

TRB Trip and Analysis of Research on Variable on Ramp and Highway Speed Limits

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Abstract

Using the funds given to me by the Spark Grant, I went on a trip to the annual Transportation Research Board meeting where I found some very interesting research on a lot of different problems and research ideas in the transportation field. I shrank down that information to one poster session which I saw as the most interesting and applicable to me. The research and poster I will talk about was done by Fangjian Yang and Han Luo from the Department of Civil and Environment Engineering at Auburn University. The title of their research was, "Novel Freeway Entry & Exit Ramp Speed Management Strategy". The research proposes a plan of implementing variable speed limit signs that will adjust on exit/enter ramps on the I-85 in order to reduce the number of accidents caused by potential road hazards and aid in seamless merging of traffic onto and off the highway. The research accounts for likely responses to the implementation and the possible consequences that will result. The research was an interesting idea with a good amount of research behind it, but I believe it will not work because of the difficulty of implementation and the human factor involved with vehicles adhering to speed limits.



Their Findings

The group proposed that for exit ramps, a valid countermeasure would be the implementation of road signs that actively measure the headway in between cars that will flash when someone is riding too closely behind another car. This will allow for room for people to merge and slow down when exiting the highway to prevent rear end accidents. They supported this countermeasure with research that showed that drivers' perceived headway, or distance in between them and the car in front, is drastically larger than what it actually is. This means that drivers are a lot closer to other cars than they think which makes putting headway detectors a valid way of preventing crashes. The other speed management strategy comes in the form of Variable Speed Limits on onramps. By having variable speed limits, speed detectors on the highway that is being merged onto can relay the current speeds of most cars so that drivers joining the highway will be able to merge without running into any issues of going too slow or fast. This also can apply to any time there is road work, bad weather, or crashes reported. The Main downsides that they gave about the two proposed strategies came in the form of cost of installation and maintenance being high.



Big Takeaways from meeting

By going to the Transportation Research Board meeting, I was able to view all types of different research and new ideas like this one and really submerge myself in what it would be like to be a Transportation Engineer. The experience is something that I highly value as it helped to show me what I want to do with my future career.

References

Yang, F., & Luo, H. (2021). Auburn University. *Novel Freeway Entry & Exit Ramp Speed Management Strategy*.