



## Technical Brief No.1

# 1<sup>st</sup> Signs Approach to Road Maintenance

From the IFME/IPWEA International Public Works Conference held in June 2015 in Rotorua, NZ.

Two engineers in New Zealand, Mike Manion (Higgins Group) and Richard Parsons (Beca) have developed a new methodology for the management of road pavements that is designed to prolong asset life spans, reduce the need for major repairs, and hence reduce the need for pavement renewals – and subsequently, reduce costs. The basic tenet of the new approach is to recognise the early warning signs of pavement distress and take action at the 1st Sign that a potential asset deficiency is visible and intervention is possible.

The 1st Signs approach came about in response to the new form of road maintenance contract developed by NZTA (New Zealand Transport Agency). The contract form, titled Network Outcomes Contract seeks to align contractors with the Agency’s goals of becoming more efficient in the management and maintenance of the State Highway network. This includes getting better value from previous asset investments by intervening early to prevent or reduce the rate of asset deterioration.



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In the community health sector early diagnosis and treatment is a fundamental principle to improve well-being and life spans for people. The 1st Signs system applies the same philosophy to the maintenance of roads. Using the 1st Signs approach the aim is to decrease the chance of a defect taking hold, and so preventing the need for major intervention down the track.

1st Signs is a continuous process involving identification, monitoring and repair, and it is designed to drive intervention from the time an asset health problem is diagnosed. The analysis of defects under the 1st Signs approach includes an appreciation of the expected rate of progress of each fault, and this can lead to opportunities to defer remedial work. So an important part of the 1st Signs process is for the inspector to be able to assess the time scale for each item of work, and this comes out in the programme of work.

The authors accept that more work needs to be done to refine the process, develop better prioritisation techniques and intervention methods. So the success of the 1st signs approach will take several years to fully validate.

While the 1st Signs concept is still in the early stages of implementation, the initial results are positive. The approach provides a decision framework that can be operated consistently across the network, from the Asset Manager to the field crews. All members of the team understand the concept which means that everyone working on the network is aligned to this strategy for asset preservation.

1st Signs is providing a rational justification for deferring some items of work, and this deferral is delivering cost savings to NZTA.

[A copy of the full paper and presentation can be downloaded here.](#)