

Temporary Traffic Control for Mobile and Innovative Geometric Design Work Zones

Timothy Cope

Dr. Carlos Sun Phd., P.E. J.D., Thesis Supervisor

ABSTRACT

Work zone safety and operations are of growing concern through recent years. With increasing traffic demand on the transportation system and advancing technology raising new situations, such as texting while driving and the proliferation of portable devices, new approaches and solutions need to be formed relating to transportation safety. This thesis addresses two issues pertaining to work zone safety. This first issue related to the increase of distracted driving through mobile work zones leading to an increase in collisions with work zone vehicles. The speed differential between the work zone vehicles and normal traffic flow, and the rise in distracted driving can lead to potential collisions. A possible solution to this problem involves the use of an audible warning system. This research found that the use of an audible warning system has potential to be an effective tool in improving safety through mobile work zones. The second issue relates to the rising trend of utilizing innovative geometric designs to address increasing traffic and increase traffic safety. Currently there is a lack of guidance on construction phasing and maintenance of traffic (MOT) involving innovative geometric designs. The research presented in this thesis addresses construction phasing and MOT practices for several innovative geometric designs. Goals through the innovative geometric design portion of this thesis include providing guides for transportation practitioners in developing construction phasing and MOT plans for innovative geometric designs. This involves providing MOT Phasing Diagrams to assist in traffic control measures such as barriers, delineators, and striping.