
Major transport infrastructure projects and effective impact assessment

Project Reflections



Rob Hannaby – Environment and Urban Design Manager, NZTA

Patrick Kelly – Principal Project Manager, NZTA

Paula Brosnahan – Legal Manager, Further North / Partner, Chapman Tripp

Andrea Rickard – Senior Technical Director, Beca

Chris Meale – Project Director City Rail Link, Auckland Transport

What we cover

Overview of
Transport
Agency
processes
and
requirements

Rob Hannaby

The reality
in practice

Patrick Kelly

Contrasting
approaches:
TG and P2W

Andrea Rickard &
Paula Brosnahan

Assessing
and
consenting
the City Rail
Link

Chris Meale

Discussion

All

An Overview of NZ Transport Agency Processes and Requirements



Rob Hannaby
Environment and Urban Design Manager
NZ Transport Agency

NZ Transport Agency

Creating transport solutions for a thriving New Zealand

Achieved through 4 core business functions:

- Planning land transport networks
- Investing in land transport
- Managing the state highway network
- Providing access to and use of the land transport system



Transport Sector Desired Outcomes



State Highway Group Goal

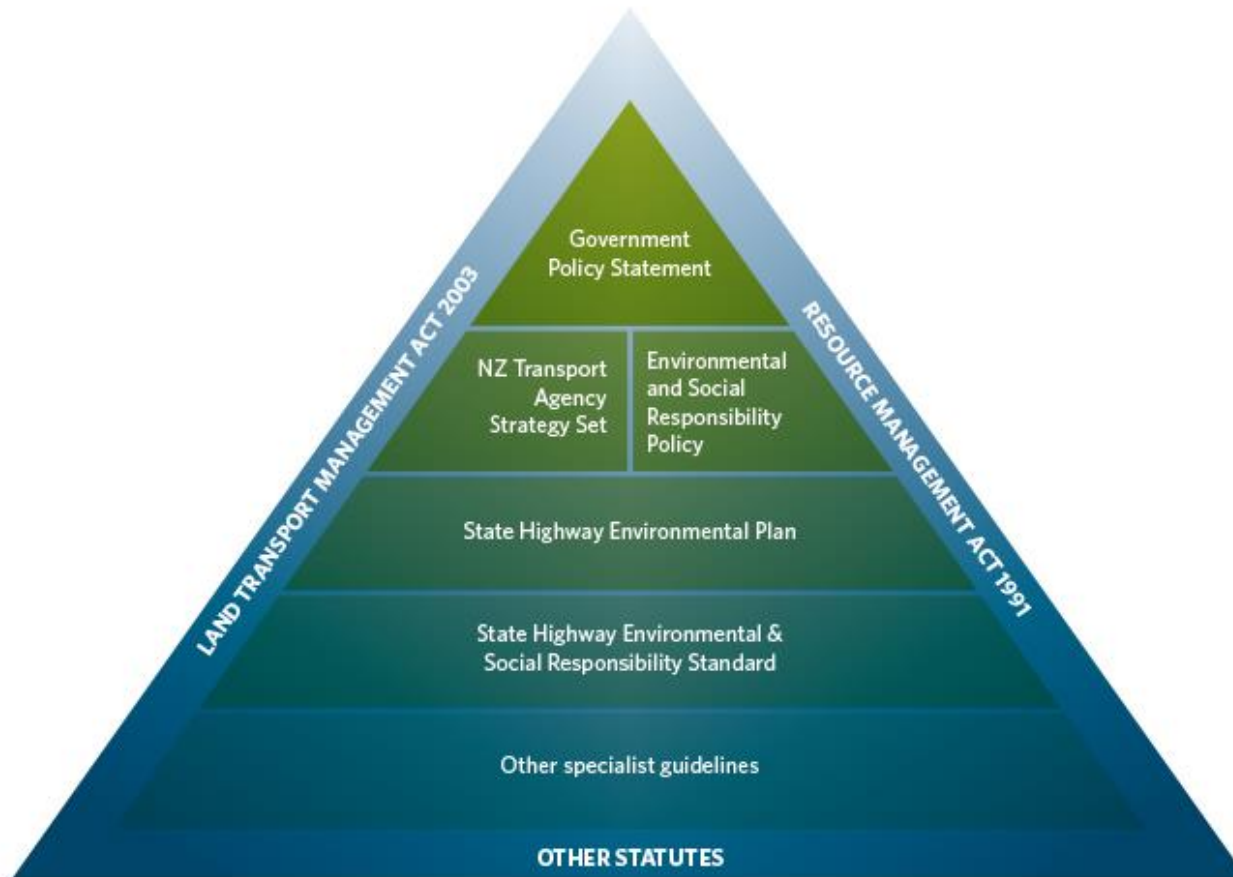
Deliver highway solutions for customers



Link to sector outcomes:

- Efficient – Delivers the right infrastructure and services to the right level at the best cost
- Safe and Responsible – reduces the harms from transport

Environmental and Social Responsibility Legislative and Policy Context



Environmental and Social Responsibility Policy

<http://www.nzta.govt.nz/resources/environmental-and-social-responsibility-manual/docs/environmental-and-social-responsibility-policy.pdf>



To implement the policy we will:

“Continuously improve performance in the management of environmental and social impacts”.

State Highway Environmental Plan

<http://www.nzta.govt.nz/resources/environmental-plan/docs/environmental-plan.pdf>

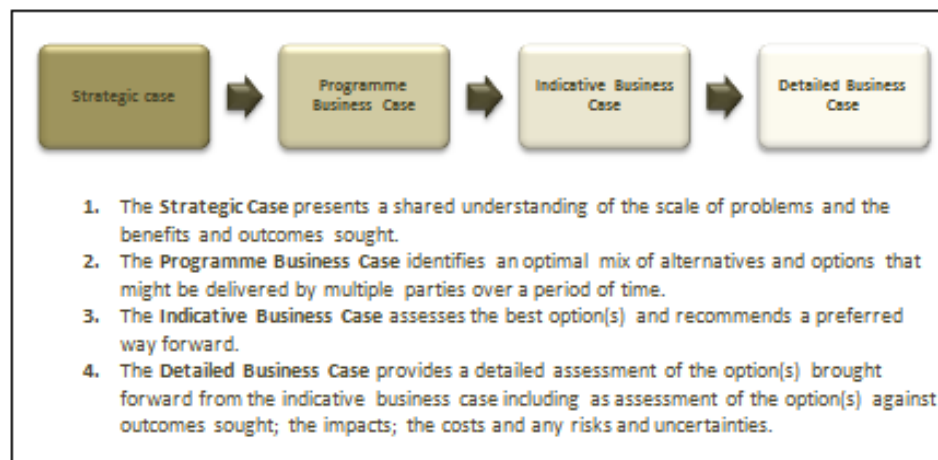
State highway environmental plan: improving environmental sustainability and public health in New Zealand

Our environmental plan sets out our strategic environmental and social vision to enable us to set specifications and standards for our contractors undertaking roading works. The plan is also available to help and guide other land transport operators.

Published: June 2008



Transport Planning & Project Development

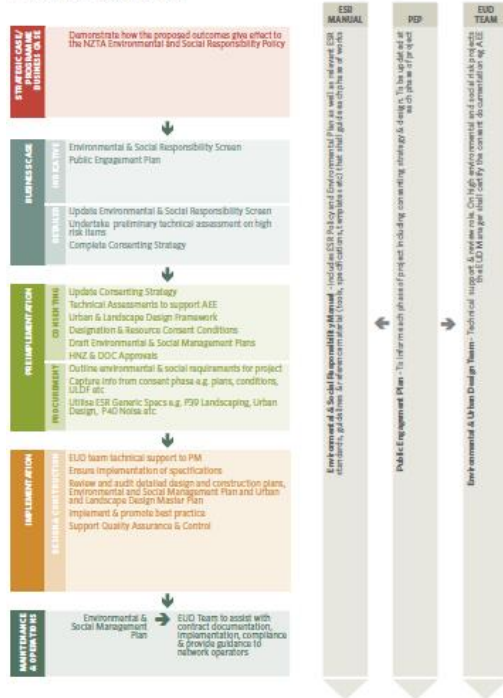


Environmental and Social Responsibility Standard

<http://hip.nzta.govt.nz/technical-information/social-and-environmental/environment-and-social-responsibility-standard>

NZTA Z19 STATE HIGHWAY ENVIRONMENTAL & SOCIAL RESPONSIBILITY STANDARD JUNE 2014

This Standard replaces the existing Minimum Standard Z19: Social Environmental Management, PS013 Social and Environmental Management Terms, PS013 Social and Environmental Management, PS013 Urban Design Professional Services Guide and Minimum Standard Z19: Contractors' Social and Environmental Plan. References to these documents shall be redirected to this revised Standard.



Guides Transport Agency state highway project / contract managers and their teams on how and where to implement the Agency's environmental and social, including urban design requirements, throughout the project life-cycle.

Environmental and Social Responsibility Screen

<http://hip.nzta.govt.nz/technical-information/social-and-environmental/environment-and-social-responsibility-screen>

ENVIRONMENTAL AND SOCIAL RESPONSIBILITY SCREEN JUNE 2014

The purpose of the Screen is to identify opportunities, inform the risk management process and ensure the environmental and social matters of a highway project have been addressed. The questions below have been categorised into five areas for ease of reference, however a number of the questions relate to multiple categories. Refer to the Environmental and Social Responsibility Screen Explanation for further detail.

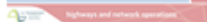
PROJECT: _____
OPTION: _____
DATE: _____



CATEGORY OF EFFECT	QUESTION	INFORMATION SOURCE	ANSWER (CIRCLE)	RESPONSE/NOTE
SOCIAL	Where is the project located?	NZTA GIS, State NZ	Urban/ Peri-urban Rural	
	What is the construction timeframe?	Project Team	>18 months <18 months	
	What are the designation requirements?	Resource Planner	New / Altered Existing	
	Does the option enhance cycling infrastructure and improve access for cyclists?	Project team, Regional Land Transport Plan	Y N	
	Does the option affect community facilities i.e. libraries, open space etc?	District Plan, NZTA, GIS	Y N	
NATURAL ENVIRONMENT	Are there any significant natural features/landscapes?	District and Regional Plan and Policy Statements	Y N	
	Will the project affect the coastal marine area, wetlands, lakes, rivers or their margins?	District and Regional Plan and Policy Statements	Y N	
	Will the project affect areas of significant native vegetation or significant habitats of native fauna?	District and Regional Plan and Policy Statements	Y N	
	Are there any natural hazards e.g. bushfires, significant erosion, flooding etc?	District and Regional Plan and Policy Statements	Existing N	
	Is the project located on a scenic route?	Tourism NZ	Y N	
HUMAN HEALTH	Will more than 0.5 hectares of vegetation be removed?	Project team, NZTA GIS	Y N	
	What is the State Highway classification?	State Highway Asset Management Plan	National or Regional Strategic Connector or Regional Distributor	
	Is the area of interest designated as a non-compliant stretch?	NZTA GIS, M16 Website	Y N	
	Are there educational sites in the area of interest?	NZTA GIS, District Plan	Y N	
	Are there medical sites in area of interest?	NZTA GIS, District Plan	Y N	
CULTURE AND HERITAGE	Are there HAIL (contaminated) sites within 200m of the area of interest?	Regional Council	Y N	
	Are there listed heritage sites/areas within 200m of the area of interest?	NZTA GIS, Heritage New Zealand Register, NZ Archaeological Association, District Plan	Y N	
	Are there sites/areas of significance to Maori within 200m of the area of interest?	Tei	Y N	
URBAN DESIGN (FOR URBAN AND PERI-URBAN PROJECTS)	Does the option enhance pedestrian infrastructure and improve access for pedestrians?	Project team, Regional Land Transport Plan	Y N	
	Does the option enhance public transport infrastructure?	Project team, Regional Land Transport Plan	Y N	
	Does the option enhance the development potential of adjacent land where appropriate?	Project team, Strategies & District Plan	Y N	
	Does the option enhance community cohesion and accessibility including vehicular connectivity on the local road network?	Project team, Strategies & District Plan	Y N	
	Does the option enhance the built environment, character and amenity?	Project team	Y N	

Purpose is to identify opportunities, inform the risk management process and ensure the environmental and social matters of a highway project have been addressed.

Consenting Strategy



<<Project Name>>

Consenting Strategy

WKA December 2013

1 Purpose

Most NZ Transport Agency projects require statutory authorisations ranging from a relatively simple outline plan of works for projects which can be constructed under the authority of an existing designation, to obtaining multiple resource consents and designations for projects of national significance where the applications are lodged with the Environmental Protection Authority.

The purpose of the consenting strategy is to outline what is required in order for the implementation strategy of the detailed business case to be considered for funding.

The key components of the consenting strategy are:

- Identifying the projects consenting objectives
- The summary of the environmental and social responsibility technical reports that were required by the Environmental and Social Responsibility Screen at the Indicative Business Case
- The updated the Environment and Social Responsibility Screen from the Indicative Business Case based on the outcomes of any technical reports that were required and discussions with the NZTA subject matter experts
- To identify the approvals required and why
- To identify the approvals pathway and why
- To scope the required level of technical assessments to support the applications, and
- To Calculate the estimated statutory application costs and key mitigation areas.

2 Project Consenting Objectives

This section will state the consenting objectives for this project. These will likely be influenced by the other parts of the implementation strategy. Eg. the programme for when construction is likely to commence, the purchase of property, the procurement method...

This section will also identify all the relevant planning documents for the project.

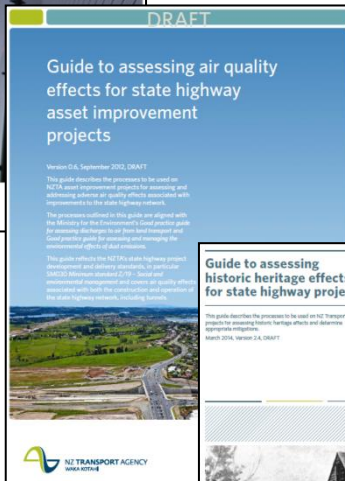
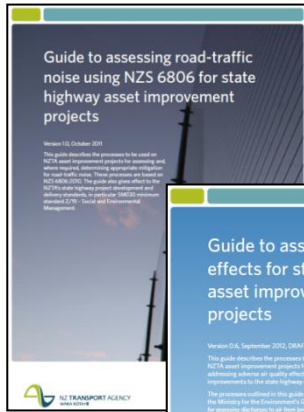
3 Updated Environmental and Social Responsibility Screen

In this section place the updated Environment and Social Responsibility Screen. This will help inform the level of technical assessment that will be required to seek the required statutory approvals.

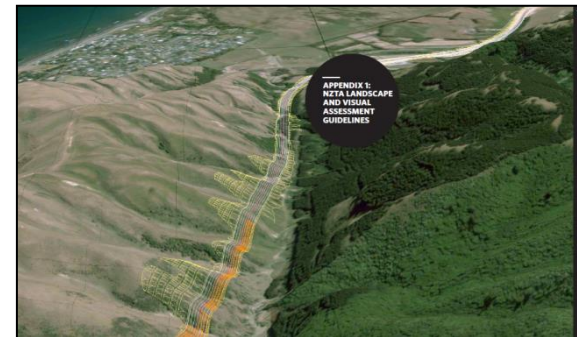
<http://hip.nzta.govt.nz/technical-information/social-and-environmental/environment-and-social-responsibility-standard>

Impact Assessment Guidelines

<http://hip.nzta.govt.nz/technical-information/social-and-environmental/national-standards-and-guidelines>



- Aligned with sector best practice and business case approach.
- To be used when developing and delivering improvements to the state highway network.



Impact Assessment Tools

TRANSPORT AND AIR QUALITY INFORMATION, RESOURCES AND TOOLS



Home Overview **Assessment** Monitoring Tunnels Tools

Assessment processes Vehicle Emissions Prediction Model Meteorological datasets **Air Quality Screening Model** Background air quality

Air Quality Screening Model v2.0

The Transport Agency has a screening model for estimating air quality near roadways, which combines the contribution of the road together with the background air quality to arrive at a cumulative concentration.

The model is designed to provide a conservative (worst case) assessment of air quality risk from a single road for two key transport-related air pollutants - particulate matter (PM₁₀) and nitrogen dioxide (NO₂). For more complex situations, specialist advice may be required. The initial version of the model used qualitative indicators of the likely background. The latest version has been upgraded with detailed estimates of background air quality to provide more robust calculations of the cumulative air quality.

The road contribution to PM₁₀ concentrations is calculated using emission factors, which take into consideration the assessment year, the average speed, the amount of traffic and the proportion of heavy vehicles. For NO₂ concentrations, the road contribution is based on a general dispersion algorithm, which is only dependent on the amount of traffic. Background air quality data (excluding nearby roads) are available for every location in New Zealand (by census area unit) and can be accessed via an interactive map or from a list.

Further information on the key assumptions and limitations of the screening model is available in the Users' notes and other documentation below.

Details		Results Summary	
Location:	<input type="text"/>	Assessment year:	<input type="text" value="2010"/>
Description:	<input type="text"/>	Census area name or ID:	<input type="text"/>
AADT:	<input type="text" value="vpd"/>	Heavy vehicles:	<input type="text" value="0%"/>
Average Speed:	<input type="text" value="km/h"/>	Distance to nearest highly sensitive receptor:	<input type="text" value="m"/>
PM ₁₀ 24hr average:	<input type="text" value="µg/m³"/>	Enter values for the background air quality in the area of interest. These values can be determined either from the interactive map or the following page .	
NO ₂ annual average:	<input type="text" value="µg/m³"/>		
		PM₁₀	24hr average
		Assessment guideline (NES):	50.0 µg/m³
		Background air quality:	0.0 µg/m³
		Road contribution:	0.0 µg/m³
		Cumulative contributions:	0.0 µg/m³
		Project contribution = 0% of guideline	
		Cumulative contribution = 0% of guideline	
		NO₂	annual average
		Assessment guideline (WHO):	40.0 µg/m³
		Background air quality:	0.0 µg/m³
		Road contribution:	0.0 µg/m³
		Cumulative contributions:	0.0 µg/m³
		Project contribution = 0% of guideline	
		Cumulative contribution = 0% of guideline	
		Graphs	Print

<http://air.nzta.govt.nz/screening-model>

TRANSPORT NOISE AND VIBRATION INFORMATION, RESOURCES AND TOOLS



Home Overview Vehicles Planning **Assessment** Sensors Surfaces Buildings Construction Resources Tools

NZS 6806 eLearning Guide Surveys **Calculator** Specification

Road noise calculator

The Transport Agency has prepared the following calculator to predict road-traffic noise in situations without complex topography.

Traffic data

AADT: vehicles/24h

Vehicle numbers in New Zealand are generally quoted in terms of the Average Annual Daily Traffic (AADT) which is a measure of the traffic over a 24-hour period. However, CRTX predictions require the 16-hour daily traffic. As there is no robust method to convert between 24-hour and 16-hour traffic the calculator assumes the 16-hour traffic to be the same as the 24-hour traffic. If for example the 16-hour traffic were actually 95% of the 24-hour traffic, then by assuming that they are equal the calculator will predict the noise levels to be 0.2 dB too high. This is slight conservatism is not considered significant.

Predictions of traffic noise are usually required for the 'design year' of a scheme. Therefore the value of the AADT entered in this calculator will usually need to be a predicted value for ten or more years in the future.

Transit Research Report 26 determined that a modified CRTX calculation is valid for New Zealand roads with greater than about 1300 vehicles/16-hours. An AADT of 1300 has therefore been set as the minimum flow for this road noise calculator. Research Report 26 also determined that the low flow corrections in CRTX for roads with less than 4000 vehicles/16-hours are not required under New Zealand conditions. The CRTX low flow corrections have therefore been omitted from this calculator.

Heavy vehicles: %

Speed: km/h

Road data

Gradient: %

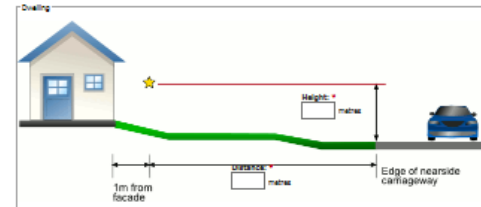
Correction is determined on the basis of up to 10% traffic. The calculation is not valid for a temporary road (emergency only) and desert (0% traffic).

Road surface:

Transit Research Report 26 derived corrections to the CRTX procedures to adapt them to New Zealand road surfaces. On the basis of the Research Report 26 an adjustment of -2 dB is applied in the road noise calculator to obtain the noise level for a New Zealand asphaltic concrete road surface.

Parts of Transit Research Report 26 have now been superseded by Land Transport New Zealand Research Report 226. Research Report 226 provides corrections for different road surface using asphaltic concrete as the reference surface. The road noise calculator uses the road surface corrections from the Research Report 226. The corrections are given separately for cars (C) and trucks (T). In accordance with Chart 4 of CRTX, these have been combined to give a total correction (R) using the following equation which also depends on the percentage of heavy vehicles (x) and the vehicle speed (V):

☒ road surface correction formula



<https://acoustics.nzta.govt.nz/road-noise-calculator>

Consents and Permits

Model Conditions

Model conditions

It is not possible to prescribe a simplistic performance standard, such as a noise limit, to the NZS 6806 process or the results of the process. The BPO is determined by following the correct process and not by achieving an absolute limit. Recommended designation conditions that encapsulate the NZS 6806 process are shown below. The conditions provide certainty in the noise mitigation outcome to be provided, while allowing for development during normal detailed design processes.

Condition N1

For the purposes of Conditions [N2-N12] the following terms will have the following meanings:

- a) BPO – means the Best Practicable Option.
- b) Building-Modification Mitigation – has the same meaning as in NZS 6806:2010.
- c) Habitable Space – has the same meaning as in NZS 6806:2010.
- d) Noise Assessment

OPTION 1 – Build now designation

- means the Road-traffic Noise Assessment Report [ref] submitted with the NOR.

OPTION 2 – Route protection designation

- means the Road-traffic Noise Assessment Report in accordance with condition [N2].

- e) Noise Criteria Categories – means the groups of preference for time-averaged sound levels established in accordance with NZS 6806:2010 when determining the BPO mitigation option, ie Category A – primary noise criterion, Category B – secondary noise criterion and Category C – Internal noise criterion.
- f) NZS 6806:2010 – means New Zealand Standard NZS 6806:2010 Acoustics – Road-traffic noise – New and altered roads.
- g) PPFs

OPTION 1 – Build now designation

- means only the premises and facilities identified in green, orange or red in the Noise Assessment.

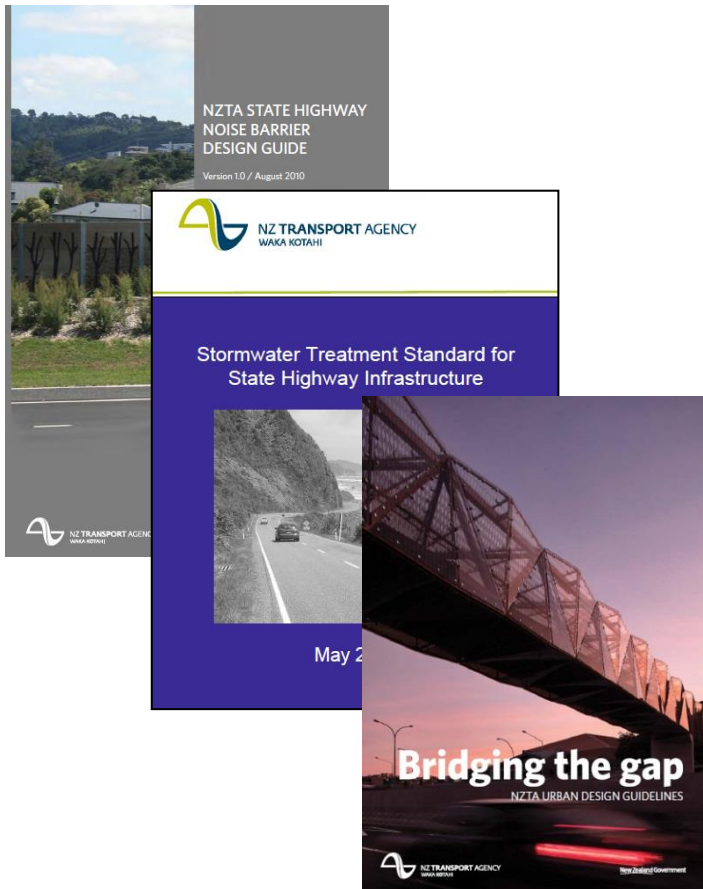
OPTION 2 – Route protection designation

- has the same meaning as in NZS 6806:2010 for the purpose of the preparation of the Noise Assessment. Once a Noise Assessment has been prepared in accordance with Condition [N2], PPFs means only the premises and facilities identified in green, orange or red in the Noise Assessment.

- h) Structural Mitigation – has the same meaning as in NZS 6806:2010.

Environmental Asset Design Guidelines

<http://hip.nzta.govt.nz/technical-information/social-and-environmental/national-standards-and-guidelines>



- Contain recommended good practice suitable for use on state highways and become legally binding when invoked in contract documents.

Environmental Specifications

<http://www.nzta.govt.nz/resources/results.html?catid=330>



NZTA P39 Standard Specification for Highway Landscape Treatments

1.0 Introduction

1.1 Scope of the Specification

To achieve consistency and quality in the delivery of highway landscape treatments the following standard specification sets out the minimum standards for all highway landscape projects. This baseline landscape specification sets the required performance standards, quality and workmanship for highway landscape treatments which are generally part of all highway projects.



NZTA P40: 2014

SPECIFICATION FOR NOISE MITIGATION

1. SCOPE

This specification covers the design, construction, documentation and post-construction review of state highway road-traffic noise mitigation. This specification applies to state highway asset improvement projects. This specification does not cover construction noise mitigation.

Noise mitigation is:

- i. Structural mitigation (noise barriers and low-noise road surfaces), and
 - ii. Building-modification mitigation (acoustic treatment of buildings),
- as defined in *NZS 6806:2010 Acoustics - Road-traffic noise - New and altered roads* (NZS 6806). A noise barrier can be a noise wall, noise bund or a combination of both.

Environmental and Social Management Plans

<http://www.nzta.govt.nz/network/operating/sustainably/plans.html>

Guideline for preparing an
Environmental and Social
Management Plan

© NZ Transport Agency
www.nzta.govt.nz
Version 1: April 2014
ISBN 978-0-478-41934-4 (online)



New Zealand Government


- Requirement for all contracts
- Establishes the environmental management system between suppliers and the Transport Agency
- Sets out accountability to achieve legislative compliance

Environmental and Social Management Plans

e-Learning Course



Coming Soon




MENU
HELP
HOME

Course Overview

We have developed this course to help you prepare an Environmental and Social Management Plan (ESMP). We may also require sub-management plans (e.g. erosion and sediment control, construction noise) if your activities carry a higher environmental risk. These plans are required to make sure you meet our legal obligations and manage risk.

We have structured the course in sections, beginning with an overview of the ESMP requirements. The subsequent sections will outline key environmental and social aspects that you will need to consider in your overall management plan framework.

It should take you about one and a half hours to complete. **Rollover the images to see what you'll learn.**




Environmental and Social Management Plan for Bridge Management Contract


(click and type contract name)

Environment and Social Management Plan


Waka Kotahi




Human Health




Cultural Heritage




Natural Environment



Social

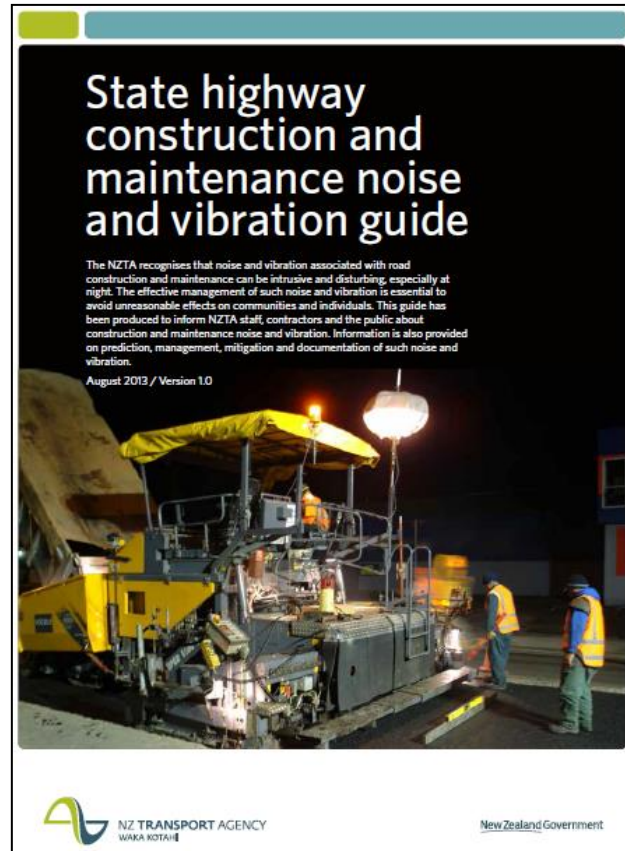


Urban Design



Review

Construction Environmental Management



<http://www.nzta.govt.nz/resources/sh-construction-maintenance-noise/>

Erosion and Sediment Control Guidelines for State Highway Infrastructure

Construction Stormwater Management

© NZ Transport Agency
www.nzta.govt.nz
September 2014
ISBN 978-0-478-41973-3 (online)



New Zealand Government

<http://www.nzta.govt.nz/resources/erosion-sediment-control/erosion-sediment.html>

Independent Professional Advisors

5.12 Environmental and Social Responsibility Advisors

The Transport Agency is seeking one or more professional advisor(s) in each of the following environmental and social responsibility disciplines:

- Resource management planning
- Environmental management systems
- Social impact
- Public engagement
- Drainage and stormwater
- Water quality
- Coastal processes
- Ecology - terrestrial
- Ecology - freshwater
- Ecology - coastal
- Erosion and sediment control
- Contaminated land
- Air quality
- Air quality monitoring
- Noise and vibration
- Noise and vibration monitoring
- Archaeology
- Built heritage
- Urban design
- Landscape architecture
- Structures architecture

Contract for Professional Services

Independent Professional Advisors 2014-2017

Contract Number: NO 14-960

Between The NZ Transport Agency and the Consultant

The Consultant [insert within signing set]

Address [insert within signing set]

Set No. [insert within signing set]

Advisors (other than air quality monitoring and noise & vibration monitoring advisors) may be required to:

- Make, or peer review, assessments of environmental and social effects, including any required research, surveying, modelling, prediction, analysis and reporting; confirm assessments are in accordance with Transport Agency standards; and present expert evidence.
- Investigate state highway environmental and social issues and liaise with stakeholders.
- Design, procure and manage Transport Agency environmental and social assets.
- Provide advice on: strategic planning matters, national and regional Resource Management Act plan provisions, plan reviews and changes and, structure plans as they relate to the management of the state highway network.
- Develop Transport Agency policy, standards, guidance, templates and tools.
- Conduct training for Transport Agency staff and other stakeholders.
- Audit Transport Agency contractors in the implementation of environmental and social responsibility standards.

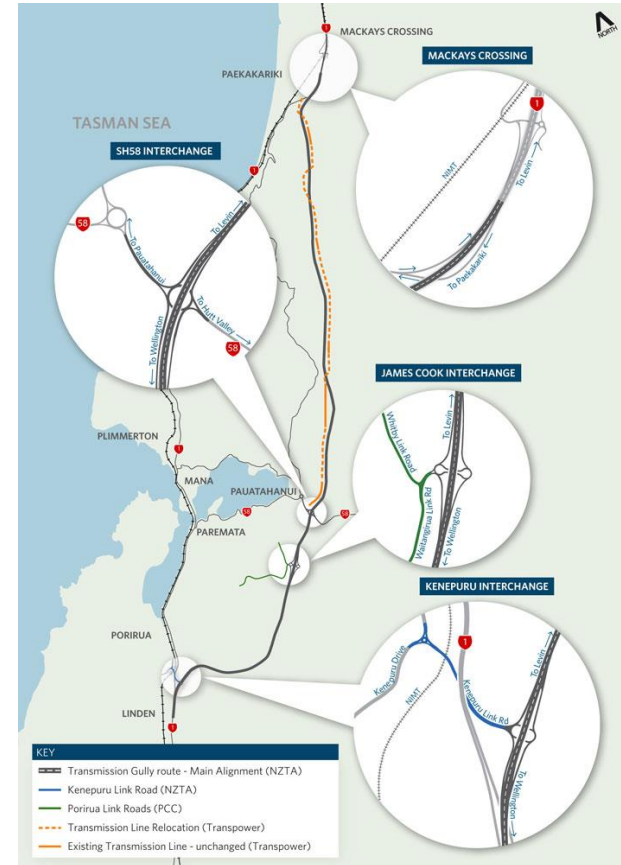
Air quality monitoring and noise & vibration monitoring advisors may be required to:

- Conduct surveys, collate analyse and report results; manage data in accordance with Transport Agency standards and requirements.

The Reality in Practice



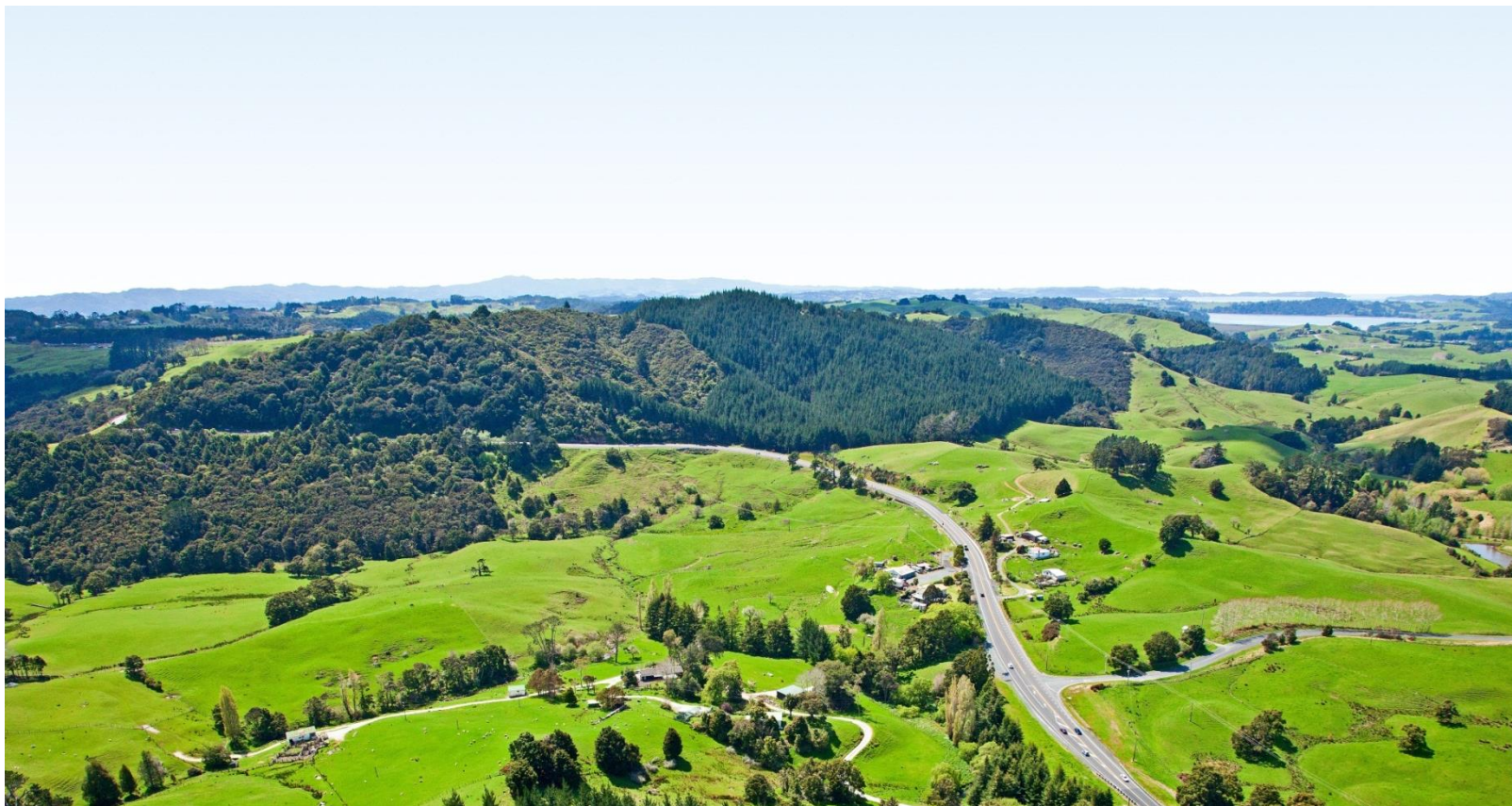
Ara Tūhono: Pūhoi to Warkworth



Transmission Gully

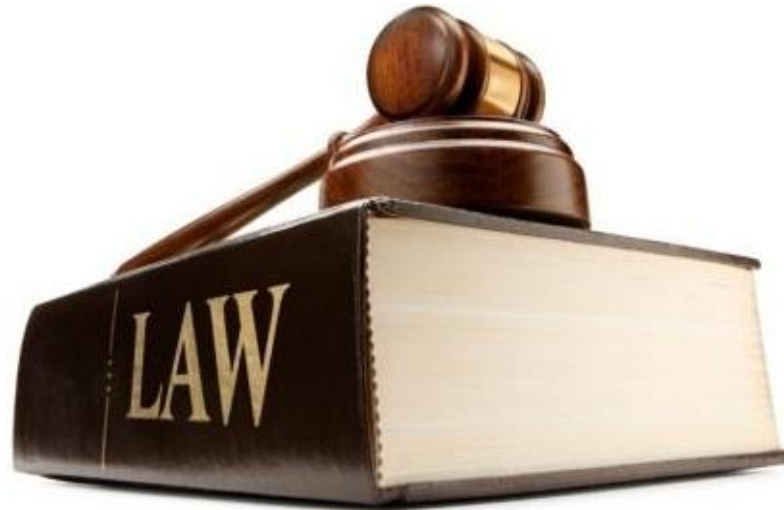
Ara Tūhono: Pūhoi to Warkworth

An evolution in consenting major infrastructure projects



Why an alliance?

Particularly... why did the Transport Agency go for an alliance with lawyers?



CHA



***FURTHER
NORTH***

JACOBS®



NZ TRANSPORT AGENCY
WAKA KOTAHI

Transmission Gully

27km alignment

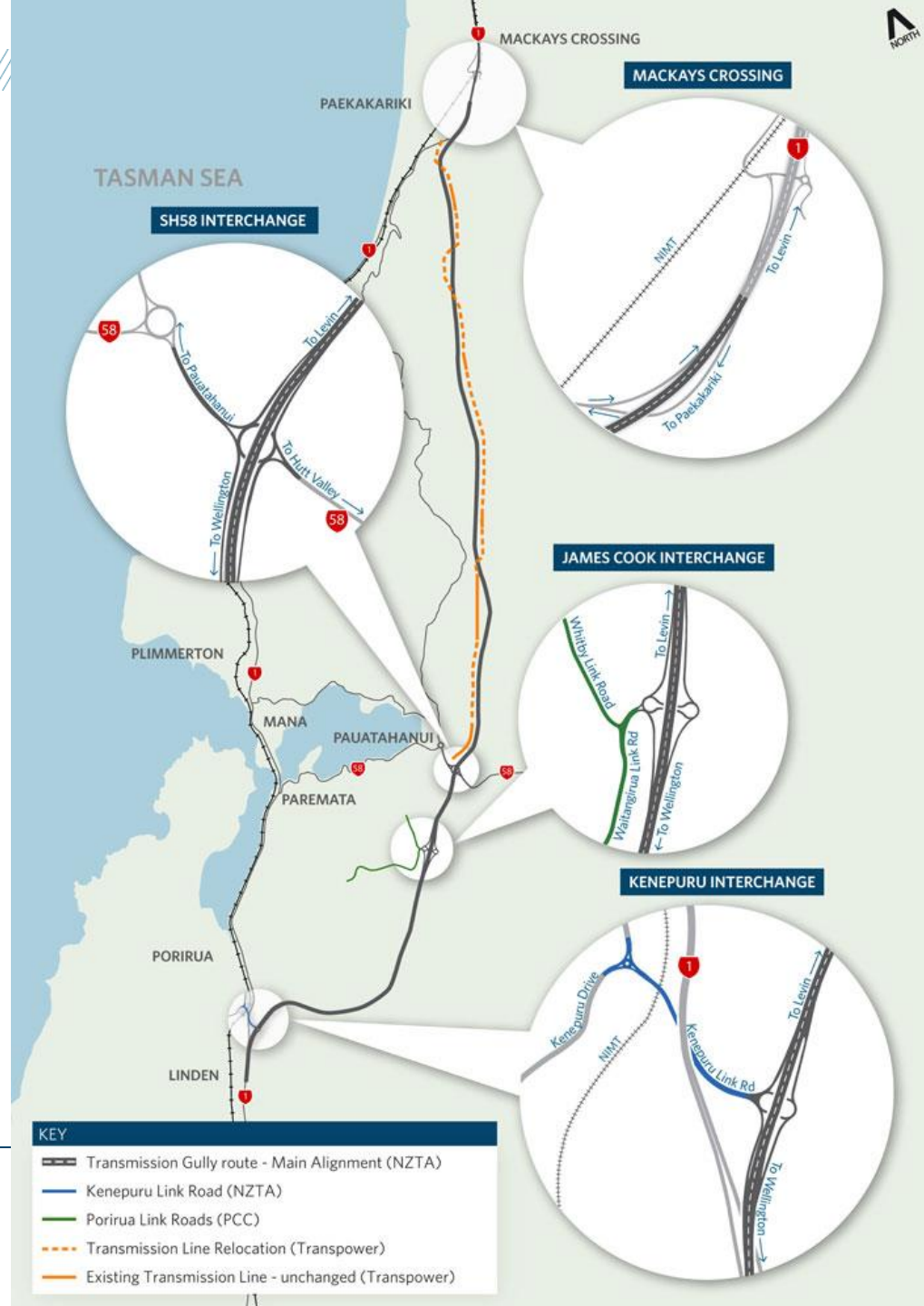
4 interchanges

5 Councils

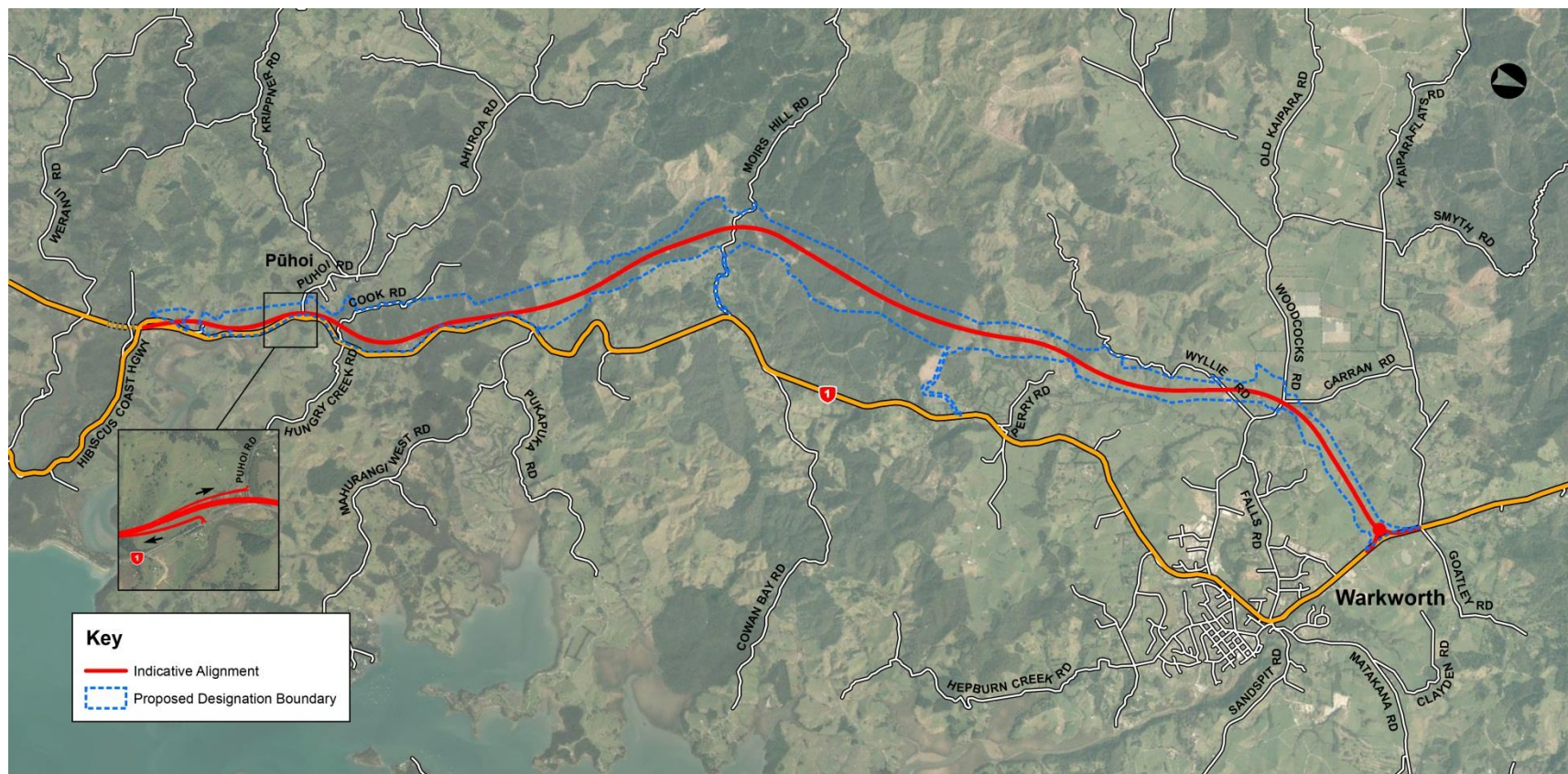
3 applicants

Plan Change, then consenting

Construction starts 2015



Ara Tūhono – Pūhoi to Warkworth



The role of the planner

Transmission Gully

- Consenting strategy (with legal)
- NoR boundaries & property
- Inputs to design
- Review specialist reports for consistency
- AEE preparation
- Conditions approach & drafting
- Consultation & engagement
- Expert witness

Pūhoi to Warkworth

- Generally the same as TG, but ...
- Free range with s88(2)/Sch 4

“...an assessment of environmental effects in such detail as corresponds with the scale and significance of the effects...”
- Constantly questioning whether something is necessary:
 - assessment reports
 - “standard” conditions
 - mitigation



The role of specialists

Transmission Gully

- Area specific assessments
- Identifying effects
- Opportunities to avoid effects
- Ideas for mitigation
- Outcomes for conditions
- Understand interrelationships
- Evidence
- Engagement / Consultation

Pūhoi to Warkworth

- Generally the same as TG, but also ...
- Identifying what needs to be pinned down, and where flexibility can occur
- Collaborating with other experts to set the “envelope of effects”
- Vital: pushing back when asked “is this necessary”?



The role of the lawyer

Transmission Gully

- Overall Case Strategy
- Consenting Strategy
- Conditions approach
- Hearing Strategy & Preparation
- Strategy for evidence
- Structure of hearing

Pūhoi to Warkworth

- Generally the same as TG, but ...
- Very early involvement :
 - start with consent strategy
 - is this necessary to pass the statutory tests?
 - identifying risks (and non-risks)
- Ensuring robustness of assessment and conditions (incl readability and workability)
- Smooth transition to hearing preparation

The role of a consenting strategy

Transmission Gully

- Early strategy informed Plan Change
- Approach to 5 Councils
- Role of each of 3 applicants
- Structure and focus for specialist reports
- Informed AEE and conditions development

Pūhoi to Warkworth

- The basis for savings of time and cost
- Focussed on the statutory requirements: is this necessary to pass the statutory tests?
- Particularly critical to getting the team on board for “doing things differently”

The role of conditions

Transmission Gully

- Approach developed early
- Sets out scope of the applications
- Identifies specific issues by District
- Integral to effects assessment
- Sets up the Adaptive Management framework

Pūhoi to Warkworth

- Start early
- Outcome-driven
 - standards for the “what”, but
 - flexibility for the “how”
- Start from scratch: is this necessary to address environmental effects?
 - If no, deleted from draft
- Remember the audience: clarity is key

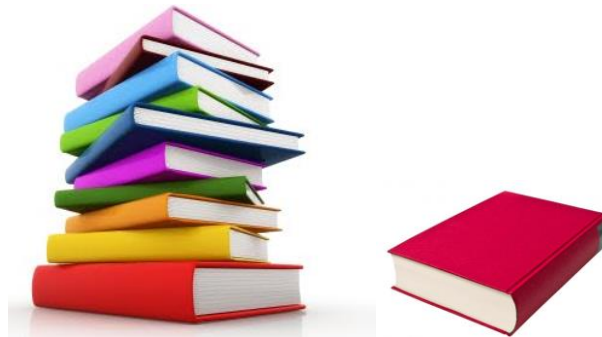
The role of Management Plans

Transmission Gully

- Strong Management Plan Framework
- Submitting some draft plans
- Influences conditions structure
- “Case law” around role of management plans

Pūhoi to Warkworth

- No draft plans lodged with application
- Role of plans – to cover the “how”, not the “what”
- Plans often required by contract as well as conditions



Thanks

QUESTIONS?