

New algorithms may help merging traffic

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A U.S. study suggests traffic metering systems using new algorithms could reduce the seriousness mishaps occurring near freeway on-ramps.

Metering systems try to improve traffic flow by restricting how many cars enter the highway each minute based on how many cars are already there.

University of Michigan Adjunct Professor Craig Davis says there are two basic types of traffic congestion: gridlock, in which cars stop, and synchronous congestion, in which two or more lanes of traffic all slow to the same speed. Synchronous flow occurs often near on-ramps, when cars don't give one another enough room to merge, or when too many cars are on the road.

Metering systems use computer algorithms to try to predict when a jam may occur, typically based on occupancy. Davis, however, based his algorithm on the throughput and rate at which vehicles are merging, not on highway occupancy. He found traffic jams occur when throughput exceeds about 1,900 cars per hour per lane; after that capacity drops by 10 percent or more.

Davis says simple politeness is always helpful, however, letting people merge is useful only if you don't slow down too much to do so.

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