Motivation

Ramp meters are a cost-effective method used for relieving traffic congestion by controlling the frequency vehicles enter the traffic flowing onto a motorway. They have been shown to not only significantly reduce travel time but also increase driver safety. But what are the best performing ramp metering systems being used around the world and why?

Contribution

1) A review of the existing ramp metering systems around the world.
2) Implementation and calibration of two state-of-the-art RM algorithms in a controlled simulation environment;
3) Comparative evaluation of the state-of-the-art coordinated RM systems using a systemic approach (whole network and not just the mainline);
4) Development of novel measures to evaluate the simulation results.

Conclusion

The results indicated that both algorithms can lead to different performance outcomes under varying traffic conditions. This highlights the importance of the ramp metering calibration, and the need to examine each ramp metering solution in the context of a project specific application.