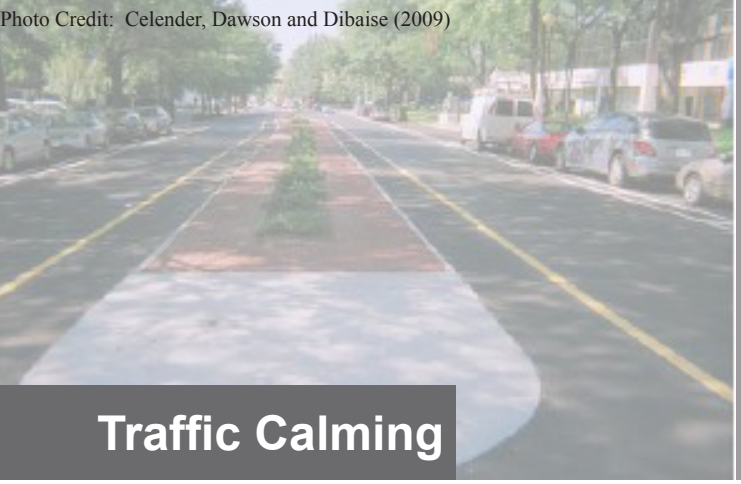

Photo Credit: Celender, Dawson and Dibaise (2009)

Traffic Calming

Dylan Harris

What is Traffic Calming?

Traffic calming has become an important tool in transforming car oriented cities into safer, quieter and more human scaled environments. Implementation of traffic calming measures attempt to move away from car centric designs of the past where widening and straightening of roads to accommodate faster traffic flow were prominent (Litman, 1999). Although Traffic calming is traditionally thought of as infrastructure changes, many advocate that calming traffic requires a paradigm shift among planners and organizations towards emphasis on quality of life in urban environments (Toronto Star, 1993). Newman and Kentworthy refer to traffic "not as a liquid flowing where directed, but as a gas which expands to fill all available space" (Crouse, 2004, p.1). This perspective opposes the expansion of roadways to accommodate transportation demand.

One of the simplest traffic calming measures is the reduction of speed limits

Stakeholders in traffic calming interventions include drivers, homeowners, pedestrians, cyclists, the elderly, children, public transit, emergency response vehicles and municipal maintenance crews (Crouse, 2004). Traffic calming techniques can be grouped into three principles of controlling speed, separation of modes and increasing pedestrian visibility (Howard, 2010). In addition to reducing traffic speed and volume, lowering the number of accidents are a primary objective of traffic calming (Crouse, 2004).

Techniques

One of the simplest traffic calming measures is the reduction of speed limits. This has proved successful in European countries such as Germany, where traffic is restricted to 30 km/h on most urban roads (Toronto Star, 1993). Physical manipulations to calm traffic include narrowing traffic lanes, widening sidewalks, building bike lanes, creating meandering streets, emphasizing pedestrian crossings, installing speed bumps and replacing stoplights with four way stops (Toronto Star, 1993). More recent initiatives include speed awareness devices that post traffic speed on permanent digital displays (Celender, Dawson and Diabaise, 2009). Initial implementation of traffic calming measures tend to be most contentious (Litman, 1999). Municipalities such as Seattle offer guaranteed removal of traffic calming features if residents are not happy, although removal has only occurred once in 800 projects (Litman, 1999).

Photo Credit: U.S. DOT, 1999

Results:

...a German study showed casualties being reduced by 63%

Studies have shown reductions of 60% in the proportion of children walking or cycling to school, possibly contributing to negative effects in physical and intellectual development (Litman, 1999). This phenomenon was explained by parents citing distances and traffic related hazards as the primary reasons their children do not walk or cycle to school (Howard, 2010, Engwicht, 1993). Creating environments that discourage active modes of transportation encourage sedentary lifestyles associated with chronic diseases that impact many North Americans. Two German studies analyzed by Carmen Hass-Klau on calming implementation, show reductions in number of accidents decreased by 20%, with severe accidents decreasing by 50% (Hass-Klau, 1990). In contrast, implementation of calming features in Denmark showed average reductions of 43% of traffic casualties while a German study showed casualties being reduced by 63% (Crouse, 2004). Quantitative analysis of international traffic calming projects indicate that by reducing speed by one mile per hour results in approximately a 5% reduction in vehicle collisions, with even larger reductions in traffic related fatalities (Litman, 1999).

Criticisms

Critics of traffic calming interventions argue calmed streets simply relocate traffic volumes to adjacent streets (Litman, 1999). By implementing traffic calming measures on an ad hoc basis, there is possibility for drivers to create alternate routes, creating new busy streets. For this reason, traffic calming can be more effective when it is a component of larger transportation demand management plans (Litman, 1999). Modifications to roadways that narrow streets, or the create obstacles such as speed bumps can inhibit service provision such access by emergency vehicles, garbage collection and snow removal (Litman, 1999). Although studies have demonstrated slowed response times of emergency vehicle at ten seconds per obstacle, the risk of traffic on un-calmed streets in comparison with slightly slower response times is debatable (Litman, 1999). Other potential limitations include risks to people with visual impairments, as the

Photo Credit: U.S. DOT, 1999

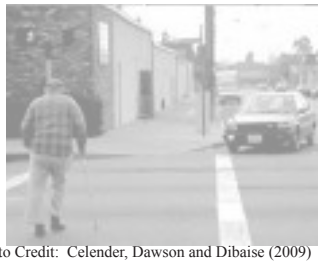

Photo Credit: Celender, Dawson and Dibaise (2009)

removal of curbs, edges or other reference features of traditional intersections of some traffic calming measures can result in confusion (Litman, 1999).

Considerations for Older Adults

Transportation opportunities are essential in connecting people to their environments, providing access to amenities and maintaining social relationships. Older adults experience environments different than other pedestrian groups as age related changes to motor, sensory and sometimes cognitive abilities influence their capacity to move freely (Miami Dade County, 2011). Studies show elderly men are estimated to live an average of six years without driving, while elderly women are expected to live for 10 years without driving (Foley, Heimocitz & Guralnik, 2002). Transportation opportunities that are inclusive and safe for all age groups are essential in maintaining quality of life and autonomy that contributes to overall health and wellness. A study conducted by Wouters concluded that elderly road users experience a higher level of road hazards, have more serious accidents and are particularly vulnerable as cyclists and pedestrians (U.S. DOT, 1999). Susceptibility to road hazards is attributed to physical vulnerabilities that occur with age, reduced sensory capacity that can make estimates of speed and distance challenging (U.S. DOT, 1999). These factors are exacerbated by socio economic factors associated with retirement and changes in family dynamics (U.S. DOT, 1999). By incorporating the special considerations required in creating accessible and safe street designs for older adults, there are opportunities to improve social participation, maintain independence and improve overall quality of life.

...elderly road users experience a higher level of road hazards

Conclusion

Traffic calming provides opportunity to reclaim streets as usable public space, contribute to equitable distribution of street users while maintaining function as transportation arterials. The key to successful implementation requires values of access and inclusiveness be prioritized by society. Communicating these principles from an age friendly perspective is an effective method in emphasizing the diverse needs of street users, in turn strengthening the argument that accommodations to provide safe and accessible environments for all ages is essential.

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