EXTRACTS FROM THE NPWS PERISHER RANGE RESORTS INFRASTRUCTURE SERVICES STRATEGY

1.1 Strategy Overview

The Perisher Range Infrastructure Services Strategy sets out a methodology for expanding and upgrading the existing municipal services within the Perisher Range in order to service increased visitor numbers. The Strategy has been developed in response to the proposed expansion of overnight accommodation (bed capacity) in the Perisher Range resorts (Perisher Valley, Smiggin Holes, Guthega and Blue Cow) and improvements in other facilities as detailed below. The strategy document covers:

- A review of existing infrastructure;
- The identification of service levels and the required works;
- A review of alternate delivery methods with a focus on an increased private sector role;
- An economic and financial evaluation including assessment of appropriate developer contributions and revenue collection options;
- Discussion of stakeholder interests and issues in implementing the infrastructure strategy.

1.2 Background

The NSW National Parks and Wildlife Service (NPWS) is responsible for the care, control and management of national parks in NSW, including the ski fields contained within the Kosciuszko National Park (Figure 1). With respect to those ski fields NPWS carries the majority of the responsibility for the provision of municipal services to the resorts therein.
As one of its responsibilities under the National Parks and Wildlife Act (1974), the NPWS is required to prepare and update a Plan of Management for each national park. An amendment of the Kosciuszko Park Plan of Management in 1994 recommended a wide range of enhancements to visitor facilities and improvement in the appearance and performance of the ski resorts. In accordance with those recommendations a number of studies were undertaken, the major studies and their outcomes, which relate to the Perisher Range, are outlined below as background information.

1.2.1 Master Plan Environmental Impact Study

Based on the recommendations in the amended Kosciuszko Park Plan of Management, in 1996 the NPWS developed a Master Plan and associated Environmental Impact Statement for the addition of 1066 beds in the Perisher Range, encompassing the resort areas of Perisher Valley, Smiggin Holes, Guthega and Blue Cow.
The proposals contained in the Master Plan fell into three broad categories:

- The development of a Village Centre incorporating 800 beds and additional commercial floor space, 150 new beds to Smiggin Holes Village Centre and 116 new beds to existing lessees at Perisher and Smiggin Holes;
- Development of the resort environment, including landscaping and the development of wildlife corridors throughout the resort and

- Improvement of the infrastructure services performance and capacity for the Perisher Range resorts, including the upgrading and augmenting of municipal services infrastructure and the rationalisation and sealing of roads for improved stormwater management.

1.2.2 Commission of Inquiry

The Master Plan and EIS was finalised and placed on public exhibition in August 1997. In November 1997, a Commission of Inquiry was called to investigate the proposals contained in the Master Plan. The Inquiry concluded that subject to noted modifications to the original Master Plan, there were no environmental grounds to preclude the development and that the proposed increase in resort bed capacity should be increased by a further 254 beds (i.e., a total of 1320 beds).
The Commission of Inquiry also recommended that a 'village centre' of approximately 800 beds be developed in accordance with the findings and recommendations of that Inquiry and that those additional beds not located within the new village be made available to existing lessees throughout Perisher, Smiggin Holes and Guthega. The village centre was noted to be located on the existing car park and was to comprise approximately 800 beds in apartment style buildings with associated commercial facilities.

1.2.3 Department of Urban Affairs and Planning Approval

During May 1999, the Minister for Urban Affairs and Planning approved that NPWS should proceed with the amended proposal for the Perisher Range resort expansion, subject to further conditions agreed with NPWS and as noted in the consent.
The approval requires the upgrade of existing and the provision of new municipal services infrastructure prior to the construction of the additional new beds or commercial space.

1.2.4 Inter Departmental Task Force

As a result of the Commission of Inquiry and the conditional approval of the development by the Minister for Urban Affairs and Planning, the NSW Cabinet directed NPWS to progress and coordinate the development through the establishment of an inter-departmental task force.
This infrastructure strategy has been developed in response to the directions of that Task Force so as to ensure that the various engineering, public health and other municipal services are able to meet the proposed increased demand and are delivered in a cost effective and environmentally sustainable manner.

1.3 Scope of Study

The study encompasses:

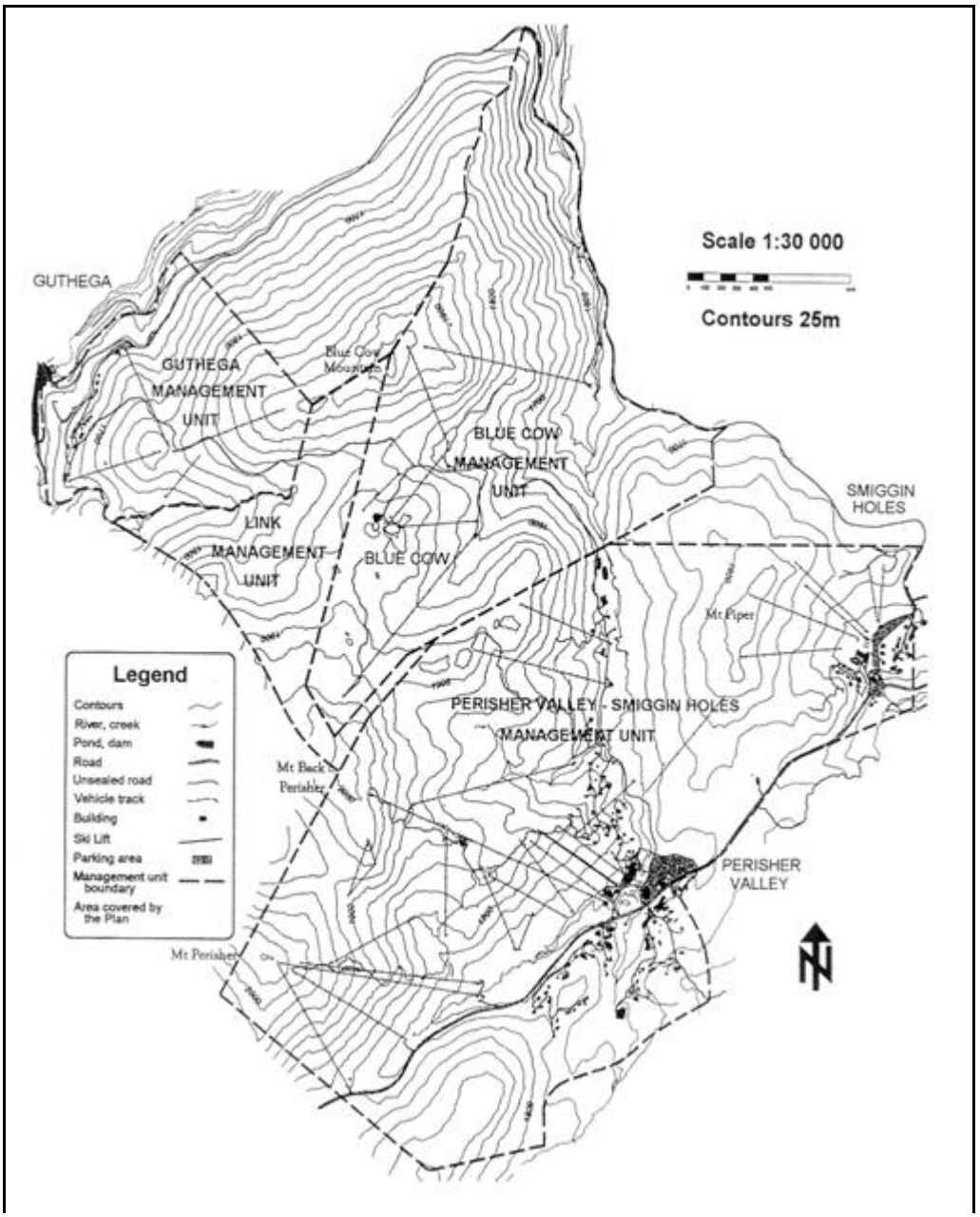
- the review of existing primary and secondary services,
- the measurement of existing levels of performance of those services (capacity, etc),
- the reconciliation of their performance with required levels (based on the increased bed numbers, statutory requirements and guidelines) and
- the definition of a built solution in response to any identified shortcomings.

Further, the study examines existing revenue sources, collection methodology and the amount able to be collected by NPWS on a sustainable basis. Procurement options for the delivery of the works are discussed, with financing options analysed and presented.
The existing primary infrastructure services within the Perisher Range resort area include water supply, electricity supply and distribution, communication networks, LPG gas storage

and distribution, provision of sewerage services, stormwater drainage, internal roads systems, solid water (garbage) disposal. The provision of electrical, communication, and LPG gas services are provided by others rather than NPWS.

The existing secondary infrastructure services provided include municipal office accommodation and workshops, public facilities and amenities, emergency services, information provision (information centres), street / directional signage, street furniture, freight and passenger services and the provision of medical services (medical centres).

Figure 2.1
Study Area - Perisher Range



1.4 Study Objectives

The key objectives for the strategy as defined by NPWS are:

- To identify existing gaps in information and current scheduled works, so as to be able to successfully coordinate and implement the infrastructure strategy, including the identification of critical works to be finalised before beds are released to the market;

- To develop a cohesive Infrastructure Strategy with identified performance targets that meet the long-term services provision requirements of the expanded Perisher Range resorts;
- To identify alternative methods of infrastructure procurement, with the aim of increasing private sector-funded infrastructure renewal in the Perisher Range;
- To identify various alternatives for the ongoing management and maintenance of the total services infrastructure including the identification of new cost recovery and revenue collection mechanisms.

1.5 Study Methodology and Document Structure

1.5.1 Study Methodology

To achieve the above objectives work was undertaken in four stages:

1. The existing services infrastructure was surveyed, including built form, systems of management and delivery.
2. The performance of the existing services was compared with the required performance levels and augmentation, expansion and maintenance works recommended.
3. On completion the current revenue sources, collection methods and amount collected were reviewed so as to determine the funds within the Perisher Range available to provide and maintain the municipal services and to fund core NPWS functions.
4. The outcomes of the above stages were then used to develop alternate funding options for consideration by Government.

2 EXISTING SERVICES INFRASTRUCTURE

2.1 Overview

Part A of the Strategy provides an overview of the existing municipal services infrastructure, which includes the primary and secondary services:

Primary

- Water Supply and Distribution
- Sewerage Services
- Stormwater Services
- Solid Waste (Rubbish)
- Internal Road System within the resorts
- Electrical Supply and Distribution
- Communications Network
- LPG Gas Storage and Distribution

Secondary

- Municipal Service Staff Office Accommodation and Workshops
- Public Facilities and Amenities
- Information Provision (Information Centres)
- Freight and Passenger Services
- Medical Services (Medical Centres)
- Emergency Services
- Street/Directional Signage
- Street Furniture

Also discussed are:

- The extent of the core NPWS Services Infrastructure, being those services specifically for the park only (as opposed to the ski resorts)
- the management systems in place to monitor, maintain and deliver works and
- the existing sources of funding for recurrent (maintenance works) and capital (upgrade works or new works) for the Perisher Range and surrounds.

2.2 Existing Primary Services

2.2.1 Water Supply

Overview

The NPWS owns and operates the water supply systems for the resorts of Perisher Valley, Smiggin Holes and Guthega. The supply to Blue Cow resort is owned and operated by the ski slope operator, Perisher Blue Pty Ltd (PBL). PBL also provides separate water supply to some mountain kiosks / restaurants such as those at Mt Beauty.

Perisher

The lodges and commercial premises at Perisher Valley are serviced from two sources: the Rock Creek which supplies the majority of the premises within the valley and an unnamed creek below Blue Cow Pass which supplies approximately five premises in North Perisher.

The Rock Creek source consists of a weir across the creek and a 7ML off-stream earthen storage reservoir. Water from the off-stream storage is pumped to higher service reservoirs

from where it gravitates to the customers. An ultraviolet irradiation plant located on the first run gravity line is used to disinfect the water.

The unnamed creek source also consists of a weir from which the water gravitates through reticulation lines to lower service reservoirs. The water from these reservoirs is similarly disinfected with ultraviolet irradiation prior to reaching the consumers.

Smiggin Holes

The lodges and commercial premises at Smiggin Holes are supplied from Pipers Creek, which consist of a weir and a pump that transfers the water to the service reservoirs. An ultraviolet irradiation plant, located on the first run gravity line, is used to disinfect the water.

Guthega

The lodges at Guthega are supplied from Farmers Creek, which consist of a weir and gravity main to the service reservoirs. The water from the reservoirs is disinfected with ultraviolet irradiation prior to reaching the consumers. The gravity main carrying the water from the reservoirs is disinfected with ultraviolet irradiation just upstream of the first consumer.

Blue Cow

The water supply to the Blue Cow terminal is operated and managed by PBL.

2.2.2 Sewerage Services

Overview

The existing NPWS sewerage system consist of a number of pumping / transfer stations and associated rising / gravity mains conveying the raw sewage from the Perisher Range resorts to a central NPWS sewage treatment plant at Perisher Valley. The sewage treatment plant is based on the intermittently decanted extended aeration process to achieve secondary treatment. The resulting secondary treated effluent is disinfected with ultraviolet irradiation prior to discharge into Perisher Creek downstream of the water supply point. The plant has a biological capacity of 8000 Equivalent Population (EP) and is hydraulically designed to process 2ML / d. The plant and the conveying system were recently upgraded to cater for the proposed additional loads and to meet occupational health & safety, environmental and public health standards. The majority of the kiosks and restaurants on the mountain are served by private septic tank systems.

Perisher

The collection / transfer network at Perisher Valley consists of two pump stations and the associated sewer pipes. Pump station No 3, located near Mt Perisher double chair lift, receives raw sewage from its own small catchment, which is pumped to a discharge manhole from where it gravitates to pump station No 2.

Pump station No 2 is located northeast of the Perisher Ski Centre and receives raw sewage from pump station No 3, from Smiggin Holes and from its own local catchment. The No.2 station pumps to a discharge manhole from where sewage gravitates to pump station No.1, located adjacent to North Perisher Road, south of Peer Gynt Lodge. This station pumps directly to the sewage treatment plant inlet in addition to receiving sewage from pump station No 2.

Smiggin Holes

The Smiggin Holes resort consists of one pump station located on the southern side of Kosciuszko Road. This pump station receives sewage from the entire Smiggin Holes resort area. The station pumps the sewage to a discharge manhole from where it gravitates to Perisher pump station No 2 and then to Perisher 1 and from there to the Perisher Sewerage Treatment plant.

Guthega

The Guthega resort has its own pump station located east of Guthega Dam. The sewage collected at the pump station under gravity from the resort area is pumped to a discharge

manhole from where it gravitates to the Blue Cow transfer station. From there it is transferred to the Perisher Sewerage Treatment Plant under gravity.

Blue Cow

The Blue Cow transfer station located near Blue Cow Skitube terminal and adjacent to Blue Cow Road. The Blue Cow transfer station also receives sewage from the Blue Cow Skitube terminal. The sewage from the transfer station is transferred directly to the sewage treatment plant.

2.2.3 Stormwater

Overview

The stormwater drainage infrastructure that conveys surface runoff is generally incorporated as part of the road structures. That is, the roads have culverts, pits and open channel drains on either edge where necessary and practicable and discharge the surface runoffs to the nearest watercourse. NPWS recently developed a stormwater management plan and is progressively implementing the recommendations of the plan. One of the recommendations in that Plan is the sealing of dirt roads to reduce the transfer of sediment into the natural watercourses. The sealing of the roads has been identified as a significant portion of the forecast services infrastructure strategy budget.

In addition to these proposed works, NPWS has been requesting that the lodge owners divert their roof water to dissipation / absorption pits so as to reduce the peak run-off volume of stormwater. Results suggest that the works have reduced peak run-off volumes and reduced sediment / pollutant loads to watercourses.

Perisher

Most of the surface runoffs at Perisher Valley are conveyed by the open channel drains on the road edges and discharged to Perisher Creek. The exception is the runoff from the car park area which discharges directly into the Perisher Creek and the runoff that accumulates at the low lying area south of the NPWS workshop that is discharged to Perisher Creek through a 150mm pipe.

NPWS is currently installing three gross pollutant traps (GPT) along Kosciuszko Road west of the Skitube Terminal to capture floating matter and sediment particles prior to creek discharge. A number of hydrocarbon traps are also proposed for the car park and other strategic locations.

Smiggin Holes

At Smiggin Holes the runoff from the impervious (hard) surfaces in the resort area is dissipated into adjacent natural vegetation and waterways. Any excess runoff from the resort area, along with the runoff from the car park and ski slope areas, flows into the Smiggin Creek. Some of the commercial premises also discharge their roof water directly into Smiggin Creek. The Smiggin Creek flows beneath Kosciuszko Road through three culverts and immediately joins with Pipers Creek.

A number of hydrocarbon traps are proposed for the Car Park and other areas as these are sealed.

Guthega

At Guthega the surface runoff from the impervious (hard) surfaces in the resort area is conveyed by open channel drains from the road edge to the nearest natural drainage points. NPWS is proposing to install a hydrocarbon trap for the car park and some pollution control devices upstream of these points.

2.2.4 Internal Road System

Overview

Road access to the Perisher Range Resorts and onto Charlotte Pass is via the Kosciuszko Road from Jindabyne. The Roads and Traffic Authority (RTA) own the Kosciuszko Road.

The Roads Unit of NPWS, however, manages the Kosciuszko Road during the winter season (providing the necessary snow clearance and traffic control).
The RTA similarly owns the resort link between Smiggin Holes and the Guthega Road (closed during winter).
In-resort roads and the Island Bend to Guthega Road are owned by NPWS, including the associated road bridges. The Municipal Services Unit as opposed to The Roads Unit of NPWS is responsible for the maintenance of the in-resort roads and associated bridges. The Roads Unit of NPWS is responsible for the maintenance of Guthega Road.
In summary, this report considers only those roads within the resort areas that are currently the responsibility of NPWS Municipal Services Unit. Roads accessing the Perisher Range are managed by RTA or NPWS Roads Unit and are separately funded. The major car park areas are the responsibility of PBL

Perisher

Most of the in-resort road that services the premises in Perisher Valley is unsealed and NPWS has initiated a program of constructing a reinforced concrete road pavement in its place. About 40 percent of the road length is dual carriageway with the reminder being single carriageway with overtaking bays. Roads are snow-cleared during minimal falls only. During snow seasons NPWS maintains a clearly marked over-snow route for access within the Resort. There are a number of bridges associated with the in-resort roads, the majority of which are of reinforced concrete.

Smiggin Holes

Most of the in-resort road that services the premises in Smiggin Holes is unsealed and NPWS has initiated a program of constructing a reinforced concrete road pavement in its place. About 60 percent of the road length is dual carriageway with the reminder being single carriageway with overtaking bays. Roads are snow-cleared during minimal falls only. During snow seasons NPWS maintains a clearly marked over-snow route for access within the Resort. There are a number of bridges associated with the in-resort roads the majority of which are of reinforced concrete.

Guthega

Most of the in-resort road that services the premises in Guthega is unsealed and NPWS has initiated a program of constructing a reinforced concrete road pavement in its place. About 10 percent of the road length are dual carriageway and the reminder single carriageway with overtaking bays. The roads are not snow cleared at any time and NPWS does not maintain over-snow route for access to the premises. Access to the Resort is by the Guthega Road.

Blue Cow

There are no in-resort roads or bridges in the resort area of Blue Cow. The Blue Cow access road is unsealed. It is maintained by PBL.

2.2.5 Solid Waste

Over view

The NPWS provides bulk bins or containers for disposal of solid waste at each of the Perisher, Smiggin Holes and Guthega Resorts. Blue Cow waste disposal is managed by Perisher Blue P/L.
The existing arrangement requires the lessees to separate the waste stream at the source into putrescible matter, bottles, cans and plastics (BCP), and cardboard and paper. The lessees are also required to arrange their own transport to transfer the three waste streams from their premises to the bulk bin or container provided by NPWS for each.
The NPWS, in addition to providing the bulk bins for the three waste streams, is also responsible to varying degrees for the bulk storage, handling and transport and the disposal operations. With regard to the putrescible waste stream, NPWS's responsibility extends to

transporting this waste using front loading or front-lift compactor truck to the NPWS-owned and operated Sawpit Creek landfill.

With respect to the bottles and cans waste stream, NPWS is responsible for emptying the bulk bins using a front-lift compactor truck onto an open-topped cage truck for transport to the nearest materials recycling facility (MRF). The transport is contracted to a private contractor by NPWS.

With respect to the cardboard and paper waste stream, NPWS has a five year agreement with Visy Recycling.

NPWS is responsible for emptying the bulk bin, transporting the contents to the recycling shed at Sawpit Creek and sorting and baling the cardboard and paper. NPWS also transports the bales to the nearest MRF using the same BCP transport contractor.

A separate cooking oil recycling program is managed where lessees collect cooking oil in 20L drums on a regular basis and deposit them with the NPWS for disposal. These drums are then transported by to Jindabyne for use by a farmer.

Perisher

Except for Perisher Valley Ski Centre all the other lodges and commercial premises use the services of NPWS. There are about ten bulk putrescible waste bins in Perisher Valley. During the winter snow season approximately five bins are located on the snow-road, adjacent to the Skitube Terminal. The remainder are placed at various locations such as the Man From Snowy River Hotel (1 No), Perisher Manor (2 No, each on single bin trailer), Sundeck Hotel (1 No) and Marritz (1 No on single bin trailer). During the summer and off-season most of the bins are relocated to the car park and some to the outlying areas for easier lessee access. There are about six bulk bins for BCP waste, with three bins located adjacent to the Skitube Terminal and the remainder at various outlying locations. Three bulk bins for cardboard and paper waste are always located adjacent to the Skitube Terminal during winter.

About two-thirds of the lodges use the Hans Oversnow services to either fully or partially collect and transfer putrescible, BCP and cardboard and paper wastes from the premises to the NPWS bulk bins. The remaining lodges transfer their waste in bags by snowmobile or other vehicle. NPWS also uses the services of Hans Oversnow to tow one or two bulk bins from outlying areas to the snow-road interface at the village centre.

The waste from Charlotte Pass resort is also placed in the appropriate bulk bins located adjacent to the Skitube Terminal during the snow season by the resort operator. During the off-season NPWS maintains a bulk bin for putrescible waste at Charlotte Pass.

Smiggin Hole

At Smiggin Holes all the lodges and commercial premises use the services of NPWS. NPWS maintains seven putrescible, two BCP and two cardboard and paper waste bulk bins. Most of these bins are located near the car park at all times. There is no internal collection service and lessees place their wastes in the bulk bins.

Guthega

As at Smiggin Holes, all the lodges use the services of NPWS. NPWS maintains three putrescible and one BCP bulk bin. Currently there is no bulk bin for cardboard and paper waste. Most of these bins are located near the car park at all times. Again, as at Smiggin Holes there is no internal collection service and lessees place their wastes in the bulk bins.

Blue Cow

NPWS does not service the Blue Cow resort. The waste generated at Blue Cow resort is transported by PBL to Bullocks Flat by the Skitube train.

2.2.6 Electrical Supply and Distribution

Overview

The power supply to the Perisher Range resorts is distributed from the Perisher zone sub-station located adjacent to the Perisher Centre. The zone sub-station has two 33/11KV transformers at 10MVA each. The supply from this zone sub-station is reticulated throughout the Perisher Range using six underground 11KV feeders. One feeder is dedicated to the Skitube and the remaining five to all the facilities and premises in the resorts. Great Southern Energy owns these items of infrastructure and is also responsible for maintenance and revenue collection. The zone substation is supplied with power from the Munyang Power plant, which also supplies half of NSW states power demands. There are two overhead 33KV feeders, each with a capacity of 40MW from Munyang along Link Road. From Smiggin Holes these feeders go underground, one to the Perisher Valley zone sub-station and the other to Blue Cow terminal and then to Thredbo along the Skitube. There is also a back-up 12MW capacity supply through Jindabyne with a transformer at Bullocks Flat. This back-up feeder between Bullocks Flat and Perisher Valley zone sub-station is located within the Skitube tunnel. This supply is shared between Perisher Valley and Thredbo.

The regional manager of Great Southern Energy indicated that if development at Perisher Valley requires additional power then a 66/132KV substation could be established at Bullocks Flat to meet the additional demand and to further enhance the reliability of electrical supply to the ski resorts. The regional manager also indicated that the zone sub-station at Perisher Valley has space to accommodate another 33/11KV transformer. Technical studies undertaken for the various municipal services, however, suggest that such development will not need additional power, even with the increase in bed numbers.

The regional manager of Great Southern Energy indicated that the supply of electricity attracts two charges: a capital contribution to recoup cost associated with any upgrades and a demand charge covering the energy used and the cost associated with the use of the distribution network.

2.2.7 Communications Network

Overview

NPWS owns and operates a communication tower on Mt Perisher. This station is currently operated using a diesel generator. There are a number of transmitters located on the tower. The NPWS uses the tower for transmitting radio signals between infrastructure facilities, Jindabyne, Perisher Valley Offices and staff cars. The Fire Brigade and the Ambulance services also use the tower for communicating with the base offices.

Perisher

The Perisher range resorts are serviced by both fixed and mobile telecommunication networks. Telstra provides the fixed network to all the premises, using underground fibre optic cables. These networks are managed and maintained by Telstra and the individual premise owners pay the usage and contribution charges directly to Telstra. Telstra, Optus and Vodaphone provide the mobile telephony coverage to the Range. Telstra and Optus have their own relay/transmission towers located near Perisher valley.

2.2.8 LPG Gas Storage and Distribution

Overview

Elgas maintains a storage facility at Perisher valley near the fire station. It also maintains a limited reticulation network serving the Perisher Center and some lodges in its vicinity. Most of the resort use their own gas bottles/tanks located adjacent to their premises. These gas bottles/tanks are filled prior to the start of the snow season using a tanker. Occasional top-ups, however, do occur during snow season using oversnow tankers. It is understood

that NPWS is currently negotiating with Elgas for separate centralised reticulation networks at each of the resorts.

2.3 Existing Secondary Services

2.3.1 Municipal Service Staff Office Accommodation and Workshops

NPWS maintains a two storey combined office/workshop at Perisher Valley adjacent to the Skitube Terminal to accommodate the municipal services staff and to store the plant and equipment necessary to carry out the municipal service function.
During the snow season part of the ground floor of this building is used as the visitor information centre and the top floor is rented to the medical centre staff. There is also an unused storage shed at Smiggin Holes available for storing municipal service equipment.

2.3.2 Public Facilities and Amenities

There is an Australia Post shop located in Corroboree Lodge.
The Service also maintains a boom gate at Perisher Valley, trail heads and walking track at Perisher Valley, as well as some road name and directional signs.
NPWS maintains a few wildlife corridors in the Perisher Valley resort area, particularly at areas where threatened species have been known to live. These corridors provide unrestricted and safe movement to the wildlife movement which has been disrupted by the resort activities or development.
Public toilets are provided and maintained by commercial lessees in major commercial buildings. Two commercial operators provide user-pays public 'blue' phones at Perisher Valley.

2.3.3 Emergency Services

The government agencies that provide emergency services at the Perisher Range resorts include the NSW Police Service, NSW Fire Brigades, NSW Ambulance Service and the State Emergency Service. Except for the State Emergency Service, all the agencies operate from offices at Perisher valley.

2.3.4 Information Centre

The regional office at Jindabyne provides most of the visitor information relating to the Perisher Range resorts and the ski-fields in general. A part of the ground floor of the municipal service office/workshop building is also used as the visitor information centre during the snow season.

2.3.5 Signage/Directional Signage

There are some traffic-related road signs in various locations across the resorts. These signs, however, are inadequate in number. Signs showing the road names are present only for some of the in-resort roads. The material used in these signs are not appropriate for the weather and night conditions. There are no clear directional signs for local landmarks.

2.3.6 Street Furniture and Lighting

There are no items of street furniture provided at any resorts at present. NPWS currently provides some street lighting at Guthega.

2.3.7 Freight and Passenger Terminal

The existing terminal located on the western end of the Skitube Terminal at Perisher Valley is used for both freight and passenger loading and unloading during the snow season. In summer it is used as a workshop by private contractors and also to load and unload freight. The floor space for the terminal is rented from PBL. The terminal, along with the freight loading, unloading and storage operation, is currently leased to the operator on a five-year contract.

2.3.8 Medical Centre

The existing medical centre is located at the eastern end of the Skitube Terminal at Perisher Valley. The floor space for the medical centre is rented from PBL. The medical centre provides emergency and general health care service on a bulk-billing basis.

NPWS, in consultation with the Department of Health (DOH), invites tenders every alternate year for the provision of these services for two consecutive ski seasons. Accommodation is also offered at subsidised rent to the medical centre staff on the top floor of the municipal service office and workshop building.

The medical centre is closed during the off-season.

3 FORECAST INFRASTRUCTURE REQUIREMENTS

3.1 Overview

During the infrastructure-planning workshop, the following objectives were identified as having to be met during the implementation of the Services Infrastructure Strategy. These objectives have been considered when establishing the target performance levels for each of the primary and secondary services.

Capital Works

- Provide all of the development with an adequate supply of potable water;
- Ensure that the treatment of all wastewater is to the standards required by the NSW Environmental Protection Authority for discharge or recycling without causing any environmental damage;
- Upgrade facilities for the management of garbage transfer and removal in the central village area;
- Resurface the access road and steep village roads and improve road drainage;
- Provide adequate supplies of energy throughout the resort for energy-efficient lighting, space heating, hot water heating and cooking purposes.

Recurrent Works

- Establish monitoring and research programs for key natural parameters (e.g. stream quality, flora and fauna diversity and abundance).
- Undertake on-going monitoring of environmental impacts associated with existing and new resort development and encourage research into feasible alternative environmental safeguards.
- Achieve low energy consumption and resource demands and environmentally-friendly operation (e.g. low volume plumbing fixtures, water metering, grey water recycling, phosphorus-free or low-phosphorus detergent, non-ozone depleting substances).
- Optimise utility service operation (e.g. reduce infiltration of ground water into the sewerage system).
- Maintain and enhance solid waste sorting and recycling programs.
- Protect water supply catchments and maintain the highest standards of water quality.
- Establish an environment management system for environmental auditing programs, targets, criteria and corrective action.
- Dismantle disused structures, particularly those that impact on the Kosciuszko National Park values.

Human Resource Management

- Ensure protection of staff during work through appropriate occupational health and safety measures.

New works and recurrent activities works have been recommended to ensure systems meet current legislative requirements, licence conditions, guidelines, public health requirements and occupational health and safety requirements. Works have also been recommended to minimise identified pollution risks to the environment. The staging of the works has been considered in the context of the following key objectives:

- To ensure that works identified as a risk to public health or those identified as being required for occupational health and safety reasons are undertaken in the short term.

- To ensure that works identified as being undertaken to minimise any risk of contamination to the environment or to minimise existing impacts on the environmental are undertaken in the short term;
- To level-out the cash flow requirements by bringing online beds in resort areas which achieve a maximum return through the sale of development rights while having a minimum associated cost for services upgrade requirements.

The proposed works of each service (as related to each of the resort areas) is described below with reference to Performance versus Service Level schedules in Appendix D.

3.2 Upgrade of Primary Services

3.2.1 Water Supply

Overview

DPWS, on behalf of NPWS, undertook a separate concept study into the water supply at Perisher Valley, Smiggin Holes and Guthega. The works identified in that study are summarised below under the categories of headworks, treatment, transport & storage and reticulation.

Perisher

HEADWORKS - The Rock Creek headworks, consisting of the weir and off-stream storage, require proper signage, fencing and access to overcome OHS deficiencies. The weir needs structural strengthening. The yield analysis identified that the secure yield of the existing headwork capacity would be nearly halved if environmental flows were to be maintained downstream of the weir, even at the current demand levels. The analysis also showed that only a small increase in storage is required to cater for the increased demand with no environmental flows whilst maintaining the target restriction service standard nominated in the service plan.

The provision of environmental flows downstream of the weir requires a minimum extra storage volume of 30ML to maintain the target restriction service standard nominated in the service plan. A storage facility of this size could have significant impact on the park environment and the environmental flow needs are dependent on the in-stream flora and fauna. NPWS is therefore planning to undertake a comprehensive in-stream study to establish the trade-off between the environmental flow needs and the size of the storage.

Additionally, since water conservation measures could reduce water consumption and wastage, NPWS is planning to implement a water conservation program during the same period with an aim to improve water usage efficiency, and has included an allowance for increasing the existing storage volume by another 3ML. The concept report also recommended that the North Perisher system currently supplied from the unnamed creek should be discontinued due to the snow condition access difficulty, significant OHS issues and the high cost of maintenance and that the premises supplied from this source be supplied with water from Rock Creek.

TREATMENT - The water quality results available show that the water supplied to the consumers regularly meets the water quality service standards except for occasional bacteriological failures. These failures particularly occur during high flows in the creek. The concept report recommends a back-up automatic chlorination facility to overcome these occasional failures and a capacity upgrade to the UV units to meet the predicted increase in flows. The concept also suggests that the water has the potential to dissolve cement from cement-lined pipes and metals from household plumbing. The report suggests non-build solutions to overcome this dissolution, such as all future reticulation pipes necessarily being of PVC and internal plumbing in premises being made of inert materials. In view of the data for other physical and chemical water quality parameters showing a regular meeting of the

target water quality service standards, no filtration process has been recommended in the concept report. Given the increasing customer expectation, however, the financial schedule in Appendix G, taking a longer view, makes a provision for a filtration plant in year 15.

TRANSPORT & STORAGE - To increase the reliability and capacity of the transport system new rising and gravity mains have been recommended in the concept report. The concept report also recommends demolition of the existing reservoirs and the construction of two new reservoirs, one at the existing reservoir site and the other near the Mid-way station. Together these reservoirs would overcome the OHS issues associated with the current reservoirs and provide one day's peak storage as per the service plan to improve reliability of the supply.

RETICULATION - The concept report also recommends replacement of reticulation pipework to minimise water losses and to improve accessibility to the pipeline and to reduce interruption frequency and length such that the service achieves the target level for these parameters.

Smiggin Holes

HEADWORKS –The weir requires proper signage, fencing and access to overcome OHS deficiencies and structural strengthening. Similar to the Perisher valley system, the yield analysis identified that the secure yield of the existing headwork capacity would be nearly halved if environmental flows were to be maintained downstream of the weir, even at the current demand levels. The analysis also showed that the existing headworks need an increase in storage to cater for the increased demand with no environmental flows in order to maintain the target restriction service standard nominated in the service plan. NPWS is planning to undertake a study similar to the one proposed for Perisher Valley to establish the environmental flow and storage size trade-off.

TREATMENT – as for Perisher Valley, the water quality results available show that the water supplied to the consumers regularly meets the water quality service standards except for the occasional bacteriological failures. These failures particularly occur during high flows in the creek. The concept report recommends a back-up automatic chlorination facility to overcome these occasional failures and a capacity to the UV units to meet the predicted increase in flows. Recommendations outlined for Perisher Valley scheme also apply here.

TRANSPORT & STORAGE – The concept report recommends that the pump station near the weir be rehabilitated to overcome OHS deficiency and to improve its reliability, including the provision of a back-up power supply to minimise interruptions and break-down servicing cost during the snow season. The concept report also recommends the demolition of the existing reservoirs and the construction of two new reservoirs at a higher location to improve pressure in the reticulation system. These reservoirs together would overcome the OHS issues associated with the current reservoirs and provide a day's peak storage, consistent with the service plan to improve reliability of the supply.

RETICULATION - The concept report also recommends a dedicated gravity main from the reservoirs to the UV plant so as to manage the reservoir operation more effectively. Some replacement reticulation pipework is also proposed to minimise water losses, improve system pressure particularly for fire fighting, give better access to the pipeline and to reduce frequency and length of interruptions to supply, such that the service achieves the target level for these parameters.

Guthega

HEADWORKS – The concept report recommends proper signage, fencing and access to overcome OHS deficiencies and difficulties during snow conditions. No secure yield analysis has been carried out for this system due to the small quantity of diversion for resort use. NPWS would, however, be pursuing the water conservation program and the in-stream flora and fauna monitoring.

TREATMENT – Similarly to Perisher Valley, the water quality results available show that the water supplied to the consumers regularly meets the water quality service standards except for the occasional bacteriological failures. These failures particularly occur during high flows in the creek. As with the other schemes a back-up chlorination facility to overcome these occasional failures is to be installed in the UV plant room. Recommendations outlined for Perisher Valley scheme also applies here.
TRANSPORT & STORAGE – The concept report recommends that both the reservoirs are refurbished with new roofs and valve houses to overcome OHS related issues and to improve access to the valves during snow conditions.
RETICULATION - Some replacement reticulation pipework is proposed to minimise water losses and to reduce the frequency and length of interruptions to supply such that the service achieves the target level for these parameters.

Blue Cow

Supply to Blue Cow Skitube terminal is provided and maintained by PBL.

3.2.2 Sewerage Services

Overview

The sewerage service at the Perisher Range resort was recently upgraded to meet the relevant legislative requirements and to meet the projected loads. Although the plant can handle and treat the predicted increase in load, NSW Planning has not yet given approval to manage the extra load that comes as a result of new bed release, however, the approval process is advanced.
Effluent quality currently meets the EPA licence criterion. This criterion will be replaced by the water quality objective for the creek in the next five years when the Water Management Act is implemented. In anticipation of this the financial schedule in Appendix G includes an allowance for a tertiary filter at the end of year five.

3.2.3 Stormwater

Overview

A stormwater management plan has been prepared for the Perisher Range resorts and approved by the NSW EPA. The plan identifies the unsealed internal roads and the car parks as the major pollution sources. NPWS has commenced on a capital works program to address this problem. The concrete sealing of the internal roads is being designed with appropriate storm flow conveyance structures to cater for both the minor and major flows. Additionally the roads are also being designed with appropriate water quality improvement structures such as gross pollutant traps and screens. To prevent localised flooding and to ensure that the stormwater conveyance system performs at its maximum design capacity, the drainage and the water quality improvement structures should be regularly cleaned.

Perisher Valley

To improve the quality of run-off from the Central Valley car park area appropriate petroleum traps are to be installed. Additionally the stormwater drainage pipe conveying the storm flows from the area south of the existing workshop needs to be upgraded to prevent flooding of the downstream structures and area. Embankment stabilisation work is also proposed for Perisher Creek to prevent further erosion of the embankment and to improve the creek's appearance.

Smiggin Holes

End of pipe pollution traps for the storm flows draining from the Smiggin Holes Hotel and the car park areas are proposed in order to capture any litter. A brief study undertaken by DPWS recommends an appropriate storm flow drainage system to convey the storm flows in Smiggins Creek.

Guthega
A petroleum pollution trap has been proposed for the Guthega car park.
Blue Cow
No water quality improvement structures are proposed at Blue Cow.

3.2.4 Internal Road System

Overview
As already indicated, NPWS is sealing a majority of the roads with concrete, in a staged manner, to reduce the transfer of sediment into the waterways.
Perisher
In addition to sealing the roads a replacement access link needs to be established for North Perisher following the proposed closure of the existing access near the car park. Closing the existing access to overcoming some of the traffic and visitor conflicts will also provide more space for the development of the village centre. The possible location for the replacement access point has been identified. The Master Plan EIS suggests that for better traffic management a new ring road be established at Centre Valley as part of the village centre development.
Smiggin Holes
The Master Plan EIS suggests that with the relocation of the PBL workshop the entry to the resort and access to the car park should be modified by the village centre developer for better traffic management.
Guthega
Except for the resealing program no new road works are proposed.
Blue Cow
No roads are present.

3.2.5 Solid Waste

Overview
The Master Plan EIS indicated that the current bulk bin arrangement is an 'eye sore', a source of litter and attracts birds and feral animals. The waste management study recommended the retention of the source separation and recycling program and also recommended improvements to the waste collection, handling and management facilities.
The report recommended the construction of a waste transfer facility at a location between Perisher valley and Smiggin Holes. The Sawpit Creek landfill has reached capacity and in the future solid waste needs to be deposited at the regional landfill facility being planned by Snowy River Council at Jindabyne. NPWS has made capital contributions towards the investigation activities associated with the regional landfill with the aim of securing permanent depositing rights.
Perisher Valley
The waste management report recommends the construction of a number of secured facilities for the bulk bins. NPWS is also planning to provide day visitor waste bins at strategic locations.
Smiggin Holes
Similarly to Perisher Valley, the waste management report recommends the construction of two secured facilities for the bulk bins. NPWS is also planning to provide day visitor waste bins at strategic locations.
Guthega
Similarly to the other resorts, the waste management report also recommends the construction of a secured facility near the car park for the bulk bins.

Blue Cow

The report indicates that in four years PBL expects to fully manage the transport and depositing of waste generated at the terminal along with the waste generated at the Skitube centre at Perisher Valley.

3.2.6 Electrical Supply and Distribution

Technical studies undertaken for the different municipal services by the various Consultants indicate no additional power requirement necessitating an upgrade to the power supply and/or the need for a third transformer in the zone sub-station at Perisher Valley.

3.2.7 Communications Network

The communication tower on Mt Perisher is currently backed-up with a diesel generator. This diesel generator is to be replaced with a solar or wind powered system to minimise the risk of environmental damage from a diesel spill.

3.2.8 LPG Gas Storage and Distribution

NPWS is currently negotiating with Elgas to provide centralised gas distribution network at each resort to minimise the environmental damage from the road tankers and to reduce the number of gas bottles/tanks scattered across the resorts and the consequential fire risk.

3.3 Upgrade of Secondary Services

3.3.1 Municipal Service Staff Office Accommodation and Workshops

The present building is to be demolished to improve the appearance of Centre Valley and to create more space for an integrated village centre development.

3.3.2 Public Facilities and Amenities

NPWS indicated that the present level of walking tracks and vehicle pick-up/set-down facilities are below the target service levels. The financial schedules in Appendix G includes allowances for the upgrading or provision of these facilities.

3.3.3 Emergency Services

The Master Plan EIS suggests that except for extra police officers, no additional resources are required for emergency services, even with the increase in visitor numbers. The NSW Police Service is proposing the construction of a new police station in Perisher Valley. NPWS envisages that sufficient public space to serve as emergency assembly shelters will be incorporated in the village centre.

3.3.4 Information Centre

The present visitors' centre will be demolished. NPWS aims to ensure adequate floor space for a permanent information centre in a prominent location as part of the proposed village centre. Such a facility, possibly in conjunction with PBL information services, would provide the local tourist information service.

3.3.5 Signage

The number of traffic and directional signs is very limited and the nature of the street signage is inadequate for the local weather conditions. Allowance has been made in the financial schedules for the provision of more signage. As required in the Commission of

Inquiry an allowance for a traffic management system is also included in the financial schedules.

3.3.6 Street Furniture (Including Street Lighting)

Night lighting of the resort is discouraged by NPWS except where essential for visitor safety. This may result in the streetlights in Guthega being removed.

3.3.7 Freight and Passenger Terminal

No increase in floor space is proposed. Works are proposed, however, for the parking area and freight handling facility to improve aesthetics, circulation, and food handling.

3.3.8 Medical Centre and Staff Facilities

An increase in floor space is required to adequately provide these services. The flat that is currently leased to the medical officers, however, will no longer be available when the existing NPWS office is demolished. NPWS is not planning to provide this service in the future. NPWS envisages that the necessary floor space for a medical centre will be incorporated in the new village centre.

4 SERVICE DEMANDS AND MISSION

4.1 Municipal Services Mission

The Mission of NPWS Municipal Services for the Perisher Resorts is to provide the designated infrastructure services in a cost effective, efficient and sustainable manner taking into account resort growth and appropriate measures to protect the environment.
Key information required for developing a Municipal Services strategy is the size and future growth of the customer base. This is presented below.

4.2 Historical Population

The Ski Slope Plan 2000 (SSP) estimated that for the winter season, the number of day visitors and overnight visitors will increase at an average rate of between 1 and 4.6 percent per annum. Based on NPWS discussions, for the purpose of this study a rate of 2 percent per annum has been adopted for the winter snow season, and normal visitor (out of season) growth of 0.5 percent per annum. The table below summarises the existing and future winter annual visitor numbers.

Table 4.1: Annual Visitor Numbers

Time Frame	Visitor Numbers	
	Snow Season (Peak)	Annual
Current	13,000	600,000
Future	23,000	750,000

A number of studies have documented the historical trend in the population. These studies suggest that there is a significant correlation between the level of snowfall, extent of snow season and the number of skiers. As there are no actual counts of the visitor population, the historical numbers presented in these studies are estimates based on a combination of vehicle, train trip, ticket sales and accommodation figures.
The 'skier number' represents both the overnight visitors staying in the various accommodations and those that come from outside to ski/visit on a particular day (day visitor). The Ski Slope Plan shows that the annual skier numbers are steadily increasing and in 1999 there were about 600,000 skiers in the Perisher Range resorts. The figures for the daily skier numbers also show a steady growth with the month of August consistently recording the highest daily and monthly figures. A systematic field study undertaken in 1999 determined the average, design and peak day skier numbers as 6000, 10,000 and 13,000 respectively.

4.3 Current and Proposed Resort Accommodation

The resort accommodation and visitor number provides the basis for the planning and development of the services. The proposed design day visitor populations and bed increases, determined after amendment of the Plan of Management (POM) by NPWS in 1998, are shown in Table A-3 below. These are total numbers including resort workers, management personnel, and resident staff.

Currently the total number of beds in the Perisher Range Resorts is 3,577. These are distributed amongst the resorts as shown in the above table, and are to be increased by 1,320 to 4,897 in the future. A number of studies have been undertaken by consultants to assess the historical visitor number trends and to predict future growth.

Annexure A, in the 1994 Plan of Management for the KNP, records the overnight accommodation levels in the Perisher Range Resorts. **Error! Reference source not found.** Table A.2 below summarises this information. This was amended in 1998 by NPWS. The resulting bed projections till year 2020 is summarised in Table 4.3.

Table 4.2: Resort Accommodation Levels

Type of Premises	Total	Perisher Valley		Smiggin Holes		Guthega		Blue Cow	
	Total no of beds	No of units	Total no of beds	No of units	Total no of beds	No of units	Total no of beds	No of units	Total no of beds
Commercial Beds	608								
Hotels		4	488	1	120	-	-	-	-
Commercial Lodges	1072	19	780	8	266	1	26	-	-
Ski club lodges	1544	62	1006	14	344	9	194	-	-
Services	35	6	29	1	6	-	-	-	-
Sub-Total	3259		2303		736		220	-	-
Staff Beds									
Staff lodges	316	6	145	5	130	2	16	1	25
Totals	**3575**		**2448**		**866**		**236**		**25**

Table 4.3: Proposed Bed Increases

Resort	Existing	Proposed Total (Year 2020)	Percent Increase (2000 to 2020)
Perisher Valley	2,450	3,506	43
Smiggin Holes	866	1,016	17
Guthega	236	350	48
Total	3,552	4,872	37

5 LEGISLATION AND PLANNING GUIDELINES

5.1 NPWS Relationship

The NPWS mission states that it will work in partnership with people throughout NSW to protect, restore & enhance nature & the cultural heritage of NSW. Further, the NPWS administers the National Park and Wildlife (NPW) Act 1974. The objective of this Act among many others is to conserve, protect and manage native plants and animals and historic sites. The Act requires that each park be managed based on a specifically developed Plan of Management (POM).

5.2 Legislative Framework

The development and on-going management of the infrastructure services needs to comply with a number of statutory and policy requirements. The principal legislation covering NPWS municipal services is the National Parks and Wildlife (NPW) Act 1974, and Protection of the Environment Operations Act 1997. Other Acts are listed below.
Table 5.1 outlines the principle legislation relevant to the operation of municipal services by NPWS and its general implications.

Table 5.1: Principal Legislation

Act	General Implications for NPWS
National Parks and Wildlife (NPW) Act 1974 Local Government Act 1993 – Section 428 Soil Conservation Act 1938	• Framework for park management. • Need to be more accountable. • Need for better asset management. • Preservation of water course environments.
Public Health Act	• Effluent and waste disposal methods. • Delivery of quality sewerage services.
Water Management Act 2000	• Water rights, licences, allocations.
Occupational Health and Safety Act 1983	• Impacts all operations. • Note public safety – insurance. • C ost implications
Independent Pricing and Regulatory Tribunal Act 1992	• Charging guidelines. • Trend towards a user pay system in the industry.
Protection of the Environment Operations Act 1997	• Load Based Licensing is online. • Need to control waste water and storm water disposal. • Stream classification • Control of run-off or escape of contaminants entering water courses. • Means added cost of schemes.

5.3 Regional Planning and Regulatory Instruments

The regional planning & regulatory instruments include the:

- SEPP 4 (allows NPWS to undertake development without Council consent),
- Kosciuszko Regional Environmental Plan (does not apply to KNP, requires NPWS to consider the aim and objective of this plan and the guidelines contained in the Strategy if the development/activity significantly affect the environment of the region),
- Alpine Region Strategy (aims to assist local communities to manage change in the region as a means to seek out opportunities) and;
- Snowy River Local Environmental Plan (also gives NPWS powers to undertake development without Council consent).

5.4 Kosciuszko National Park Plan of Management

Kosciuszko National Park (KNP) Plan of Management provides guidance for use considered appropriate and guidelines for the consistent management of the park. The plans objective for managing the NSW ski field is to allow the development of a strong, vibrant ski industry, while protecting the important natural values of KNP.

International Biosphere Reserve (IBR) – The park has been recognised as an IBR due to its unique alpine environment and the presence of diverse flora, fauna and heritage. Therefore any development and operation activity needs to comply with the appropriate protocols.

6 GOALS AND OBJECTIVES

6.1 Overview

Having established the Mission and key drivers for the Municipal Services, the first step in the strategic planning process is to identify the service goals by establishing suitable key result areas and objectives. Service demands were identified in Appendix A; (ie. the need to service 4872 beds and 600,000 skiers per year in the future) and then in Appendix B the relevant legislative / environmental needs and constraints were identified.
The service objectives were defined during a planning workshop with key stakeholders and this established the broad based operating environment for Perisher Range infrastructure management. The two charts below summarise this process under the 5 key result areas:

- Customer Service Management
- Management of the Natural Environment
- Finance and Revenue Collection Management
- Management of the Built Environment
- Human Resources Management

Figure 6-1
Key Result Areas and Objectives

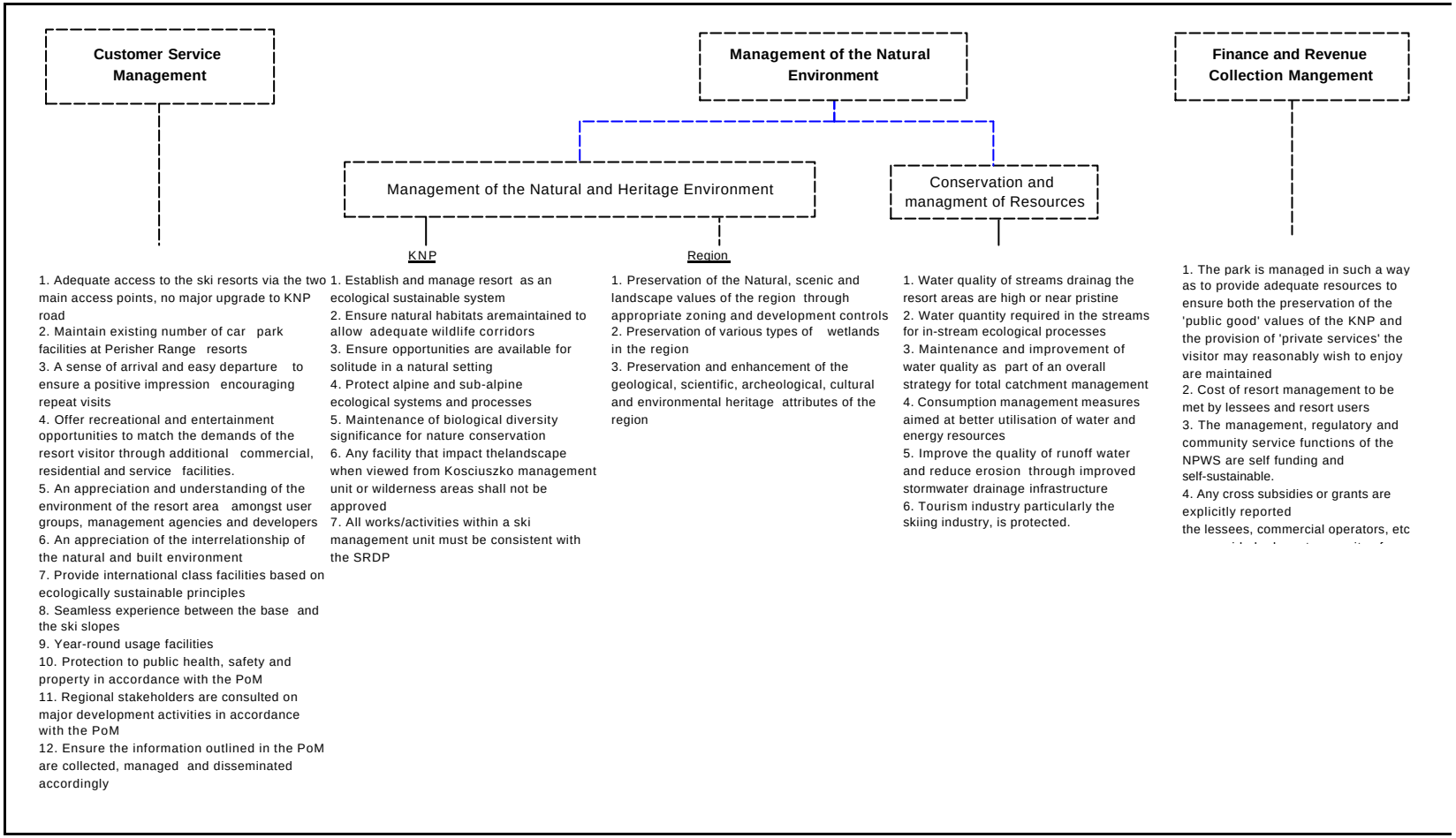
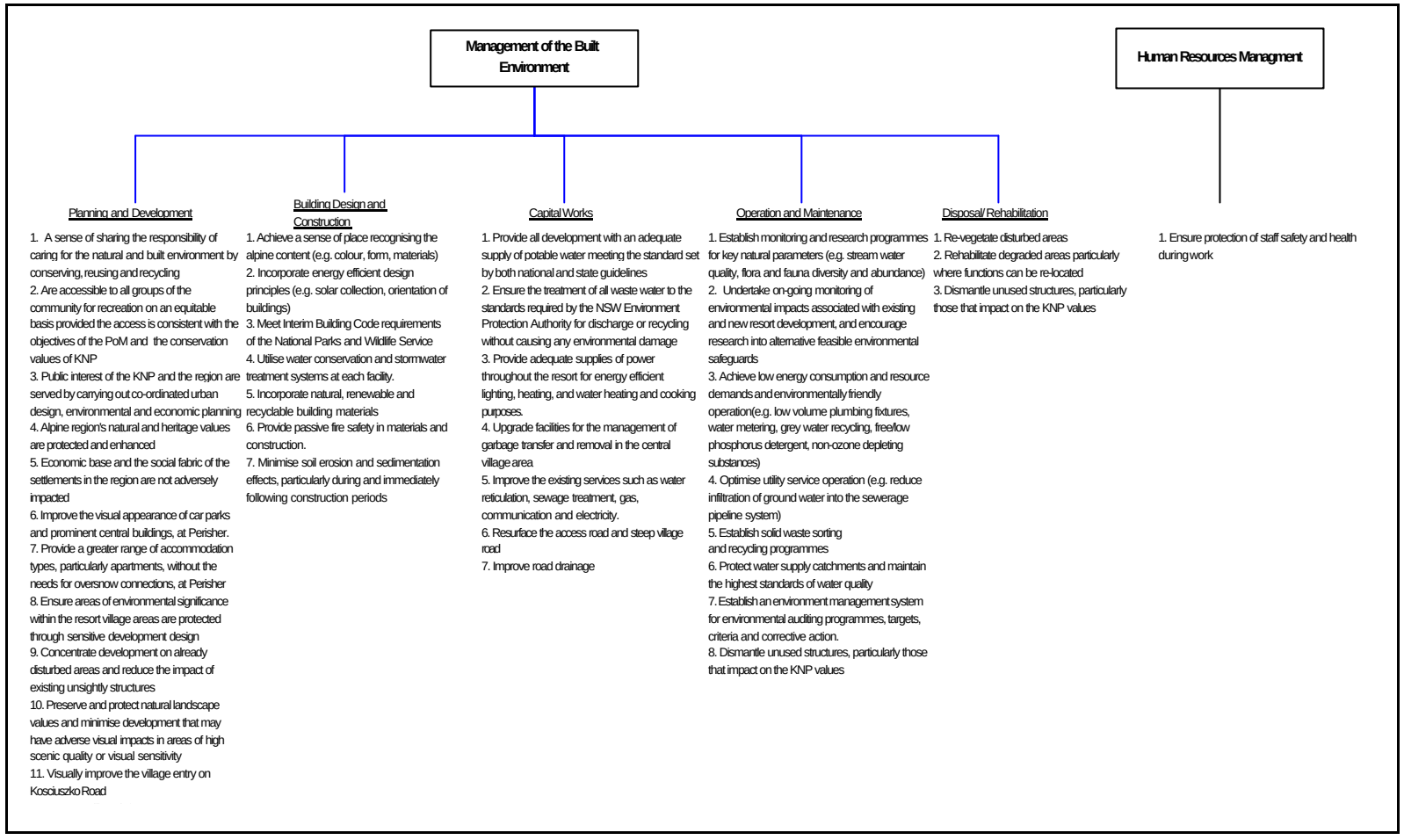


Figure 6-2
Key Result Areas and Objectives



7 SERVICE LEVEL REVIEW

7.1 Table Overview

Having established the Municipal Services Objectives, as shown in Appendix C, the next step in the strategic planning process is determination of the specific levels of service needed to ensure compliance. Note that should the projected Annual Community Service charges prove unaffordable then the feedback loop comes back to levels of service and adjustments may be the only way to reduce costs.

Appendix D sets out the existing service levels (capacities, response times, etc) of the services infrastructure in place at Perisher Range. It further defines the new targeted levels required to either comply with current standards, guidelines or legislative requirements as well as the levels required to cater for the proposed 1320 bed increase in population and hence demand on the services infrastructure.

The existing performance levels are compared with the required service levels. The gap between existing performance and the targeted levels is used in Appendix F to define a scope of works (new reservoir, reticulation lines, etc) or a management solution (monitoring controls, etc) to be implemented.

The gap analysis excludes electric power, telecommunications and LPG gas services which are provided by independent suppliers rather than as part of the municipal services infrastructure.

The gap analysis also excludes minor works requirements for some of the secondary services such as administration offices, workshops, emergency facilities, public amenities, street furniture and signage.

Table 7.1: Primary Services Performance Against Service Levels - Water Supply

Description	Unit	Performance Level of Service					
		Perisher Valley		Smiggin Holes		Guthega	
		Current	Target	Current	Target	Current	Target
AVAILABILITY OF SUPPLY							
Normal Quantity Available:							
EF Releases		50 mm pipe					
Peak Allowance (overnight/day visitor)			Reduce demand by 10 percent		Reduce demand by 10 percent		Reduce demand by 10 percent
Annual Allowance			Reduce demand by 30 percent		Reduce demand by 30 percent		Reduce demand by 30 percent
Fire Fighting:							
Reserve storage for FF @ peak flows (included in peak day demand)	Hrs	4					
Compliance with the NSW Fire Brigade requirements at property boundary (hydrant 90mm with pipe)	percent area served	70	100	70	100	100	100
Pressure:							
Minimum pressure when conveying 0.15 L/s/tenement at property boundary	metres head	16					
Maximum static pressure at property boundary	metres head	96	100	52	52	74	74

Description	Unit	Performance Level of Service					
		Perisher Valley		Smiggin Holes		Guthega	
		Current	Target	Current	Target	Current	Target
FOR EXTENT OF SUPPLY AREA							
Supply Restrictions in Drought (min. summer):		Once every 30 yrs		Once every 30 yrs		Once every 30 yrs	
Supply Interruption to Consumers:							
Storage available @ peak demand	Days	0.3	1	0.5	1	1.5	1
Planned (100/yr)							
Notice given to customers	Hrs	24	48	24	48	24	48
Max. duration	Hrs	4	4	4	4	4	4
Max. Number	Customer/yr	20	10	20	10	20	10
Unplanned							
Max. duration after hrs	Hrs	6 – 8	6 – 8		6 – 8		6 – 8
Max. No. (excl service lines)	yr	8	2	8	2	0	2
Response Times (90 percent of times to have staff on-site):							
Supply interruptions during working hours	Min	30	30	30	30	60	60
Supply interruptions after working hours	Hrs		2		2		2
Minor Problem/ general Inquiries							
- Oral	Hrs	24	24	24	24	24	24
- Written	Wk	2	2	2	2	2	2

Description	Unit	Performance Level of Service					
		Perisher Valley		Smiggin Holes		Guthega	
		Current	Target	Current	Target	Current	Target
WATER QUALITY (95 percent of samples)							
Microbiological Quality:				0		0	
Coliforms	No/100mL	0	NHMRC 1996 Guideline Level	0	NHMRC 1996 Guideline Level	0	NHMRC 1996 Guideline Level
Faecal Coliforms	No/100mL	0		0		0	
Salmonella spp	No/100mL	Not measured		0		0	
Physical Quality:							
PH	-	6 - 9	6 - 9	6 - 9		6 - 9	6 - 9
Colour	TCU						
Turbidity	NTU						
Taste and Odour	Complaint per 100						
Dirty Water	Complaint per 100						
Chemical Quality:							
Total Iron	Mg/L						
Total manganese	Mg/L						
Total Hardness (avg)	Mg/L	10		10		10	
Water Quality Monitoring:	As per NSW Health Department Requirements						

7.2 Primary Services Performance Against Service Levels – Sewer

Description	Unit	Performance Level of Service	
		Current	Target
Availability of Service: *Extent of area serviced*	Serviced Area	Resort areas of Guthega, Blue Cow, Smiggin Hole & Perisher Valley	
Frequency of Planned Interruption: *Notice given to customers* *Max. duration* *Maximum Number*	 Days Hrs Customer/yr	 24 4 0	 48 4 2
Frequency of System Failure Releasing Raw Sewage: *Category 1* *Failures due to rainfall, lightning or under capacity*	 Average No/yr	 1	 0
	(The sewer network has 8hrs storage @ peak flows. STP has an ADWF of 2ML/d)		
Category 2 *Failures due to mechanical, electrical, power supply, telemetry & other equipment*	Average No/yr	1	0
Category 3 *Failures due to blockages*	Average No/yr	1	1
Response Times To All System Failures: (Max. time to have staff on site to commence rectification after notification, 95 percent of times) *Response time during working hours* *Response time after hours*	 Min Hrs	 30 2	 30 2
Response Times to General or Minor Customer Complaints and Inquiries: *Oral complaints* *Written complaints*	 Hrs Wks	 24 2	 24 2
Odour Complaints: *Treatment Works* *Pumping Stations*	 No/yr No/yr	 3 3	 1 0
Effluent Discharge: *Discharge Site*		Perisher Creek after UV disinfection	
Discharge License Conditions: *Biochemical Oxygen Demand* *Non Filterable Residue* *Oil and Grease* *Total Oxidised Nitrogen* *Total Phosphorus* *Ammonia*	 mg/L mg/L mg/L mg/L mg/L mg/L	 *As Per Licence*	
Faecal Coliforms (geometric mean 90 percent) *PH*	No/100mL -	- -	200 6.5 – 8.5
Bio-solids Management: *Management Option* *Storage time on-site during winter*	 Mths	Stored on-site and dewatered end of season 4	Dewatered on-site and transported over-snow to RWMF 4
Response time to be on-site for any spill during over-snow transport	Min	N/A	30

7.3 Primary Services Performance Against Performance Standards – Stormwater

Description	Unit	Performance Level of Service	
		Current	Target
AVAILABILITY OF SERVICE Extent of area serviced:	Serviced Area	Resort areas of Guthega, Blue Cow, Smiggin Holes and Perisher Valley	
In-resort Road Drainage System:	ARI	5 – 10 yr	5 – 10 yr
Commercial area	ARI		20 yr
Kosciuszko Road Drainage System	ARI		
Bridges	ARI		100 yr
Major Trunk Mains	ARI		100 yr
Pollution Control Structures (GPT)	ARI		3 months
Outlaying lodge areas	ARI		RTA Requirement
Frequency of System Failure: *Category 1* *Failures due to deficient design and/ or lack of adequate capacity*	No/yr	0	0
Category 2 *Failures due to blockages of pipe, drainage channel, trash rack, silt trap, etc*	No/yr	5	1
Response Times To System Failures: (Maximum time to have staff on site to commence rectification after notification 95 percent of the time.)	Hrs	30 Working 2 After	
Response Times to General or Minor Customer Complaints and Inquiries:			
Oral complaints	Hrs	24	
Written complaints	Wks	2	
System Cleaning Frequencies: *(roads, culverts, silt traps, GPT, etc)*	No/yr	1	1

7.4 Primary Services Performance Against Service Levels - Internal Road System

Description	Unit	Performance Level of Service	
		Current	Target
Availability of Service:			
Extent of area serviced	Serviced Area	Resort areas of Guthega, Blue Cow, Smiggin Holes and Perisher Valley	
Type of Access:			
During Summer		Conventional road transport	
During Winter		Over-snow transport	
Carrying Capacity:			
Roads		20 percent dual lane (5m wide) and 80 percent single (3.5m wide) with appropriately located parking bays	
Bridges			
Frequency of System Failure:			
Category 1			
Failures due to deficient design and/ or lack of adequate capacity	No/yr		
Category 2			
Failures due to equipment break-down (eg, snow compacting machine or snow clearing machine)	No/ snow season		
Category 3			
Failures due to localised erosion, flooding	No/ yr	0	0
Response Times to System Failures Maximum time to have staff on site (100 percent of time)			
During working hours	Hrs	0.5	0.5
After working hours	Hrs	2	2
System Cleaning Frequencies	No/ yr	1	1

7.5 Primary Services Performance Against Service Levels - Solid Waste

Description	Unit	Performance Level of Service	
		Current	Target
Availability of Service:			
Extent of area serviced	Serviced Area	100 percent of Perisher Valley, Smiggin Hole and Guthega	
Percentage of recycling			
- Perisher Valley		20	40
- Smiggin Hole		20	40
- Guthega		0	40
Frequency of Collection:			
From premises			
- Putrescible waste	D and T	N/A	
- Bottles and cans	D and T	N/A	
- Cardboard and paper	D and T	N/A	
From transfer station during ski season			
- Putrescible waste	No	Daily, Perisher Valley 2-3/ wk, Smiggin Hole and Guthega	
- Bottles and cans	No/ wk	2	
- Cardboard and paper	No/ wk	2	
From transfer station at other times			
- Putrescible waste	No/ wk	1	
- Others	No/ wk	As Required	
From bins placed for day visitors	No		Daily
Storage Time Allowed at Transfer Station:			
Putrescible waste			
- Perisher Valley	Days	Greater than 1 day	Greater than 1 day
- Smiggin Hole	Days	Every 2 –3 days	Every 2 –3 days
- Guthega	Days	Greater than 2 days	Greater than 2 days
Bottles and cans	Days	3	3
Cardboard and paper	Days	3	3

Description	Unit	Performance Level of Service	
		Current	Target
Frequency of System Failures:			
Category 1			
Failures due to deficient design and/ or lack of adequate capacity	No/yr	0	0
Category 2			
Failures due to transport and other equipment	No/ yr		0
Response Times to System Failures			
(Maximum time to have staff on site - 100 percent of time)			
Category 1			
Major system failures causing accumulation of waste			
- During working hours	Hrs	0.5	0.5
- After working hours	Hrs	2	2
Response times to General or Minor Customer Complaints and Enquiries:			
Oral complaints	Hrs	24	24
Written complaints	Wks	2	2

8 STRATEGIC ACTION PLANNING

8.1 Overview

Figures C-1a and C-1b in Appendix C define the high-level key result areas and service objectives, defining the requirements that the services infrastructure is to comply with. The principle result areas are:

- Customer Service Management,
- Management of the Natural Environment,
- Finance and Revenue Collection
- Management of the Built Environment
- Human Resource Management

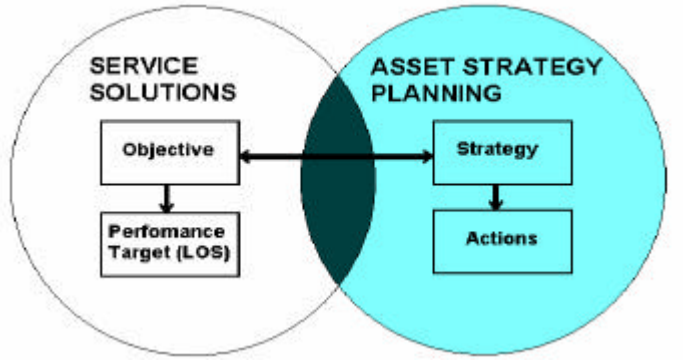
Appendix D provides full details for each service of:

- Levels of Service
- Gap Analysis

In Appendix F takes this process is taken one step further to tie in and develop:

- Purpose and policy
- Objectives for each Key Result Area
- Identified Issues and Actions

The relationship between Levels of Service (LOS) and the actual actions to be undertaken is through the development of Objectives and Strategies for each of the key result areas. In order to manage progress and performance all actions should attempt to contribute to a particular Performance Target, as shown below.



8.2 Description

SERVICE PLANNING	Identifying Service Goals
Objective:	Defines how key result areas contribute to service goals
Levels of Service:	Expected Outcomes
Performance Assessment:	Measure and deadline for outcome
Priority:	Importance (High, Medium or Low)
ASSET STRATEGY PLANNING	Achieving Service Goals
Strategies:	The Strategy for achieving the objective(s)
Actions	Specific tasks to implement strategies and achieve objective(s)
Responsibility:	Person in charge of task completion
Cost:	Implementation (Imp) – One off cost
	Ongoing (Ong) – Cost incurred annually over a number of years

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8.3 Primary Services Recommended Works - Water Supply

Purpose Provide water for domestic and potable use within premises and for fire fighting in premises within the resort boundary. The water is not provided for outdoor purposes (garden irrigation, car or pavement washing, or snow-making).
Policy At all times meet or exceed the public health and environmental standards applicable to municipal systems in NSW, including applicable standards of the NSW EPA, DoH and DLWC.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	1 Maintain supply during drought/dry periods at/above target levels of service or reduce accommodation to minimum sustainable levels.	The annual yield capacity of the existing headworks is significantly reduced with the introduction of environmental flows resulting in more frequent restrictions. With the proposed additional accommodation and skier growth the frequency of supply restriction will increase and exceed the nominated level of service (SH)	Demolish two existing 80kL reservoirs and construct a new 300kL reservoir with roof. Also modify inlet, outlet, overflow and scour pipework to suite the new arrangement and install appropriate housing for the valve to access during winter (SH)
	2 Provide safe drinking water	The water quality supplied to the customers does not meet the Australian Drinking Water Quality (ADWG) guidelines on a continuous basis.	
		The ultraviolet irradiation (UV) plants used for disinfecting the water do not have back-up power supply and back-up chlorination facilities. There is also no UV intensity and turbidity meters to monitor the effectiveness of the UV plants	Extend the Perisher UV plant building and install additional UV units, back-up power and lightning protection for the building(PV) Install for all UV plants, UV intensity and turbidity meters to monitor the disinfection effectiveness of the UV system.
		There is no residual disinfectant maintained in the system[1]	
Customer Service	2 Continued	The UV plant capacity is inadequate for the future demand caused by the increase in accommodation	Install additional UV units, back-up power and lightning protection for the North Perisher UV plant (PV)

[1] Department of Health recommends that a disinfectant residual should be maintained at all times in public water supplies

Key Result Areas	Specific Objectives	Key Issues	Actions
Management		and day visitor numbers (PV and SH).	Extent UV plant building and install additional UV units, back-up power, chlorine dosing system and lightning protection for the building (SH)
			Extent UV plant building and install back-up power, emergency chlorine dosing system, electromagnetic flow meter and lightning protection for the building (G)
	3 Meet targeted levels of service and manage the system to current best practice standards	The asset and water quality management do not meet best practice standard as there is no documented operating, safety and complaints handling procedures, maintenance schedules and procedures, asset registers, asset renewal and water quality management strategy and long-term financial and business plans.	
		There is no formal procedure for receiving and assessing service connection requests for facilities on the ski slope and/or for directing premises for connection. For instance PBL has indicated in its Ski Slope Plan its desire to connect a number of kiosks/restaurants and ski patrol stations to the community water system. However, there is no formal request to NPWS with respect to this desire.	Develop and implement formal procedure for receiving and assessing service connection requests for facilities on the ski slope and/or for directing premises for connection.
			Advise PBL to make formal request on its desire to connect the various establishments on the ski slope to the municipal system based on the developed procedures.
		The workshop and ????? lodge currently receive undisinfected water (SH)	Disconnect the existing supply connection to the workshop and adjacent lodge and provide an alternate connection downstream of the UV plant such they receive disinfected water.(SH)
		The size of a section of the gravity main after the UV plant is inadequate for the higher future demand (SH)	Replace a small section of the existing 100mm gravity main with a 200mm main (SH)
		The reservoir capacity does not meet the nominated level of service at current demand, as the total capacity is less than one peak day demand. This situation will be exacerbated with the increase in accommodation and day visitor numbers (PV)	Demolish two existing 80kL reservoirs at Perisher and construct a new 600kL reservoir with roof. Also modify inlet, outlet, overflow and scour pipework to suite the new arrangement and install appropriate housing for the valve to access during winter (PV)
Customer Service Management	4 Meet flow, pressure and fire fighting needs	The Rock Creek pump station pumps do not have sufficient capacity to meet the additional accommodation and day visitor skier growth. (PV)	Extend the Rock Creek pump station to install a generator and an emergency chlorine dosing system. Also replace the existing pumps with higher flow pumps and replace and relocate the pump switchboard such that it complies with the relevant statutory standards (PV)

Key Result Areas	Specific Objectives	Key Issues	Actions
		The rising main size is inadequate for the proposed increase in accommodation and day visitor numbers (PV)	Construct a new 200mm rising main to replace the existing main and install an electromagnetic flow meter near the pump discharge and a non-return valve near the inlet to the reservoirs (PV)
		The current number of fire hydrants is insufficient for the proposed accommodation increase particularly near the car park or valley centre (PV, SH, G)	Replace the existing fire hydrants and provide new hydrants of self-draining type(PV, SH, G)
		Existing fire hydrants are not self-draining type (PV, SH, G)	New hydrants to be self-draining type (PV, SH, G)
		There are also some hydrants that get covered during heavy snow seasons (PV, SH, G)	As required to ensure hydrants do not get buried under snow.(PV, SH, G)
		Certain parts of the reticulation also need upgrading to cater for the proposed increase in accommodation (SH)	Replace approx. 50% of the old reticulation pipework with new pipes to overcome the existing breakage, access and locating problems.(SH)
	5 Ensure infrastructure facilities meet safety standards	The weirs have inadequate structural strength (A)	Strengthen the weir on Rock Creek and provide provision, such as a pipe with a valve, to maintain environmental flows downstream of the weir. Also strengthen the pipework, pipe supports and valves (PV)
			Strengthen the weir and provide provision, such as a pipe with a valve, to maintain environmental flows downstream of the weir. Also strengthen the vale and valve housing (SH)
			Strengthen the weir and provide provision, such as a pipe with a valve, to maintain environmental flows downstream of the weir (G)
Customer Service Management	5 Continued	No dam safety surveillance monitoring and auditing has been carried out for Rock Creek off-stream storage including the hazard rating assessment and classification (PV)	Undertake a safety surveillance audit of the off-stream storage and continue the audit at regular intervals[2]. Implement the audit findings (PV)
		The Rock Creek off-stream storage does not have an overflow arrangement (PV)	Enlarge the Rock Creek off-stream storage to a total capacity of 12ML and provide appropriate overflow arrangement (PV)

[2] DLWC recommends that such audits be undertaken on a regular basis for water supply headwork supply storages (PV)

Key Result Areas	Specific Objectives	Key Issues	Actions
Natural Environmental Management		The access manholes for the service reservoirs do not comply with OHS and confined space entry and exit requirements.	Ensure new reservoirs comply with these requirements.
		The pump switchboard and the diesel storage do not comply with statutory requirements particularly with respect to OHS, electrical and enviro nmental standards (PV)	Provide a bund for the diesel storage tank located within the Rock Creek pump station and install lightning protection for the station (PV
		Access to the creek that supplies North Perisher does not comply with OHS requirement and it cannot be accessed for emergency works during snow season (PV)	Undertake works to rectify
		The structural strength of the timber-bridge in the access road to the pump station is inadequate (SH)	Demolish the timber-bridge in the access road to the pump station and construct a new concrete bridge with appropriate loading (SH)
		The current creek crossing practice near the creek crossing of the gravity main is unsafe and contravenes the OHS legislation (G)	Strengthen the gravity main at the creek crossing and install appropriate water hammer mitigative device. Also construct an access bridge for the creek crossing (G)
Built Environmental Management	6 Control development/ activity in water supply catchments.	The water supply catchments are unprotected and the capacity of these catchments to adequately sustain the demands placed by the current and future visitor population is also not known	Develop catchment plans for each of the water supply catchments clearly defining the catchment boundaries, the activities and developments permitted and prohibited and the short and long- term management requirements.
	7 Maintain environmental flows downstream of weirs to ensure adequate water flows for ecosystem needs.	The weir across the creek at each system where water is extracted does not provide provision for riparian or environmental flows.	Continue to monitor the stream flows in each stream and evaluate their capacity to sustainably meet human requirements after meeting the unique environmental needs.
	8 Provide statutory reporting on assets to AAS 27	Difficulty in locating the reticulation pipework as there is no physical location markers and location drawings.	Locate water supply pipes, as they are renewed, adjacent to roads in common trenches along with other underground municipal services.

Key Result Areas	Specific Objectives	Key Issues	Actions
	9 Reduce leakage and unaccounted for water and promote efficiency in use	Difficulty in accessing the reticulation pipework as some sections have been built-over and some are within leased property boundaries.	
		No formal procedure for assessing and documenting the performance of private water tanks and systems within facilities on ski slopes	Develop formal procedure for assessing or notifying the performance of private water tanks or systems on facilities in the ski slopes and develop an asset register for same.
		No asset register (A)	Develop an asset register showing the exact location of all assets, their condition and other management histories as necessary (A) Develop and implement asset renewal strategy (A)
		Excessive leaks and breaks in the reticulation network due to age, extreme climatic conditions and poor past construction/laying practices.	Replace the remaining 80% of the old reticulation pipework with new pipes to overcome the existing breakage, access and locating problems.(PV)
			Replace about 20% of the old reticulation pipework with new pipes to overcome the existing breakage, access and locating problems (G)
Built Environmental Management	9 Continued		Install water meters for every premise at the off-take from the main and introduce Fee for Service charging regime that discourages water wastage (A)
		There are no bulk consumption meters to monitor the overall water consumption (A)	Introduce a complimentary water efficiency program targeting; leakage minimisation in NPWS assets including reducing unaccounted usage, installation of water efficient plumbing fixtures in premises (ie, making it mandatory for new premises and for existing premises on replacement)[3] and behavioural changes through education program on wise use. (A)
		There is no formal procedure for assessing the performance of private water tanks and systems on facilities in the ski slopes including the lack of an inventory register.	

[3] NPWS should also evaluate the benefits and costs for both customers and NPWS in undertaking a concerted retro-fit program that replaces the plumbing fixtures in all the existing premises with water efficient and non-aggressive fixtures

Key Result Areas	Specific Objectives	Key Issues	Actions
	10 Ensure the systems are reliable and have sufficient back-up and storage capacity.	The reservoir capacity does not meet the nominated level of service at current demand, as the total capacity is less than one peak day demand. This situation will be exacerbated with the increase in accommodation and day visitor numbers (SH?)	
		The off-creak storage capacity is marginally inadequate to meet current annual demands at extended drought periods. This situation will be exacerbated during both summer and winter seasons with the additional accommodation and skier growth and with the introduction of environmental flows (PV)	Supply the premises at North Perisher from the Perisher system by installing a booster pump on the existing interconnecting main. Demolish the existing weir and gravity main to North Perisher (PV)
		The intake pumps do not have back-up power supply (SH)	
Built Environmental Management	10 Continued	The pump station has only one pump installed[4] (SH)	Extend the pump station to install a permanent stand-by pumping arrangement, back-up generator, diesel storage tank and an electromagnetic flow meter on the pump discharge. Also install new pump switchboard and lightning protection for the building (SH)
		The inlet and outlet pipework near the reservoirs are located above ground and are not lagged, therefore could freeze and/or accidentally get damaged (G)	
		Blocking of the intake due to compaction of snow (G)	Provide a 'housing' over the weir intake to allow access during winter and to prevent blockages caused by compacted snow (G)
		The gravity main at the creek crossing frequently breaks due to water hammer problems	
	11 Prevent erosion and property damage from	The private service line for each premises is old and in many instances leaks.	

[4] Uninstalled spare pump is located within the pump station

Key Result Areas	Specific Objectives	Key Issues	Actions
	system discharges.	The water is corrosive and has the potential to dissolve cement from assets and metals from plumbing fixtures.	
		The reservoirs continuously overflow and the overflowing water does not flow through proper drain lines posing potential soil instability risk (G)	Provide proper drain to convey the reservoir overflow (G)
	12 Extend services on a full cost recovery basis and only if the environmental and public health benefits out-way the benefits of alternate systems.		

Key Result Areas	Specific Objectives	Key Issues	Actions
Built Environmental Management	13 Expand infrastructure only if impact on the natural and heritage environment is negligible. Rehabilitate disturbed ecosystems. 14 Ensure infrastructure is designed and built in accordance with the resort's build environment objectives.	Most of the reservoirs have developed leaks and the reservoir roofs have also collapsed from snow loading in most reservoirs.	Remove the existing damaged roof on both the 102kL reservoirs at North Perisher and replace with a new roof (PV)
			Remove the existing damaged roof on the 84kL reservoir at Perisher and replace with a new roof. (PV)
			Remove the existing damaged roof on the 100kL reservoir and replace with a new roof (SH) Remove the existing damaged roof on both the 100kL reservoirs and replace with a new roof. Also cover the inlet and outlet pipework and install appropriate housing for the valve to access during winter (G)
		The weirs do not provide for fish passage, but NPWS does not wish to install such facilities to ensure that native fauna is protected from introduced species in the lower reaches of the creeks (ie prevent migration of introduced species upstream).	
		The access road to both the main and North Perisher reservoirs has eroded (PV).	Upgrade the access roads to the service reservoirs (PV)
		The access road to the reservoir has erosion problem (SH)	
Built Environmental Management	15 Increase community awareness of water resource management and supply issues.		Undertake community consultation to assess their requirement on water quality. Also develop and implement a water quality management strategy. If the community does not need immediate water quality improvements then start collecting funds for a future water quality improvement capital work program.
Human Resource	16 Minimise operational and managerial risks	The overall service management also does not meet best practice standard as there are no formal	Develop and implement appropriate OHS&R, EMS, and public health management systems.

Key Result Areas	Specific Objectives	Key Issues	Actions
Management		OHS&R, EMS and public health management systems, including insurance against legal liability and property damage claims.	Extend and upgrade telemetry to cover the new facilities (PV, SH, G)
Financial & Revenue Collection Management	17 Collect adequate funds to maintain and upgrade water supply infrastructure.	Annual water rates collected from the consumers are not adequate to renew and maintain the system to current best practice standards.	Develop and implement a long term financial and revenue collection plan
	18 Ensure fund collection is equitable, consistent with minimal variation and reflective of actual costs.	The water rate for each premise does not take into account their actual consumption, as the water use is not metered at each premise.	Install meters to all premises
			Construct new 200mm mains to Eremo and Kandahar lodges to replace the existing smaller mains (PV)
			Install appropriate housing for in -line valves in the reticulation pipes(G)
			Install primary control elements and RTU's to provide telemetry control and monitoring coverage(G)

8.4 Primary Services Recommended Works – Sewer

Purpose

Collect, convey, treat and dispose black and grey water and their residues from premises in resort areas.

Policy

At all times meet or exceed the pH and environmental standards that would apply to an equivalent system in NSW, including applicable standards of the NSW EPA, DOH and DLWC.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	1 Protect public health.	There is no formal procedure for assessing the performance of private septic tanks on facilities in the ski slopes	Develop formal procedure for assessing or notifying the performance of private septic tanks on facilities in the ski slopes and develop an inventory register for the same.
	2 Meet targeted levels of service and manage the system to current best practice standards.	There is no device to monitor the disinfection effectiveness of the ultraviolet irradiation (UV) plant used for disinfecting the effluent.	Install UV intensity and turbidity meters to monitor the disinfection effectiveness of the UV system (STP)
		The asset management does not meet best practice standard as there is no documented operating, safety and complaints handling procedures, maintenance schedules and procedures, asset registers, asset renewal and effluent quality management strategy and long-term financial and business plans.	Develop and document operating, safety and complaints handling procedures including appropriate routine and non-routine maintenance schedules and procedures.
		The capacity of the reticulation network to cater for the increase in load from the increased accommodation and visitor number is not known.	Undertake a capacity analysis of the reticulation network for current and future loads and identify capacity augmentation requirements.
		There is also no formal procedure for receiving and assessing service connection requests for facilities on the ski slope and/or for directing premises for connection[5]	Develop and implement formal procedure for receiving and assessing service connection requests for facilities on the ski slope and/or for directing premises for connection.

[5] For instance PBL has indicated in its Ski Slope Plan its desire to connect a number of kiosks/restaurants and ski patrol stations to the community sewage system. However, there are no formal request to NPWS with respect to this desire.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	2 Continued		Advice PBL to make formal request on its desire to connect the various establishments on the ski slope to the municipal system based on the developed procedures.
		There are no rainfall gauges and/ or bulk flow measurements for each catchment and at the sewage treatment plant inlet	Install bulk flow meters at the pump stations and at the sewage treatment plant inlet. Also install rainfall gauges at least at three locations.
Natural Environmental Management	3 Ensure infrastructure facilities meet safety standards.	Currently do not meet best practice standard as there are no formal OHS&R, EMS, trade waste and public health management strategies and systems.	Develop and implement OHS&R, EMS, public health and trade waste management strategies and systems.
	4 Minimise wet weather inflows and overflows to protect the water quality of local streams to maintain native ecosystem.	The annual sewage rate for each premise does not adequately account for the difference in the usage by the day and overnight visitor as the water use is not metered at each premise.	Install meters to all premises.
Built Environmental Management		Significant inflow and infiltration due to ingress of ground and rain water through damaged sewer mains and private service lines and leaking manholes (CTF)	Undertake an inflow and infiltration study, and carry out remediation work to minimise inflow and infiltration, such as fixing damaged sewer mains and leaking manholes. Also request lessees to fix damaged service lines and illegal stormwater connection (CTF)
	5 Ensure the systems are reliable and have sufficient back-up and storage capacity.	The sewage treatment plant has a capacity to treat a biological load equivalent to 8000EP (equivalent population) with modification to the sludge withdrawal facility.	Upgrade the sludge withdrawal facilities. (STP)
		Presently there is no provision to de-water and transport biosolids away from the plant during winter season.	Increase sludge storage capacity to avoid winter transport
		Reticulation system under capacity, old and unreliable suffering regular breakages	Replace old reticulation pipework across the resorts (say about a total of 20%)
Built Environmental Management	6 Prevent harmful trade and domestic wastes from entering the system.		Implement an education program

Key Result Areas	Specific Objectives	Key Issues	Actions
	7 Ensure the quality of the treated effluent meets or exceeds the sensitive water quality requirements.	The effluent discharged into the creek does not strictly comply with the EPA 'sensitive waters' criteria particularly for phosphorous. However, EPA has given conditional approval requesting NPWS to demonstrate the level of compliance to the licence and the environmental impacts/benefits from marginally higher levels of phosphorous discharge.	Monitor and prepare submissions to EPA on the environmental impacts of the effluent discharge (STP)
	8 Expand infrastructure only if the impact on the natural and heritage environment is negligible and rehabilitate disturbed ecosystems.	The present plant's footprint cannot be expanded beyond 8000EP due to site constraints.	
	9 Ensure infrastructure is designed and built in accordance with the resort's build environment objectives.	The pump station No 2 is environmental intrusive, as it blocks central valley views	Investigate alternate arrangements in Village Centre development or redevelopment of Perisher Centre.
	10 Extend services on a full cost recovery basis and only if the environmental and public health benefits out-way the benefits of alternate systems. 11 Increase community awareness of harmful trade and domestic waste issues		
Built Environmental Management	12 Provide statutory reporting on assets to AAS 27	Lack of an inventory register	Develop an asset register showing the exact location of all assets, their condition and other management histories as necessary.
		Difficulty in accessing the reticulation pipe as some sections have been built-over and some are within leased property boundaries.	

Key Result Areas	Specific Objectives	Key Issues	Actions
		Difficulty in locating the reticulation pipe particularly during snow season as there is no physical location markers and location drawings.	Provide permanent physical markers to locate pipes particularly during snow seasons.
			The old treatment plant at Smiggin Holes needs to be demolished and the site rehabilitated. Develop and implement asset renewal strategy.
Human Resource Management			
Financial & Revenue Collection Management	13 Collect adequate funds to maintain and upgrade water supply infrastructure.	Annual sewage rates collected from the consumers are not adequate to renew and maintain the system to current best practice standards.	Develop and implement a long term financial and revenue collection plan including ensuring equitable revenue collection from all lessees.
	14 Ensure fund collection is equitable, consistent with minimal variation and reflective of actual costs.		Start collecting funds from the lessees for a future tertiary filtration system (STP)

8.5 Primary Services Recommended Works - Stormwater

Purpose

Manage, convey, treat and dispose run-offs and their residues from the roof and paved areas of premises and from the sealed and unsealed areas within the resort boundary.

Policy

Achieve the identified waterway and catchment values in the stormwater management plan, minimise property damage and danger, minimise concentration, avoid public health risk.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	1 Meet targeted levels of service and manage the access services to	No formal procedures in place for assessing performance of stormwater management facilities	Develop formal procedure for assessing the performance of on-site stormwater management facilities located in the lodge and commercial premises and facilities on the ski slopes. Also develop an inventory register for these systems.

Key Result Areas	Specific Objectives	Key Issues	Actions
	current best practice standards.		Develop and implement appropriate cleaning, safety and complaints handling procedures including appropriate routine and non-routine maintenance schedules and procedures.
Natural Environmental Management	2 Improve the water quality within local waterways to maintain native ecosystem.	There is potential for nutrients to enter the waterways and impact negatively on aquatic ecosystem health. The sources of nutrient are the sewerage system and fertiliser applied for landscape & native vegetation regeneration areas.	Implement the recommendations contained in the Stormwater Management Plan. The order of priority for the recommended works has been reassessed based on a systematic cost-benefit analysis following the EPA guidelines.
		The piped stormwater discharges from the eastern end of the Ski Centre, western and northern sides of the Skitube and around the NPWS workshop are not treated prior to discharge into Perisher Creek.	Develop drainage standards for lodge car parks incorporating infiltration, erosion control, sediment control and hydrocarbon treatment measures. Included in SMP
		The sediment traps near Perisher Creek captures coarse sediments, but is badly maintained and temporary in nature consequently not performing effectively (PV)	Convert diesel ski lifts and oil heaters to electric or gas where practical. Included win SMP
		Stormwater runoff from the ski slope, PBL workshop, Smiggin Hotel and some lodges near Smiggin Creek flows directly into Smiggin Creek without any treatment or management (SH)	Decommission redundant fuel tanks and remove stockpiled construction materials. Should be included within SMP
Natural Environmental Management	2 Continued	Snow clearing operations push accumulated pollutants, mixed with snow directly into local streams where snow melts, releasing the pollutants.	Through resort planning, rationalise road, car park, hardstand and over-snow routes. Consider closure, rehabilitation, remediation, incentives for increased skitube use and provision of underground car parks. Car park design to incorporate snow storage areas which allow for proper treatment.

Key Result Areas	Specific Objectives	Key Issues	Actions
		The car parks and hard-stands are significant sources of hydrocarbons, litter and sediment pollution, as in most car parks runoff drains directly into adjacent streams with no treatment. Unsealed and sealed access tracks and car parks of individual lodges are also potential sources of sediment pollution.	Reseal the car parks using appropriate asphalt. Install adequate treatment systems.
		There is potential for escape of pollutants such as hydrocarbon, oil and chemical from existing lodges, commercial premises, workshops and municipal and ski slope infrastructure facilities.	Install at appropriate locations pollution control devices such as GPT's, silt traps and hydrocarbon traps to minimise pollution entering the local waterways. Included in SMP
		The surface of the car parks in the three resorts is in poor condition and the drainage from the car parks is not contained nor discharged appropriately. The discharge carries significant pollutant load including bitumen scraped from the car park surface during snow clearing operation.	Develop vegetative buffer zones adjacent to streams and drainage lines. Also rehabilitate disturbed floodplain ecosystems in combination with delineation of riparian buffer zones. Rehabilitatio n to include erosion control, revegetation and weed removal practices. Should be included within SMP Install adequate treatment systems. Seal road shoulders.
		The paved roads, particularly Kosciuszko Road, with unpaved shoulders and degrading surfaces are sources of asphalt, sediment and hydrocarbons pollution.	Develop appropriate source pollution management/ mitigative measures for the runoffs from the ski slope, PBL workshop, Smiggin Hotel and lodges near Smiggin Creek (SH) Should be included within SMP
		The unpaved in-resort roads are a significant source of sediment, particularly the steep sections.	Seal in-resort roads
	3 Reduce visual pollutants in waterways.	Litter pollution from recreation/tourist centres and from bulk garbage transfer points.	Install litter traps
		The kiosks/restaurants on the ski slopes are a source of litter pollution.	Education program
Natural Environmental Management	4 Minimise catchment soil disturbance and loss/damage to vegetation, and reduce sediment load in waterway s.	Over-snow route are also a significant source of sediment, as heavy over-snow vehicles often liberate pollutants and cause erosion, particularly on illegal over-snow routes. The impact is exacerbated during marginal snow conditions.	Control of cleaning activities Management of over-snow vehicles

Key Result Areas	Specific Objectives	Key Issues	Actions
	5 Rehabilitate disturbed ecosystems.	There is no formal plan for the management of wildlife corridors and there is a lack of corridor networks around the resort areas.	Develop and implement a plan for the management of wildlife corridors. Also develop additional corridor networks around the resort areas where necessary. Should be included in SMP
	6 Keep developments out of floodplain	The flood plain of Smiggin Creek is not clearly defined (SH)	Undertake a flood study for Smiggin Creek and clearly mark the flooding zone. Also remove/ upgrade any structures/ facilities located within the critical flood zone/ plain
Built Environmental Management	7 Maintain stormwater infrastructure to best practise standards	The asset management does not meet best practice standards as there are no documented asset maintenance schedules and procedures, asset registers, asset renewal and long-term financial and business plans.	Develop an asset register showing the location of all assets, their condition and other management information as necessary.
			Develop and implement asset renewal strategy Complete the environmental and safety risk assessment and audit of all existing lodges, commercial premises, workshops and municipal and ski slope infrastructure facilities and implement rehabilitation measures where necessary.
	8 Manage roof water from premises at source, if practicable and does not pose downstream risk.	Although every premise is required to have on-site collection, treatment and dissipation facilities, NPWS does not have a formal performance monitoring and assessment procedure.	
	9 Manage peak stormwater flow from urban areas to prevent erosion and property damage.	No public liability or property damage insurance Potential for peak stormwater flows to increase as a result of in-resort road sealing and increased urban development and in the short-term from the proposed construction activities.	Take appropriate public liability and property damage insurance cover. Implement the recommendations contained in the Stormwater Management Plan. The order of priority for the recommended works has been reassessed based on a systematic cost-benefit analysis following the EPA guidelines.
Built Environmental Management	9 Continued	The capacity of drainage pipe from the eastern end of the Ski Centre, western and northern sides of the Ski-tube and around the NPWS workshop to convey the extra storm flows from the new development area and sealed roads is not known (PV)	Assess the adequacy of the existing drainage pipe carrying the storm flows around Ski Centre, Skitube, south of the NPWS workshop, and carpark areas. Replace the pipeline if it is inadequate. Implement requirements as part of V. C. development
		The adequacy of the culvert on Smiggin Creek near the workshop and below Kosciuszko Road to carry extreme flood events is not known SH)	Assess the adequacy of the culvert on Smiggin Creek near the workshop and below Kosciuszko Road to carry extreme floods and rehabilitate if inadequate (SH)
		The dispersed development nature of the existing premises requires significant drainage network and treatment facilities.	Also check the adequacy of the other drainage pipes/channels and pollution control structures against the adopted levels of service and rehabilitate where necessary (PV)

Key Result Areas	Specific Objectives	Key Issues	Actions
	10 Ensure effects of stormwater does not impact negatively on tourism levels		Where appropriate maximise recreational opportunities related to stormwater reuse.
	11 Maintain/ improve access to areas that are safe and robust and restrict access to areas that are unsafe.	Snow clearing operation often damage road surfaces/structures and liberate sediments (grit and chemical used in these operations are also a source of pollution).	Seal Roads
		The sealed and unsealed areas around the Skitube, NPWS and Ski Centre have heavy use with significant pollution load, but the area does not have good drainage system resulting in water logging (PV)	
	12 Increase community awareness of stormwater issues.	Lack of community (visitors and lessees) awareness of the environmental sensitivity of the resort areas and the impacts polluted stormwater has on them.	*Develop and implement a community (visitors and lessees) awareness program including appropriate disposal of litter and waste.*
Human Resource Management		The overall service management also does not meet best practice standard as there are no formal OHS&R, EMS and public safety management strategies and systems, including insurance against legal liability and property damage claims.	Develop and implement OHS&R, EMS and public safety management strategies and systems.
Financial/ Revenue Collection Management	13. Collect adequate funds to maintain and upgrade stormwater infrastructure.	There is a lack of adequate funding to renew and maintain the stormwater drainage structures to current best practice standards.	Develop and implement a long term financial and revenue collection plan to ensure future rehabilitation and management costs are adequately and equitably funded.

8.6 Primary Services Recommended Works - Solid Waste

Purpose Collect, convey and dispose the separate streams of municipal solid waste (putrescible, bottles and cans, cardboard and paper) generated by visitors to the resort and staff from the premises where they are generated, to the nearest waste facility.
Policy Minimise and separate waste streams at source where practicable.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Operate solid waste service within the spirit and to the requirements of the Waste Minimisation and Management Act.	Although the present premises waste collection and transfer service is not standardised, the present arrangement is working satisfactorily. However, this operation poses public health and environmental risks particularly due to combined transport of public and garbage, long haulage to the bulk bins and in some instance the use of inappropriate bags/containers.	Use information contained in the waste collection and transfer stations options study report and other additional information as required, to explore with local Councils and Thredbo Resort Operator the combined opportunities for waste collection and transfer. Subsequent to this negotiation adopt a waste collection and transfer strategy for Perisher Range resorts.
		Significant additional waste would be generated from the proposed increase in accommodation and day visitor numbers resulting in additional bins, trailers and a new landfill sooner than five years.	Develop and implement an appropriate waste collection, transfer, disposal and recycling strategy (before the construction of additional beds).
	Meet targeted levels of service and manage the service to current best practice standards.	The asset management does not meet best practice standards as there are no documented asset maintenance schedules and procedures, asset registers, asset renewal and long-term financial and business plans.	Develop an asset register listing the assets, their condition and other management information as necessary. Develop and implement asset renewal strategy.
		There is a lack of litter receptacles around the resort area and ski slope for use by skiers.	Plan and install litter receptacles in strategic locations of the resorts for use by the skiers including arrangement for regular cleaning (PV/ SH)
Natural Environmental Management	Reduce litter pollutants in waterways.	Lack of community education and awareness among visitors and lessees on waste minimisation, recycling and the environmental sensitivity of the resort areas and the impact litter can cause.	Develop and implement a community (visitors and lessees) education and awareness program on waste minimisation and recycling particularly with a view to achieve the nominated 40% recycling target.

Key Result Areas	Specific Objectives	Key Issues	Actions
Built Environmental Management	Improve collection/ transport arrangement from premises	The cardboard and paper recycling facility at Sawpit Creek is labour intensive and costly on a per recycle unit basis.	Prepare Waste Management Strategy
	Minimise visual amenity and pollution related to bulk bins	The location causes visual pollution and significant traffic conflict between skiers, pedestrians and vehicles.	Construct a modern fully enclosed transfer station with appropriate equipment and baling facility at a new location for Perisher Valley and Smiggin Holes away from roads and functional areas (PV/ SH)
		Garbage bags left outside premises for collection are a source of attraction for nuisance animals such as foxes and birds. The torn bags cause pollution and public health problems.	Existing transfer area at Guthega formalised and a shelter constructed for the bins (G)
	Minimise future landfill within the park area.	The remaining life of the landfill at Sawpit Creek is only about five y ears	Encourage and financially support the development of the regional landfill facility with adjacent Shires to secure long -term unrestricted access. Close and start rehabilitating the Sawpit Creek landfill as soon as possible.
	Increase opportunities for recycling by lessees and visitors to the resorts.	The existing source separation of the three waste streams is not achieving maximum benefits as evidenced by significant cross contamination of the waste streams and the low, only 20% recycling percentage.	Develop and implement a community (visitors and lessees) education and awareness program on waste minimisation and recycling particularly with a view to achieve the nominated 40% recycling target.
		Inadequate data on the quantities of waste generated from the resorts in total and individually.	Develop a database to record the waste generated from each resort.
		The materials recycling facility (MRF) at Nimmitabel has closed. This will increase transport costs as the nearest MRF is at Canberra.	
Built Environmental Management	Continued	Only one commercial lessee participates in the recycling program. Therefore require additional bins and combination trailers required in order to introduce full commercial lessee recycling(PV)	Introduce a total commercial lessee recycling program.
			Provide additional combination trailers (say 30) and bulk bins (say 60) dispersed across the resorts in shelters and a contract to transfer them to the transfer station during both summer and winter. No bins to be left in the car parks (PV/ SH)
			Provide premises collection service (PV/ SH)
			Implement a recycling program consistent with the other resorts

Key Result Areas	Specific Objectives	Key Issues	Actions
	Increase community awareness of waste minimisation and recycling.	Lack of community education and awareness among visitors and lessees on waste minimisation, recycling and the environmental sensitivity of the resort areas and the impact litter can cause.	Develop and implement a community (visitors and lessees) education and awareness program on waste minimisation and recycling particularly with a view to achieve the nominated 40% recycling target.
Human Resource Management		The overall service management also does not meet best practice standard as there are no formal OHS&R, EMS and public safety management strategies and systems, including insurance against legal liability and property damage claims.	Develop and implement OHS&R, EMS and public safety management strategies and systems
			Take appropriate public liability and property damage insurance cover.
Financial & Revenue Collection Management	Collect adequate funds to maintain and upgrade infrastructure and equipment.	There is a lack of adequate funding to renew and maintain the municipal waste management facilities to current best practice standards.	Develop and implement a long term financial and revenue collection plan to ensure future rehabilitation and management costs are equitably funded adequately and reflective of actual costs.

8.7 Primary Services Recommended Works - Internal Road System

Purpose
Provide adequate access under any weather conditions to all premises within the resort area.
Policy
Minimise environmental impacts including runoff and stormwater from these facilities. Maintain over snow access during winter and road access during summer.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Meet targeted levels of service and manage the access services to current best practice standards.	The existing roads are inadequate for the current level of traffic and require significant resources to maintain them. This situation will be exacerbated with the increase in accommodation and day visitor numbers.	
		The asset management does not meet best practice standard as there is no documented traffic	Develop an asset register showing the location of all assets, their lengths, condition and other management information as necessary

Key Result Areas	Specific Objectives	Key Issues	Actions
		management and complaints handling procedures, asset maintenance schedules and procedures, asset registers, asset renewal and long-term financial and business plans.	Develop and implement asset renewal strategy.
		Inadequate traffic management at the central valley resulting in significant conflict between pedestrians (skier and non-skier), vehicles (over-snow and road), lessees using the garbage facilities and NPWS staff using the office facilities (PV) Inadequate traffic management at the resort entrance and car park (SH)	Develop and implement appropriate winter and summer traffic management strategies for each resort area taking into consideration the road vehicle, over-snow vehicle and pedestrian traffics.
		No snow grooming and clearing services as in Perisher Valley and Smiggin Holes[6].	
Customer Service Management	Continued	Snow clearing of Guthega Road for public vehicle access has a high cost (G)	
		Risky and conflicting pedestrian walking tracks and over-snow route along Perisher Creek (PV)	Demolish the existing pedestrian bridge across Perisher Creek and provide more convenient pedestrian bridges across the creek from the car park (PV)
		Inconvenient pedestrian bridge across Perisher Creek to Perisher Ski Centre from the car park (PV) Difficulty in emergency maintenance vehicles accessing the pump station during snow season as Blue Cow Road is not snow groomed/cleared. Access difficulty is also experienced during summer as the road is in poor condition (BC)	Stabilise the Perisher Creek banks and provide appropriately designed and non-conflicting pedestrian walking tracks and over-snow route along Perisher Creek (PV) Maintain Road
		The road to Sundeck Lodge conflicts with the skiers and ski lifts (PV)	Relocate the road to Sundeck Lodge such that it does not conflicts with the skiers and ski lifts (PV)

[6] the lessees in the past have decided against such a service (G)

Key Result Areas	Specific Objectives	Key Issues	Actions
Natural Environmental Management	Minimise impact of access infrastructure on the natural environment	Existing roads are a source of significant sediment load into the local waterways particularly during rainy and snow thawing periods. The surface runoffs also carry significant hydrocarbon and floatable materials into the waterways as there are not enough pollution control devices.	Implement road sealing & stormwater treatment program
		Although, there is well marked over-snow routes there is evidence of users not remaining within or using the marked routes.	Provide non-conflicting and well marked over-snow routes and adequately police their use to ensure users remaining within marked routes and observe traffic rules.
		The existing roads are 'eye sores' during summer	Install and maintain appropriate landscape to clearly define road edges and to improve the visual appearance of the resort areas.
		Unofficial over-snow routes between Perisher Valley and Smiggin Holes (PV)	Provide and police an official over-snow route between Perisher Valley and Smiggin Holes (PV)
Built Environment Management	Ensure roads, bridges, driveways, tracks and paths are classified according to function and built according to specified standards.	Roads are not classified according to their intended function and not designed accordingly.	Classify all the roads according to their intended function and implement a program of upgrade to satisfy the design standards of each class and the nominated target level of service. As a minimum seal all the roads with concrete over a five year period.
		The vehicle access bridge across Perisher Creek to North Perisher is lower than the 100 year flood level (PV)	Demolish or upgrade the existing vehicle access bridge across Perisher Creek to North Perisher or alternatively provide an alternate access arrangement (PV)
		Many roads have no separate pedestrian pathways.	
		The roads are risky and cause access problems to both pedestrians and vehicles during rainy and snow thawing periods.	Develop and implement appropriate safety and complaints handling procedures including appropriate routine and non-routine maintenance schedules and procedures.
		The ownership, condition and adequacy of the bridges are not clearly defined.	Undertake a study to define the ownership, condition and adequacy of the bridges within the resort areas and carry out the necessary rehabilitation works.
	Prevent erosion of roads, driveways, tracks and paths	The camber of roads is in many instances not correct leading to erosion of pavements.	Fix the inappropriately designed road cambers.

Key Result Areas	Specific Objectives	Key Issues	Actions
	Minimise damage to road surfaces and underlying vegetative cover in tracks and over-snow routes from snow clearing and grooming activities.	The roads have no clearly defined edges	
Human Resource Management		There are no formal OHS&R, EMS and public safety management strategies and systems, including insurance against legal liability and property damage claims.	Develop and implement OHS&R, EMS and public safety management strategies and systems
			Take appropriate public liability and property damage insurance cover. Restrict access to areas that are unsafe
Financial & Revenue Collection Management	Collect adequate funds to maintain and upgrade in - resort roads.	Annual rates collected from the consumers are not adequate to renew and maintain the roads and bridges to current best practice standards.	Develop and implement a long term financial and revenue collection plan.

8.8 Primary Services Recommended Works - Electrical Supply and Distribution

Customer Service Management		No assessment has been undertaken to determine the electricity and electricity distribution requirements for public amenity and NPWS facilities.	Once the location and requirements of the outstanding public amenity and infrastructure facilities are defined, undertake an assessment to determine the electricity and electricity distribution requirements.
Built Environmental Management		If the power supply from Munyang fails the emergency supply from Jindabyne could only meet 50% of the existing demand.	Relocate service trenches to be adjacent to road network

8.9 Primary Services Recommended Works - Telecommunications Network

Customer Service Management Natural Environmental Management	Provide adequate public toilets and telephones.	The fibre optic cables for some of the isolated lodges are inadequate. The current arrangement of transporting diesel to the communication tower is an environmentally risky operation.	Lessees to negotiate with the telecommunication service providers for upgrading their respective cables. The cable trenching and remediation work to be in accordance with NPWS standards. Reduce the communication towers reliance on diesel power by installing appropriate equipment to harness non-conventional energy sources such as wind and solar.
Built Environmental Management		This facility is the main communication hub and requires protection from vandalism and lightning strikes.	Install adequate man proof fence around the facilities including appropriate intruder warning/alarm system. Relocate service trenches to be adjacent to road network

8.10 Primary Services Recommended Works - LPG Gas Storage and Distribution

Natural Environmental Management		The present arrangement poses significant environmental risks particularly during transport and filling of individual tanks as majority of these tanks are located in sensitive environmental areas	Negotiate with the existing gas supplier for a reticulated system for all resort areas.
Built Environmental Management		Individual tanks and the main storage tank at Perisher Valley have poor visual amenity	Relocate service trenches to be adjacent to road network
Financial & Revenue Collection Management		The present arrangement does not provide NPWS any economic return	

8.11 Secondary Services Recommended - Works Municipal Service Staff Office Accommodation and Workshops

Purpose
Provide adequate facility to enable municipal service management and operations to occur
Policy
Provide office, store and workshop in resort area to have rapid response capability (NB, corporate staff are located off site)

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Meet target levels of service and manage the service to current best practise standards		
Built Environmental Management	Provide a new modern business office facility within the proposed village centre development.	The building architecture does not blend with the surrounding, is temporary in nature and does not have the modern facilities required by current standards.	Demolish the existing building and provide a modern officeand workshop building possibly between Perisher Valley and Smiggin Holes [7].
		The staff and vehicle movement conflicts with the movement of the resort visitors and their vehicles as the NPWS office/ workshop is located in the busy central valley precinct.	
Financial & Revenue Collection Management		There is a lack of adequate funding to renew and maintain the building/ workshop to current best practice standards.	

[7] Consult with PBL for a possible NPWS office and workshop along with the PBL office and workshop. Based on the consultation outcome locate an appropriate site.

8.12 Secondary Services Recommended - Public Facilities and Amenities

Purpose Provide facilities that protect the environment.
Policy Provide optimum standard and subsidise through ratepayers if cost cannot be recovered from users

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Provide adequate identification, interpretation and road safety signs including directories and road name signs.	Directories and Signs such as directional and interpretation are inadequate.	Provide and maintain adequate number of directories and Signs such as directional and interpreta tion as shown in the levels of service.
		There is no identification and welcoming signs and at the entrance to each resort.	Install appropriate identification and welcoming signs at the entrance to each resort.
		Road safety and regulation signs and signs showing the road names are non-existent.	Provide and maintain necessary road safety and regulation signs. Also provide and maintain signs showing the names of every road.
		There is a need for public toilet and telephone facilities in new major commercial and public developments/buildings.	Ensure sufficient number of public toilets and telephone facilities, as nominated in the level of service, are provided in new major commercial and public developments/buildings at the developers cost.
Natural Environmental Management		The street lighting at Guthega is an environmental pollution.	Remove the street lighting at Guthega
		There is a need for additional walking and trail tracks around the resort areas.	Develop up to 20km of additional walking and trail tracks around the resort areas as indicated in the levels of service.

8.13 Secondary Services Recommended - Emergency Services

Customer Service Management	Ensure the ski resorts are adequately supported with appropriate level emergency services	Emergency conditions not defined	Define the emergency conditions and develop and implement emergency response and co-ordination plans for both summer and winter seasons and maintain its appropriateness.
			Maintain regular contacts with the various state and local government agencies to of community and emergency service personnel and equipment.
Built Environmental Management		There is a need for dedicated undercover public emergency assembly areas to accommodate all the visitors and skiers to the Perisher Range resorts.	Carry out a survey to determine the existing dedicated undercover public emergency assembly areas in each resort. Determine the shortfall in each resort area and ensure that these shortfalls are adequately provided for by accommodating within the proposed new developments or as separate buildings as appropriate.
Human Resource Management		The State Emergency Services has indicated that their existing local resource at Jindabyne will be inadequate during major emergency.	Define the emergency conditions and develop and implement emergency response and coordination plans for both summer and winter seasons and maintain its appropriateness.
		The Police Service has indicated that their current human resources would be insufficient for the increase in accommodation and visitor numbers.	Provide for permanent Police Station in P. V.

8.14 Secondary Services Recommended - Medical Centre and Staff Facilities

Purpose

Provide medical services on a twenty-four (24) hour basis during the ski season.

Policy

All of community should contribute to medical services.

Locate at the road/ oversnow interface

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Meet target levels of service and manage the service to current best practise standards	The presence of the medical centre is not widely communicated to visitors	Promote the presence of the medical centre and if possible relocate the centre to a more prominent and easily accessible location. Consideration should be given to locating within the proposed village centre at Perisher Valley.
Built Environmental Management	Provide rapid emergency airlift facility near the centre.	There is no easy access to a dedicated helicopter pad for emergency transport of patients.	Provide a dedicated helicopter pad, possibly near the new NPWS staff office/workshop.
		The medical centre staff and vehicle movement also conflicts with the movement of the resort visitors and their vehicles as the centre is located in the busy central valley precinct. Th is would particularly be an issue if a medical emergency coincide with the peak arrival or departure periods.	Provide a new modern facility
	Secure adequate overnight accommodation near the centre for the medical staff.	There is a need for proper overnight staff accommodation within easy access to the centre particularly if the NPWS office/workshop is demolished.	
Human Resource Management	Ensure the medical centre is serviced on a 24 hour basis during the ski season.	There is a need for proper overnight staff accommodation within easy access to the centre particularly if the NPWS office/workshop is demolished.	Provide appropriate number of overnight medical staff accommodation facility within easy access to the centre.

8.15 Secondary Services Recommended - Freight and Passenger Terminal

Purpose Transfer of freight and passengers throughout the resort during the ski season.
Policy Locate at the road-over-snow interface.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Meet target levels of service and manage the service to current best practise standards	There is potential traffic movement conflict between terminal users (freight trucks and lessee), over-snow passengers, garbage vehicles and the park visitors.	Retain the current terminal as the freight terminal and provide a new passenger access terminal for both over-snow and road passengers. The new passenger terminal to be fully enclosed and located at the most convenient location and in a manner that blends with the existing built environment at Perisher Valley.
Natural Environmental Management	Improve the water quality within local waterways to maintain native ecosystems	The truck turning area is bitumen sealed and is a potential source of bitumen and hydrocarbon pollution.	Seal the parking and manoeuvring area with asphalt surfacing.
Built Environmental Management	Improve the visual quality of the truck turning area.	The truck turning area is an 'eye sore' and has not been designed with appropriate parking and manœuvring facilities.	Redesign the truck turning area with proper landscape, easy parking and manoeuvring facilities.
Human Resource Management		The current combined arrangement is an OH&S hazard.	

8.16 Secondary Services Recommended - Information Centre

Purpose
Provide information and interpretation for park users as a whole and provide a business office.

Policy
Place in an accessible location for NPWS to have a better 'presence' in the resort.

Key Result Areas	Specific Objectives	Key Issues	Actions
Customer Service Management	Meet target levels of service and manage the service to current best practise standards	The present facility does not meet modern standards and is not easily visible and accessible.	Provide a modern information centre and business office at a prominent location with the proposed village centre.
Built Environmental Management		The proposed demolition of the NPWS office/workshop will remove the present facility.	
Human Resource Management	Office to be adequately staffed with professional customer service officers.		Adequately staff office as required