P14. Optimizing signal control at continuous-flow intersections considering traffic progress

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Continuous-Flow Intersections (CFI), also known as Displaced Left-Turn (DLT) intersections, aim to improve the efficiency and safety of traffic junctions. A CFI introduces additional sub-intersections upstream of the main intersection to split the left-turn flow from the through movement before it arrives at the main intersection, which decreases the number of conflict points between left-turn and through movements. This study develops a two-step optimisation model for CFI traffic signal control design and demonstrates its performance across 18 different travel demand scenarios. The model is also compared with a state-of-practice CFI signal control model as a benchmark. Simulation results suggest that the proposed model reduces average delay by 30% and average queue length by 21% compared with the benchmark for a full CFI across a variety of demand patterns.