



Oguchi LAB.

[Technologies for Safe and Sustainable Traffic Society]

Department of Human and Social Systems / Advanced Mobility Research Center (ITS Center)

Traffic Management and Control

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Interfaculty Initiative in Information Studies, Graduate School of Arts and Sciences <http://www.transport.iis.u-tokyo.ac.jp/index-en.html>

Scientific Approach for Traffic Flow

We research road traffic from various aspects and develop traffic management methods to realize sustainable road traffic with less traffic accident, congestion, and negative impact on environment.

Innovative policy

How to manage road traffic?

Studies on road management (incl. planning, design, operation) policies for more safe and efficient urban traffic flow:

- Development of autonomous traffic signal systems
- Impact of traffic lights locations on driver's behavior
- Requirement of installing a CAV lane on motorways
- Network control based on spatial congestion patterns
- Planning and design for hierarchical road network
- Performance evaluation of mixed and separated pedestrian and vehicular traffic in street network

Evaluation of the proposed systems at the Kashiwa ITS R&D field

Large-scale traffic simulation in the whole Tokyo Metro network

Technology

How to assess road management policies?

Development of traffic simulation models and data complementing methods to assess road management policies:

- Operational evaluation system for three-ring expressways in the Tokyo Metro area
- Impact of shared automated driving systems on the required parking lots reduction
- Macroscopic model of urban rail systems
- Impact of random nature of shared left-turn lane
- Traffic data imputation methods
- Utilization of open public transit data

ITS
Intelligent
Transport
Systems

Science

What's happening in road traffic?

Development of basic theories and analysis of various kinds of observed data to understand road traffic:

- Modeling interactions among merging and mainline vehicles at expressway on-ramps
- Analysis of conflicts between egress vehicles from off-street parking lots and sidewalk pedestrians
- Time series analysis of expressway OD traffic volume
- Fundamental theory on traffic signal coordination

