4 FUNCTIONAL

4.1 Energy

GENERAL SITUATION

The Government Business Plan (2007) contains a level 1 Priority: 'To adopt policies which ensure a diverse and robust supply of energy sufficient for Guernsey's needs, while also improving energy efficiency both to minimise the need to import energy and to reduce the Island's carbon footprint'. One of the aims is to 'identify steps required to switch progressively to clean renewable energy sources'. It will also consider what actions could be taken to lower our present level of energy consumption. An Energy Policy Group has reported on energy policy in general and possible future scenarios for renewable energy.

KEY FACTS

- Around 20% of Guernsey's electricity is generated on the Island, with the remainder being imported via a cable link with France. In Jersey, 98% of electricity is imported.

- In 2007, 58.9% of the electricity consumed in Guernsey was imported from nuclear power sources. Renewable sources contributed 5% of the energy consumed.

- Over the last ten years, total electricity consumption has risen by 30%; whilst the total number of consumers has only risen by 5.6%. Annual electricity consumption is 340GWh/y compared with 254GWh/y in 1996.

- Per capita electricity consumption has steadily risen over the last 10 years from 4.3MWh to 5.5MWh per annum. In Jersey, per capita consumption is 6.8MWh per annum. This compares to 5.7MWh in the UK.

- In 2007, the per capita consumption of gas was 1,795kWh, which was 16% less than in 2006. Per capita consumption of gas in Jersey is lower at 1,512kWh per head. This compares with 11,300kWh in the UK.

- The States of Guernsey – through its various departments and agencies – accounts for almost 10% of energy consumed. Guernsey's commercial sector accounts for 46% of the electricity consumed, and consumption in this sector has risen 30% in the past decade.

- Guernsey households spend on average 24% more on fuel than their UK counterparts. Fuel, light and power accounted for 6.4% of expenditure in 1964, rising to 8.2% in 1983, and then falling to 3.9% in 2006.

- In 2006 the total amount of oil imported to the Island rose by 14% on 2005 figures to 124,673,000 litres. This rise appears to be due, in part, to an increase in heavy fuel oil used in the local production of electricity and an unrelated increase in demand for transport fuel.

- In 2004, emissions from power generation were only 37% of those in 1990, largely as a result of the switch to imported energy. However, between 2004 and 2006 carbon emissions from power generation almost tripled to 28 ktonnes. Carbon emitted from road transport is at its highest ever level at 30 ktonnes of carbon. Carbon emissions from aviation and shipping stood at 45 ktonnes in 2006 compared with 29 ktonnes in 1990.

See Key Issues 4.1.1 – 4.1.3c

KEY ISSUES

4.1.1 Energy efficiency (see also: 5.5.2 Quality of new buildings)

Energy efficiency measures reduce energy consumption and subsequently costs for homes and businesses. Reducing demand puts less pressure on energy supplies. Design is a very important aspect of making new buildings energy efficient, but so too is the way in which the building is managed.

To achieve carbon neutral development, new buildings need to reach a very high energy performance standard and incorporate onsite renewable energy sources. Elsewhere there are a number of examples of developments, such as social housing accommodation, where the scheme has been designed to be carbon neutral. The Guernsey Housing Association have appointed the Building Research Establishment (B.R.E.) to advise on incorporating sustainable solutions and energy efficiency measures into the design and specification of all their new developments.

On relatively large sites such as Housing Target Areas (HTAs) and other strategic housing and employment sites, the installation of ground-source heat pump systems could be considered as a cost effective method of district heating. There is also potential to explore the distribution of waste heat to off set primary energy use for heating and cooling.

Key Issue 4.1.1

What can be done to ensure that new buildings exceed minimum performance standards and make use of on-site renewable energy sources?

4.1.2 Traffic and transport (see also section 4.5: accessibility; and section 5.2.1: air quality)

Road transport makes a significant contribution to the island's carbon emissions, although the biggest contribution comes from aviation and shipping. Whilst reducing the need for air and sea travel may be unrealistic, it may be possible to offset the carbon emissions through tree planting schemes.

Key Issue 4.1.2

What can be done to reduce the need to travel or offset carbon emissions?

4.1.3 Renewable energy sources

At present, most renewables are not cost effective when compared with fossil or nuclear derived energy but in the medium to long term there will be extreme pressures on conventional energy as a result of global warming, rising energy consumption and depleting resources. Increasing the level of renewable energy production within the island will not only create new markets and drive innovation, but will also reduce our reliance on imported energy.

The Pentland Firth (between Orkney and the north coast of Scotland) and the Bailiwick of Guernsey each have a large proportion of the total British tidal stream resource (40% and 25%, respectively). Research has demonstrated that tidal stream is a potentially valuable resource with energy unit costs that should be comparable with other renewable resources given further development. Robert Gordon University has carried out comparative modelling of the Pentland Firth and Channel Islands resources. The updated RGU result for the Channel Islands predicts a usable resource that far exceeds the power needed for the entire

Channel Islands. However, other resource estimates vary widely and will need to be verified. It has been estimated that tidal stream energy could become cost competitive within an installed capacity of 2.8GW.

Guernsey Electricity has begun monitoring tidal current flows with the objective of identifying potential sites for a tidal stream scheme. Marine Current Turbines Ltd, in which Guernsey Electricity has an equity stake, are due to install a 1000kW tidal energy turbine in Northern Ireland's Strangford Lough. The device has the capacity to generate electricity for approximately 800 homes. The installation of the device will enable the developers to assess the impact the technology will have on the environment and also to showcase the commercial potential of tidal stream energy.

A recent study for The Marine Institute and Sustainable Energy Ireland outlines the potential economic benefits of developing the ocean energy industry in Ireland and leads to the conclusion that the industry would have the potential to contribute to creation of valuable intellectual capital, economic wealth and employment opportunities. In the recently published DTI/Carbon Trust Innovations Review wave and tidal energy were identified as technologies with global potential. The Innovations Review concluded that, other than wind power, tidal stream energy ranked as being one of the best technologies in terms of the potential economic benefits and cost effective environmental impacts.

One practical suggestion for Guernsey is the idea of an ocean pier to allow mooring for cruise liners. This could incorporate vertical axis rotors (used by such companies as Canada's 'Blue Energy') between the supports. As the Blue Energy turbines are hooked in series, they can also come on line in series, with the first units creating revenue and offsetting debt before the last units are in place. There are some concerns, however, about the possible tidal weir effect of such an installation.

Key Issue 4.1.3a

What can be done to diversify our local energy production through renewable sources?

Key Issue 4.1.3b

If we can reduce our dependence on the oil fired power station, can the facility be down-sized and thereby release land for other purposes?

After minimizing waste through recycling and efficiency measures, using residual waste products as fuel can help to reduce and neutralise the quantity of wastes that have to be disposed of and reduce CO2 emissions through the displacement of fossil fuels. Diverting biodegradable wastes from landfill also helps to reduce methane emissions, which are 23 times more potent than CO2 in terms of global warming.

Key Issue 4.1.3c

How can the recovery of energy from waste be optimised?

4.2 Water

GENERAL SITUATION

Guernsey is almost totally reliant upon the rain water collected and stored in the Island's reservoirs. The impacts of climate change will have a direct effect on Guernsey Water's ability to collect and retain enough water to meet the Island's increasing demand.

In September 2006, the States of Deliberation agreed that once quarrying has ceased at Les Vardes Quarry, then the quarry should be used as a fresh water reservoir. Ronez estimate that the workable stone reserves will be exhausted in approximately 20 years.

With responsibility for the Island's freshwater environment, Guernsey Water needs to ensure that it conserves and enhances the natural environment within the Water Catchment Area.

KEY FACTS

- In 2007, 868mm of rainfall was recorded (5.5% above the climatic mean) compared with 762mm in 2006 (7.5% below the climatic mean).
- Guernsey Water has 15 quarries and reservoirs with a total capacity of 4425 ML of water storage (which represents about 10 months of normal usage).
- During October 2007, reserves of water fell to their lowest level in the year standing at 3,749ML, which represents 84.7% of the total storage capacity. By the end of the year however, raw water reservoirs were 95% full.
- Guernsey Water operates three Water Treatment Works (WTWs). In 2007, WTWs achieved a record water quality rating of 99.9%; service reservoirs achieved 99.6%.
- In 2007, total water consumption fell to its lowest level for the last 20 years, the total put into supply stood at 4,510ML against a peak of 5,396ML in 2002. The 2007 domestic water consumption figure stabilised at 2747ML after registering four consecutive annual decreases since a peak in 2003.
- In Guernsey, the average consumer uses 130 litres of water per day.
- During 2006, the number of customers on metered supply increased by 791 taking the total number of metered customers to 12,597 compared to 11,500 customers who are not metered. On average, metered domestic consumers used 16% less water than metered customers in 2007.

See Key Issues 4.2.1 – 4.2.2

KEY ISSUES

4.2.1 Water catchment

The main issue surrounding water catchment relates to the Marais. It accounts for more than 20% of the island's potable water resources collected from the streams that converge at Barkers Quarry and then pumped to storage at Longue Hougue Reservoir. Steps need to be taken to ensure that the maximum possible amount of rainwater is successfully channelled to the Island's reservoirs.

Allied to the need to maximise the collection of water is the need to minimise the risks of flooding to the development in and around the low-lying areas of the Marais. With climate change and increased urbanisation, flooding problems will only worsen unless we take steps to manage the risks effectively. We need to manage surface water more sustainably, increasing the capture and reuse of water, encouraging slow absorption through the ground, and where appropriate, provide more above-ground storage and routing of surface water separate from the foul sewer. Such an approach will reduce flood risk, improve water quality, and lessen the burden on the sewer system, which otherwise will struggle to cope with the extreme rainfall events that climate change is likely to bring. Keeping excess rainwater out of sewers will be a particularly important element of adaptation because the potential capacity of the landscape to absorb, store and convey water is much greater than the below-ground system.

Key Issue 2.4.1

How can an integrated approach to water resources and drainage management be achieved?

4.2.2 Water consumption and conservation

The decrease in annual water consumption may be a result of users beginning to conserve water more effectively together with Guernsey Water's continuing improvements to the Island's water supply infrastructure. If the population is maintained at around 60,000 in line with the States approved strategy, it is not expected that domestic water consumption will rise significantly. Climate change scenarios, however, predict that we will see drier summer months and milder, wetter and windier winter months with increasing year round temperatures; all of which could lead to depleted storage levels and more water lost through transpiration and evaporation. The wise use and conservation of water resources is therefore of critical importance for the future.

Key Issue 4.2.2

How can the efficient use and re-use of available water resources be maximised?

4.3 Communications

GENERAL SITUATION

The Strategic Economic Plan stresses the need to: *"Maintain and enhance connectivity with the outside world in terms of travel, freight, voice and information communications and access to markets."*

KEY FACTS

- Investment in new infrastructure has quadrupled the off-island telecommunications network capacity. Guernsey has one of the highest take-ups of broadband services in Europe. An estimated 30% of all households have high-speed Internet access, compared to around 24% for the UK. 90% of young people aged 10 – 17 years have internet access at home.

- In 2007, the number of direct air transport routes reduced from 14 to 12 and there were 5 sea routes operating a daily schedule.

- Since 2002, the rise in resident (air and sea) passengers has been more than offset by a sharp decline in visitor passengers. In 2007, total passenger movements increased by 39,628 or 3.2% on 2006 figures - still 3.8% down on the ten year peak in 2002. Air passenger figures rose by 23,284 passengers to 892,360 in 2007, although air passenger movements have remained fairly constant over the last ten year period. Sea passenger movements increased by 16,344 on 2006 figures to 358,419, representing a rise of 5% on the previous year.

- Over 98% of all commercial commodities are landed or depart by sea. In 2006, a total of 185,577 tonnes of cargo were imported at St Sampson's Harbour. In the same year, 182,835 tonnes of general cargo were imported at St Peter Port Harbour.

- In 2007, 19,792 crew on board 6,393 pleasure craft visited Guernsey, a decrease from the 2006 figures of 23,295 crew aboard 7,714 vessels and a further drop from the peak of 63,882 crew on 13,460 vessels in 1990.

- It is expected that 92 cruise ships will visit Guernsey in 2008. The 10 year average is 60 vessels. About 76,000 passengers came ashore in 2006, contributing in excess of £700 000 to the local economy (about £9 - £10 per head). This compares with Bermuda where 336,000 cruise visitors went ashore contributing $65.3m to the local economy (about $195 per head).

See Key Issue 4.3.1a – 4.3.2c

KEY ISSUES

4.3.1 Telecommunications

For Guernsey, the availability of reliable and cost-efficient communications can reduce the costs associated with doing business and play a vital role in facilitating inward investment. Small and medium size businesses are increasingly using broadband to improve their efficiency. The ability to work from home – either full or part-time – is further driving demand for high-speed internet services. Faster broadband services mean it will be easier and faster for Guernsey residents to shop online, bank, download content for education and entertainment, talk and access a whole host of other internet services. The installation of telecommunications masts and antennae has proved to be a highly controversial issue because of the close proximity of homes and other occupied buildings.

Key Issue 4.3.1a

How will increasingly accessible and improved telecommunications affect the workplace and the need to travel?

Key Issue 4.3.1b

What will be the impact of internet use on retail trade and services?

Key Issue 4.3.1c

How can the impact of telecommunications and equipment be addressed?

4.3.2 Airport

Air routes provide vital connections for residents, visitors and businesses. Overall passenger figures have fallen and residents form an increasing proportion of those people that travel by air. This means that fewer seats are available for overseas visitors and business travellers. Some businesses are apparently turning to light aircraft on unscheduled services as a cost effective and convenient alternative.

Based on current use, the airport has spare capacity for approximately 100,000 additional air passenger movements. However, the "air side" working areas are already under great pressure with limited scope for improvements. Increasing the throughput of passengers and/or extending the hours of operation at the airport would have resource implications and would impact on the surrounding community, for example noise levels and vehicular movements. There are plans to provide a potential Runway End Safety Area (RESA) and to consider options for realignment of the DELTA taxiway, both of which would involve developing land outside the western and south western airport boundaries. In the future, if the need to extend the runway is established, the development will have considerable impacts on the valley to the east of the airport.

Key Issue 4.3.2

What can be done to plan for the long term strategic operational requirements of the airport?

4.3.3 Harbours

The basic ports facilities remain largely unchanged, apart from some limited modifications and refurbishments, since the late 19th and early 20th centuries, yet marine operations and activities, passenger movements, freight shipments and vessels have totally transformed to serve the island's 21st Century requirements.

Close to 2000 marina berths are provided in the Albert, Victoria and QEII marinas. There is increasing demand from larger yachts to moor in Guernsey. At the moment any vessel larger than 50 to 60 feet cannot be accommodated in the marinas. The Victoria Marina is an attraction for visiting crews who provide trade for nearby shops, restaurants and services. However, during a period that leisure boating has become increasingly popular there has been a massive decline in the number of pleasure craft and crew visiting St Peter Port.

St Peter Port is a popular destination for cruise liners because of its particularly beautiful and sheltered anchorages, quality port services, professional handling arrangements and hospitality. The island has also become a favoured destination for new ships undertaking what is known as a 'shake-down' trip. The port is capable of handling at least two large cruise liners at any one time. The transfer by tenders normally takes no more than five minutes and both landing sites are within easy walking distance of the town's shops and restaurants. The landing facilities have been improved with the addition of a temporary pontoon and ramp for cruise passengers using the inter-island quay and a more permanent arrangement is planned for 2009.

St Peter Port is also a busy working port, which handles all of the island's Roll On – Roll Off (RO-RO) and Lift On – Lift Off (LO-LO) containerised traffic. It is predicted that the cargo facilities will require expansion/relocation by about 2020. The existing cranes and container handling facilities need to be upgraded. Storage and marshalling of containers within the port environment mean that large sections are out of bounds for the general public. The need to manage freight imports alongside the boarding and disembarkation of passenger ferries complicates the need for secure segregation of traffic and adequate facilities for effective border controls.

The island's fishing fleet, which is dominated by smaller day boats, land their catches at the Guernsey Fisherman's Co-op. Although fishermen compete for space with other marine related activities on the Castle Emplacement, their activities enliven the harbour scene and contribute to the overall character of the harbour.

The piers, quays and breakwaters of the harbour are also enjoyed by visitors and islanders for a variety of leisure pursuits including angling, model boating and sightseeing.

Key Issue 4.3.3a

What can be done to rationalise and improve port operations and the use of quayside areas at St Peter Port harbour?

Key Issue 4.3.3b

What can be done to enhance St Peter Port Harbour for visiting vessels, passengers and crew?

St Sampson's Harbour handles the importation of bulk dry goods such as timber, coal, cement, sand and aggregate. Stone aggregate and dust from the Le Vardes quarry is transported to the stone yards on North Side for concrete batching and block making. Inert construction waste is also recycled and processed on this site for use as hardcore and backfill. Imported cement is collected in silos on South Side. Cessation of quarrying on the island would necessitate improvements to handle the increased importation of rock and aggregate.

An area of water has been impounded at Longue Hougue and is used for the disposal of inert waste as well as accommodating a number of boat moorings for local craft. It is intended that the reclaimed land will eventually accommodate waste management facilities and harbour related activities.

The northern port also handles the discharge of hydrocarbons with heavy oils going to storage on North Side and LPG fed to tanks on South Side; petroleum is stored at sites on North Side and South Side. Tankers importing LPG to the island currently bottom out at the quay on South Side, which significantly escalates the risks associated with any catastrophic incident. In addition, the lessons from the Buncefield incident has lead to a major re-evaluation of safety at petroleum storage sites. These safety concerns, added to the fact that the 'Not Always Afloat But Safely Aground' (NAABSA) fleet is diminishing and changes to international legislation, mean that the pressure to develop deep water berths at St Sampson will increase in the future. One of the benefits associated with extension of St Sampson's Harbour would be the opportunity to transfer RO-RO and other general cargo activities from St Peter Port.

The island's main boatyards are also located at St Sampson's Harbour, principally the commercial boat lift, slipway and engineering works operated by Marine and General alongside the Bridge and the manufacture of motor yachts and cruisers by AquaStar at Longue Hougue. The M&G yard, in particular, typifies the busy working character of the harbour. In recent years, the Harbour's appearance has been transformed by the introduction of 350 marina berths for pleasure craft.

Key Issue 4.3.3c

What provision needs to be made at St Sampson's harbour to accommodate the importation of stone, waste management facilities, the safe discharge and storage of hydrocarbons, the transfer of freight operations from St Peter Port and other marine related activities and industries?

4.4 Waste management

GENERAL SITUATION

The future provision for an Integrated Waste Management Facility still needs to be determined following States approval of a Waste Disposal Plan (Solid Materials) for a 25 year period. Making significant progress towards waste reduction/recycling targets is emphasised in the Government Business Plan; for example, developing measures to achieve an increase in recycling to 50% by 2010. (Priority 6, Level 3 Action)

Guernsey sewage is mainly domestic in origin and organic in nature, with very little industrial contamination. Sewage receives preliminary treatment at the Belle Greve Headworks prior to being pumped through a long sea outfall. Even if wastewater treatment is upgraded the Belle Greve Headworks will remain a vital part of the network. Refurbishment of the Headworks is one of the States' priorities for capital expenditure. A programme of sewerage network improvements and extension has been rolled out with a target of connecting 95% of dwellings to the public sewer.

KEY FACTS

- The amount of domestic waste rose from 21,324 tonnes in 2004 to 23,543 tonnes in 2006, which was nearly a 10% increase. But household waste increased by less than 1% from 2006 to 2007. The householders recycling rate of 31% in March 2008 is an increase over the rate of 19.8% recorded in 2005. As a result the quantity of household waste put into landfill fell to 284kgs/capita, which is the lowest figure since 2003.

- In 2006, 32,686 tonnes of commercial and construction waste was dumped at Mont Cuet, 17% less than in 2005.

- The amount of inert waste deposited at Longue Hougue increased in 2007 after falling for 3 consecutive years.

- Approximately 90% of sewage flows to the Belle Greve Headworks located off Les Banques. The Creux Mahie Headworks in Torteval receives approximately 10% of sewage.

- Flows received at Belle Greve vary from less than 200 litres per second (4million gallons per day) to over 1000 litres per second under storm conditions (20 million gallons per day). At the peak of high spring tides, up to 30% of the flow pumped through Belle Greve outfall is derived from infiltration of saline water. In wet weather, up to 80% of the flow may be derived from surface or ground water including potential water resources diverted from the water catchment.

- Some 5,700 properties will remain on cess pit until they can be connected to the sewerage network. Prior to 2001 the volume of sewage collected by road tankers was increasing at 1.5% per annum; 187,573 tanker loads were collected during the peak year of 2001. Since 2001, the number of sewage tanker loads has reduced by 1.8% per annum as more properties have been connected to the sewer.

See Key Issues 4.4.1a – 4.4.2

KEY ISSUES

4.4.1 Solid waste

Guernsey needs to reduce the volume of waste currently going to landfill. With the limited remaining landfill capacity at Mont Cuet, a permanent waste disposal facility is planned for the reclaimed land at Longue Hougue.

The Fontaine Vinery site is currently used as a temporary materials recovery facility pending the future enhancement and development of the Belgrave Vinery Housing Target Area. The metal recycling operations to the north of the Longue Hougue reservoir remain a serious threat and potential source of contamination. In the future, it is likely that a dry and mixed waste materials recovery facilities and scrap metal facilities will be accommodated at the Longue Hougue reclamation site. The permanent civic amenity site was planned to be at Longue Hougue but this needs to be re-examined in the light of the Buncefield report.

There are recycling sites throughout the Island where householders can deposit cardboard, glass bottles and jars, aluminium drinks cans, food tins, cardboard, paper, plastic bottles and clothing/household linen. The States have adopted a target of recycling 50% of all household, commercial and industrial waste by 2010.

Inert waste disposal is currently being carried out at the Longue Hougue site but future potential sites include the Black Rock area on North Side.

Key Issue 4.4.1a

What provision should be made to minimize residual waste and maximize the recovery, re-use and recycling of waste materials?

Key Issue 4.4.1b

What provision should be made to deal with residual waste?

4.4.2 Waste water

The Belle Greve headworks is the focus of practically the entire sewerage network. Besides the gravity flows, the headworks also receives discharge from the White Rock, St Sampson's Harbour and La Piette pumping stations situated on the eastern seaboard. Sewage receives preliminary treatment comprising maceration and grit removal and it is then pumped through a long sea outfall to a discharge point one mile from shore in the Little Russel. Good dispersion is achieved by discharging partially treated sewage into the tidal currents through 5 diffusers at a minimum depth of 10 metres at low tide.

The Belle Greve headworks requires major refurbishment whether or not full sewage treatment is advanced. The upgrading work will include a new preliminary treatment facility and possibly storm water storage which will probably occupy the land immediately to the north of the existing head works.

The Red Lion outfall is used for sewage discharge when the Belle Greve pumping station is being maintained. Its longer term use will be as an emergency backup to the long sea outfall during storm flows. This outfall is due to be upgraded and possibly extended as part of the forthcoming upgrading work at the headworks. In addition, there are a number of other combined sewer overflows (CSOs) and surface water outfalls along the eastern seaboard, all of which are vital drainage assets.

The programme of sewerage network improvements and extension has helped to reduce the volume of wastewater that would eventually require treatment.

Key Issue 4.4.2

What provision should be made for wastewater treatment?

4.5 Accessibility

GENERAL SITUATION

The whole matter of accessibility is highly contentious. Although the continuing long term trend for high levels of car travel on Guernsey remains a dominant factor, a number of priorities have been identified in the Government Business Plan and in the Environment Department's Operational Plan to help mitigate the effects of heavier traffic flows.

KEY FACTS

- In 2007, the number of vehicles taxed for use was 53,563 compared with the 2005 figure of 47,876. Since 1990, car registrations in the Island have increased by almost 15%, whereas motorcycle registrations have increased by 60% over the same period.

- Guernsey has just less than 300 miles of public highway. In 2006, traffic volumes at peak times along the Grange, Les Banques, and Les Val des Terres reached the highest recorded levels since 2003. The route between Richmond Corner and the Weighbridge is the busiest in the island. Traffic volumes along Les Banques reached peak levels between 9,592 and 11,209 vehicles per day (compared with 7,404 and 8,017 for 2005). Typically, peak time journeys along this route take approximately 12 minutes.

- There are approximately 1000 long term (10 hour) parking spaces provided at North Beach, Salerie and the Odeon. In addition, there are a further 700 long-term on street parking spaces and 300 spaces limited to a 5 hour stay. There are also approximately 1,400 short-stay spaces in St Peter Port and some 23 hour spaces in outer areas. In 2001, the Chamber of Commerce indicated that an additional 1,772 parking spaces were needed; research subsequently found that the maximum that could be reasonably accommodated without unacceptable congestion was probably around 800 spaces. Since 2001, approximately 2,100 private non-residential parking spaces have been provided in the vicinity of the central St Peter Port town area, about two thirds of which are for business commuters.

- The 2007 bus passenger figures show a record year with over 1.4 million journeys made, which is an increase of approximately 64% since 2000. Passenger journeys at commuter periods have increased by 71%. The number of passenger journeys made by OAPs has increased by 59% to over 210,000 per annum. Strongest growth has been recorded during the winter months, when journeys increased by 85% and journeys at commuter times increased by 95%. In the half of 2008, passenger figures set a further new record of 691,721 which was a 7.5% increase on the same period in 2007. The figures for the first half of 2008 showed a 13% increase in passenger numbers during commuter times compared to the same period in 2007 and a 9% increase in OAP passenger numbers.

- Around 65% of the urban area's population live within 15 minutes walking distance of major shopping facilities and there is a public open space within 15 minutes walking distance for around 85% of the population in the urban area.

- In 2007, there were 21 road traffic collisions resulting in serious injuries (of which half were cyclists or pedestrians) in Guernsey. This compares with 26 fatal or serious vehicular collisions in Jersey.

See Key Issues 4.5.1 – 4.5.4c

4.5.1 Personal mobility (see also section 4.1.2: traffic and transport)

People appreciate the independence offered by running their own vehicle, but the negative impacts of extensive vehicle use, such as environmental degradation and threats to personal safety, can restrict the freedom of others to choose alternative ways of getting around and in turn encourages greater vehicle use. Not all members of our community have access to unrestricted car use. Children and the elderly, for example, may have to walk, cycle or rely on public transport to access shops and facilities such as health centres, schools and parks. For these people, their personal mobility is relatively impaired by an environment which is largely designed for and dominated by motor cars.

Restricting car use would be considered by many to be too draconian, but people are increasingly concerned about the adverse impacts of traffic on climate, health and quality of life and about their own travel experience as congestion mounts. Therefore, it is important to offer people a fairer choice between travel options and to clarify the costs and benefits of choosing between them.

Without some form of control over car use it is reasonable to assume that the Island will experience continued growth in vehicle ownership and therefore increased congestion. Methods such as combining trips and car sharing can reduce unnecessary car journeys and reduce the amount of vehicles on the roads. The success of such schemes requires a considerable shift in the attitudes and behaviour of motorists. However, the recent appetite for recycling locally might indicate that public opinion is prepared to shift if there is a tangible and worthwhile goal.

Key Issue 4.5.1a

How can we accommodate the demand for increased personal mobility whilst mitigating the adverse impacts of traffic growth?

Key Issue 4.5.1b

How can we enhance personal mobility for all sections of the community including children and the elderly?

4.5.2 Public transport

Bus routes have developed around a 'hub and spoke' format, linking Town and the Bridge and radiating to outlying areas. Although this gives rise to frequent bus movements along the eastern seaboard, which adds to traffic volumes in this area, the structure of the Island's roads and economic centres make it inevitable that there will always be extensive demand for transport along this route. The potential to introduce alternative forms of transport is limited; and so the focus is likely to remain on buses.

The best way to make bus travel more appealing would be to provide high quality and attractive facilities, which could incorporate a covered bus garage, at the centre or hub of the network and ensure that new development and facilities are well linked to the main transit routes or spokes. The current bus terminus in Town does not meet modern standards. It is almost entirely open to the elements and in a relatively uninviting environment. Eye catching waiting areas and information points that are well lit, comfortable and functional, can play a part in encouraging people to utilise public transport. The Canary Wharf Underground Station and Zaha Hadid's Nordpark Cable Railway Station in Innsbruck, Austria

are examples of facilities that are fit for purpose, attractive and desirable to spend time in and use.

Evidence from other islands suggests it is possible to shape travel behaviour by establishing development patterns that complement public transport provision and reduce car dependence, thus contributing to more sustainable lifestyles. The creation of compact, walkable communities centred on high quality public transport systems makes it possible to live a high quality life without complete dependence on a motor car. Transit oriented developments are generally located within a radius of half a mile (0.8 km) from a transit stop, as this is considered to be an appropriate scale for pedestrians.

Key Issue 4.5.2a

How can we provide better quality and more attractive facilities for public transport?

Key Issue 4.5.2b

How can we ensure that new development is well located in relation to the public transport system and nearby amenities?

4.5.3 Highway network

The northern approach to St Peter Port faces many traffic management challenges. It provides a major commuter route into the centre of Town as well as access to and from the developments along the eastern seaboard including Admiral Park, the Glategny MURA and numerous industrial and business units. A number of important "feeder" roads open onto the main approach and the route accommodates the movements of heavy goods vehicles between the commercial centres of St Peter Port Harbour and Bulwer Avenue. Three major new development initiatives in the north of the Island (Les Nicolles Schools, the Saltpans Industrial Estate and the Leale's Yard project) will add to the challenge. There is clearly a need to ensure good access between the Island's two ports.

The historic form of the public road network means that opportunities for alterations to the network that would benefit the motorist are limited and likely to be very expensive. Although some changes have been made, for example at Admirals Park and St Julian's Avenue/Glategny Esplanade, further changes of this nature are likely to benefit vehicular movements but at the same time should not be allowed to unfairly disadvantage other ways of getting around.

Effective traffic management can be achieved by bringing cross-modal transport planning and spatial planning together, and by implementing a balanced package of measures and initiatives aimed at providing realistic alternatives to the car, facilitating multi-purpose trips and managing car parking provision. Successful implementation relies on evidence to show that a specific measure or initiative can solve a certain problem, or save money.

Key Issue 4.5.3a

How can we provide satisfactory access through the optimum and efficient use of the highway network?

In the main urban centres, the historic road pattern remains broadly unchanged in its overall geometry and is mostly defined by buildings close to the back edge of the pavement. Roadways form the principal routes shared by pedestrians,

cyclists, public transport and rising numbers of vehicles of increasing average size.

At present, the public highways are largely dominated by motor vehicles. Opportunities do however exist to reallocate the road space to better reflect a more balanced hierarchy of users. For example, in order to avoid holding up other traffic, bus lay-bys are often provided so that buses can pull off the public highway to pick up and set down passengers. This reinforces the perception that the car is above public transport in the hierarchy. Very minor alterations to the highway design could reduce this perception whilst allowing passengers to board and alight in safety and preserving roadside parking.

Such alterations to the network could result in increased journey times for motorists. There are several ways in which car drivers might respond to this; in some cases they will simply accept them. This is because either the increase in journey time is not particularly critical to them or because of the lack of an alternative. However, where alternatives do exist, some road users may use them. This might include the use of a less congested but possibly longer route; making the trip at a less congested time of the day; changing destination from a congested to a less congested location; reducing car use by combining trips; reducing the frequency of trips; or using other modes.

Another way of balancing the road hierarchy, is to share the road space more equally among users - shared surface schemes seek to achieve better integration between motorists and pedestrians. People's road sense can bemore strongly affected by the physical surroundings than by the application of the usual traffic apparatus. The change in surface from bitmac to block paving or bound gravel can signal to drivers to be more aware of their speed. Vertical elements like planting and trees also create 'obstacles' to slow the driver. This approach can work well in urban environments where there is potential for traffic/pedestrian conflict.

Key Issue 4.5.3b

How can the needs of all road users be better balanced?

In order to encourage the use of alternative means of transport, pedestrians and other vulnerable road users need to feel safe on the public highway. The use of pavements by motorists as an extension of the carriageway and recent incidents involving vehicles and pedestrians increase the fear of accidents for those that choose to walk or cycle.

Despite there being a large proportion of the population within walking distance of the commercial centres and other major employment areas and the journey time being reasonable, only a small percentage of the population choose to walk. The quality of the pedestrian environment plays a key role in influencing whether people choose to walk. Presently, large parts of the road network are adversely affected by traffic, not helped by excessive traffic clutter and poor quality paving.

Vehicles and the associated signs, barriers and lights have a negative impact on the character and ambience of an area. In the case of shops and leisure facilities, the presence of vehicle activity can have a negative impact on the very businesses those vehicles are visiting or servicing. This negative effect is experienced most when on foot, cycling or using public transport and directly influences our experience of the physical environment. The Quay, for example, is an area dominated by traffic movement yet offers potential for increased pedestrian use, social activity and business growth.

Key issue 4.5.3c

How can the physical environment be altered to create a safe and attractive physical environment for vulnerable road users?

4.5.4 Car parking

The centres of St Peter Port and the Bridge contain large areas dedicated to the parking of cars, with the North Beach car park offering the greatest number of spaces in a single location. However, there is a perceived need for additional parking within the southern area of Town and the States, in 2001, identified the need to improve accessibility for shoppers. Although the States subsequently resolved to approve in principle the provision of parking at the Fish Quay, this work failed to attract any investors or developers. The perceived lack of parking in this area is often cited as a reason for the decline of the Town markets despite the fact that it is highly accessible in terms of public parking, bus travel and the nearby concentration of homes and workplaces.

At present, the greatest demand for parking within Town would appear to be from commuters parking in the long-stay car parks. Of the current 3759 public spaces available, approximately 58% are long-stay (5 & 10 hour) and 42% short stay (½ to 3 hour) spaces. Although additional commuter parking could be provided, it is likely that the increased certainty of finding a parking space would shift the balance away from alternative means of transport in favour of the car and encourage more cars into the urban areas, further increasing traffic movement and associated noise, pollution and worsening pedestrian/vehicle conflict..

Much of the public parking is located within some of the most attractive harbour-side locations. Displacement of parking away from these areas could enable enhancement schemes to come forward to improve the pedestrian environment and create opportunities for recreation-related activities and development. Depending on the willingness to pay for parking, the construction of public parking areas beneath other forms of development could be financially viable, enabling alternative uses of existing surface car parking areas. New public parking could encourage private parking areas within developments to be used for other business purposes and other town parking garages/yards to be redeveloped for more beneficial purposes.

Key Issue 4.5.4a

What would be the impact of providing more public car parking facilities in Town?

Key Issue 4.5.4b

What alternative transport arrangements would need to be in place in order to capitalise on opportunities to use existing facilities for alternative purposes?