

## **Efficiency and equity properties of freeway network-wide ramp metering with AMOC**

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### **Abstract**

The Advanced Motorway Optimal Control (AMOC) strategy for optimal freeway network-wide ramp metering is applied to the ring-road of Amsterdam, The Netherlands, in the aim of investigating some important and interesting problems arising in ubiquitous ramp metering systems. A number of suitably chosen scenarios along with a thorough analysis, interpretation, and suitable visualization of the obtained results provide a basis for the better understanding of some complex interrelationships of competing performance criteria. More precisely, the strategy's efficiency and equity properties as well as their trade-off are studied and their partially competitive behaviour is discussed. This trade-off is implicitly addressed by the AMOC strategy through consideration of the available ramp storage space and may be used as a tool to establish a desired policy of the system's efficiency versus equity.

**Keywords:** Freeway networks; Ramp metering; Optimal control; Equity

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