Towards a Passenger-focused On-Time Performance Metric for Commuter Rail

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Outline

- History
- Case Study: Caltrain
- Comparison
- Conclusion
Today’s On-Time Performance Metrics

- Most use 5 minutes, 59 seconds at the terminal
  - Some use 5 minutes
  - Others measure at intermediate stations

How We Measure Delay
Like other commuter railroads, Metra considers a train to have operated on time if it reaches its final destination within five minutes and 59 seconds of its scheduled arrival. Years ago, railroads across the nation decided that delays of less than six minutes would not be factored into a railroad’s on-time performance. The idea was to use that threshold...
Turn-of-the-Century Performance

• “Ask the Conductor; He has the Right Time”
• Federal vs. State interests
• “Endeavor by every means in its power to correct such wretched service.”
New York Public Services Commission – Second District

To all Steam Railroad Corporations:

• Circular #34 – March 16, 1908

• Report on total number of trains operated and those delayed by 5 minutes or more at the terminal

• Monthly “Passenger Train Delay Bulletin”

• Includes Long Island Railroad
Issues with Terminal OTP

- All trains weighted equally
- Easy to game
- Not representative of passenger flows
- How different is the passenger experience from what agencies report?
Case Study: Caltrain

Caltrain Average Weekday Ridership Trend

Year

Riders (Boardings)
20,000 25,000 30,000 35,000 40,000 45,000 50,000 55,000 60,000 65,000
24,597 25,577 23,947 26,533 29,760 31,507 34,120 37,779 42,354 47,060 52,611 58,246 62,111 62,190
## Caltrain Alightings

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Caltrain Monthly Ridership

Caltrain Average Weekday Ridership by Month
(Normalized, Feb = 1)
Caltrain Performance Data

- Track circuit occupancy times
- Arrivals at adjacent stations are estimated to the nearest minute
- Aggregated with passenger alightings at each station
- Still using 5m59s threshold
Metric Comparison: Daily

Daily Difference Between Caltrain Traditional and Passenger OTP (April 2016-March 2017)
Metric Comparison: Monthly

Monthly Difference Between Caltrain Traditional and Passenger OTP (April 2016-March 2017)
Conclusions

• Terminal-based OTP is literally an antique
• Data requirements are manageable
  – Real time location data (AVL or track circuits)
  – Ridership data for current schedule
• Community/Agency conversations
  – Reporting frequency (daily vs. monthly)
  – What is a reasonable margin?
Caltrain OTP Reporting

Caltrain On-Time Performance (5 Years)

Month

OTP Performance Goal