

Traffic & Infrastructure



Traffic & Infrastructure includes:

Traffic:

Roads/Rail/Air/Sea (Inc. Ports)

Infrastructure?

"the basic physical and organisational structures needed for the operation of a society"

It is the **roads** that we drive on, the **electricity** lines that bring us power, and the **airports** we fly from
It includes: **Urban Rural and City Development & All networks** e.g. phone, power, gas, water



Two types of projects

- ▶ Activities that involve traffic and infrastructure
- ▶ Activities that affect traffic and infrastructure



Building a new supermarket in Auckland?



Waterview Tunnel under development

Activities affecting traffic & infrastructure

How would these affect **traffic**?

- ▶ Building repairs on a office space
- ▶ General Roadworks
- ▶ Building a new supermarket
- ▶ Installing underground cables

How would these affect **Infrastructure**?

- ▶ Building a sports centre
- ▶ Extending a Community Centre
- ▶ Demolishing a factory
- ▶ Building a new school in a rural location



Infrastructure Projects Requiring AEEs

Include:

- ▶ Roads / Transport Developments (Ecology, Air quality)
- ▶ Coastal infrastructure (Harbours)
- ▶ Water infrastructure (Abstraction/Discharges)
- ▶ Power infrastructure (Damming)



Sustainability initiatives -traffic

For example: Auckland Council - *what are we doing now?*

- ▶ Upgrade of streetlights (LED)
- ▶ Electric buses
- ▶ Public EV chargers
- ▶ Electric corporate fleet

Sustainability review →



Sustainability - infrastructure

"The ability to maintain rates of renewable resource harvest, pollution creation, and non-renewable resource depletion that can be continued indefinitely".

In NZ, approx. \$39 Billion was spent on infrastructure projects in 2015, compared to \$28 Billion in 2005.

Increasing demand for the construction and maintenance of infrastructure.

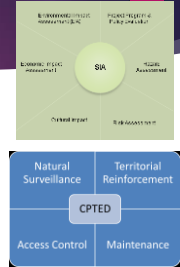
(ISCA, 2020)



ISCA (Infrastructure Sustainability Council of Australia) are concerned with all types of infrastructure

Assessment Tools

- ▶ Noise Management Plan
- ▶ **Integrated Transport Assessment**
- ▶ Landscape Assessment
- ▶ Social Impact Assessment
- ▶ Consultation
- ▶ CPTED



Integrated Transport Assessment

The assessment of transport effects is a key part of good **land use and transport planning**.

The term **integrated** recognises the importance of the link between transportation and land use.

There are many statutes that regulate land use and transport inc.

- ▶ Resource Management Act (RMA, 1991)
- ▶ Land Transport Act (LTA, 1998)
- ▶ Land transport Management Act (LTMA 2002)
- ▶ Local Government Act (LGA, 2002)

AEE Transport

Two broad aspects:

- ▶ The effects of the development and use of land, both site specific and in general, on transportation
- ▶ The effects of transportation on the development environment and adjacent land uses



Actions Required

1. **Focus on all the potential effects including cumulative effects** – what will future effect be ?
2. **Consider the issues of congestion, induced traffic, social effects, construction impacts, land transport noise, air quality and climate change**
3. **Consider all proposals in the context of supporting a broader transport strategy**
4. **Be aware of changing public attitudes, expectations and perceptions** concerning acceptable effects and acceptable levels of transportation accessibility

Integrated Transport Assessment

Preparation of an ITA will often be required as part of the AEE to consider the physical and environmental issues associated with the proposal.

AEE and accompanying analysis must be publicly available and accompany proposal when advertised



What is an ITA?

A report, usually prepared by a transport planner, transport engineer or other suitably qualified professional, which:

- ▶ Assesses the transport effects of a development proposal.
- ▶ Provides "information" to inform and guide decisions made at the early stages of a development proposal.

The purpose of an ITA is to thoroughly explore the range of transport options available to a new development area and look to place greater emphasis on travel by walking, cycling and public transport wherever possible in line with regional guidance.

(Integrated Transport Assessment Guidelines – Auckland Transport Jan 2015)

ITA (Cont.)

An ITA deliberately take a wide perspective in presenting a proposal. In particular, ITAs specifically:

- ▶ Consider how a proposal fits with a wide range of regional strategies and policies
- ▶ Consider how a proposal integrates with and supports land use policy
- ▶ Provide an assessment of the accessibility of a proposal by walking, cycling, public transport and private motor vehicles.
- ▶ Consider traffic impacts

ITA Scope

Table 6.1 ITA scope definitions

ITA scope	Geographic	Policy
Simple	Expected to have an effect within the site and at the interface with the transport network.	Expected to be compliant with statutory rules
Moderate	Expected to have an effect over a small area or neighbourhood	Expected to align with local policies
Broad	Expected to have an effect over a larger area, eg part of or a whole suburb	Expected to align with local and regional policies and objectives
Extensive	Expected to have impacts over a wide area, district or region	Expected to align with regional and national policies, objectives and visions.

ITA Content

Simple –

- ▶ Restricted assessment in terms of area.
- ▶ Scope may include access, on-site provisions and/or safety issues.



Moderate

- ▶ Wider area also consider adjacent streets and possible nearest main intersection.
- ▶ Wider scope to consider e.g land-use characteristics, zoning provisions for area in the district plan.
- ▶ May include some local –site modelling including pedestrian effects and on-site and off-site vehicle traffic



Broad

- ▶ Extended area from moderate ITA to include adjacent blocks, including access from both mainstream and minor traffic generators
- ▶ Scope may include strategic assessment of location, evaluation of neighbouring land uses, consideration of a range of travel modes, surveys and more extensive modelling.
- ▶ May also include degree of effect on other road users or improving traffic facilities

Extensive

- ▶ Widest consideration of issues which could include a district or larger regional matters.
- ▶ Significant thought and appropriate expertise required
- ▶ More extensive transportation modelling is likely to be needed, and the possible assumptions and associated variables might be very wide and more complex.
- ▶ Consider district and regional effects in the context of longer term planning objectives.



Auckland Requirements

Under the Proposed Unitary Plan, ITAs are required when an application is:

- ▶ A plan change
- ▶ A Notice of Requirement
- ▶ A structure plan
- ▶ A resource consent application for a subdivision or development which is not specifically provided for
- ▶ A framework plan

The ITA must be prepared early in the development of the proposal so that the findings of the ITA can influence the development

Auckland requirements (2)

ITAs must also be prepared when the thresholds below are exceeded

Land Use Type	Threshold
Residential	120 dwellings
Retail	1,000 m ² Gross Floor Area (GFA)
Office	5,000 m ² Gross Floor Area (GFA)
Industrial	10,000 m ² Gross Floor Area (GFA)
Warehousing	10,000 m ² Gross Floor Area (GFA)
Education	100 students
General	Land uses generating 100 vehicle trips in the peak hour

Auckland Transport has prepared guidelines for the content of ITAs

Hearings and Evidence

- ▶ Applications for resource consents for significant proposals = use **specialist resource management lawyers**
- ▶ Often supported by a range of specialists, inc. **traffic/transport specialists**
- ▶ **Specialist witnesses** are required to be neutral, to present factual evidence and give unbiased professional judgements
- ▶ Applications, heard by **Hearings panels** (Council level) & Environment Court (appeals).
- ▶ At Appeals expert, witnesses are **subject to questioning** from the judges and **cross examination** by opposing lawyers

Case Study 1

Butterbee
Childcare
Devonport:

Example of
"Simple" ITA

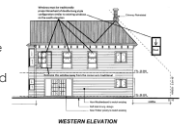


Travel Management Plan

Prior to operation, consent holder shall provide a Travel Management Plan (TMP) created by Transportation Engineer.

During the operation of the facility:

- ▶ Reduce the incidence of staff commuting to work, parking private vehicles at the site or in the surrounding street network
- ▶ To parents/caregivers explain that access and egress to the site includes that no right turn, drivers shall be aware of the pedestrian/cycle activity on shared footpath plus suggested alternatives for access to the site.



Environment Court Doc

Case Study 2

Pūhoi – Warkworth AEE:
Example of "Extensive" ITA

Ara Tūhono Pūhoi to Warkworth Road of National Significance

- Volume 1
 - ▶ Notice of Requirement and resource consent applications
- Volume 2
 - ▶ AEE (512 pp) and 7 appendices
- Volume 3
 - ▶ Assessment reports
- Volume 4
 - ▶ Drawings

What is an NOR?

It is a statutory process in the RMA and is how AT notifies **Auckland Council** that it is seeking to designate land.

Until a designation has been confirmed and included in a district plan, a designation is referred to as a **notice of requirement**.

A **designation** is effectively a form of zoning over a site or route.

Pūhoi – Warkworth AEE Content (512 pages!)

- ▶ Introduction
- ▶ Justification for project ***
- ▶ Statutory and Policy context
- ▶ Existing environment
- ▶ Project description
- ▶ Construction of project
- ▶ Alternatives ***
- ▶ Consultation and communication
- ▶ Overview of effects
- ▶ Construction water management
- ▶ Freshwater ecology
- ▶ Marine ecology
- ▶ Construction traffic
- ▶ **Terrestrial ecology**
- ▶ Construction noise
- ▶ Heritage
- ▶ Vibration
- ▶ Air
- ▶ Hydrology
- ▶ Contaminated land
- ▶ Operational water management
- ▶ Landscape and visual
- ▶ Operational traffic and transport ***

Plus a few others!

Justification of project: Project Benefits

- ▶ Improved route security & resilience of the State highway network via reduced reliance on one main route (current SH1)
- ▶ Improved safety performance compared to the existing SH1 between Pūhoi and Warkworth
- ▶ Reduced travel times and improved travel time reliability along the State highway (N of Auckland) increasing accessibility
- ▶ Potential for economic development as a result of travel time savings, improved trip time reliability and improved inter-regional accessibility between Auckland and Northland.

Evaluation of alternatives

- ▶ **Stage 1:** Collection of base data and mapping of physical and social constraints
- ▶ **Stage 2:** Development of a long-list of options/corridors and assessment of these against an evaluation framework to determine a short-list.
- ▶ **Stage 3:** Development and further assessment of the short-list of route options and selected preferred route.

Long list options

Feedback received from the first two phases of consultation with the community and stakeholders was used to further modify the preferred route.



Evaluation Criteria*

Category	Criteria
Assisting Economic Development	Enhance inter-regional and national economic growth, improve traffic movement between AKL and Northland, Improve connectivity to medium-long term growth areas, support local economic development
Safety and Personal Security	Improve road safety, maintains local access & connectivity
Protecting and Promoting Public Health	Provide for walking and cycling to contribute to positive health outcomes through and between towns
Environmental Sustainability	Avoid potential impacts, minimise physical extent of project, minimise impact on coastal areas or water, air quality and noise, energy use and GHG emissions, places of cultural significance, communities and community attractions and to support regional and local land use planning intentions
Value for Money	Overall cost, geotechnical and constructability cost risk, minimise delaying consent process or difficult construction which delays project

*These are some of the inclusions

Long List - how much will the option?

Category	Criteria
Assisting Economic Development	<ul style="list-style-type: none"> Enhance inter-regional and national economic growth? Improve the movement of people between Auckland and Northland Improve connectivity between medium to long term development areas Support local economic development
Safety & Personal Security	<ul style="list-style-type: none"> Improve road safety in the area and reduce road crashes Maintain local access and connectivity Impacts during construction
Protecting & Promoting Public Health	<ul style="list-style-type: none"> Provide for walking and cycling

Long List – how much will the option?

Category	Criteria
Improving Access & Mobility	<ul style="list-style-type: none"> Change SH1 into a route of national significance, which improves route security, resilience and flexibility and addresses a point incident. Connect the proximity of interchange location to activity nodes Improve reliability, safety and robustness of network
Environmental Sustainability	<ul style="list-style-type: none"> Minimise the physical extent and significance of project Minimise environmental effects on areas of high sensitivity areas (in terms of air quality) ecological value, coastal regions, historic heritage, cultural heritage, Reduce overall energy use and GHG emissions Impact communities or access to community facilities Minimise economic effects on local businesses Support regional and local land-use planning intentions

Short list options



Project Conclusions

What might transport analysis include?

- ▶ Consideration of alternatives
- ▶ Provision for modes
- ▶ Changes in demand
- ▶ Travel time improvements
- ▶ Crash rate improvements
- ▶ Network effects



Route planning (www.Rapids.com)