

Transit Scheduling

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Basic Approaches

- Level of Service Policy Orientation:
 - Provide a basic service level and maintain it or do nothing at all, i.e.
 - 30 minute headways in off-peak
 - 15 minute headways in peak
 - no matter what demand is.
 - Generally used to set minimums for a system or provide enough service to a certain area of the city.
- Demand Orientation
 - Look at current level of demand and provide enough seats to meet that demand.
 - At times or places where the demand doesn't exist to cover costs of service – don't provide it.

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Management viewpoint

- ❑ Want to meet demand at lowest possible cost. Costs are proportional to vehicle hours and vehicle miles; demand varies by time of day, day of week, time of year.
- ❑ To accommodate peak demand may mean excessive service at other times of the day.
- ❑ Discourage peak ridership?
 - Peak demand may require costs of another full time driver and vehicle to be used for a short time.
 - Peak shaving – lower prices during the off peak, use car pool/van pool service, taxi substitute, etc.
- ❑ Money isn't saved unless an entire run or piece of work is eliminated.

Driver viewpoint

- ❑ Drivers want schedules that are easy to meet, convenient layovers, short work days, convenient starting time, pleasant passengers, good days off, high pay. They need to take breaks during the day and have meal times.
- ❑ Labor contracts with drivers typically specify constraints on operations and scheduling.
- ❑ Contract provisions have a major effects on schedules, costs, spread penalties, layover provisions, split shifts, etc.

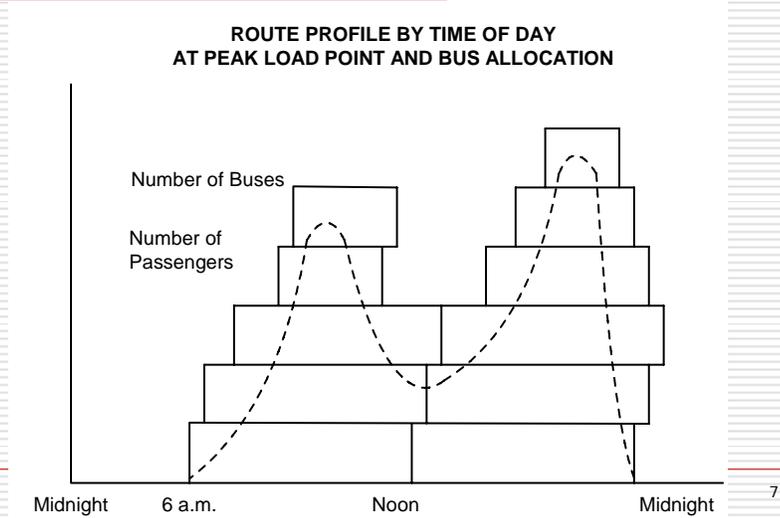
Customer viewpoint

- Customers want:
 - to be at their destinations at a given time,
 - to avoid waiting,
 - to avoid long travel times,
 - reliable service,
 - to have a safe place to wait,
 - to have schedules that are easy to remember,
 - to have service at all hours, weekends, holidays.

Data needs

- Running Times: by route segment, by time of day, variation,
- Peak Load Point Counts: number of people in the vehicles at the route peak load point, in the peak direction and at the peak time of day (triple peak).
- Policy: maximum headway, span of service – evenings, weekends, loading standards, stop spacing

Example:



How many drivers, vehicles?

- The above requires:
 - a base service of three buses for two straight shifts each (six drivers)
 - two split shifts (two drivers, two vehicles)
 - one afternoon tripper (one driver, one vehicle).
 - Six vehicles are required and nine pieces of work (drivers). The driver and vehicle used in the tripper may have other assignments on other routes.

Computer scheduling:

- ❑ Most transit systems use a computer based system to do their scheduling.
- ❑ A good manual schedule will be as close to optimal as a computer based schedule, but will take much longer to prepare and not be easily adapted to changes.

Acknowledgements

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