**How scheduling improves bus service reliability in Auckland?**

Improving the bus service reliability has the potential to increase the number of bus users and provides users with a consistent range of predictable travel time to ensure certainty they can plan their activities. This paper presents an in-depth analysis of service reliability based on optimizing of long headway services in Auckland public transport. Setting the total runtime of the trip, the departure time at the first stop, and arrival time at the last stop are an important decision when optimizing reliability in a public transport network. The choice of the percentile out of historical data determines the probability of being late or early, while the scheduled departure time determines the arrival pattern for bus users. In Auckland Transport (AT) we set runtimes using the 95th percentile minus 5 minutes, so that at least 95 per cent of the time buses reach their final stop within 5 minutes of the scheduled arrival time. A case study will be used to explore and determine the optimal percentile value for long-headway services without and with timing points. The case study will be based on the analysis of 3 routes, WX1 (Northwest Express), Waiheke Island routes and 27 MT Eden routes. All these routes were planned and implemented in Auckland in the last 12 months.

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Keywords: Public transport · Service reliability · Timetable design · Timing point – Headway – Percentile.