

9 million bicycles, but what about the cars in Beijing?

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Forget the fact of there being "9 million bicycles in Beijing, that's not a fact. Indeed, motor vehicle traffic is fast becoming a big problem that has led to unsustainable pollution and draconian rules in some parts of the city. Now, Nan Ji of the Hebei United University in China and colleagues have developed an algorithm to help traffic planners optimize the flow of traffic across roundabouts.

Writing in the *International Journal of Innovative Computing and Applications*, Ji and colleagues at the Tangshan Tanggang Expressway Management Office and Tian Jin Polytechnic University explain how their [computer algorithm](#) models [traffic](#) flow and figures out the largest traffic capacity through. The approach can compare the effects of using traffic signals in different modes or having such traffic controls disabled altogether. The system can also apply diversionary tactics to allow traffic to be channeled away from a particular roundabout at heavily congested times if possible.

In most cities, chronic [traffic jams](#) and gridlock impede the flow of vehicles, wasting drivers' times and costing billions of dollars directly and indirectly as well as generating a sooty and smoggy carbon tracks across many. The roundabout was first posited as a way to smooth [traffic flow](#) at the beginning of the twentieth century when there were many orders of magnitude fewer vehicles on the roads. Nevertheless, roundabouts with traffic signals to further control and prioritize traffic are being seen as the better option to conventional "crossroads" type intersections between stretches of road.

The team has considered three critical points in order to find a way to optimize roundabout implementation. They have looked at how to judge what controls might be needed with respect to traffic volume. They have looked at how delays at each entry and exit point on a roundabout might be balanced for the smoothest flow. They have also looked at how controlled flow compares with

roundabouts with no traffic signals.

In testing the algorithm on a simulated roundabout in Beijing, and ignoring any number of bicycles, the team has found that they can reduce delays to just 11 seconds at the roundabouts' entry point with judicious timing of traffic signals.

More information: "Mathematical model for designing the traffic circle control" in *Int. J. Innovative Computing and Applications*, 2012, 4, 58-66.

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