

Land Transport Rule: Traffic Control Devices 2004—Redoubt Road Variable Lane Control 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, Network Manager, authorise the installation, maintenance and operation of yellow illuminated pavement markers in combination with a reduced number of overhead variable lane control signs, variable message arrow signs (VMS), static warning signs and continuous white lines to identify the central section of roadway as a variable lane available for traffic in either direction:

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

The variable lane control of illuminated pavement markers, overhead variable lane control signs, VMS arrow signs, static warning signs and line markings may be installed for the purpose of evaluating their use and the trial will be called the “Redoubt Road Variable Lane Trial”.

For the purposes of the trial, the combination of traffic control devices will be equivalent to the variable lane control signs required by clause 7.13 the Rule and the yellow illuminated pavement markers will be equivalent to a centre-line and no-passing line as described in clause 7.2 and 7.3 of the Rule.

Schedule 1—Purpose of Trial

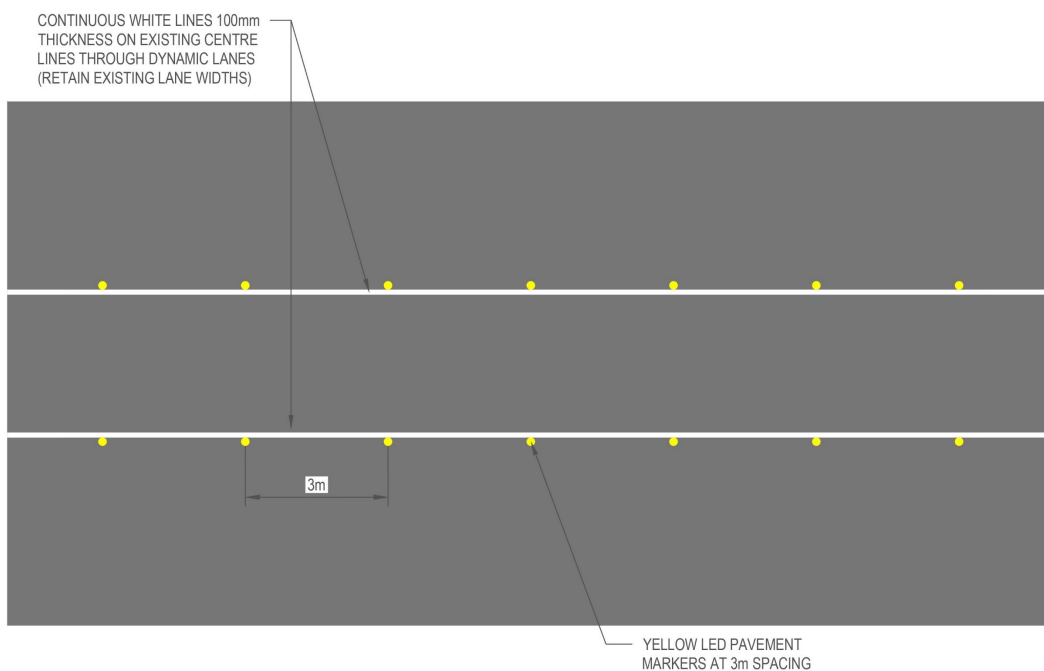
The purpose of the trial is to:

- a. enable the installation and operation of yellow illuminated pavement markers as an alternative to the continuous line required for a no-passing line in 7.3(2) of the Rule;
- b. enable the installation and operation of yellow illuminated pavement markers in combination with other traffic control devices as an alternative to the requirement to have overhead variable lane control signs after every intersection along the length of a variable lane;
- c. evaluate the safety and effectiveness of illuminated pavement markers, a reduced number of overhead signs, VMS signs, static signs, and painted lines to identify the central section of roadway as a variable lane; and
- d. assess road users’ understanding of and compliance with illuminated pavement markers, overhead variable lane control signs, VMS arrow signs, static warning signs, and marked lines as a variable lane control system

Schedule 2—Form and Layout of Overhead Signs, Illuminated Pavement Markers and Painted Lines

- a. The overhead, variable lane control signs must comply with sign numbers R4-4, R4-5 and R4-6 in Schedule 1 of the Rule and the variable signs must comply with the specification in Schedule 2 g. to 2 j. of this notice.
- b. Overhead, variable lane control signs must be installed:
 - i. at the start and end of the variable lane control section of road; and
 - ii. at intervals along the length of the road, with a maximum distance of 350 metres between sign locations.
- c. The overhead variable lane control signs must operate as required by clause 7.13 of the Rule.
- d. The illuminated pavement markers used to mark the no-passing lines must comply with the NZ Transport Agency specification M29 Specification For Internally Illuminated Pavement Markers.
- e. The illuminated pavement markers must operate as follows:
 - i. When the central lane is operating as an active traffic lane:
 - a. the yellow pavement markers between the single lane (or the minor flow of traffic lane) and the central lane must be turned on and illuminated so that they are visible to traffic travelling in both directions as a no-passing line; and
 - b. the yellow pavement markers between the two lanes of the major traffic flow must be turned off and not be illuminated.

Typical LED and Pavement Marking Layout:

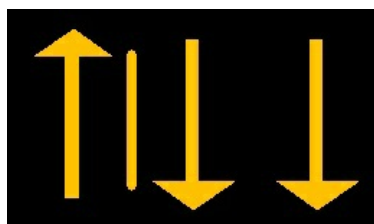


TYPICAL LED AND PAVEMENT MARKING LAYOUT

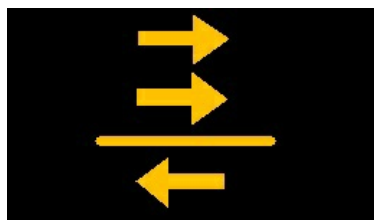
- f. During the change-over period of the central lane from eastbound to westbound or vice versa the yellow pavement markers representing no-passing lines, between the left lane and the central lane for each direction of travel must be turned on and illuminated so that they are visible to traffic in the direction of travel only as a no-passing line.
- g. The VMS arrow signs must comply generally with the requirements for sign number W19-2.1 in Schedule 1 of the Rule but be able to display different combinations of three yellow arrows and a solid yellow line or two yellow arrows and two solid yellow lines as follows:

Example: VMS arrow signs - Two and one lane operation

VMS on main corridor



VMS facing side road



VMS on main corridor

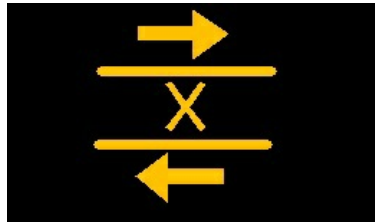


Figure B - Transition stage

VMS on main corridor



VMS facing side road



- i. For display in advance or with the flow of the variable lane display either:
 - a. The direction of the major flow is indicated by two yellow arrows pointing up or down separated by two solid yellow lines from a single yellow arrow indicating the direction of the minor flow in the opposite direction; or
 - b. during the changeover period one yellow arrow on the left pointing up separated by a solid yellow line, a "X", another solid yellow line, and a yellow arrow on the right pointing down; or
- ii. For display opposite or approaching a road intersecting with the variable lane display either:
 - a. two yellow arrows pointing left or right separated by a solid yellow line from one yellow arrow in the opposite direction; or
 - b. a yellow arrow on the top pointing right separated by a solid yellow line, a "X", another solid yellow line, and a yellow arrow on the bottom pointing left.
- h. The VMS arrow signs must be located:
 - i. For with flow signs, on the left side of the road in advance of the transitional area; and
 - ii. for intersecting road signs, there will be one VMS sign opposite Diorella Drive facing towards the intersecting road. There will be two additional VMS signs, one at either end of the trial site.
- i. The static general information signs must comply with sign number A50-1 in Schedule 1 of the Rule displaying the text:

CAUTION

LANES CHANGE

WITH PEAK FLOW

Example of A50-1 Static sign



- j. The static signs must be located on the left side of Redoubt Road in advance of the transitional area on both ends of the variable lane and in advance of the intersection with Redoubt Road on the left of Diorella Drive and opposite driveways that service multiple properties.

Schedule 3—Location

The location approved for this trial is Redoubt Road, Manukau, Auckland. Specifically, the section commencing to the east of the SH1 motorway interchange to west of the Hollyford Drive/Everglade Drive intersection.

Schedule 4—Period of Trial

The trial may begin after **31 July 2020** and, unless terminated earlier, must end by **28 February 2022**.

Schedule 5—Evaluation

An evaluation and analysis must be undertaken as described in the trial application received from Auckland Transport in **August 2019** and must be concluded by **28 February 2022**. The evaluation must include:

- a. an assessment of all road users' recognition and understanding of the variable lane controls used to as an alternative to the continuous line required for a no-passing line and the impact on this of each of the traffic control devices (variable and permanent devices) on this understanding;
- b. measurement of drivers' compliance with the variable lane control system;
- c. analysis of enforcement, conflicts and crashes;
- d. analysis of costs, efficiency improvements and other benefits;
- e. a summary of feedback received from road users, residents and the public during the trial;
- f. a description of any operational issues which arose during the trial and how they were resolved; and
- g. recommendations for improvements or changes that should be made to the form and layout or operation of variable lane control system

An interim evaluation report must be sent to me by **28 February 2021** and a final report by **31 March 2022**.

Signed at Wellington this 22nd day of June 2020.

GLENN BUNTING, Network Manager, NZ Transport Agency.