

## **Land Transport Rule: Traffic Control Devices 2004—Two-aspect Cycle Signals Trial**

Pursuant to subclause 3.4(1) of Land Transport Rule: Traffic Control Devices 2004 (“Rule”) and a delegation from the NZ Transport Agency, I, Glenn Bunting, Manager Network Safety, authorise the installation, maintenance and operation of two-aspect cycle signals:

- a. for the purpose described in Schedule 1;
- b. in the form and layout and complying with the operating requirements set out in Schedule 2;
- c. at the locations stated in Schedule 3;
- d. for the period specified in Schedule 4; and
- e. subject to the evaluation outlined in Schedule 5.

The two-aspect cycle signals may be installed for the purpose of evaluating their use and the trial will be called the “two-aspect cycle signal trial”.

For the purposes of the trial, the red and green two-aspect cycle signals and the red and green signal aspects with combined pedestrian and cycle symbols described in Schedule 2 of this notice are equivalent to the red and green cycle or pedestrian signal aspects in Section 6 and Schedule 3 of the Rule.

### **Schedule 1—Purpose of trial**

The purpose of the trial is to:

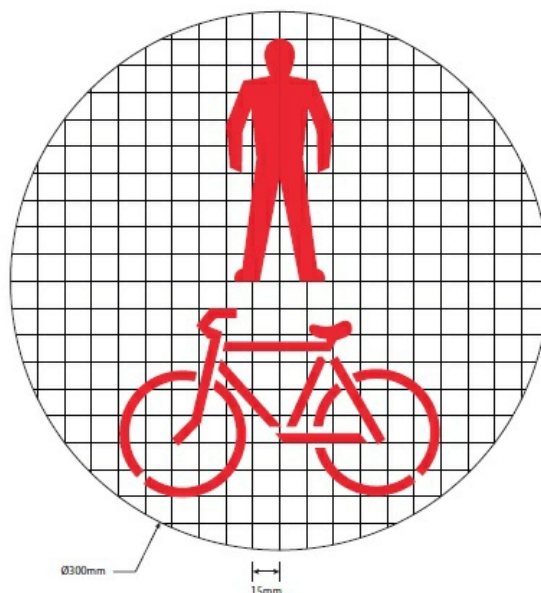
- a. enable the installation and operation of two-aspect cycle signals as an alternative to three-aspect cycle signals described in 6.4(12)(c) of the Rule;
- b. enable the installation and operation of two-aspect signals that combine a pedestrian and cycle symbol in the same signal aspect, as an alternative to the requirements for traffic signal aspects in 6.3(1)(a) and Schedule 3 of the Rule;
- c. evaluate the safety and effectiveness of two-aspect cycle signals and signal aspects with combined pedestrian and cycle symbols for shared path crossings;
- d. assess pedestrians’ and cyclists’ understanding of and compliance with two-aspect cycle signals and signal aspects with combined pedestrian and cycle symbols;
- e. assess the behaviour and response of cyclists approaching two-aspect signals compared with their behaviour and response approaching three-aspect signals;
- f. investigate whether separate call buttons for pedestrians and cyclists are preferable or if a single call button provides an adequate level of service;
- g. investigate whether the signal phasing should be the same for pedestrians and cyclists or whether it should be independent;
- h. assess the need for a system to automatically detect the presence of pedestrians or cyclists waiting to cross or to detect when they have cleared the crossing and to adjust the signal phasing accordingly;
- i. determine if a blank display (as described in Schedule 2(g)(iv) of this notice) is appropriate for two-aspect cycle signals or if a steady red signal should remain illuminated during periods when the green phase has not been called; and
- j. evaluate the safety and efficiency of a shared pedestrian and cycle “Barnes Dance” phase at an intersection when all roadway approaches to the intersection are controlled by red signals.

### **Schedule 2—Form, layout and operation of two-aspect cycle signals**

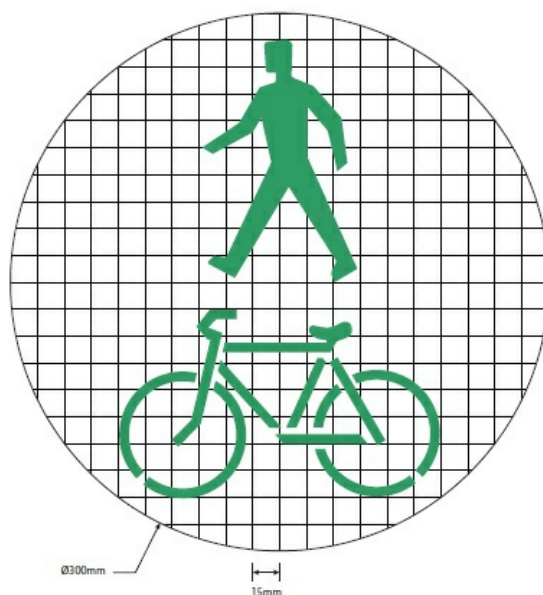
- a. All cycle and pedestrian symbols used in traffic signal aspects for the purposes of this trial must conform with the shape and size of the symbols in diagrams S2-3, S3-1 and S3-2 in Schedule 3 of the Rule, except as specified in Schedule 2(e) of this notice;
- b. Two-aspect cycle signals must comprise a red cycle signal above a green cycle signal;
- c. Signal aspects with combined pedestrian and cycle symbols must comprise:
  - i. a red standing pedestrian symbol above a red cycle symbol in one signal aspect, installed above;

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- ii. a green walking pedestrian symbol above a green cycle symbol in one signal aspect;
- d. The signal aspects for combined pedestrian and cycle symbols must be 300mm diameter;
- e. The pedestrian and cycle symbols for combined signal aspects may be reduced in size to fit both images in a single 300mm diameter signal aspect;
- f. A countdown timer complying with 6.6(3A), 6.6(3B) and diagram S3-3 in Schedule 3 of the Rule may be incorporated in the green aspect of the combined pedestrian and cycle signals or may be displayed as a separate signal aspect;
- g. The sequence of operation of two-aspect cycle signals and combined pedestrian and cycle signals must be:
  - i. A steady green cycle signal or steady green combined walking pedestrian and cycle signal, followed by;
  - ii. a flashing red cycle signal or flashing red combined standing pedestrian and cycle signal, followed by;
  - iii. the sequence beginning in (g)(i) or a steady red cycle signal or steady red combined standing pedestrian and cycle signal, followed by;
  - iv. the sequence beginning in (g)(i) or a blank display, followed by;
  - v. the sequence beginning in (g)(i) or a steady red cycle signal or steady red combined standing pedestrian and cycle signal, followed by the sequence beginning in (g)(i); and
- h. Call buttons for the pedestrian or cycle crossing phase may call individual phases or call a pedestrian and cycle crossing phase simultaneously;



**Example:** steady red combined standing pedestrian and cycle signal



**Example:** steady green combined walking pedestrian and cycle signal

### Schedule 3—Location

The following locations are approved for this trial:

Road Controlling Authority	Location	Signal or crossing detail
Auckland Transport	Quay Street and Lower Hobson Street intersection	Two-aspect cycle signals
Auckland Transport	Stanley Street and Alten Road intersection	Two-aspect cycle signals
Christchurch City Council	Armagh Street at Oxford Terrace	Combined pedestrian and cycle signal aspects at mid-block crossing
Christchurch City Council	Barrington Street at Strauss Place	Combined pedestrian and cycle signal aspects at mid-block crossing
Christchurch City Council	Colombo Street at Oxford Terrace	Combined pedestrian and cycle signal aspects at mid-block crossing
Christchurch City Council	Garlands Road (SH74A) at Cumnor Terrace	Combined pedestrian and cycle signal aspects at mid-block crossing
Christchurch City Council	Hansons Lane and Suva Street intersection	Combined pedestrian and cycle signal aspects with shared pedestrian and cycle Barnes Dance phase
Christchurch City Council	Sparks Road near Pablo Place	Combined pedestrian and cycle signal aspects at mid-block crossing
Christchurch City Council	Strickland Street at Roker Street	Combined pedestrian and cycle signal aspects at mid-block crossing
NZ Transport Agency	SH1 (Arthur Street and Buckle Street) and Taranaki Street intersection, Wellington	Two-aspect cycle signals
NZ Transport Agency	SH1 (Rugby Street ) and Adelaide Road intersection, Wellington	Two-aspect cycle signals

### Schedule 4—Period of trial

The trial may begin after 31 March 2018 and, unless terminated earlier, must end by 31 March 2020.

### Schedule 5—Evaluation

An evaluation must be undertaken and a report produced with analysis, conclusions and recommendations for future application of two-aspect cycle signals. The report must include assessment of:

- a. pedestrians' and cyclists' recognition and understanding of and compliance with two-aspect cycle signals,

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- combined pedestrian and cycle signal displays and a shared pedestrian and cycle Barnes Dance crossing phase;
- b. the behaviour and response of cyclists approaching two-aspect signals compared to three-aspect signals, especially with respect to the flashing red cycle signal compared to a yellow cycle signal displayed for a minimum of three seconds;
  - c. whether separate call buttons for cycle and pedestrian signal phases are necessary or whether a single button to call both phases simultaneously is satisfactory;
  - d. the benefits of different phase lengths and clearance times for pedestrians or cyclists;
  - e. the benefits of automatically detecting when pedestrians or cyclists are waiting to cross and when they have completed crossing the road;
  - f. the safety and appropriateness of an extinguished wait phase for two-aspect cycle signals or signals with combined pedestrian and cycle symbol aspects;
  - g. feedback received from cyclists, pedestrians and the public in general;
  - h. any operational issues or incidents which arose during the trial and how they were resolved;
  - i. the overall benefits of two-aspect cycle signals compared to three-aspect cycle signals; and
  - j. appropriate locations or circumstances in which two-aspect cycle signals could safely be approved for use instead of three-aspect signals.

An interim evaluation report must be sent to me by 31 October 2018 and a final report by 31 May 2020.

Signed at Wellington this 29th day of March 2018.

GLENN BUNTING, Manager Network Safety, NZ Transport Agency.

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