

[Technologies for Safe and Sustainable Road Traffic Society]

Department of Human and Social Systems, Institute of Industrial Science

<http://www.transport.iis.u-tokyo.ac.jp/>

Traffic Management & Control

Department of Civil Engineering, Graduate School of Engineering, the University of Tokyo
Interfaculty Initiative in Information Studies (iii), the University of Tokyo

Graduate Program on Environmental Sciences (GPES) in Graduate School of Arts and Sciences, the University of Tokyo

Scientific Approach for Traffic Flow

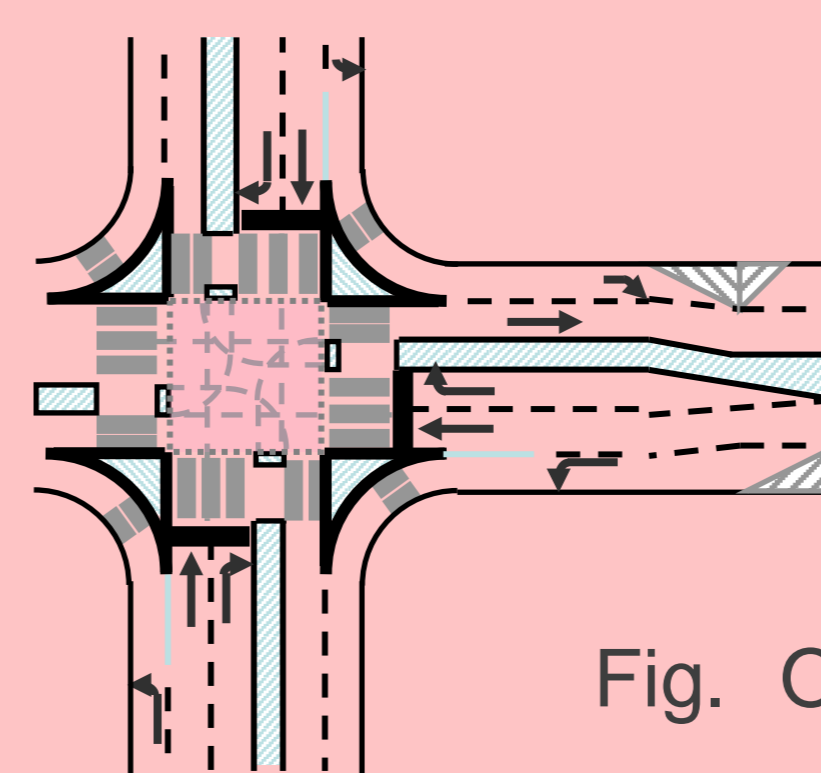
The studies in the laboratory are related to traffic engineering from various aspects such as fundamental theoretical studies, analyses of data collected by different types of sensors, and the effect evaluation of traffic management methods/policies based on traffic simulation models. They are expected to resolve the traffic safety, congestion and environmental impact issues, and to lead to innovative road traffic.

The goals are to and develop policy-assessment tools for safe, efficient and environmentally sustainable traffic society.

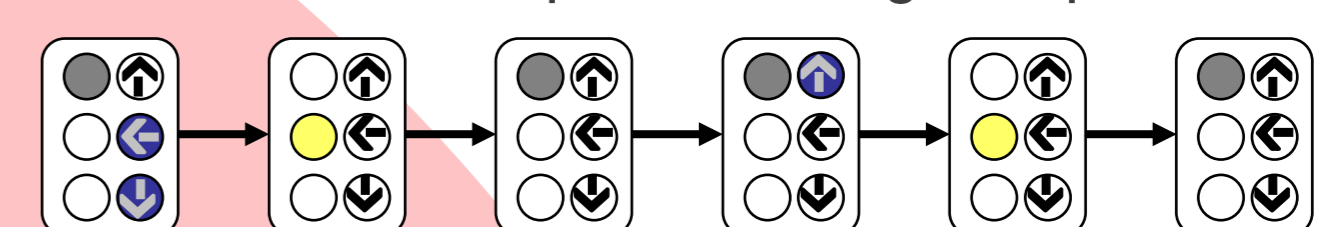
Innovative policy

Studies on various traffic policies to safely and efficiently manage urban traffic flow:

- Advanced traffic signal control
- Vehicle-infrastructure cooperative control
- Street management for vehicles and pedestrians
- Feedback of ITS based information to society



Dedicated arrow phase after green phase



Through and right-turn divided control

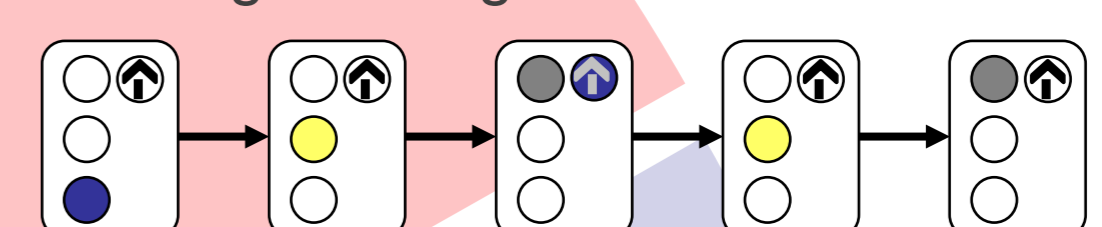


Fig. Optimal traffic signal-phase design



ITS
INTELLIGENT
TRANSPORT
SYSTEMS

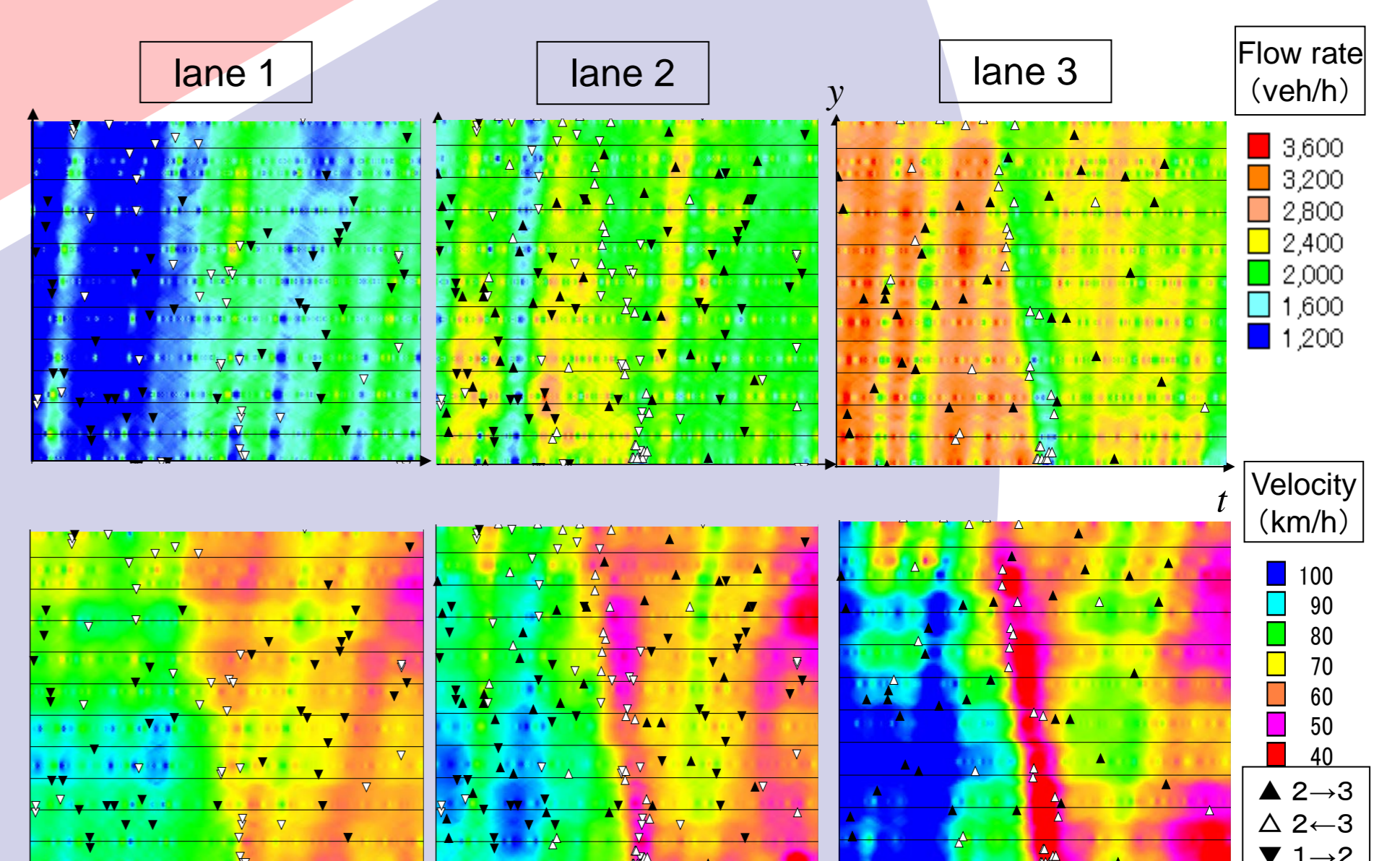


Fig. Traffic congestion estimation at Tomei-Yamato sag

Development of traffic simulation models and its application to policy evaluations

- AVENUE (Street-level traffic simulator)
- SOUND (Regionwide-level traffic simulator)
- Now-cast simulation system based on real-time information
- Operational evaluation system for 3 ring roads in Tokyo metro area

Technology

Basic theories and empirical studies of traffic flow

- Study on gridlock model of urban network traffic flows
- Macroscopic performance analysis of network traffic flows
- Empirical analysis of car-following behaviors and lane distributions on expressways
- Trip variation and trip-chain analysis

Science