

Objective Reference: A2446502

Cobham Road Bus Stop Relocation, Kerikeri

Road Safety Audit
Concept Design
March 2019



 **NCC**
consulting engineers

 Far North
District Council

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Document Status

Rev No.	Project No.	Author	Reviewer		Approved for Issue		
			Name	Signature	Name	Signature	Date
A		David Spoonley	Mike Sullivan		Mike Sullivan		18/03/19
B							
C							
D							
E							
F							

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1. Introductory statement

1.1. Introduction

This report presents the findings of a concept design stage safety audit for the relocation of the bus stop on Cobham Road from the south side of the road to the north side of the road. This report considers the safety implications of the proposal on Cobham Road and also the wider implications on the Kerikeri town centre.

The concept design was developed by Far North District Council.

1.2. Road environment

Cobham Road is a road linking from central Kerikeri to the eastern suburbs. Traffic volumes using Cobham Road are estimated to be 8500 AADT (2016), as measured by the Mobile Roads website. Heavy Commercial Vehicles is estimated at 5%.

1.3. Audit team

The audit team comprised of:

Mike Sullivan (Team Leader)	CPEng, BE (Civil), MIPENZ Director NCC – Consulting Engineers, Whangarei
David Spoonley	BEng, CEng, CIHT MICE Project Manager / Road Safety Engineer NCC – Consulting Engineers, Whangarei

1.4. Previous audit

There has been no previous audit on this project.

1.5. Audit methodology

This audit has been carried out for Mike Fox, Project Manager, Far North District Council.

The audit follows the guidelines contained within the NZ Transport Agency document “Road Safety Audit Procedures for Projects, Guidelines, Interim Release, May 2013” and is complemented by the auditors’ experience with other audits.

This audit should not be regarded as a complete “quality check” of the project. It focuses essentially on safety issues that are considered significant in regard to the proposed design.

The auditors have identified road safety concerns and have made recommendations about corrective actions. Whilst these recommendations may indicate the nature or direction of a solution, they do not provide specific details of how to address or resolve that concern.

Responsibility for the solution of any safety issue identified in this audit remains with the designer.

1.6. Project documentation

Far North District Council provided an indicative sketch design included in **Appendix A** for the audit. The project involves relocating the existing bus stop from the south side of Cobham Road outside “Spa and Pool Bay of Islands” further west to the north side of Cobham Road outside Kerikeri Library. This relocation will necessitate buses from SH10 to the relocated bus stop having to circulate the Kerikeri one-way system. The proposal involves no net loss of parking.

1.7. Briefing meeting

A briefing meeting was held between the auditors and Mike Fox (FNDC Project Manager) on site on 14 March 2019.

1.8. Site visit

The audit team also visited the site on 14 March 2019.

1.9. Ranking system

The potential road safety problems identified have been ranked as follows:

The probable crash frequency is qualitatively assessed based on expected exposure (how many road users will be exposed to a safety issue) and the probability of a crash resulting from the presence of the issue. The likely severity of a crash outcome is qualitatively assessed based on factors such as expected speeds, type of collision, and type of users involved.

Reference to historic crash rates or other research for similar elements of projects, or projects as a whole; have been drawn on where appropriate to assist in understanding the likely crash types, frequency and likely severity that may result from a particular concern.

The frequency and severity ratings are used together to develop a combined qualitative ranking for each safety issue using the Concern Assessment Rating Matrix in **Table 1** below. The qualitative assessment requires professional judgement and a wide range of experience in projects of all sizes and locations.

Table 1: Assessment matrix

Likelihood of Fatality or Serious Injury	Probability of a Crash Occurring			
	Frequent	Common	Occasional	Infrequent
Very Likely	Serious	Serious	Significant	Moderate
Likely	Serious	Significant	Moderate	Moderate
Unlikely	Significant	Moderate	Minor	Minor
Very Unlikely	Moderate	Minor	Minor	Minor

While all safety concerns should be considered for action, the client or nominated project manager will make the decision as to what course of action will be adopted based on the guidance given in this ranking process with consideration to factors other than safety alone. As a guide, a suggested action for each concern category is given in **Table 2** below.

Table 2: Categories of concern

CONCERN	Suggested action
Serious	Serious concern that must be addressed and requires changes to avoid serious safety consequences.
Significant	Significant concern that should be addressed and requires changes to avoid serious safety consequences.
Moderate	Moderate concern that should be addressed to improve safety
Minor	Minor concern that should be addressed where practical to improve safety.

In addition to the ranked safety issues, it is appropriate for the safety audit team to provide additional comments with respect to items that may have a safety implication but lie outside the scope of the safety audit. A comment may include items where the safety implications are not yet clear due to insufficient detail for the stage of the project, items outside the scope of the audit such as existing issues not impacted by the project or an opportunity for improved safety but not necessarily linked to the project itself. While typically comments do not require a specific recommendation, in some instances the auditors may give suggestions.

1.10. Decision tracking process

Decision tracking is an important part of the road safety audit process. A decision tracking table is embedded into the report format at the end of each set of recommendations to be completed by the designer, safety engineer and client for each issue documenting the designer response, client decision (and asset manager's comments in the case where the client and asset manager are not one and the same) and action taken.

A copy of the report including the designer's response to the client and the client's decision on each recommendation shall be given to the road safety audit team leader as part of the important feedback loop. The road safety audit team leader will disseminate this to team members.

1.11. Disclaimer

The findings and recommendations in this report are based on an examination of available relevant plans, the specified road and its environs, and the opinions of the audit team. However, it must be recognised that eliminating safety concerns cannot be guaranteed since no road can be regarded as absolutely safe and no warranty is implied that all safety issues have been identified in this report. Safety audits do not constitute a design review or an assessment of standards with respect to engineering or planning documents. Readers are urged to seek specific technical advice on matters raised and not rely solely on the report.

While every effort has been made to ensure the accuracy of the report, it is made available on the basis that anyone relying on it does so at their own risk without any liability to the safety audit team or their organisations.

2. Safety audit findings and recommendations

2.1. Bus Stop Location

The project is to relocate the existing single bus stop currently located outside “Spa and Pool Bay of Islands” to outside Kerikeri Library. Details of the proposal include;

- The removal of 3 existing parking spaces outside Kerikeri Library,
- The creation of 3 parking spaces outside “Spa and Pool Bay of Islands” to replace the existing bus stop,
- The creation of a double (2 x 13.5m) bus stop, time limited to 30 minutes outside Kerikeri Library,
- The removal of one drop off bay outside Kerikeri Library, (time limited to 30 minutes),
- The relocation, but retention outside Kerikeri Library of the existing accessible parking space.

The footway outside the library is of good quality, wide and has some seating, a small amount of shelter is also provided by the canopies of the library. Furthermore, there exists an opportunity associated with the library building to improve facilities in the future for waiting passengers.

When compared with the existing bus stop location, the proposed location is nearer the facilities on Kerikeri Road. The auditors consider that both location and the proposed layout is fit for the purpose. The proposed double length bus stop should eliminate the existing ‘double parking’ of buses that is currently occurring in the majority, if not all circumstances. The proposed location for the bus stop is shown in **Figure 1**.



Figure 1: Location of proposed bus stop

Recommendation

No recommendations are made.

Overall Rating: Comment	
Frequency Rating: -	Severity Rating: -
Designer Response:	
Safety Engineer:	
Client Decision:	
Action Taken:	

2.2. Effect on Kerikeri one-way system

Currently buses using the existing bus stop outside “Spa and Pool Bay of Islands” traverse a triangle of roads formed by Hobson Avenue, Cobham Road and Kerikeri Road.

In order to relocate the bus stop outside the library buses arriving from SH10 will have to traverse the existing Kerikeri one-way system to get to the proposed bus stop. This will involve a small increase in journey length and journey time. **Figure 2** shows the existing (in red) and proposed (in green) route of the buses.

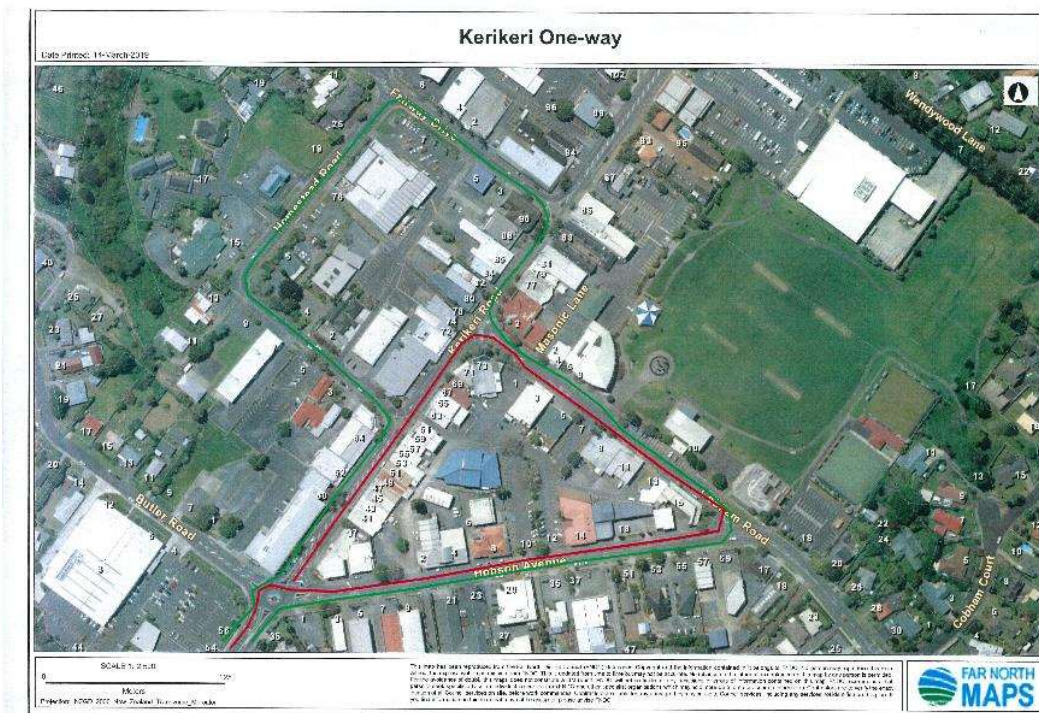


Figure 2: Existing (in red) and proposed (in green) route of the buses

The auditors considered the potential safety implications of the buses circulating the one-way system;

- **Traffic volume.** The existing traffic flow on the one-way system is 7-11,000 vehicles per day. The addition of a small number of buses is unlikely to have a significant effect on the operation of the one-way system;
- **Pedestrian/vehicle interface.** The existing one-way system has a speed limit and, from observations on site, a speed environment of 30km/h. There are also several raised platforms to assist in regulating vehicle speeds. At this speed environment a collision between a vehicle and a pedestrian is unlikely to result in death or serious injury;
- **Use of the one-way system by large vehicles.** As it is used by large vehicles to service existing businesses and by buses to reach the Stone Store the existing one-way system is designed for the swept path of large vehicles.

The auditors, therefore, consider that there are no safety implications of the use of the one-way system by a relatively small number of service buses. However, whilst not within the scope of this audit, the auditors consider that there are aspects of the one-way system, particularly the raised platforms that could be enhanced to improve road safety.



Figure 3 Traffic circulating on the existing one way system.

Recommendation

No recommendations are made.

Overall Rating: Comment	
Frequency Rating: -	Severity Rating: -
Designer Response:	
Safety Engineer:	
Client Decision:	
Action Taken:	

2.3. Pedestrians crossing Cobham Road.

It is likely that the arrival of a bus will necessitate pedestrians having to cross Cobham Road, as the passengers change from the bus to other modes of transport.

Immediately east of the proposed bust stop is a crossing point on a raised platform with kerb extensions. (refer to **Figure 4**).



Figure 4: Cobham Road, crossing point on a raised platform with kerb extensions

To the west of the proposed bus stop there is the intersection of Cobham Road and Kerikeri Road, at this location there are three zebra crossings (refer to **Figure 5**).

The auditors consider that in this situation, this is a good provision of facilities to enable bus passengers to change to alternative modes of transport.



Figure 5 : Pedestrian Crossings on raised platforms at the intersection of Cobham Road and Kerikeri Road.

Recommendation

No recommendations are made.

Overall Rating: Comment	
Frequency Rating: -	Severity Rating: -
Designer Response:	
Safety Engineer:	
Client Decision:	
Action Taken:	

3. Audit Statement

We certify that we have used the available plans, and have examined the specified roads and their environment, to identify features of the project we have been asked to look at that could be changed, removed or modified in order to improve safety. The problems identified have been noted in this report.

Signed: 

Mike Sullivan, BE (Civil), MIPENZ
Director, NCC Consulting Engineers, Whangarei

Date: 18/03/2019

Signed: 

Date: 18/03/2019

David Spoonley BEng, CEng, CIHT MICE
Project Manager / Road Safety Engineer NCC – Consulting Engineers, Whangarei

Designer:

Name: ...N/A- in house FNDC..... Position:

Signature: Date:

Safety Engineer:

Name: ...Nick Marshall..... Position: Team Leader Northland Road Safety & Traffic Engineering (NTA)

Signature:  Date:Reviewed 27 March 2019.....

Project Manager:

Name: ...Michael Fox..... Position: Project Manager Transportation (NTA)

Signature:  Date:Reviewed 27 March 2019.....

Action Completed:

Name:None required..... Position:

Signature: Date:

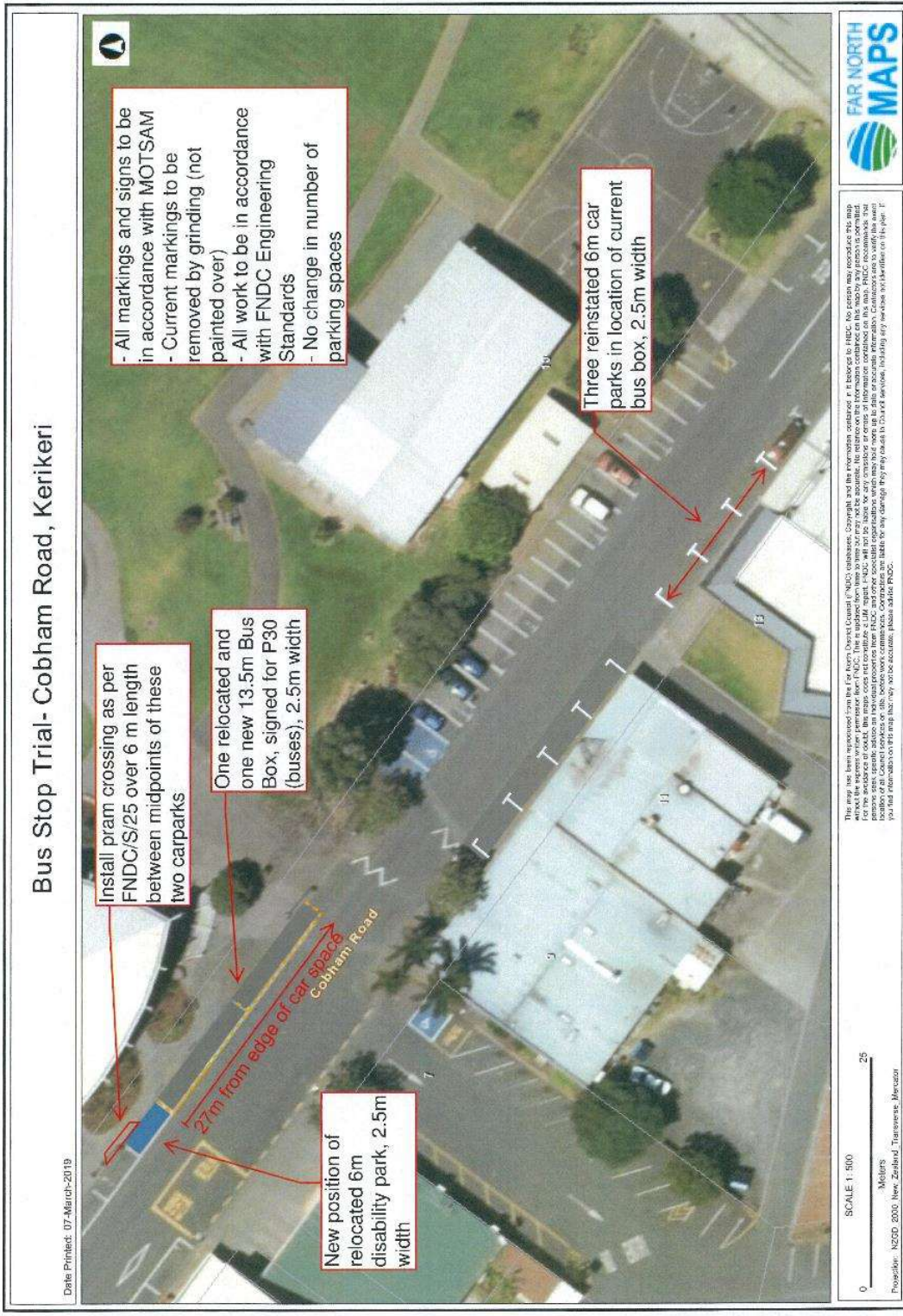
Project Manager to distribute audit report incorporating decision to designer, Safety Audit Team Leader, Safety Engineer and project file. Date: 15 April 2019



Appendices

Appendix A: Concept Design Drawing

Appendix A: Concept Design Drawing





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