the posted speed limit was reduced from 30 mph to 25 mph. Notably, in Springfield, researchers also observed speed reductions on adjacent streets, where the speed limit was not reduced.[2] Columbia used Springfield's successful approach as a model.

In a pilot study, average traffic speeds DROPPED between 1 MPH AND 6 MPH on roads where speed limits were changed from 30 MPH TO 25 MPH.

THE PROCESS

A pilot study

Prior to lowering the speed limit on residential roads citywide, in 2008, the Columbia City Council commissioned researchers from the University of Missouri — Columbia to design and execute a study in two neighborhoods in order to develop a better understanding of two potential approaches:

- *Rothwell Heights:* New, standard posted speed limit signs were placed at the entrances of the neighborhood, indicating the lowered speed limit of 25 mph
- *Shepard Boulevard:* New, enhanced posted speed limit signs were placed at the entrances of the neighborhood, indicating the lowered speed limit of 25 mph. These larger signs had been piloted and deemed successful in Springfield, MO. The signs included the words 'Kid Friendly' in large print under the 25 mph posted speed limit. Additionally, the Executive Director of PedNet, a pedestrian and bicycle advocacy organization gave presentations about the new speed limit at several community meetings and shared information through a door-to-door campaign. Residents were also invited to sign a pledge to drive the posted speed limit. Signed pledges committed those residents to drive the speed limit and serve as 'pace cars' for others in the neighborhood.

The University of Missouri — Columbia researchers collected 48 hours of continuous speed data from two residential streets in both neighborhoods, first before the change in posted speed and then again several months after the implementation of the new signs. In Shepard Boulevard, they collected 48 hours of continuous speed data again one month after the education campaign. The researchers surveyed residents' awareness of the new speed limit and their perceptions of the change in traffic speed.

Pilot study results

Speed data from both neighborhoods showed reductions in average speeds, reductions that ranged from roughly 1 mph to over 6 mph on roads where speed limits were changed from 30 mph to 25 mph.[2]

The new, kid-friendly signage and the educational campaign did not have a greater impact on lowering speeds than merely lowering the posted speed limit and replacing the standard sign. However, in the neighborhood that received education, there was greater awareness of the speed limit reduction, and residents on those streets perceived that more cars were driving at 25mph. Furthermore, residents in the neighborhood that received education reported feeling safer riding bikes and walking on their neighborhood streets than residents in the neighborhood without the educational outreach. The education campaign itself may have impacted willingness of residents to walk/bike and perceived quality of life.

City lowers speed on all residential streets

The pilot study results were presented to the Columbia City Council, which voted in August 2009 to lower speed limits from 30 mph to 25 mph on streets with only residential dwellings accessing the road and average daily traffic volumes of fewer than 2,000 cars.[4] The city ordinance requires that all residential streets with more than 1,000 vehicles per day have at least one publicly funded enlarged speed sign with a 'Kid Friendly' message and a yellow border in full view of motorists entering a neighborhood. The DPW makes the larger signs with the border message available to residents on any type of street if residents are willing to reimburse the City for the additional cost.

Partners

The City Council and the DPW played important roles throughout the planning and implementation of the study and in subsequently changing the residential speed limit. City Council members commissioned researchers from the University of Missouri — Columbia to execute the study that provided valuable data to inform the speed limit reduction proposal. A Councilwoman and PedNet, a pedestrian and bicycle advocacy organization, assisted with education and planning both before and during the design. The traffic engineers at the city's DPW helped collect speed data and installed new speed limit signs as original signs were ready to be replaced.

Costs

The city commissioned the pilot study at a cost of $9,935. The other relevant expense was for replacing posted speed limit signs. DPW used $128,000 of its traffic safety funds to cover the cost of installation equipment and temporary salaries for two DPW staffers. The city installed approximately 100 kid-friendly signs and approximately 300 standard 25 mph speed limit signs. The kid-friendly signs are $262 per sign, as compared to $77 for the standard signs.[5] The city saved money by reusing the removed signs on higher speed non-residential roads during regular maintenance upgrades. Replacement signage was installed in phases, often when signs were due for regularly scheduled updates, and the replacements required no additional DPW staff.

CONCLUSION

The pilot study approach proved valuable in demonstrating results prior to implementation of a city-wide change in speed limit. The pilot study results were especially important to some DPW staff and council members who were initially hesitant to invest scarce city resources into lowering the speed limit because they were not convinced people would actually drive more slowly.

The results of the pilot convinced them of the public health and safety benefits of a lower residential speed limit. The city has not collected speed or crash data to evaluate over time the effectiveness of the speed limit change. However, a councilwoman reports a drop in calls complaining about speeding cars on residential streets.

To learn more about how speed reduction can benefit public health:

- Public Health Impact: Community Speed Reduction
- Speed Reduction Fact Sheet: Opportunities to Improve Current Practice
- Community Speed Reduction and Public Health: A Technical Report

Case Studies:

- Chicago, Illinois: Child Safety Zones
- New York City: Neighborhood Slow Zones
- Portland, Oregon: Neighborhood Greenway Initiative
- Seattle, Washington: A Multi-Faceted Approach To Speed Reduction
- Washington, DC: Automated Speed Enforcement

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REFERENCES:

[1] Unless otherwise cited, information in this case study was provided during interviews in March 2013 with a Columbia City Councilwoman and researchers from the University of Missouri — Columbia.

[2] Rossy G, Sun C, Jessen D. NewmanE. Residential Speed Limit Reduction Case Studies. The Open Transportation Journal. 2012 (6):39-45.

[3] Stone R. Residential Street Speed Limit Report. City of Columbia, Missouri, Department of Transportation. 2007

[4] City of Columbia City Council. Bill No. PR 182-09Establishing a policy on setting speed limits on residential streets in the City of Columbia. Section 110-434; Policy Res. 182-09

[5] Semelka S. City Tests Out Lower Speed Limits for Neighborhoods. The Columbia Tribune. 2009.