Traffic safety analysis can be divided into two broad categories: microscopic and macroscopic analyses. The microscopic safety analysis focuses on roadway entities such as segments, intersections, corridors and so on. The microscopic safety analysis aims at identifying contributing factors for traffic crashes from roadway geometric designs, traffic related characteristics of roadway entities, and providing specific engineering countermeasures to alleviate traffic safety problems. On the contrary, the macroscopic safety analysis concentrates on zonal based traffic crashes with demographic, socio-economic, and zonal level traffic/roadway characteristics. Compared to the microscopic level study, macroscopic analysis provides a broad spectrum perspective, and also it suggests long-term policy based countermeasures such as enactments of traffic laws/rules, police enforcement, education, safety campaign, and area-wide engineering solutions. A need of incorporating roadway safety considerations in long-term transportation planning process has been emphasized in the last decades in accordance with Moving Ahead for Progress in the 21st Century Act (MAP-21) and Fixing America’s Surface Transportation Act (FAST Act). This integration planning process is called transportation safety planning or macroscopic traffic safety analysis. Incorporating safety in the long-range transportation plans has been a vital issue. In this seminar, general introduction to the macroscopic safety analysis, geographic units, statistical methodologies, contributing factors by crash types, and recent topics in macroscopic safety studies will be discussed to provide attendees with a better understanding and recent trends of traffic safety research studies at the macroscopic level.

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