Appendix ‘Q’

Sustainability and Significant Negative Effects

1. Introduction

1.1 Sustainability

National

a) Introduction

There are three principal drivers that require sustainable environmental management and sustainable development to be encompassed in all transportation management in New Zealand. These are;

- the Resource Management Act 1991 (RMA) which has as its purpose "the sustainable management of the natural and physical resources"
- the Local Government Act 2002 (LGA) which has a "sustainable development" driver that requires all actions and programmes to be considered in terms of the four well-beings (environmental, social, cultural and economic)
- The trend of increasing energy costs and the Kyoto Treaty

b) Sustainable Energy Management (SEM)

As energy prices remain volatile we need to look beyond the basics and find energy efficiencies within the transportation processes to meet the increasing demand for sustainability, greenhouse gas (GHG) reduction and energy efficiency. A focus is required on both behavioural change and capital projects that can increase energy efficiencies while decreasing energy cost and lowering greenhouse gas emissions.

Behavioural changes can result in significant short-term decreases in energy consumption. In the long term, however, capital intensive projects will be required to make significant steps towards achieving greater energy savings and GHG reductions.

A SEM programme for improvement would consist of four phases:

- establishing energy programme criteria
- conducting energy efficiency assessments
- implementing Energy Conservation Measures (ECM's)
- and tracking performance.

The Energy Efficiency and Conservation Authority (EECA) of New Zealand provides assistance with energy studies and SEM work.

c) Climate Change

Climate change, refer MfE (870). 'Climate Change Effects and Impacts Assessment: A guidance manual for Local Government in New Zealand' New Zealand Climate Change Office, Ministry for the Environment, Wellington. May 2008, will have implications for transportation as greater variation in weather patterns is predicted leading to disruption due to flooding, landslides, fallen trees and lines, direct effects of wind exposure on heavy vehicles, softening of bitumen and changed maintenance needs for public transport (road, rail)

infrastructure. A wetter environment will affect the moisture content of roading materials which will lead to more rapid degradation of the road pavement

District

Specific references to sustainable transportation in the Southland District Plan (Operative June 2001) are given in the following Objectives:

TRAN.1 To mitigate the adverse effects of land use activities on the District's transportation system.
TRAN.2 To achieve appropriate public safety levels.
TRAN.3 To ensure the efficient flow of people and goods along the District's transportation routes.
TRAN.4 To avoid, remedy, or mitigate the adverse effects of transportation activities on the environment, while enabling the continual development and upgrading of the transportation network.
TRAN.5 To recognise links between the transportation, energy and climatic changes by encouraging development of a sustainable transportation network.
TRANS.6 To reduce the emission of greenhouse gases which result from transport activities.

Table Q.1: Sustainability Issues Associated with Land Transport Activity

	Sustainability Issues	Recommended Actions
Social Well-being	• Health and safety risks associated with the construction, maintenance or operation of the transportation infrastructure. • The impact of public health from the reliance of cars.	• Improve safety of the transportation network to reduce the occurrence of crashes. (LT10) • * Promote the active transport modes such as walking and cycling. • * Investigate the future demand for public transport services and infrastructure.
Cultural Well-Being	• The loss and degradation of this resource through drainage and pollution. • Excavation of archaeological or waihi tapu site during construction.	Ensure that: • The cultural use values of the site are identified. • The health of the stormwater runoff from roads does not damage cultural sites. • There is a protocol for conserving sites with cultural significance.
Economic Well-Being	• Affordability of the transportation network. • The efficiency and safety of the network impacts on the movement of people and freight in the District (delays, level of service). • Sustainable Energy Management.	• Minimise disruption caused from activities on the transportation network. • Ensure that the transportation network operates in an efficient and safe manner for all road users. (LT02) • Behaviour modification (demand management) and energy efficiency required.

	Sustainability Issues	Recommended Actions
Environmental Well-Being	• The effects on the environment from discharges of greenhouse gases from maintenance and construction activities of transportation infrastructure. • The effects of the construction process including the sourcing and disposing of materials. • The effects on the environment from the operation of the transportation network including vehicle emissions and stormwater run off. • Carbon Footprint.	• Ensure that the health of the stormwater runoff from roads and sediment control does not create further environmental issues in adjacent land and water courses • Consider investigating recycling of pavement materials for road maintenance and construction activities. • * Promote active transport modes that reduce vehicle emissions.

- Refer to Appendix F Attachment M for further detail on active transport modes. (LTXX – refers to Level of Service id in table B1 in Appendix B).

1.2 Significant Negative Effects

Negative effects that the transport activity may have on the social, economic, environmental or cultural well-being of the community include:

a) The number (and cost) of people killed or injured on roads each year (or whose deaths are attributable to road use).

b) Excessive noise from busy roads.

c) The quality of the stormwater from roads that discharges into adjacent coastal or other waters.

d) The economic cost to the community (or to the National or Regional economy) of road congestion.

e) The extent to which the roading network impacts on the quality of life of a particular community (or commercial area).

f) Fumes from motor vehicles.

g) The amount of carbon footprint of vehicles that use the roads.

h) The environmental degradation and / or the delay to travel times that can occur when new roads are built, or existing roads are upgraded.

i) The excessive use by heavy motor vehicles of all types, on local roads.

j) The deposit of soil and cow excrement on the roads, and the discharge of effluent onto them, from stock trucks.

Table Q.2 lists those that are potentially relevant to the Southland situation, and identifies the mitigation mechanisms.

Table Q.2 Potential Negative Effects

Actual or Potential Effect	Mitigation Mechanisms
a) Road Deaths and Injuries	• Prepare a 'minor improvement projects' plan each year. • Prepare renewals plans and maintenance plans to address potentially unsafe road surfaces (especially blackspots). • Set appropriate speed limits. • Maintain a road safety strategy and a road safety action plan. Also, a road safety systems policy. • Work closely with NZTA, the New Zealand Police and Road Safety Southland re road user education and policing.
b) Excessive Noise	• Install noise barriers where appropriate. • Set appropriate speed limits. • Use appropriate surfacing on busy roads in residential areas.
c) Contamination of Waterways by Stormwater Discharged from Road Surfaces	• Ensure proper attention is paid to water run-off / sediment control management when carrying out work on the roads. • Police the discharge of effluent onto the roads from stock trucks (and encourage the provision of disposal facilities at appropriate locations). • Progress roads to grassed shoulders.
d) Dissection of Communities by Road Corridors	• Ensure adequate public consultation and proper attention given to the compatibility of main roads and the adjoining neighbourhood when carrying out future planning.
e) Environmental Degradation from Road Construction or Upgrading Works	• Consent compliance. • Ensure proper attention is paid to the environmental aspects when designing, upgrading, or new road works.
f) Travel Delays Caused by Road Construction or Upgrading Works	• Ensure proper attention is paid to the preparation of, and adherence to, traffic management plans when carrying out upgrading or new road works.
g) Damage / Nuisance Caused to Vehicles by Soil and Cow Excrement on the Roads	• Encourage the construction of underpasses in places where stock numbers regularly cross busy roads. • Enforce the Council's bylaw re the removal of soil and other material dropped on roads.

Whilst some of these issues will arise only occasionally, all of the matters listed are just good land transport management practice. The Council's policy is to maintain an ongoing awareness of them (ie use them as a checklist), and to ensure that they are implemented / adhered to, to the extent appropriate, as and when the situation warrants.

2. Issues

Particular issues which may become more problematic over the next 10 years involve road construction and upgrading works, and in particular:

- Obtaining gravel for road reconstruction will become increasingly difficult as diminishing resources are depleted and greater environmental awareness leads to greater restrictions on access to existing sources.
- Use of hot cut back bitumen for sealing and resealing roads releases significant quantities of volatiles (petroleum products such as kerosene into the atmosphere). It also requires significant energy to heat up. This may lead to an increased demand to use emulsion seals which release mainly water to the

atmosphere, but tend to be more expensive. Both these issues have the potential to significantly increase costs of maintaining and reconstructing the network.

- The use of recycled materials for the pavements should be investigated to reduce the overall waste from maintenance and construction activities on the network.

Other issues related to the operation of the transportation network include:

- Promote active transport modes such as walking and cycling that reduce vehicle emissions and improve the health of the community.
- Investigate the future demand for public transport services and infrastructure.
- Improve the safety of the transportation network for all road users to reduce the occurrence of crashes.
- Improve the transportation network to provide a reliable and efficient network for the movement of people and freight.

3. Future Action and Improvements

Schedule
Future Improvement Priorities

Ref. No.	Item	Appendix Relative Urgency						Comments
		1	2	3	4	5	6	
Q1	Work to ensure gravel for roading projects remains reasonably available				✓			Potential to undertake long term strategic review.
Q2	Monitor trends in sealing technology and look at ongoing opportunities to use more environmentally friendly techniques					✓		This is ongoing business as usual.
Q3	The use of recycled materials for pavements should be investigated to reduce the overall waste from maintenance and construction activities				✓			This is ongoing business as usual.
Q4	Promote active transport modes such as walking and cycling that reduce vehicle emissions and improve the health of the community					✓		This is pending the outcome of the Active Transport Strategy.
Q5	Investigate the future demand for public transport services and infrastructure					✓		To carry out a Strategic Review.
Q6	Improve the safety of the transportation network for all road users to reduce the occurrence of crashes				✓			This is ongoing business as usual.
Q7	Improve the transportation network to provide a reliable and efficient network for the movement of people and freight.				✓			This is ongoing business as usual.

Key:

1 = Extremely urgent (needs to be addressed now)
2 = Very urgent
3 = Urgent
4 = Reasonably or fairly urgent
5 = Not urgent
6 = A good idea for some time in the future