

Overview of transit planning

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Goal

To provide good quality transit service subject to various constraints (budget, etc.).

Challenge

- ▶ Designing a transit system as one global problem is intractable.
- ▶ Therefore we divide it into into several sub-problems.

Various levels of panning¹

1. **Strategic level** (Concern long-term decisions)
 - Stop location
 - Route alignment
2. **Tactical level** (Concern decisions related to service offered)
 - Frequency setting
 - Timetable development
3. **Operational level** (Concern how to perform operations to provide given service)
 - Vehicle scheduling
 - Crew scheduling
 - Maintenance scheduling
4. **Real-time control** (Manage perturbation to the offline plan)
 - Transfer synchronization

¹Categorization adopted from Desaulniers and Hickman (2007)

Suggested reading

- ▶ Desaulniers, Guy, and Mark D. Hickman. "Public transit." Handbooks in operations research and management science 14 (2007): 69-127.

Thank you!