

# Statement Regarding the 85<sup>th</sup> Percentile Method of Setting Speed Limits: Impact on Pedestrians.

*(For the sake of simplicity, the term “pedestrian” will be used here to refer to all non-motorists, e.g. walkers, bicyclists, and wheelchair users.)*

Dec. 14, 2015

In October 2015, Ann Arbor City Council, joined a number of other U.S. cities in adopting a Vision Zero Policy. The Vision Zero philosophy holds that no level of fatality on our roadways should be viewed as inevitable or acceptable, and sets a goal of zero traffic fatalities. One of the major contributing factors to traffic fatalities and serious injuries is speed, particularly for pedestrians and bicyclists. A 2011 study conducted by AAA<sup>1</sup> states that *“In places such as residential streets and urban areas designed to allow pedestrians and vehicles to be in close proximity to one another, examples of measures to reduce vehicle speeds include traffic calming techniques such as speed bumps, lane narrowing, and changes in roadway curvature, as well as increased enforcement or reduction of speed limits.”*

The Washtenaw Bicycling and Walking Coalition (WBWC) supports AAA’s findings and efforts to reduce vehicle speeds to levels consistent with Vision Zero. As car speeds go up, injury upon impact to pedestrians rises exponentially. The AAA study, the most conservative study we could locate, found that pedestrians have a 10% risk of dying at an impact speed of 23 mph, 25% at 32 mph, 50% at 42 mph, 75% at 50 mph, and 90% at 58 mph.

It’s clear from these findings that the ability to regulate speeds on urban streets is an important tool for communities interested in protecting pedestrian safety. However, there are efforts underway to further restrict the power of urban communities to regulate speeds by expanding the use of the 85<sup>th</sup> percentile method of setting speeds. This method uses a speed study to collect speeds of passing cars and plots them to determine the 85<sup>th</sup> percentile speed. We have several concerns with use of this method on roadways where pedestrian traffic is desired:

## **1. Use of the 85<sup>th</sup> percentile tends to result in higher posted speed limits.**

There is a commonly-held misconception that the 85<sup>th</sup> percentile is the speed at which 85% of the populations is driving. It is actually faster than 85% of the other drivers. It is the “head of the pack,” faster than most people are comfortable driving. Thus when a speed study recommends setting the speed to the 85<sup>th</sup> percentile, the result is typically a new posted speed greater than what most people are currently driving. For an illustration, please see <http://www.michiganspeedlimits.org/#!85th-percentile/c5zq>.

## **2. The speed studies are performed under “optimal conditions,” rather than normal conditions.**

When collecting data for an 85<sup>th</sup> percentile speed study, only vehicles that are moving steadily are counted. Drivers slowing down or braking because a walker or bicyclist is present or because a vehicle is turning are NOT COUNTED. Thus, the 85<sup>th</sup> percentile method sets limits reflecting only those drivers who are not responding to pedestrian activity or normal conditions. Additionally, only vehicles driving in daylight and good weather conditions are counted. According to the U.S.

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<sup>1</sup> Impact Speed and a Pedestrian’s Risk of Severe Injury or Death (2011)  
<https://www.aaafoundation.org/sites/default/files/2011PedestrianRiskVsSpeed.pdf>

Department of Transportation, only 25% of pedestrian fatalities occur in daylight.<sup>2</sup> But the 85<sup>th</sup> percentile method sets limits assuming optimal visibility.

### **3. Use of the 85<sup>th</sup> percentile method does not improve safety for all roadway users.**

The method is based on research by David Solomon in the late 1950s and published in 1964. Subsequent researchers have found different results. In fact, studies find the risk of involvement in a casualty crash increases more than exponentially with increasing speed, while slower driving lowers the risk of being involved in a casualty crash.<sup>3</sup>

The logic behind the 85<sup>th</sup> percentile method is that if drivers are allowed to drive at the speed they are “most comfortable,” then there will be less disparity between car speeds, thus less passing and fewer accidents. The National Highway Traffic Safety Administration, the Federal Highway Administration, and the Centers for Disease Control and Prevention say, “Some have interpreted these [Solomon study] results to suggest that it is as unsafe to drive below as above the average traffic speed. This ignores the fact that drivers involved in a crash at higher speeds are at greater risk of injury than those driving at lower speeds, a relationship that Solomon confirms in his analysis of the relation between speed and crash severity.”<sup>4</sup>

In other words, if reducing disparity in car speeds is the goal, then encouraging a cultural shift towards driving slower than the 85<sup>th</sup> percentile mark makes far more sense than encouraging drivers to surpass it.

### **Our recommendation**

According to the U.S. Chamber of Commerce, walkable communities benefit from stronger economic growth, higher commercial rents and better-educated residents.<sup>5</sup> Our communities must have a full toolbox to create safe communities to walk and bike. The Washtenaw Bicycling and Walking Coalition firmly believes that changing the physical environment of our transportation corridors is the most effective way to lower car speeds and increase pedestrian usage. However, we concur with AAA that reduction of speed limits is also an essential tool to create safe communities for our residents to walk.

As such, WBWC recommends against using the 85<sup>th</sup> percentile method when determining posted speed limits on transportation corridors currently used by bicyclists, walkers, or wheelchair users, and/or where an increased pedestrian presence is desired.

WBWC, with its coalition partners, represents the interests of thousands of bicyclists and walkers throughout Washtenaw County.

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• ***www.wbwc.org*** *Promoting transportation options that make sense for a sustainable and livable community.*

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<sup>2</sup> <http://www-nrd.nhtsa.dot.gov/Pubs/812124.pdf>

<sup>3</sup> [https://en.wikipedia.org/wiki/Solomon\\_curve](https://en.wikipedia.org/wiki/Solomon_curve)

<sup>4</sup> Transportation Research Board Special Report 254: MANAGING SPEED Comparison of Speed Zoning Procedures and Their Effectiveness. <http://onlinepubs.trb.org/onlinepubs/sr/sr254.pdf>

<sup>5</sup> <https://www.uschamber.com/above-the-fold/citing-economic-benefits-report-ranks-us-cities-walkability>