3 Current Pressures – Consumption, Transport, Energy, Waste & Development

Household Consumption

The Household Economic Survey from Statistics NZ showed that nationally, the average weekly household net expenditure was $956 for the year ended 30 June 2007 (the main components were 23% housing-related with 16% on food and 14% on transport). It is unlikely to be this high on Great Barrier Island due to household income constraints (50% of household incomes less than $600 per week).

Transport

The 2006 Census data shows that Great Barrier Island runs fewer vehicles per household than the average from the Auckland region (only 4.7% of the population runs three or more vehicles compared with 17.7% in Auckland). Land Transport Safety Authority (LTSA) figures in June 2008 (Table 3.1) show the pattern of vehicle ownership: there are more registered vehicles on the Island than there are people[i].

Table 3.1. Active vehicles as at 23 June 2008 on Great Barrier Island.

VEHICLE TYPE	TOTAL
BUS	11
GOODS VAN/TRUCK/UTILITY	207
MOPED	1
MOTOR CARAVAN	5
MOTORCYCLE	29
PASSENGER CAR/VAN	638
SPECIAL PURPOSE VEHICLE	1
TRACTOR	2
TRAILER/CARAVAN	101
TOTAL	**995**

There is no publicly funded transport on or to/from the island. Unlike Waiheke Island, there is no free travel for Gold Card holders on the island, although this is under consideration for the ferry. The Aotea Family Support Group has a van which can be accessed by other community groups: school, touch rugby, Arts & Crafts Group, Youth Group, workshops, and movie nights, and it is regularly used for elderly people to attend island events.

Two airlines and a ferry company service the island regularly and there are a number of less frequent freight options. There is no information available from the Auckland Regional Transport Authority regarding numbers of people travelling.

There are seven designated boat ramps (none on the East coast); these include the wharves (Shoal Bay, Whangaparapara and Port Fitzroy).

Energy

There is no national grid reticulated electricity on Great Barrier Island and as such each individual household and business has to generate their own electricity using alternative power sources i.e. wind, solar, and water. Most residences also have a diesel or petrol

generator, sometimes as their sole supply of household energy, sometimes to supplement their alternate energy sources. Auckland City Council advises that there is no information obtainable from building permit information as to sources of energy.

Wind and solar

The island residents make extensive use of wind and solar power but there are no official data on this. As prices have come down, renewable sources are increasingly popular. Some renewable energy is used in the schools and the Claris air terminal is planned to be a renewable energy showcase.

Department of Conservation has emphasised sustainability in its new staff houses (and renovations) using sun position, insulation, double glazing, solar panels and the latest waste water systems. They plan a central shared solar and wind power system as phase 2.

LPG Gas

Gas is used for cooking, heating and refrigeration[ii]. LPG cylinders are transported from the mainland by sea.

Wood

Wood stoves are used for heating in the winter and sometimes for cooking and water heating (manuka / kanuka is a favoured source of fuel). Most households inhabited over winter probably burn between 5 and 10 cubic m of wood.

Petrol and diesel

The bulk of the fuel used on the island is diesel[iii]. Petrol and diesel volumes are commercially sensitive information and thus no volumes are available. Kauriland Petroleum Ltd (KPL) is a Mobil fuel and lubes distributor and currently delivers to Great Barrier Island via a mainland shipping operator. There are other supplies reaching the island making a fuel audit difficult (surveys at the household level will be needed to get accurate figures).

The mainland shipping operator transports diesel in the ship's tanks and pumps it to underground diesel storage tanks at Port FitzRoy and Whangaparapara. The petrol is ferried to Great Barrier Island in a road tanker. The tanker rolls off the ferry and drops 91octane petrol at Port FitzRoy and then travels on the same ferry to Whangaparapara where the process is repeated. The tanker truck is not permitted to drive across the island due to its size. A small petrol/diesel tanker operated independently delivers to Mulberry Grove Service Station and Claris Service Stations drawing petrol and diesel from the Whangaparapara operator. This tanker also delivers diesel to a number of commercial and private customers on the island.

Flights and ferries

Substantial energy is used in the flights and ferries to and from the island. Unfortunately, there are no volumes available for the total energy used in transporting people and freight to and from the island.

Waste

Sewage

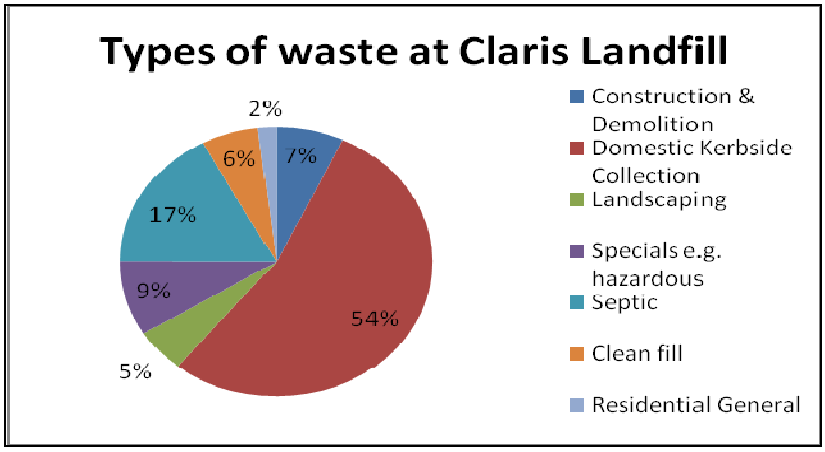
Sewage systems are largely septic tanks (primary treatment only is required due to lack of grid electricity on the island). In some places long drop toilets are still used. There are a small number of 'alternative' systems such as those using worms and transpiration beds although now that the Auckland Regional Council has approved a biolytic system for use in the region

there are likely to be more in the future. Again there is no data available from Auckland City Council building permit information.

Solid waste disposal

Auckland City Council takes the solid waste (domestic refuse and sludge from domestic septic tanks) for final treatment and/or disposal at the Claris landfill. The breakdown of waste observed in the weighbridge survey carried out for Auckland City Council during autumn 2007 and the first part of 2008 is shown in Fig 3.1 (unfortunately the peak period was missed due to breakdown of the weighbridge).

Fig 3.1. 2007 – 2008 Survey of types of waste at Claris landfill



This survey showed 4.31 tonnes going to the landfill daily and projected this to suggest 921 tonnes per annum. However this excludes the Christmas peak and personal disposal on private land.

Sustainable Coastlines Beach Cleanup results 2009

In 2009 a number of city schools were brought to Great Barrier Island to do beach cleanups around the island with many locals also participating in the day. The results from the cleanup was surprising and give a good understanding of the types of sea waste the Great Barrier Island community has to deal with. (Fig. 3.2 and Fig 3.3) for more information about this see www.sustainablecoastlines.org .

Fig 3.2 Sustainable Coastlines Beach Cleanup non-recyclable and recyclable waste audit results 2009[iv]

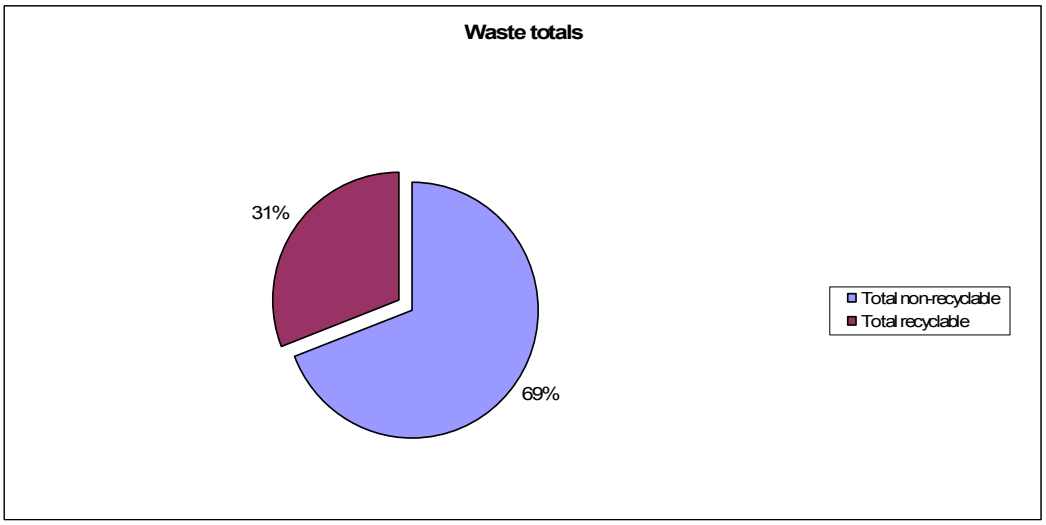
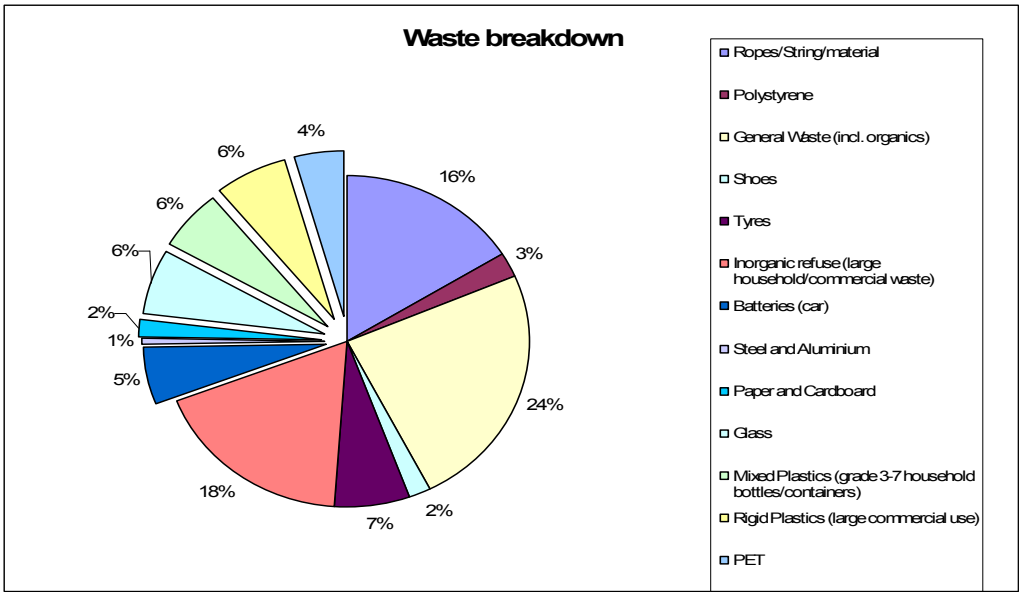


Fig 3.3 Sustainable Coastlines Beach Cleanup waste breakdown audit results 2009



Recycling

Plastics and aluminium cans are collected and sent off the island. Glass is stored on the island to be crushed for use on the island e.g. for backfill in road retaining walls or for drainage fields. There is currently a large glass stockpile and the proposed uses are not yet approved.

Cardboard is stored in a separate site on the island in a sand-based area and turned periodically to break down to a fibrous state. A mulching head is being imported. Soil and wood chips will be added to provide coarse mulch for the garden centre. Paper is not collected but Auckland City Council is currently looking at receptacles for holding this. Good green waste is chipped and some is reused for local landscaping.

Hazardous waste is collected and sent off the island once or twice each year, this includes batteries for recycling.

Vehicle disposal

Unwanted vehicles are crushed and compacted on the island every two years. The 'cubes' are trucked and barged off the island for recycling into steel e.g. for reinforcing rods[v]. Tin cans are put into the cars and crushed with them. White-ware is degassed and crushed at the same time. Tyres are returned to West Auckland for chipping and reuse[vi].

Future improvements planned

In May 2009 Auckland City Council reported:

"The council is currently reviewing the refuse and recycling operation on island, this waste strategy review will be presented to council when sufficient data has been gathered and evaluated, later in the year.

Part of this review includes the recycling operation, taking into account the remote location of Great Barrier Island within the Auckland region. As in other parts of New Zealand transport costs are high compared with the product value for recycling streams including glass and cardboard. Recognising the uneconomic value of shipping these types of recycling streams to Auckland, the council is currently scoping the possibility of on island solutions. One of the projects being scoped is an enhanced composting trial, incorporating green waste and other organic matter. The individual responsible for assessing community interest, available methodologies and options relating to this project is a former Unitec lecturer who specialises in international best-practice for innovative organic programmes.

We are also exploring the possibility of incorporating glass as base course aggregate, processed on island and used locally, for roading, backfill in drainage and slip repair. Fulton Hogan has trialled the use of recycled glass as base course aggregate successfully, without the requirement of investing heavily in equipment. A standard aggregate crusher can process the recycled glass to Transport NZ requirements. I also understand Great Barrier Cartage has a glass crusher, the end product being used as back fill for drainage on a private property on island".

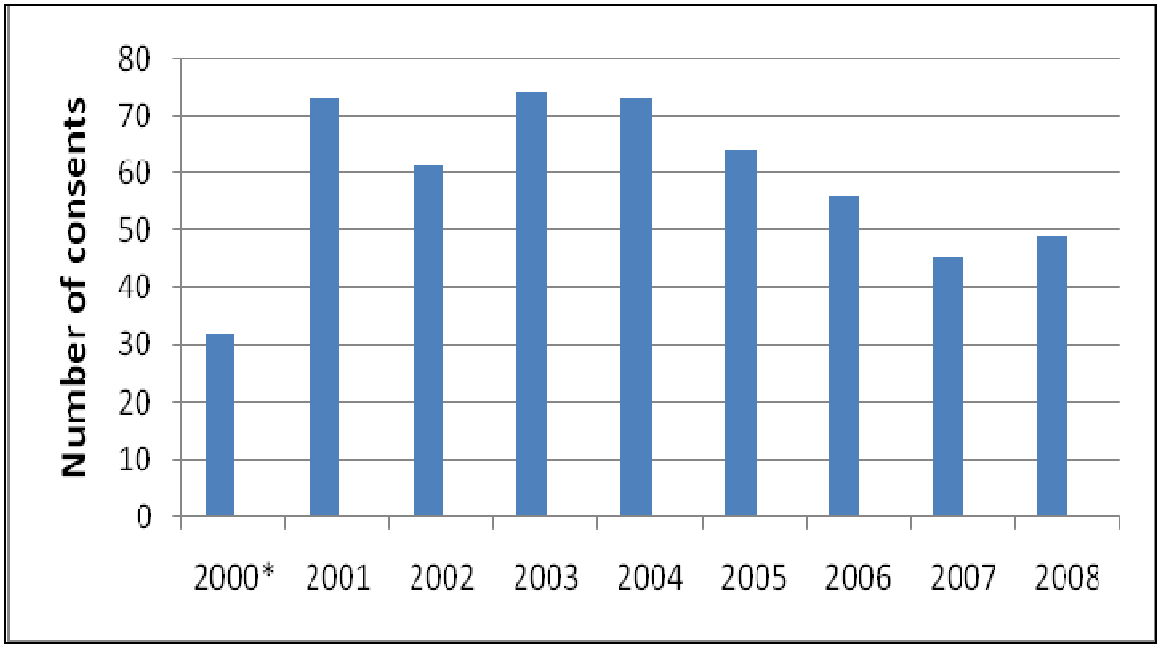
Auckland City Council has been slow in providing facilities for the Island to deal with effectively with its rubbish locally. It will be interesting to see how these plans unfold. There is an opportunity here to be creative. On Waiheke however, where there was previously a citizens waste recycling venture, waste is now processed mostly off the island.

Development

Building Consents

The number of building consents issued (Fig 3.4) shows the level of housing development over the past eight years: consents have reduced to c. 60% compared with the peak building period in 2001 – 2004. However permits are still being issued at the rate of approximately one per week[vii].

Fig 3.4 Building consents issued by Auckland City Council 2000-2008.



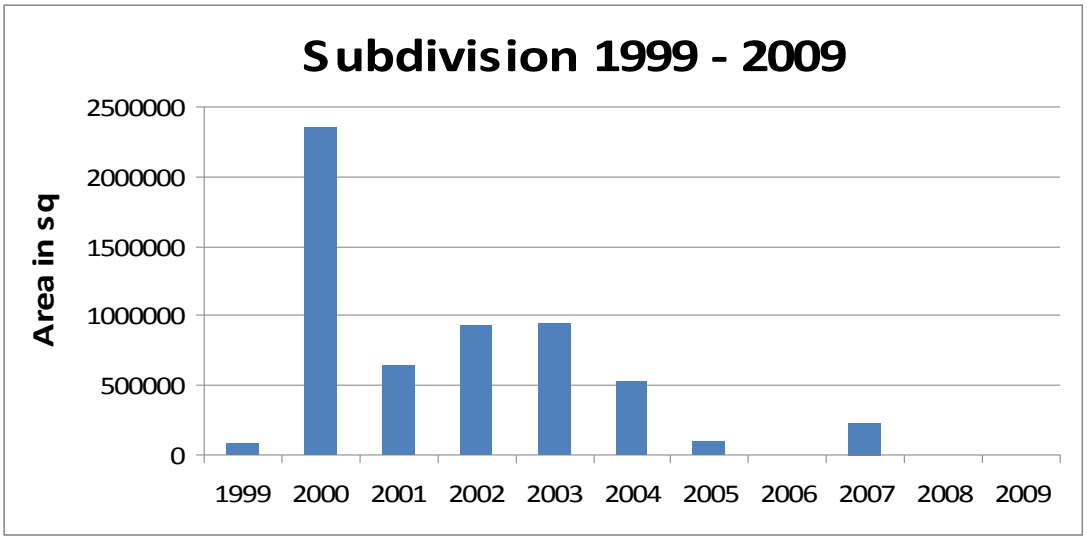
Subdivision consents

Building consents alone do not necessarily reflect the impacts of development on sensitive coastal environments, such as wetlands and dunes. For example, such development may be associated with more pets, more vehicles, and more people in the breeding areas of endangered birds.

Subdivision consent patterns (Fig 3.5) may also reflect these types of impacts. Although most subdivision on the island took place in the 1970's and 1980's, it is continuing. However there has been as obvious decline in such consents found in the records since 2000, both in the total square metres being subdivided and in the resulting number of separate lots.

Fig 3.5 Subdivision consents issued by Auckland City Council 1999 – 2009 (a) area in m^2 (b) Cumulative no. of Lots.

a.



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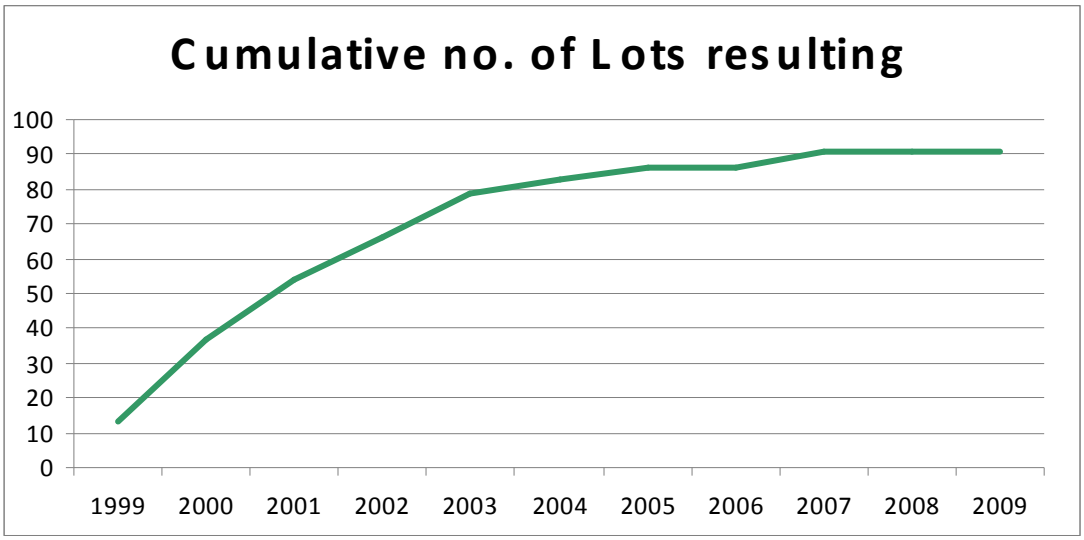

i There are probably more than this as holiday home owners may register their island vehicle from their home address, and many visitors bring vehicles.

ii Gas for refrigeration is becoming less common

iii From local contractors and suppliers

iv Mary Brown Visy Recycling www..visy.com.au

v Information from Great Barrier Cartage

vi Claris landfill recycling operations, *report to Community Board, 26th March 2009*

vii A building consent may be required for a renovation