Development Of A Phase-by-phase Arrival-based Delay-optimized Adaptive Traffic Signal Control Methodology With Metaheuristic Search

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Summary : Free development of a phase-by-phase arrival-based delay-optimized adaptive traffic signal control methodology with metaheuristic search pdf download - adaptive traffic signal control is the process by which the timing of a traffic signal is continuously adjusted based on the changing arrival patterns of vehicles at an intersection usually with the goal of optimizing a given measure of effectiveness herein a methodology is developed in which the characteristics of a traffic signal cycle are optimized at the conclusion of every phase based on the arrival times of vehicles to an intersection using stopped delay as the measure of effectiveness this optimization is solved using metaheuristic search procedures namely tabu search and embedded in an algorithm in which current vehicle arrival times are detected arrival patterns over a specified horizon are predicted the traffic signal timing is optimized and the timings are sent to a traffic signal controller the methodology is shown to provide improvement in performance for a number of intersection configurations and traffic regimes over traditional forms of traffic signal control and the metaheuristic search is demonstrated to significantly reduce the computation time for a solution as compared with other search procedures

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