



## Determining Performance Indicators to Evaluate Bus Service Reliability

Bus reliability is a critical factor in evaluating the quality of public transportation services, which involve transport authorities, passengers, and transport operators. Reliability is a complex concept, and the decision as to which performance indicators to use reflects the different perspectives and definitions of reliability among the three parties.

In New Zealand, bus service reliability and punctuality are commonly monitored through GPS-tracked performance data, which report the percentage of scheduled trips sighted departing early or late at the first stop. However, these indicators do not reflect the passenger perspective and fail to differentiate between high and low-frequency services. Regular reports from transport authorities in New Zealand also contain boarding, boardings per service hour, and route changes, but they do not provide a comprehensive evaluation of service performance from the passenger's perspective. This study explores the different perspectives on bus service reliability from the passengers, authority, and operator's viewpoints. The aim is to identify a comprehensive set of performance indicators that could be used to monitor and improve the reliability of bus services in New Zealand. The study describes several indicators to evaluate the service reliability reflecting passenger waiting time at each stop, bus bunching, and total bus travel time, which could provide a more accurate evaluation of service reliability from the passenger perspective. By considering these various performance indicators, the study provides insights into the complexity of measuring and improving bus service reliability and highlights the need for a holistic approach that considers multiple perspectives to ensure high-quality public transportation services in New Zealand.