ROAD SAFETY AUDIT REPORT

STAGE 2
PRELIMINARY DESIGN STAGE
ROAD SAFETY AUDIT
OF
CHANGE TO DCP’S ROAD NETWORK
FOR PRECINCT 5 WINTEN HILLS
MARSDEN PARK
RESIDENTIAL DEVELOPMENT

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Prepared by

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CONTENTS

1.0 INTRODUCTION 2
  1.1 Auditors and Audit Process 2
  1.2 Description of the Change to the Road Network 2
  1.3 Audited Plans 3
  1.4 Responding to the Audit Report 3

2.0 RECOMMENDATIONS FROM PREVIOUS STAGE AUDITS 4

3.0 AUDIT FINDINGS AND RECOMMENDATIONS 4
  3.1 Review of Potential Road Safety Risks Associated with Offset T-junction Intersection 4

4.0 FORMAL STATEMENT 6

ILLUSTRATIONS

Figure 1 Proposed Road Network of Precinct 5 and the Adjoining Subdivisions

Figure 2 Proposed Offset Intersection

APPENDICES

Appendix 1 Documents Used during the Audit
1.0 INTRODUCTION

1.1 Auditors and Audit Process

This report details the results of a Stage 2 Preliminary Design Stage Audit of the proposed road network change to the DCP road network in Precinct 5 Winten Hills Residential Development at Marsden Park.

The Stage 2 Preliminary Design Stage Audit was requested by J Wyndham Prince (The Project Managers for the subdivision) to supplement the DA submission to Council for the subdivision.

Road Safety Audit Team:

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None of the auditors has had any involvement with the design or development of the project.

The audit included a commencement briefing by email with the Project Managers, Chris Mudie and Lydia Deguzman of J Wyndham Prince on the 6 and 10 April 2017. As the proposal is for a new subdivision on a largely green field site, the audit team did not consider that a site inspection was required or would be beneficial in auditing the proposed concept design plans of the future intersection.

The plans were audited on between 21 and 26 April 2017 and the Audit report prepared concurrently.

The audit has been carried out following the procedures set out in the Roads and Maritime Services Guidelines for Road Safety Audit Practices Part 1: Road Safety Audit. The audit examines the features of the proposal which may affect road user safety and it has sought to identify potential safety hazards. However, the auditors point out that no guarantee is made that every deficiency has been identified. Further, if all the recommendations in this report were to be followed, this would not confirm that the proposed design is ‘safe’; rather, adoption of the recommendations should improve the level of safety of the proposal within the existing road network.

Documents referenced in the audit are listed in Appendix 1.

1.2 Description of the Change to the Road Network

Under the DCP road network Roads D1 and D2 would be a north south local through road located on the eastern side of Precinct 5, providing access to a relatively small number of residential blocks. Roads D1 and D2 would intersect with Road 100, an east west local collector road, as a cross junction intersection.

With the proposed change, Road D1 north of Road 100, is offset to Road D2, south of Road 100. Road D1 and Road D2 form offset T intersections with Road 100.
Road 100 will have a road carriageway width of 11.0 metres. Road D1 will have a road carriageway width of 9 metres and Road D2 a road carriageway width of 9.0 metres.

The offset between Road D1 and D2 South will be 35 metres, as measured between the centerlines, providing an effective storage of 26 metres between the intersections.

Grades on Roads D1, D2 and Road 100 at and near the intersection are relatively flat and sight distance is satisfactory. Figures 1 shows the overall road network for Precinct 5 and the adjoining subdivision and Figure 2 shows the proposed off set intersection.

It is understood that engineering constraints have resulted in the proposed change to the road network from the DCP road network.

1.3 Audited Plans

The following plans were audited;

- Concept plans for the subdivision at the intersection which included the Engineering Plans and Road Longitudinal sections prepared by JWP as follows:
  - Plan No’s 998511/DA109 and DA111 to DA114 – Issue A (all plans).

1.4 Responding to the Audit Report

As set out in the road safety audit guidelines, responsibility for the road design always rests with the designer/project manager and not with the auditor. A project manager is under no obligation to accept any or all the audit recommendations. Also, it is not the role of the auditor to agree to or approve of the project manager’s response to the audit. Rather, the audit provides the opportunity to highlight potential problems and have them formally considered by the project manager and others (if appropriate), in conjunction with all other project considerations.
2.0 RECOMMENDATIONS FROM PREVIOUS STAGE AUDITS

It is unknown if there have been any previous audits of the road network in this subdivision.

3.0 AUDIT FINDINGS AND RECOMMENDATIONS

3.1 Review of Potential Road Safety Risks Associated with Offset T-junction Intersection

The proposed offset T-junction intersections involve 2 minor local streets intersecting a local collector road in a residential subdivision.

For vehicles crossing from Road D1 and to D2 and vice versa at Road 100 this would involve a stagger left and right turn movement (ie. left into Road 100 and then right into Roads D1 or D2), in lieu of cross movement, if a cross junction intersection was retained.

The actual future volume of vehicles travelling between Roads D1 and D2 and vice versa would be relatively small (ie. less than 5vph) given that both roads are internal roads within Precinct 5 with a small number of frontage residential blocks.

As the intersections are located in a residential subdivision it would be expected that vehicles speeds along Road 100 will be 50km/h or less.

Austroads Guide to Traffic Management Part 6 acknowledges that Staggered T-intersections are a type of intersection control that are used in residential areas on local roads. Austroads Guide to Road Design Part 4A, Unsignalised and Signalised Intersections notes that staggered T-treatments can be used as a measure to reduce the permeability of the area for through traffic.

The only potential road safety issue for offset T-junction intersections as compared to a standard cross junction intersection is that a 2 stage left and then right turn movement replaces a single crossing movement.

As noted above:

- Traffic volumes for the left right stagger movement will be relatively low.

- Vehicle speeds at the intersections will also be relatively low (ie. 50km/h or less) including in the through road (ie. Road 100) that will have priority.

- Grades at the intersections will be relatively flat including on the approaches to the intersection in all the roads.

- Sight distance at the intersections will be satisfactory and meet the required standards.

- The offset distance of 35 metres between the intersections is sufficient for a vehicle to turn left from either Road D1 or D2 and then store in Road 100 if
required before turning right into Road D1 or D2. The effective storage area between the intersections is 26 metres.

- This 2 stage movement can be reinforced through traffic management measures such as the provision of a short section of BB line in Road 100 between Roads D1 and D2.

- Additional measures can also be considered at the intersection and would include signposting (i.e. Give Way or Stop Sign Control) on Roads D1 and D2 at the intersection in lieu of the T-junction priority rule (i.e. no signposting).

Based on the above the auditors consider that the proposed offset T-junction intersections for the intersection of Roads D1 and D2 with Road 100 does not represent a higher potential safety risk, as compared to a standard cross junction intersection treatment.

From a road safety perspective T-junction intersections are generally considered to be safer than a cross junction intersection due to the reduction in the number of potential conflicts at the intersection, and the longer gap acceptance times, required for a cross movement as compared to a left turn from a minor road onto a major road or a right turn from the major road into a minor road.

In concluding, the auditors consider that the offset T-junction intersections is a satisfactory intersection control treatment which is unlikely to result in a higher potential safety risk, as compared to a standard cross junction treatment.
4.0 FORMAL STATEMENT

We have examined the plans detailed in Section 1.3 and we have audited these plans of the proposed off street T-junction intersection in accordance with the procedures set out in the RMS’s Guidelines for Road Safety Audit Practices. The audit has been carried out for the sole purpose of identifying any features of the proposed design that could be altered or reconsidered to improve safety. The audit findings are presented in Section 3.1. There are no identified road safety risks that require follow up.

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26 April 2017
APPENDIX 1

Documents Used During the Audit

1. Austroads Guide to Road Safety
   Part 1: Road Safety Overview
   Part 6: Road Safety Audit

2. Austroads - Guide to Road Design


5. RMS Austroads Guide Supplements


7. RMS Guidelines for Road Safety Audit Practices
   Part 1: Road Safety Audit