



**NSW State
Government**

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
New South Wales**

Perisher Range Resorts

Review of Capital and Operating costs

Part A Costs

Part B Prices & Revenues (not complete)

Job 2004342

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APPROVED

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DATE

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EXECUTIVE SUMMARY

1. Future Visitor Numbers

The likely skier days and skier numbers at the Perisher Range Resorts have been estimated using four different scenarios.

Continued growth	1.7% for days & 0.4% for numbers
Competition with alternatives	0.9% and -0.4% respectively
No new investment	-0.9% and -1.7% “
Climate change	0.3% and -0.5% “

The number of visitors in the future will very much depend on infrastructure and resort developments that are in train now. The differences between numbers with and without the developments are quite large.

2. Future Distribution of Visitor Numbers

Perisher is essentially a winter resort. The relative importance of winter visitation for Perisher has been increasing over time, with the trend in the ratio of summer to winter visitors declining at around 4% per year. The ratio of minimum to peak number visitors is also declining at around 2.6% per year. Currently around 35% of winter visitation occurs in the peak month, while the ratio of minimum to peak visitors is around 5%.

3. Without the Planned Expansion

Following completion of a significant capital works program, particularly in sewer and water infrastructure, by NPWS, the current infrastructure is generally of sufficient capacity, both without and with planned expansion. Our capital and recurrent forecasts are therefore the same for both scenarios. The infrastructure largely complies with current licence conditions and legislative requirements. However, the water extraction licence condition for preservation of environmental flows is under investigation at present. The NPWS has a two-year timeframe to demonstrate compliance with this environmental flow requirement after which DIPNR propose to undertake a review of the water extraction licence. The NSW Department of Health Guidelines recommends that residual disinfection should be present in potable water at all times. An assessment of this element should be undertaken as a matter of importance.

The existing roads, car parks, stormwater, solid waste and transport infrastructure is substandard and the services unacceptable. PRISS acknowledges this.

4. Efficient Cost of Implementing these Capital Works

The most efficient way to implement both the capital services and construction capital expenditure is to ensure that this expenditure is market tested to ensure a competitive outcome. This needs to be coupled with sensible packaging and scheduling of the proposed works in order to achieve the most efficient construction cost outcome (particularly in Roads).

5. With Planned Expansion

As above, the infrastructure capital works necessary to support the planned expansion is the same as the scenario without expansion as a significant proportion of expenditure on infrastructure to accommodate planned expansion has already occurred. The sealing of roads is necessary to improve the stormwater runoff quality for environmental reasons, to provide improved service standards and to facilitate garbage collection. The road development needs to be such that loops are constructed to facilitate snow clearing and garbage collection, together with other services and emergency access. It is also important to encourage further potential development.

The recommended methodology for achieving efficient cost outcomes implementing these capital works is the same as stated in item 4.

6. Efficient Operating Costs.

The efficient level of operating costs for each service has been developed using knowledge of comparable resorts and assumes the following criteria:

- *Removal and overlap of existing service providers and sub-contractors, eg. the snow clearing services for car parks and roads are provided by the same contractor, but he has at least three different contractual arrangements with different agencies/clients.*
- *Utilise appropriate technologies.*
- *Maintain appropriately trained and equipped, multi-skilled workforce.*
- *Use outsourcing to ensure that internal costs are competitive, (eg. garbage collection and leasing of property).*

7. Options for Replacing Public Facilities.

Public facilities will be displaced by the proposed Village Centre development at Perisher Valley.

7.1 Car Parking & Information Centre

We believe that the proposal to develop a new gate entry, visitor information centre, car parking and shuttle bus terminal at Sawpit Creek would provide the most appropriate solution and this proposal should be detailed, before the old service station is removed.

7.2 NPWS Workshop/Offices.

Perisher Blue Limited is planning to consolidate their workshops in a location near Smiggin Holes. We believe that negotiations to develop a combined facility with PBL would provide the most efficient and effective solution for relocation of the NPWS office/workshop. A lease allowance of \$50k per year has been made from 06/07 for this facility.

7.3 Emergency Services

The Fire Station and Ambulance are appropriately located, however, the Police Station should be relocated to a new facility in the same area, adjacent to these two emergency services.

The Medical Centre is appropriately located but needs to be restructured to allow more efficient service. The Centre also needs to be properly sealed to ensure hygienic conditions and it would be advisable to provide accommodation for the doctor away from the medical centre.

7.4 Solid Waste/Landfill

The development of regional solid waste disposal facilities does not relieve the NPWS of a significant restoration cost burden for the existing landfill facility. An allowance in the forecast of \$600 k has been made for the rehabilitation. The existing arrangements are not sustainable and should be terminated as soon as possible..

8. Efficient Cost of Implementing these Options.

The majority of water and sewer infrastructure works has been completed and is generally of high quality.

The plans for sealing of roads needs to be reviewed to allow for early sealing with asphalt and concrete later, as funds become available. A long term commitment to funding would make the process more efficient.

The development of the regional solid waste facilities combined with a "compactor truck" based collection service will introduce a level of transparency and efficiency not currently available.

Long-term relationships need to be developed with contractors to ensure cost effective outcomes, their continued support and cooperation.

9. Implementation.

The PRRISS report needs to be updated annually and a more accurate 5 – year rolling plan developed. The PRRISS needs to be supported by an "Asset Management Strategy", with clear life cycle costing, asset renewals projections and expectations.

It is essential that a fixed chart of accounts be developed to ensure that the actual and budget forecasts are consistent from year to year.

The Land Manager needs to be reviewed in light of the Master Plan report.

END OF EXECUTIVE SUMMARY

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1 Introduction

1.1 This Review

This review has been prepared for the Independent Pricing and Regulatory Tribunal (IPART) of New South Wales. IPART is an independent body that oversees regulation in the water, gas, electricity and public transport industries in NSW.

IPART has commissioned Earth Tech Engineering Pty Ltd to conduct a review of the capital expenditure and operating expenditure required to provide infrastructure services at Perisher Range Resorts. Earth Tech have been assisted in the preparation of this report with the input of specialist sub consultants CIE (Centre for International Economics) Pty Ltd.

The review has been prepared in response to a project brief prepared by IPART for this purpose.

The preparation of this review has been based upon the following key processes;

- A desktop review of the available information and reference materials, see References.
- At least three site inspections of the resorts throughout September and October 2004.
- Interviews with representatives of the key stakeholders.
- An analysis of future visitor numbers.
(ie. a report Forecasting skiing demand for the Perisher Range Resort by CIE).

1.2 Scope of Work - Exclusions

The client's ¹brief specifically excludes any review of the NPWS's current charging policies concerning the setting of gate entry fees into its National Parks.

The IPART brief also advises that the Perisher snowmaking facilities rely on separate infrastructure and are not to be examined as part of the review.

1.3 Disclaimer

Earth Tech Engineering Pty Ltd has prepared this report for the express purpose described above and shall not be used for any other purpose without the written consent of Earth Tech.

Earth Tech Engineering Pty Ltd has taken due care in collecting and presenting accurate information and in making accurate deductions in this report. No responsibility can be accepted for any errors based upon incorrect information provided to the authors and used in compiling the report, or for any misinterpretation by readers of materials presented in the report.

We make no claim to have sourced all relevant material. The material provided by others has been presented in good faith.

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¹ From section 3 page 2 of the IPART Project Brief.

2 Background

2.1 Existing Situation

The Perisher Range Resorts are part of the Kosciuszko National Park in New South Wales. The resorts occupy crown land.

The Perisher Range Resorts (Perisher) are located in the Kosciuszko National Park in southern New South Wales and is the largest alpine resort complex in Australia. The resort facilities are established on areas leased from the National Parks and Wildlife Service (NPWS). The National Parks & Wildlife Service (NPWS), part of the Department of Environment and Conservation of New South Wales is responsible for the management of the resorts. The NPWS's interests within the resort are delivered through a group called the Municipal Services Unit (MSU). The NPWS role is that of the "land manager", administration of leases on behalf of the crown and providing services for which it recoups revenue.

Accommodation is provided in several villages including Perisher Valley, Smiggin Holes and Guthega. The villages and ski fields now operate as a single resort known as Perisher Blue.

The NPWS provides a range of municipal services including water and sewerage, solid waste disposal and roads to lease holders. The major roads into the resort are the Alpine Way (via Skitube) and Kosciuszko Road has now been excised from the Kosciuszko National Park and are the responsibility of the Roads and Traffic Authority. This follows from a recommendation of the ²Walker Enquiry of Feb 2001, held as a result of the Thredbo disaster.

The NSW government has endorsed the expansion of Perisher through the development of an additional 1,320 bed spaces. Around 800 of these additional bed spaces will be in the new Village Centre development with the remaining beds sold to existing leaseholders. Any new development in resorts on Perisher Range will be subject to stringent environmental assessment. The focus on environmental assessment will apply throughout the initial planning and design stage as well as through construction and ongoing operation and management of the resort areas.

2.2 Proposed Resort Development

In 1996 the NPWS developed the "³Perisher Range Resorts Master Plan". The Perisher Range Resorts incorporate the previously separate locations of Perisher Valley, Perisher, Smiggin Holes and Guthega. The Master Plan and subsequent EIS projected the development of an additional 1066 beds. The distribution of the additional beds was described as follows;

- | | |
|--|-----------------------------------|
| • Development of village centre | 800 beds & commercial floor space |
| • Smiggin Holes village centre | 150 beds |
| • Existing Perisher and Smiggins lessees | 116 beds |
| • Development of resort environment | landscaping & wildlife corridors |

The "⁴Perisher Range Resorts Village Master Plan Environmental Impact Statement" was published in 1997. An extra 254 beds was added to the above numbers, as a result the total number of new beds became 1,320.

• _____

² See reference no.7

³ See reference no.6

⁴ See reference no.15

A “⁵Commission of Inquiry Report” (1998) was undertaken by Commissioners W. Simpson and W. Train. The Commission investigated the future development of the Perisher Range Resorts. In 1999, the Minister approved development conditional upon the upgrade of the municipal services infrastructure.

In October 2000 the NPWS published the “⁶Perisher Range Resorts Environmental Study”.

In November 2001 the “⁷Perisher Range Resorts Master Plan” (Nov 2001) nominated the following distribution of new beds.

- Guthega - 80 new beds in existing commercial and Club accommodation, includes 20 new beds in Ski Centre building.
- Smiggin Holes - 150 new beds in existing accommodation plus possibly in Gateway building.
- Outer Perisher Valley (North & South Perisher) - 116 new beds in existing accommodation.
- Perisher Central - 800 new beds in existing and new accommodation
- Additional beds if not taken up by other precincts.
- Unallocated - “174 floating unallocated beds”, pending environmental assessment.

The Master Plan identifies a number of precincts within the village area for which it describes a series of planning objectives, guidelines and controls. The Master Plan does not address ski slope development or management.

In 2002, the NPWS prepared the “⁸Perisher Range Resorts Infrastructure Services Strategy”. The Strategy “sets out a methodology for the expanding and upgrading the existing municipal services within the Perisher Range in order to service increased numbers. to support this expansion in capacity, NPWS has developed an Infrastructure Service Strategy, March 2002. This strategy provides details of the infrastructure required to service the new development and raise standards to comply with license conditions and legislative requirements. The strategy is costed at almost \$90 million of capital works over a 30-year period. The NSW government has already allocated repayable advances of the order of \$30 million to cover urgent works.

In May 2002 Perisher Blue Limited published the “⁹Perisher Blue Ski Resort Ski Slope Master Plan”. The Ski Slope Master Plan identifies a number of precincts that are similarly named (geographically) to the precincts previously described by the Perisher Range Resorts Master Plan. The Ski Slope Master Plan specifically addresses ski slope management and development.

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⁵ Document not sighted.

⁶ See Reference no.5

⁷ See reference no.6

⁸ See reference no.1

⁹ See reference no.4

2.3 Draft Plan of Management KNP

The 2004 ¹⁰Draft Plan of Management, Kosciuszko National Park” recognises the presence of the resorts as a distinct ¹¹zone within the park. It also identifies the following Management Objectives relative to the management of the resorts.

5.6.1 Management Objective – Alpine Resort Zone

The Alpine Resort Zone will be managed as a set of development nodes within which appropriate recreational infrastructure and visitor accommodation is concentrated. These facilities will:

- *Provide snow-based recreation opportunities;*
- *Provide interlinked opportunities for visitors to experience, enjoy and understand the values of the park; and*
- *Principally cater for the needs, interests and abilities of visitors seeking short-duration experiences in natural or natural-appearing settings in which they are likely to encounter relatively large numbers of other people.*

There has been some ¹²discussion regarding the potential for conflicting interests for the “land manager” between the conservation interests of the National Park and the commercial interest of operating an alpine resort.

Whilst the Draft Plan of Management acknowledges the different nature of the resorts within the Park context, it does not appear to clearly address the commercial interests of the resort as a separate entity nor does it (the plan) recognise the complex relationships it has with private operators and the significant investments of those operators in the resorts.

2.4 Development Controls

Development within the resort is managed by the “Department of Infrastructure, Planning and Natural Resources” (also known as DIPNR). This appears to be an appropriate arrangement providing a clear separation between the administration of planning controls and the “Land Manager”. There is a DIPNR office at Jindabyne.

If the “Land Manager” also has control of the development approval process it has a potential conflict of interest if its revenue is readily impacted by its consideration of development approvals.

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¹⁰ See reference no.16

¹¹ Refer to page 29 of the 2004 Draft Plan of Management, Kosciuszko National Park.

¹² From para’ 7, page 8 of reference 18.

2.5 Resort Profile

2.5.1 The Perisher Range Resorts

The Perisher Range Resorts are in the southern end of Kosciuszko National Park and situated 5.5 to 6 hours drive from Sydney or 7 hours from Melbourne.

Perisher Range Resorts were originally four separated villages with limited connecting ski trails, each catering for the needs of particular segments of the ski market. They have been placed in a number of Management Units with connectivity developed between the units. The units are Perisher, Smiggin Holes, Guthega and Blue Cow.

- *Perisher has the largest range of alpine and cross-country terrain and has become the principal focus of activity at the resort.*
- *Smiggin Holes generally caters for the less experienced skiers.*
- *Guthega provides for a smaller niche clientele with a strong cross-country and touring focus at an isolated location.*
- *Blue Cow has been developed as a day use area for alpine skiers and is serviced by the Skitube.*

Access to Perisher and Smiggin Holes is via approximately 35 km of sealed road from Jindabyne via the Kosciuszko Road. There is also access to Perisher and Blue Cow via the Skitube, which is located at Bullocks Flat on the Alpine Way Road, about 20 kms or 15 minutes drive from Jindabyne. Access to Guthega in winter is limited to an 11 km road the majority of which is sealed, linking the Kosciuszko Road at Pipers Creek to Guthega. Summer access to Guthega is generally via the "Link Road" from Smiggins to Guthega.

Perisher also currently provides the access point to Charlotte Pass by over snow vehicles.

2.5.2 Accommodation Profile

From the above we conclude the following to be the existing and proposed situation.

Location	Existing Beds	New Beds
Guthega	Currently one commercial lodge (hotel) and 9 club lodges Currently 236 beds	80 new beds in existing commercial and Club accommodation Includes 20 new beds in Ski Centre building
Smiggin Holes	Currently 1 hotel, 7 commercial lodges, 14 club lodges and 5 staff lodges Currently 886 beds	150 new beds in existing accommodation plus possibly in Gateway building
Outer Perisher Valley (North & South Perisher)	Currently about 80 commercial and club lodges Currently 1490 beds	116 new beds in existing accommodation
Perisher Village (Central Precinct)	Currently about 80 commercial and club lodges Currently 958 beds	800 new beds in existing and new accommodation Additional beds if not taken up by other precincts
Unallocated	NIL	"Floating unallocated 174 beds", pending environmental assessment.
TOTAL	3,570 Existing Beds	1,320 New Beds

2.5.3 Visitor Profile

Patronage of the resorts is generally made up of overnight visitors and day visitors.

What are day visitors in the Perisher Range Resorts?

It is likely that detailed analysis of the gate statistics may confirm the definition below, however, it is believed that there are two distinct groups in this category.

Firstly, there are the truly day visitors who visit the resort as a family or individually or as a group, probably using coaches or Skitube. The second group are those who stay at Jindabyne, because of the cheaper off-mountain accommodation and travel to the snowfields daily.

Perisher is not readily visited by day visitors from the major population centres (other than Canberra). The travel time for skiers from Sydney precludes day visitation to and from Sydney. See attached appendices for further analyses in CIE Report "Forecasting skiing demand for the Perisher Range Resort".

This definition is distinctly different from the Victorian experience where there is limited off resort accommodation. The majority of people who visit, do so on a daily basis (particularly, say at Mt Buller, where the distance from Melbourne is only two hours by car).

2.6 Stakeholders

For the purposes of this report we have identified the following as the principal stakeholders at Perisher Range Resorts.

- Perisher Blue Limited (PBL)
- National Parks & Wildlife Service (NPWS)
- SLOPES (Skiers & Lodge Owners at Perisher)

Through the principal stakeholders there a number of other interested parties, service providers or groups as follows;

- *Perisher Blue Limited*
 - *Staff, sublessees, suppliers, contractors, clients and shareholders.*
- *National Parks & Wildlife Service*
 - *Staff, suppliers, contractors, clients and taxpayers.*
 - *Department of Commerce (formerly Department of Public Works & Services or DPWS), Department of Infrastructure, Planning and Natural Resources (DIPNR) and NSW Treasury.*
 - *Roads & Traffic Authority of New South Wales (RTA)*
- *SLOPES*
 - *Ski Lodge Organisation of Perisher, Smiggins and Guthega Inc'. Being the siteholders/lease holders and user group.*
- *Chamber of Commerce- National Conservation Council*

3 Existing Management Arrangements

3.1 (PRRIS's Infrastructure Strategy)

We have reviewed the strategy that was prepared in March 2002. See below a summary of the main recommendations resulting from the Strategy.

The Strategy was prepared with a view to identifying shortcomings in the capacity of the existing infrastructure within the following contexts;

- A/ Capacity and capability of the infrastructure to satisfy existing demand and compliance with current performance expectations.
- B/ Capacity and capability of the infrastructure to satisfy the increased demands expected to result from the proposed resort growth.

The strategy identified a number of infrastructure shortcomings and upgrade requirements, particularly in the areas of water supply and sewerage infrastructure. The majority of that work has now been completed.

3.1.1 Existing NPWS INFRASTRUCTURE GROUPINGS

The strategy identified the following areas of infrastructure to be addressed.

Primary Infrastructure

1. Water Supply
2. Electricity Supply & Distribution Not part of this review.
3. Communications Networks Not part of this review.
4. LPG Storage and Distribution Supplied by others
5. Sewerage Services
6. Stormwater drainage
7. Internal Roads
8. Solid Waste (garbage disposal)

Secondary Infrastructure

9. Municipal Office Accommodation & Workshops
10. Public Facilities & Amenities
11. Emergency Services
12. Information Provision
13. Street & Directional Signage
14. Street Furniture & Lighting Lighting responsibility of Country Energy
15. Freight & Passenger Services
16. Medical Services

Upon examining the strategy and the supporting costs structures presented in the appendices to that report we have identified the following inconsistencies;

- The above infrastructure and service categories are not reflected in the cost structure.
- The organisational arrangements for the provision of these services are not evident nor are the costs able to be easily segregated.
- The large number of service/infrastructure categories makes analyses difficult.

We have also observed that there is some variance apparent in the interpretation of the various components of the NPWS's Municipal Services budget between that presented in the 2001

Infrastructure Strategy (PRRISS) and the 2004/05 operations budget. See later table 3.3.1 Operating costs.

¹³The name and make up of the various budget categories are too numerous and unclear.

The currently ambiguous budget structure also makes comparisons with other resorts difficult (see section 3.4).

For transparency we suggest there needs to be consistency and clear definitions for each budget category from year to year.

3.1.2 Treatment of GST

We understand that the Infrastructure Strategy (PRRISS) does not make provision for GST. Consequently none of our analyses make provision for GST.

3.1.3 Management Options

Appendix E of the NPWS Infrastructure Strategy (PRRISS) reviews a total of 9 possible management options for the future development of the Perisher Range Resort.

- NPWS Management (6 variants thereof)
- Head Lease Management
- Board of Management Model
- Excision of Resort from Kosciuszko National Park

The highest evaluation score being for the “Head Lease” option at 348 points and the 2nd highest being the BOOT variant of the Management by NPWS option. The “Board of Management” option scored 4th at 297 points.

With the exception of a criteria entitled “Responsibility and Accountability”, this process does not appear to have considered “transparency” or “representation of the interest groups” as evaluation criteria. The process appears to be subjective and lacks any discussion or explanation of the scoring or the weightings.

3.1.4 Data Anomalies

After analysis of the data provided in the NPWS Perisher Range Resort, Infrastructure Services Strategy, Strategy Report – 5th March 2002 it has been found that there are discrepancies in the infrastructure services costs.

In the above report on table G-7 in the appendix, Perisher Sewerage Service Capital Works Program the grand totals for each year is incorrect, as it does not include “Renewals – Sub Total PS No. 2 Renewals”. The 30-year totals are correct.

There are also problems with rounding as the reports only show whole numbers where it is clear from the totals that fractions are used in the base data values.

Table 3.3 Page 23 summarises these costs and appendix G has detailed breakdowns of costs. The totals of these two data sets are as follows;

Data Source	Capital Cost	Recurrent Expense	Total
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- _____

¹³ Refer to appendices 9.6

Table 3.3 - Calculated	\$69,965,000	\$75,543,000	\$145,508,000
Table 3.3 – Printed	NA	NA	\$145,492,000
Appendix G – Calculated	\$72,536,000	\$78,356,000	\$150,892,000

The printed data in table 3.3 has been adopted for our analysis. It should be noted that our suggested "ROADS" category (see below) includes Road, Stormwater, Signage and Street Furniture from table 3.3 and that our "ADMINISTRATION" category includes MSU Office/Workshop & Information Centre includes Communication Network from table 3.3.

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3.1.5 Suggested INFRASTRUCTURE GROUPINGS

To enable this review to be more effective, encourage transparency and more readily reconcile the existing cost and organisational structures, we propose the following altered service/infrastructure groupings.

MANAGEMENT & ADMINISTRATION

Management salaries and expenses
 Non specific administrative staff salaries and expenses.
 Telephone services, computers, stationary, postage, utilities, heating, power & light.
 Vehicles, office equipment and accommodation.
 Payroll and associated costs
 Protective clothing, insurance and other overheads & oncosts

OPERATIONS & MAINTENANCE

Primary Infrastructure

- | | |
|--|--|
| 1. Water Supply | Water Related Plant & Labour
Pump station running and maintenance costs.
Chemicals, UV Lamps and other consumables.
Meter reading.
Depreciation of water assets. |
| 2. Sewerage Services | Sewerage Related Plant & Labour
Pump station running and maintenance costs.
Sewage Treatment Plant running and maintenance costs
Chemicals, UV Lamps and other consumables.
Depreciation of sewerage assets. |
| 3. LPG Storage & Distribution | LP Gas Related Plant & Labour
Pump station running and maintenance costs.
Meter reading.
Depreciation of LPG assets. |
| 4. Internal Roads (local & common assets) incorporating
- Stormwater Drainage
- Street & Directional Signage
- Street Furniture & Lighting
- Parking & Traffic Control
- Snow Clearing
- General Grounds Maintenance | Roads and Carparks related Plant & Labour
Patching, Resealing and other maintenance costs.
Stormwater maintenance, cleaning drains, pits & litter traps.
Street lighting operating and repair costs.
Street furniture and signage repairs.
Car park operations
Snow clearing
Weed/pest control and litter management. |
| 5. Solid Waste (garbage disposal & recycling) | Collection and disposal of garbage and recyclables.
Litter bins
Regional Waste Facility annual contribution.
Rehabilitation of Sawpit Landfill |
|
 | |
| Secondary Infrastructure | |
| 6. Public Facilities & Amenities
- Municipal Office Accommodation & Workshops
- Information Provision | Building maintenance and repairs.
Cleaning of public facilities, toilet paper, chemicals etc.
Mechanical maintenance support and store.
Printing of brochures, displays and |
| 7. Emergency Services | Accommodation for Police.
Provision of fire hydrants in public areas.
Provision of ski patrol.
Provision of search and rescue support. |
| 8. Freight & Passenger Services | Provision of public transport facilities, shuttle bus form Jindabyne and village transport.
Provision of goods receipt and dispatch terminal. |
| 9. Medical Services | Medical Centre facilities, rental and accommodation. |

We suggest a formal chart of accounts structure would be based upon the above. See later discussions explaining the bases of some of these suggested arrangements.

3.1.6 Summary of NPWS Infrastructure Strategy (PRRIS) Recommendations

The Strategy presents the following ¹⁴ recommendations (numbered for subsequent reference only);

- | | |
|-----|---|
| (a) | NPWS tender a long term concession contract to finance and build the new infrastructure assets required and that the contract include the operation and maintenance those assets for a 20 year period. |
| (b) | At the end of the 20-year concession contract period, the provision of municipal services and any new infrastructure and renewal works is re-tendered for a further 15-20 year period. |
| (c) | The Government retains ownership of the Perisher Range infrastructure service assets which have a current value in the order of \$105M. The assets, which are built under the concession contract, should also transfer to Government ownership on satisfactory completion of construction. |
| (d) | The Government remit related developer contributions to the concession contractor and pay the concession contractor an annual fee (indexed for price movements). Funds to cover the fee to be collected through an appropriate combination of annual municipal service rates and usage charges, together with appropriate portions of annual rents and gate fees. The Government to retain responsibility for revenue collection and relevant risk. |
| (e) | The concession contractor to provide the capital funding not covered by developer contributions and to build any working capital costs into its annual fee bid for the tender. |
| (f) | The service contract includes a requirement for the concession contractor to meet the specified levels of service and to carry the operation and maintenance risks. |
| (g) | The concession contract include clauses which share the benefit of any capital works innovations and operating cost savings with the Government through reductions in the guaranteed annual fee. |
| (h) | Detailed funding options and charging structure should be pursued in conjunction with the stakeholders. |
| (i) | The existing Sewerage Levy arrangements to fund the (now completed) sewerage augmentation works are still applicable in accordance with Table 5.2 of the Strategy Report. |
| (j) | Development of a private sector financial model should be undertaken by an experience commercial accounting practise as part of any preparations for tendering the concession contract. |

Whilst there has been significant progress by NPWS in the development of expanded infrastructure as proposed by the report, the broader thrust of the recommendations, ie. a head lease or other form of management, such as a concession based tender and 20-year contract have not been progressed.

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¹⁴ From page 43 of reference no.9.1

3.2 Existing Service/Infrastructure Delivery Arrangements

From our review of the reference documents and site visits we have identified the following services and infrastructure delivery/provider arrangements.

MANAGEMENT & ADMINISTRATION	NPWS
OPERATIONS & MAINTENANCE	
Primary Infrastructure	
1. Water Supply & Distribution	NPWS
2. Sewerage Services	NPWS
3. LPG Storage & Distribution	Not currently Available
4. Roads (local & common assets) incorporating	
- External Roads (common assets)	RTA & NPWS
- Internal Roads	NPWS
- Stormwater Drainage	NPWS
- Street & Directional Signage	NPWS
- Street Furniture & Lighting	NPWS
- Parking & Traffic Control	PBL
- Car Parking	PBL
- General Grounds Maintenance	NPWS
5. Solid Waste (garbage disposal & recycling)	NPWS & Hans Oversnow
Secondary Infrastructure	
6. Public Facilities & Amenities	NPWS
- Municipal Office Accommodation & Workshops	NPWS
- Information Provision	NPWS
7. Emergency Services	Police, NSW Fire Brigade, Ambulance & NPWS
8. Freight & Passenger Services	NPWS & Hans Oversnow
9. Medical Services	NPWS

The above service delivery arrangements illustrate an uncommon and complex mix of provider arrangements. Visitors to the resort may not readily understand or comprehend these arrangements. Likewise there is some potential for overlap and omission.

The above excludes contractors, subcontractors and consultants.

Potential patrons, site holders and developers not familiar with these arrangements may be confused by this complexity and not readily understand the who or which organisation is responsible.

When the role of Land Manager and Development Control is layered over these arrangements the potential for confusion becomes even greater. This is further complicated when it becomes apparent that there is on-mountain and off-mountain based management.

3.3 Comparisons With Other Resorts

In New South Wales there are three alpine resorts. The Perisher Range Resorts and Mt.Selwyn are within the Kosciuszko National Park (KNP) and are managed directly by the NPWS. Thredbo is also within the KNP however a private company manages it under a head lease arrangement.

The other Australian alpine resorts are situated in Victoria and Tasmania. There are four residential Victorian resorts (Mt.Buller, Mt.Hotham, Falls Creek and Mt.Baw Baw) where the Land Management role is taken up by Resort Management Boards (RMB's). Lake Mountain and Mt.Stirling are non-residential cross-country skiing resorts. Dinner Plain is an alpine village and not an alpine resort. Dinner Plain is situated entirely upon freehold land and local government provides its municipal services. Alpine Resorts are defined in Victoria by the Alpine Resorts Management Act 1997.

In Tasmania, there are two ski resorts "Ben Lomond" and "Mt. Mawson". The state tourism website describes Ben Lomond as offering a full range of facilities. The Alpine Village is located at the base of the lift system and caters for skiing, snowboarding, cross country skiing, or skidoo rides. There are 400 beds, 350 car spaces and 6 lifts.



Mount Mawson is within the Mount Field National Park and about 1&1/2 hours drive from Hobart in southern Tasmania. The ski areas are at an altitude of about 1250m. Snow falls during winter generally allow skiing from mid July to mid September. There is no accommodation, 3 rope tows & 1 surface lift.

Whilst Mt.Donna Buang is an alpine resort, it has poor snow cover and considered as only a "snow play" resort with no accommodation. Parks Victoria manages it. Mt.St Gwinear is not an alpine resort but a cross-country ski area also managed by Parks Victoria. The Victorian Minister for Conservation appoints members of the Victorian RMB's. The RMB's are generally made up of people representing the various interested parties within the resort and may include a representative of the Lift Company, Lodge Owners, Ski Clubs and commercial operators and others such as environment groups etc. Board members are generally appointed for a term of 4 years.

The NPWS Infrastructure Strategy (PRRISS) makes a direct comparison of the revenues of the various resorts (see Table 5.5, page 34). That table suggest that the Perisher Range Resorts collect more revenue than the Victorian Resorts. However there is a considerable difference in the range of services provided across and within those resorts, see below a comparison of the services provided by each resort management agency.

There is a diversity of services provided by the different resorts as below;

	Land Manager	Water	Sewage	LPG	Roads & Carparks	Stormwater	Solid Waste	Freight & Passenger	Public Facilities	Emergency Services	Medical
NSW Resorts											
Perisher Range Resorts	NPWS										
Thredbo	Private										
Mt.Selwyn	NPWS										
Victorian Resorts											
Mt.Buller	RMB										
Mt.Hotham	RMB										
Falls Creek	RMB										
Mt.Baw Baw	RMB										
*Lake Mountain	RMB										
*Mt.Stirling	RMB										

 Service provided entirely by the Land Manager
 Service facilitated by the Land Manager

* Denotes non-residential resorts.

We note that there is a diversity of services provided by the various managers and a range of arrangements, eg. the Mt.Baw Baw RMB also operates the Lift Company and the only licensed premises at the resort. Also, the Mt.Hotham RMB provides a free village bus shuttle, which operates throughout the resort.

Likewise most of the Victorian RMB's provide Ski Patrol services, whereas at Perisher Range PBL provide the Ski Patrol services.

Mt.Hotham has a unique village and ski field geography that makes a shuttle service essential. Likewise Falls Creek and Mt.Buller also provide a limited shuttle service at a lesser level.

"¹Comparisons of rates and service charges between different areas are problematic, as it is difficult to find a common basis for comparisons".

Clearly any comparison of costs structures between the resorts needs to be carefully scrutinised before the costs can be compared properly and cost distortions are identified.

Refer to appendices for the following comparative tables;

3.3.1 PBL Funded Services/Infrastructure

To compare Perisher Range Resort costs with the major Victorian resorts we should identify the costs for the services provided by the other non-NPWS providers, (see earlier table section 3.2 Existing Service/Infrastructure Delivery Arrangements).

The following services currently provided by PBL are commonly funded at least partly by the “Land Manager” (ie. the Victorian RMB’s).

- PBL’s annual ¹⁵Car Park Operations & Maintenance costs for Perisher and Smiggin Holes are reported at \$752,623 actual costs for 2004.
- PBL’s annual Shuttle Bus Operations & Maintenance costs are reported at \$136,124 for 2004.
- PBL’s funding of Ski Patrol services (costs not reported as at time of writing).

The basis upon which these services operate is understood to be historical. The car park operation and maintenance costs are part of the current lease arrangement with NPWS. The real cost of providing these services is significant.

Day Visitors are significant users of the parking and shuttle bus services, (ie. non-skier and snow play day visitors included). We note that PBL have little or no opportunity to collect revenue from non-skiers to recoup these costs.

3.3.2 Other Services/Infrastructure Cost Distortions

We note that the NPWS operating budget does not appear to include any significant provisions for either “grounds maintenance” or “public information”. The existing budget only provides nominal amounts for weed/pest species control and printing etc. Any comparison with other resorts (Thredbo, Mt.Buller etc) would quickly identify these as inadequately funded areas.

A cursory inspection of Thredbo suggests it has a high level of grounds maintenance activity with well maintained public open spaces, litter free streets etc. Likewise the comparable Victorian resorts typically are well groomed with maintained public spaces, facilities, lawns, landscaped areas, street furniture, signage and lighting.

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¹⁵ From email by Ashley Blondel dated 11/10/04.

3.4 Perisher Range Resorts Asset Management Plan

Consulting Engineers URS Australia Pty Ltd were engaged by the Department of Commerce on behalf of the NPWS to prepare a draft "Perisher Ranges Resorts Asset Management Plan". We have reviewed that draft marked DRAFT 1 (FY 2003-2004) and refer to it by its acronym PRRAMP.

The PRRAMP is incomplete in its present form. However it does provide some structure for the future management of the various assets. It examines each asset type and presents an overview of the strategic and corporate objectives and the relevant legislative requirements. The report also presents the current/desired "levels of service" goals, future demand forecasts and lifecycle management plans etc. for each of the primary assets.

Unfortunately the Asset Management Plan postdates the NPWS Infrastructure Strategy (PRRISS). As a result the life cycle costing approach and recommendations are not reflected in the capital works program or the operating cost structure presented within the strategy. There appears to be no sinking fund in operation, nor are their formal depreciation or replacement strategies in place.

Local Government organisations around Australia have had in place formal asset arrangement strategies for some time. There are several Australian Accounting Standards that have been established for exactly that purpose. In particular we refer to AAS.27 and the life cycle cost planning set out under that standard.

Typically the life expectancy and serviceability limitations for physical services infrastructure in the alpine environment are considerably reduced in comparison to those of a typical local government environment. We believe these reduced life cycle expectancies can be planned for and readily adapted from procedures and structure provided within AAS.27.

3.5 Summary Existing Cost Structure

3.5.1 Existing Operating Costs

To progress the review process we have identified what describe as the "Typical Annualised Recurrent Costs". These costs have been drawn from operating costs as reported in the NPWS Infrastructure Strategy (PRRIS) Appendix G. The numbers we have used are intended to represent operating costs in a "typical year" and have been rounded as an approximation of "average annual operating costs" based upon the costs for 2002 and subsequent years. The numbers for 2004/05 are the budget figures from NPWS.

The "Typical Annualised Recurrent Costs" for the existing infrastructure is as follows;

	<i>2002 (annualised)</i>	<i>2004/05</i>
MANAGEMENT & ADMINISTRATION	\$904,000	\$1,072,220
OPERATIONS & MAINTENANCE		
Primary Infrastructure		
1. Water Supply	\$201,000	\$78,400
2. Sewerage Services	\$397,000	\$208,940
		\$720,000
3. LPG Storage & Distribution		
4. Internal Roads (local & common assets) incorporating	\$203,000	\$214,000
- Stormwater Drainage	inc' above	inc' above
- Street & Directional Signage	inc' above	inc' above
- Street Furniture & Lighting	inc' above	inc' above
- Parking & Traffic Control	\$38,000	\$19,000
- Car Parking		
5. Solid Waste (garbage disposal & recycling)	\$188,000	\$273,100
Secondary Infrastructure		
6. Public Facilities & Amenities	\$19,000	
- Municipal Office Accommodation & Workshops		\$153,100
- Information Provision	\$107,000	
7. Emergency Services		
8. Freight & Passenger Services	\$199,000	\$135,532
9. Medical Services	Inc' above \$10,500	Inc' above \$15,000
Total	\$2,266,500	\$2,889,292

Refer to appendices for a more detailed explanation of the costs and the infrastructure services included.

We note that significant increases are apparent in Solid Waste Management (which increased from \$188,000 to \$273,100) and Water/Sewerage (which increased from \$598,000 to \$1,007,340). Amounting to 45% and 68% increases respectively.

The first increase being largely related to increased levels of service and expectations. The latter increase being largely due to the development of the infrastructure, both as a service level expectation and an increase in capacity for the planned expansion.

3.5.1.1 Off-mountain Service Delivery

The division between the provision of “on-mountain” and “off-mountain” services by NPWS is not readily identified in the budget structure.

Some angst is ¹⁶evident between PBL and NPWS as regards what PBL perceives as the almost itinerant nature of NPWS and their on-mountain presence. PBL believes the ability of NPWS to respond to out of hour’s incidents and resolve crises is severely impinged by the apparent concentration off-mountain of upper level management. They also suggest that as a result NPWS is not part of the overall on-mountain community and lacks an insight into their needs.

3.5.1.2 Road Funding

The arrangements for road funding are unclear. The budget reference to local & common assets does not explain the relationship with the RTA and their sources of revenue.

The RTA’s role in the management of the access roads is consistent with the Victorian arrangements. In Victoria the main access roads to the resorts have been in the care of the state road authority VicRoads. The Resorts Management Act (1997) mistakenly placed the roads in the care of the RMB’s. We understand that oversight will be corrected by amending legislation shortly.

The involvement of the NPWS road services group is another layer of service delivery in an already complex arrangement.

3.5.1.3 Federal Funding

The report prepared by Bill Unkles “Comparison of Occupier Related Charges at Ski Resorts and Municipalities” identified a significant disparity in the level of funding received by resorts (Mt.Buller) in comparison with local government.

3.5.1.4 Budget Structure

As earlier, there appears to be some inconsistency in the structure of the operating budget which gives rise to a perceived lack of transparency.

Also there appears to be no direct link between revenue sources and costs.

The return of site rental and gate entry direct to the consolidated fund further obscures any link between revenue and costs. This observation is also reflected in the majority of submissions received by IPART on this subject.

There is currently no provision for the depreciation of assets within the budget structure.

There is an apparent shortfall in the level of services provided to resort users by NPWS. This shortfall is partly taken in some areas up by PBL. However there remains a significant shortfall in comparison to the services offered by comparable Land Managers the Victorian resorts.

The most apparent inconsistency between revenue and costs between Perisher Range (and Thredbo) and the Victorian Resorts is the ¹⁷loss of Gate Entry and Site Rental from the resort budgets to consolidated revenue.

The suggestion that the Perisher Range can operate with a \$3M budget is wrong, even when adjusting this amount by adding in the PBL costs (ie. car park operations, shuttle bus services and ski patrol), ie. at approximately \$1M.

Refer to appendix 9.8 “Share of Revenue by Type by Alpine Resort”.

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¹⁶ From PBL discussions 7th October 2004.

¹⁷ From para’ 7, page 3 of reference 18.

3.5.2 Existing Capital Works Program Costs

We have reviewed the capital works forecast as presented in the NPWS Infrastructure Strategy (PRRIS) and summarised the outcomes as follows;

Refer to appendices for the following;

- NPWS Forecast Infrastructure Services capital Costs 2000/01 Dollars as reported in the NPWS Infrastructure Strategy (PRRIS) Appendix G for 2002, (1 sheet)
- Summary of Capital Works planned from 1999 to 2030
A compilation of works planned by infrastructure type from the NPWS Infrastructure Strategy (PRRIS) Appendix G (1 sheet)

3.5.2.1 Capital Expenditure Since 2000

We understand that approximately \$28.5M of capital works has been undertaken on infrastructure within the resorts since 2000. In 2001 the allocation from consolidated revenue changed to a "repayable advance", which to date totals ¹⁸\$17.4M.

3.5.2.2 Repayable Advances

These "repayable advances" have been made to the Department of Environment and Conservation under section 9 Treasury Advances of the Public Authorities (Financial Agreements) Act 1983.

"The terms of the repayment have not yet been determined."

". . . . The outstanding interest as at 30 June 2004 is \$940,818. Only the principal is subject to interest. The interest rate as from 1 July 2004 is the "average" rate of 5.4%. Further advance payments up to \$2,900,000 are approved for 2004/05."

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¹⁸ From Treasury memorandum dated 13/10/04.

4 Review of the Existing Infrastructure

4.1 Infrastructure Asset Mapping

For the purposes of this review we have compiled a set of drawings depicting what we understand to be the extents, type and nature of the existing service infrastructure. Refer to appendices for copies of the drawings, a total of 19 sheets. Our further analyses are based upon the assumptions presented in these drawings.

The data presented on the drawings has been sourced from a range of sources (see references). A number of which have become redundant as a resultant of recent development works. We have amended the drawings to reflect the changes that we have become aware of. As at the time of writing we advise that some further work is required to fully “ground truth” this information.

4.2 Infrastructure Asset Register

Please refer to the appendices for our draft Assets Register. This register is a simplified and brief “Summary of Assets by Type, Value, Capacity and Extents”.

We note the NPWS Infrastructure Strategy (PRRISS) in 2002 stated that “¹⁹ infrastructure service assets have a current value the order of \$105M”.

See later below discussion - Asset Values.

4.3 Asset Values

4.3.1 Water Supply Asset Values

For the purposes of this report as regards the value of Water Supply infrastructure assets we have no better information than that which is presented in the NPWS Infrastructure Strategy (PRRISS). This is a concern however knowing that there have been substantial investments since that valuation.

We understand that the incomplete PRRAMP report by URS will remedy this situation. That information can be then utilised within our financial model.

4.3.2 Sewerage Asset Values

As for water, for the purposes of this report as regards the value of Sewerage Reticulation and Sewerage Treatment infrastructure assets we have no better information than that which is presented in the NPWS Infrastructure Strategy (PRRISS). This is a concern however knowing that there have been substantial investments since that valuation.

Again, we understand that the incomplete PRRAMP report by URS will remedy this situation. That information can be then utilised within our financial model.

4.3.3 LP Gas Storage & Distribution Asset Values

There is currently no existing large scale, centralised LP Gas storage or distribution infrastructure. Accordingly we propose that no asset value be assigned to this infrastructure.

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¹⁹ From recommendations 3rd dot point, page 43 reference 9.1

4.3.4 Road Asset Values

The Infrastructure Strategy (PRRISS) identified a ²⁰list of roads (with budgets) extents and locations to be constructed. We note that to date a number of roads have been constructed, however, the actual road lengths and locations constructed appear to differ from that described in the Strategy.

The level of service to be provided is hierarchical being based upon traffic volumes, ie. the inner roads are likely to be ²¹wider (say 5.0m) allowing for two way traffic and having higher numbers of traffic movements whilst the outer roads are site access roads and narrower (say 3.5m) with fewer movements. Additional economies can be utilised with one way traffic movements etc. The NPWS advise ²²that they have prepared an updated development program for the construction of the village road network. That program supersedes that described in PRRISS. IPART have directed that the brief for this report would be amended to allow that updated program to be considered as part of this report in lieu of that presented in PRRISS.

4.3.4.1 Published Roads Asset Value

The road asset values described in the Strategy are unclear and almost indiscernible.

The NPWS Strategy valued its road assets as follows;

From H.3 table H.1 (2000 \$M)	Roads & Drainage Existing Asset Value	\$9M.
From table I.2 (2001 \$M)	Roads & Drainage Existing Asset Value	\$73.1M
	New Assets to 2006	\$86.9M

The Asset Management Plan (PRRAMP) prepared by URS for DPWS & NPWS (dated April 2004) section 5.4.1.4 Asset valuation notes the following;

DPWS, 2002 Appendix J \$36.423M (based on forecast capital works programs from FY 2000/01 to FY 2004/05.
In net present dollars (2000/01) of \$14.193M and of assets existing in ²³FY 2000/01 of \$22.23M.

We assume that the significant variance is due to the inclusion of Kosciuszko Road, which we understand became an RTA asset in 2002.

The PRRAMP assumes that the stormwater and bridges components are included in the Road Assets values (for Bridges see page 6-7, section 6.4.1.4 Asset Valuations; also for Stormwater Drainage see page 7-5, section 7.4.1.4 Asset Valuations).

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²⁰ Refer Appendix G, page G 17 table G 15.

²¹ Refer page D-7 of appendix D, table D4. 80% of in-resort roads are single lane at (3.5m width) and 20% are dual lane at (5m width).

²² The NPWS initially provided a PowerPoint based presentation, which outlined the extent and sequence of construction. During a meeting (Queanbeyan 18/2/05) convened by IPART to review the draft of this report additional information including mapping and a spreadsheet with road lengths and estimates was made available.

²³ The PRRAMP attributes this information as being prepared by NPWS and "generated from the SAP/R3 financial management system".

4.3.4.2 Estimated Road Asset Value

To determine what the NPWS Road Asset replacement values are, we have compiled a spreadsheet listing the assets by type and length (see appendices). There are no current asset registers available detailing type or quantities of asset by type.

To prepare our estimates we have also developed a list of assets (see later) and a suggested construction program from reference documents, maps and aerial photos etc. We have also adopted replacement values per unit length or area of road/bridges, based upon the following construction costs.

Roads

- \$1,600/m for 7.0m wide concrete pavements, including stormwater drainage, signage and shared trenches for service relocations etc.
- \$1,050/m for 4.8m wide concrete pavements, including stormwater drainage, signage and shared trenches for service relocations etc.
- \$1,095/m for 7.0m wide asphalt surfaces and crushed rock pavements etc.
- \$750/m for 4.8m wide asphalt surfaces and crushed rock pavements etc.
- \$500/m for 4.0m wide gravel pavements etc.
- \$800/m for 7.0m wide asphalt to concrete upgrades.
- \$525/m for 4.8m wide asphalt to concrete upgrades.

Car Parks

- \$60/sq.m. for gravel car parks etc.
- \$90/sq.m. for asphalt surfaces and crushed rock car parks etc.
- \$150/sq.m. for concrete pavements etc.

Road Bridges

- Allow 140 sq.m assumed road bridge deck area
- \$1,500/sq.m. Steel Road Bridges
- \$1,700/sq.m. Concrete Road Bridges
- \$1,200/sq.m. Timber/Steel Road Bridges
- \$1,000/sq.m. Timber Road Bridges
- Allow 45 sq.m assumed foot bridge deck area

Foot Bridges

- \$1,000/sq.m. Steel Foot Bridges
- \$1,200/sq.m. Concrete Foot Bridges
- \$700/sq.m. Timber/Steel Foot Bridges
- \$400/sq.m. Timber Foot Bridges
- Allow 10m assumed culvert lengths
- \$500/lin.m. Concrete Culverts

From that assessment we have identified the following;

NPWS Roads	\$8.81M
NPWS Bridges	\$1.62M
<hr/>	<hr/>
Total	\$10.43M

We conclude from the above that the current reference to a Roads & Drainage Asset value of \$22.23M must include the car parks, which we understand are assets in the care of PBL. We estimate the replacement value of the car parks at \$5.95M.

4.3.4.3 Car Park Assets

The NPWS have made available an ²⁴extract from the PBL lease which describe the lessee as being responsible for the maintenance and ultimately the replacement of the car park assets at Perisher Valley, Smiggin Holes, and Bullock's Flat (the latter not being within the scope of this review).

Whilst the car parks are entirely funded by PBL and no NPWS funding is utilised for that asset class there remains no reason for its inclusion in this review.

4.3.5 Solid Waste Asset Values

The current assets assigned to the solid waste service include the following;

- Garbage Compactor Truck
- Landfill Compactor
- 2 x Landfill Dozers
- Various items of minor plant and equipment including skips, pumps, trailers etc.

These assets will become redundant once the proposed garbage collection service is tendered out and the regional landfill project is implemented. As a result these changes these assets would be liquidated.

The Infrastructure Strategy (PRRIS) reports an asset valuation as at 2001 for the solid waste assets at \$2.5M. It is unlikely that these values will be realised through liquidation.

4.3.6 Public Facilities & Amenities Asset Values

We understand that the public facilities and amenities assets include;

- The Municipal Services Office and Workshop, Public Shelter at Perisher. This facility is to be demolished as part of the Village Centre project.
- Various other minor assets.

The Infrastructure Strategy (PRRIS) reports an asset valuation as at 2001 for the public facilities and amenities assets at \$5.5M. We have no information to provide a basis for this valuation.

We also note the NPWS describe capital budget items under this category in the Infrastructure Strategy (PRRIS) including walking track works, litter bins, street lights, public toilets, helipad construction, freight and medical centre fittings and furniture etc. These items appear to be misplaced in our view given that there are more appropriate categories in the budget structure??

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²⁴ That extract was made available by NPWS during a meeting (Queanbeyan 18/2/05) convened by IPART to review the draft version of this report.

4.3.7 Emergency Services Asset Values

We understand that the Police, Fire and Ambulance Services each retain their own assets and infrastructure. There are no reported assets for the NPWS as Land Manager. See later references to medical centre and Police station rental arrangements.

4.3.8 Freight & Passenger Services Asset Values

Again we understand that the NPWS do not retain any significant assets in this area. The NPWS do however rent space at the Skitube terminal which they on sell/rent to Hans Oversnow. However there is a bus shelter near the Skitube terminal at Perisher, which we understand, is a minor asset.

4.3.9 Medical Services Asset Values

Again we understand that the NPWS do not retain any significant assets in this area other than furnishings etc. As earlier the NPWS rent space at the Perisher Skitube which they also on sell/rent to the service provider ().

4.4 Management & Administration

From our review of the available information we note that the treatment of Management and Administration costs within the PRRISS and the MSU budgets varies from service to service and year to year. See below our notes regarding separation of administration and management costs.

The variable nature of the budget structures makes analysis difficult. To facilitate any continuing analyses and review we propose that these anomalies need to be resolved by adopting a uniform treatment of the budgets.

4.5 Existing Infrastructure

4.5.1 Water Supply and Distribution

4.5.1.1 General

The water supply system has undergone significant augmentation in recent years. From our review of drawings and documentation relating to the upgrading works recently constructed, and our inspections and consultation, it appears works have been undertaken in accordance with recommendations contained in the report "Perisher Range Resorts Water Supply – Concept Report" prepared for NPWS by DPWS. Capital expenditure on the augmentation has been consistent with estimates contained in PRRISS.

4.5.1.2 Service Levels (Reticulation)

Network analysis carried out by DPWS indicates that based on projected peak demands residual pressures throughout each of the resorts will be adequate with pressures ranging over the values tabulated below.

Location	Residual Pressure at Peak Demand
Perisher Valley - Central Perisher	80-100 m
- South Perisher (West)	42-67 m
- South Perisher (East)	39-85 m
- North Central Perisher	35-75 m
- North Perisher	80-90 m

Smiggin Holes	- West	22-28 m
	- Commercial	41-46 m
	- East	19-35 m

No network analysis was carried out for Guthega but simple analysis based on the static head available from the reservoirs of between 50m and 90m, relatively small demands and reticulation pipe work of 150 mm and 100 mm diameter residual pressures are considered to be adequate.

4.5.1.3 Service Levels (Fire Fighting)

The Australian Standard for Fire Hydrant Installations AS.2419 Part 1 recommends that each hydrant throughout the network be able to provide a flow of 10L/s with a minimum residual head of 15 metres at the hydrant.

Network analyses undertaken by DPWS show that this standard of service or better is provided throughout Perisher Valley.

At Smiggin Holes analysis is presented which shows that hydrant flows are inadequate at the eastern extremity of the reticulation with the supply reservoirs at their level prior to 2002. New tanks have since been installed at a higher level that would have improved the level of fire protection. No analysis is presented however in the DPWS report to quantify the level of service now provided. It is our interpretation of the DPWS report that hydrant flow at the eastern extremity of Smiggin Holes is now at or about the level required by AS 2419 Part 1.

No network analysis was carried out by DPWS in relation to fire demands at Guthega. The Concept report however concludes that fire flows are adequate by similar reasoning to that above in relation to performance under peak demands. We concur with this analysis.

In addition to pressure and flow rate requirements AS.2419 requires minimum storage levels to be maintained in reserve for fire fighting:

Based on the provision of 4 hours supply for the operation of a single hydrant the requirement at each resort is for a minimum reserve storage capacity of approximately 150 kL.

Storages sizes at each of the resorts are as follows:

<i>Location</i>	<i>Storage Volume</i>
Perisher	2 x 600 kL = 1.2 ML
Smiggin Holes	2 x 200 kL = 0.4 ML
Guthega	2 x 80 kL = 0.16 ML

Each of the resorts currently has storage capacity equal to or greater than the estimated future peak day demand. Under normal circumstances given a reliable supply source storage of approximately one third of peak day demand is required to accommodate diurnal variation in demands. On this basis each of the storages is considered to be of adequate volume. It is unclear however if controls are in place to ensure a reserve is maintained in the storages for the exclusive purpose of fire fighting.

4.5.1.4 Service Levels (Quality)

The bacteriological quality of water supplied to the resorts has historically not complied with the Australian Drinking Water Guidelines (ADWG)²⁵, with occasional failures particularly when creek flows are high²⁶. The systems total reliance on UV disinfection at Perisher and Smiggin Holes has been addressed in part by the provision of back up chlorination to take effect upon failure of the UV system

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²⁵ Refer PRRISS Appendix F, page F-3 table F3

²⁶ Refer PRRISS Section 3.2, page 14

or the occurrence of high turbidity levels, which render the UV disinfection ineffective. No chlorination facilities have been installed at Guthega leaving this system open to failures to meet the required bacteriological standard.

It is noted, that when provided, the chlorination systems have been installed only as back up systems to UV disinfection and there is no attempt to provide a chlorine residual in the water. Department of Health recommends that such a residual be provided at all times in Public Water Supplies to guard against recontamination of the supply following initial disinfection. Neither recently completed or works proposed on the Capital Works program address this issue. No commentary is provided in the PRRISS report on this matter.

It is also noted that the Perisher Range Resorts Infrastructure Services Strategy in the body of the report refers to the inclusion of water filtration in the capital works program at year 15. No such allowance appears, however in the capital works, renewals or recurrent cost estimates contained in the appendices to the report.

Please see appendices for site photography depicting some of the water supply assets at the time of our inspections, ie. the Rock Creek Perisher Valley Pump Station and Reservoir.

4.5.1.5 Security of Supply

The water supplies are drawn from relatively small catchments, which can be severely impacted by localised dry periods.

Yield analysis undertaken by DPWS for Perisher and Smiggin Holes indicates that with no allowance for the passing of environmental flows, off line storage at Perisher is adequate for existing demands with the storage at Smiggin Holes being marginally inadequate. If the two supply schemes are interconnected then the DPWS conclude that no additional storage would be required to meet current demands, with the provision that there be no allowance made for the passing of environmental flows.

It is noted however that the subsequent licences issued for extraction of water for the resorts are conditional upon the provision of environmental flows.

Additional storage is required under all scenarios to provide for estimated future demands even with the implementation of demand management practices.

The size of additional storage required is very much dependant upon the operational framework developed for the provision of environmental flows. Options for provision of additional storage canvassed in the DPWS Concept Report range from 18 to 71 ML at Perisher and from 7 to 21 ML at Smiggin Holes. The option of interconnecting the supply of the two resorts is also canvassed. An allowance has been made in the capital works program for installation of such a main.

No allowance has been made in the PRRISS capital works program at either Perisher or Smiggin Holes for development of this additional storage capacity.

The implementation of storages over the range of capacities discussed would obviously have environmental implications at each of the respective sites.

No Yield analysis was carried out at Guthega. The DPWS Concept Report notes that the catchment is of similar size to that of Perisher and Smiggin Holes but that the demands are much smaller. We understand however that "Cease to Extract" notices have been issued by DIPNR in relation to the Guthega supply. This indicates that, as a minimum, some off stream storage is required to provide for environmental flows in Farm Creek. We understand that there has been some preliminary investigation into the option of utilising the Guthega dam as a source of water.

No decisions have yet been made on the level of off line storage required and that this will be determined following analysis of the success of the Demand Management strategy currently being put into place. We understand that currently Department of Commerce are undertaking a study into the provision of off line storages of varying sizes up to 150 ML including investigation of the environmental effects of construction of the storages themselves. We also understand that an amount of up to \$5,000,000 has been earmarked for headwork's to enable compliance with environmental flow

requirements by the construction of additional storage and other works. This amount is not, however recognized in the Infrastructure Strategy (PRRISS) as it postdates that document.

4.5.1.6 Demand Management

The introduction of water meters combined with pay for use and reduction of system losses through replacement of old and leaky mains are the two main avenues proposed to reduce overall water consumption.

The current strategy is to monitor the success or otherwise of Demand Management and to reassess the need for off line storages following the analysis of such information.

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4.5.2 Sewerage

4.5.2.1 Treatment

The sewage treatment plant and associated infrastructure has been significantly augmented in recent years. That investment has been costly, however we acknowledge that the Perisher Valley Sewage Treatment Plant is a unique item of infrastructure. It is the highest (in elevation) Sewage Treatment Plant operating in Australia and faces a number of unique operating conditions. It is also the only fully enclosed treatment plant (under one roof) in the alpine region.

These modifications have had to take place within an existing plant which has had to continue to function during the upgrade and expansions. This imposes constraints and costs that would not be apparent if a new plant had been developed.

Sewage systems are expensive to operate in alpine areas. Cold temperatures and long distances can adversely effect biological activity necessary for the treatment processes to take place effectively.

Sewer systems are always at risk of "infiltration" from snowmelt, groundwater, rainwater or cross connections with other infrastructure.

Prior to upgrading works carried out in 1999 and 2000 the treatment plant regularly failed to meet its licence conditions for discharge. Works undertaken during the upgrade have included:

- Upgrading of Blower Capacity
- New Aeration Capacity
- New inlet works, screening & flow division
- Biosolids dewatering
- Building & civil works
- Pumping Equipment
- Diesel generator and fuel tank
- Heater fans
- Boilers, heat exchangers to increase temperature of ²⁷EATs.
- SCADA system
- Sludge Storage
- Odour control and landscaping

As a result of the upgrading works the plant now operates within the parameters of its discharge licence. The plant capacity has also been augmented to cater for anticipated growth. Plant capacity is now rated at 2 ML/day with a treatment capacity of 8,000 EP. Current loading is estimated at approximately 6,000 EP.

Allowance has been made in the capital works program for implementation of chemical dosing and filtration for additional phosphorus removal in anticipation of changing discharge licence conditions.

The NPWS have in place a series of measures to monitor and quantify the level of infiltration. Those measures include "smoke testing" and volumetric water balance or analyses.

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²⁷ Extended Aeration Tanks.

Our review of the sewage treatment plant has been limited, ie. in assessing this infrastructure we have not reviewed any performance data, taken any samples, or conducted any independent analyses, ie. effluent test results etc.

The works installed, however, are consistent with the provision of a facility that has both the capacity and robustness required to meet process and operational requirements in its unique environment.

Whilst being a fully enclosed treatment plant offers a number of benefits as regards operating efficiency etc, there are some draw backs, ie. a higher level of infrastructure to maintain and some OH &S risks associated with operating in an enclosed space in a remote location. These aspects appear to have been considered in the design with particular attention taken to exhausting sewer gasses from the building.

Please see our appendices for site photography depicting some of the sewerage assets at the time of our inspections, ie. the Smiggin Holes and Guthega Pump Stations, also the Treatment Plant.

4.5.2.2 Collection

Upgrading works have been undertaken in recent years to the pumping stations within the collection network. These works have included increasing pumping capacity, upgrading of electrics, provision of overflow capacity and back up power in case of failure. Allowance is made in the Capital works program for renewal of assets and for investigations to assist with the reduction of excessive infiltration.

From our inspection of the works and understanding of available documentation we believe that the sewerage collection and transfer network has generally been upgraded to a satisfactory standard both functionally and in relation to OH &S issues.

4.5.2.3 Summary of Capital Works Program (Sewerage)

The capital works program required to upgrade the collection and treatment system to cater for the anticipated growth has to a large extent been completed. There is some allowance, however, for the future improvement of effluent quality as may be required by tightening of discharge conditions. The majority of capital expenditure programmed over the next 30 years is related to renewals and most of this is programmed to be expended beyond a 20-year horizon.

Works completed to date are in accordance with the recommendations of the "Perisher Range Sewerage System Upgrading and Augmentations EIS 1997" as subsequently amended. Amendments to the original recommendations include:

- deferral of construction of 4th EAT
- deferral of construction of tertiary filtration
- installation of process heating to promote establishment of nitrifying bacteria
- installation of sludge storage facilities.

These modifications from the originally proposed works have been the subject of considerable scrutiny by EPA and DUAP with Ministerial approval being received in February 2002..

The sewerage system overall, and in particular the treatment plant, has been provided with a robustness suited to operation in a remote and difficult environment combined with the challenges of fluctuating and at times shock loads.

4.5.3 LP Gas Supply & Distribution

4.5.3.1 Existing Arrangements

As earlier there are presently no substantial centralised LP Gas storage or distribution assets within the resort.

4.5.3.2 Heating Oil

There is a high level of heating oil consumption. Heating oil is not considered an environmentally friendly fuel. It is a significant greenhouse gas contributor, poses spillage risks in storage and delivery. In ground oil tanks also take up costly space and place constraints upon site utilisation and development.

Site holders generally fill oil tanks up in advance of the snow season to ensure they have adequate supplies and to avoid refilling them during winter. This can be a significant impact upon cash flows during periods of poor snow fall, causing reduced levels of occupancy and consumption.

4.5.3.3 Why LP Gas

LPG is a cleaner fuel and, if reticulated, offer savings in pre-season advance fuel purchases etc. burns cleaner, and offers a reduced potential environmental hazard. A centralised storage and reticulated system will also enable the removal of in ground oil tanks (and above ground tanks).

The introduction of a reticulated LP gas system would also enable a review of existing appliances and installations to ensure compliance with current codes and regulations. There are already a number of bulk LP Gas storages around the resort. These also would be removed as part of a reticulation system, freeing up more land and reducing the clutter of infrastructure.

The scattered bulk oil and LP Gas storages are a potential hazard during a bush fire and also a constraint upon development. We note that there is an over snow based bulk LP Gas delivery service currently on offer at the resort. As at the time of writing the basis of operations for this service is unknown, ie. is it a business licensed by NPWS? Was it competitively tendered?

Please see our appendices for site photography depicting some of the existing LP Gas bulk delivery service arrangements at the time of our inspections, ie. the bulk LP Gas over snow transport vehicle parked at Perisher.

4.5.4 Roads (local & common assets)

4.5.4.1 External Roads

The main access road (Kosciuszko Road) is a significant road, with a good vertical and horizontal alignment. The pavement is in good condition, well shaped, with good drainage, well marked and signed. Some sections of the road are noted to be relatively new.

The more recently developed sections of the road have sealed shoulders and offer a high level of service to road users. However, the upper sections of the road lack sealed shoulders. As a result snow-clearing operations cause significant loss of pavement materials from the shoulders. See appendices for site photos numbered 1 & 42 dated 16/09/04. The "Pilot Infrastructure and Landscape Plan" (PILP) observes that snow clearing activities conducted on unsealed surfaces has a degrading effect upon the environment contributing to saltation, aesthetic impacts and damage to the road.

The use of snow blowers to clear the road surfaces creates an unsightly effect with the discoloured snow blown along the roadsides and car parks. This is also a significant source of sediment and other contaminants that impacts upon ²⁸stormwater quality.

See appendices for site photos numbered 48 to 52 dated 16/09/04.

For discussion regarding Skitube refer later to Freight and Passenger services.

4.5.4.2 Internal Road Systems

The updated NPWS road construction program is focused upon the development of reinforced concrete road pavements in place of the existing gravel road network.

The road network wanders around the terrain linking the various sites, which are spread out across the landscape. The network is dominated by dead end roads and lacks through roads. Through roads are preferred for alpine conditions. Vehicles performing U-turns have to move slowly making them prone to bogging. Similarly turning movements can place pedestrians and other road users at risk. The sites in the outer areas of Perisher Valley are sparsely scattered and the buildings well separated. As a result the length of road pavement is unnecessarily long and inefficient.

The road system also provides the only formal stormwater drainage infrastructure for the village. Alpine areas generally do not have formal roof drainage because of the effects of snow in roof gutters, however, the roof runoff is collected in a series of surface drains that then typically disperse the flows. The roads, however, traverse the landscape and collect surface flows and formalize those flows alongside or beneath the road via culverts. Good modern drainage design practice calls for the dispersal of stormwater at every opportunity rather than the progressive collection, accumulation, concentration and redirection of flows as practiced in the past. See below reference to "Urban Stormwater Best Practice Environmental Guidelines CSIRO 1999".

The diverse management arrangements for roads, currently in place, make this a difficult issue to manage and readily address.

See appendices for site photos numbered 17 & 22 dated 16/09/04.

The PILP report observes that the undeveloped state of the existing roads contributes to environmental degradation. It also proposes a hierarchy of roads, design standards and better parking control to limit off-road parking. The report observes that over snow vehicles have an adverse effect upon road surfaces and describes the "churning" ²⁹effect during periods of marginal snow cover. The report also recognises the significant role road alignments can have as corridors for the

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²⁸ From the Perisher Range Resorts Environmental Study October 2000.

²⁹ From Pilot Infrastructure and Landscape Plan, section 3.7, page 9, 1st para'.

reticulation of ³⁰ services infrastructure and the potential for shared trenches (or combined services trenches).

Significantly, the PILP report also proposes that some roads should be closed due to their inappropriate siting, steep grades and adverse environmental impacts. The report acknowledges the NPWS has been active in responding to the situation, having closed and revegetated tracks in some areas.

The formal designation of over snow transport roads is recommended by the PILP report as a measure intended to reduce road surface and environmental damage. The report is also critical of fuel deliveries during winter.

The PILP report also observes that ³¹ Heating oil, Elgas supply to tanks or garbage collection must be serviced from the road.”

4.5.4.3 Stormwater

The existing stormwater infrastructure is largely centred on road surfaces and car park pavement runoff. To date there is little or no evidence of progress in the implementation of the recommendations of the Environmental Impacts report recommendations.

The recent road construction program has completed a number of new concrete road pavements. Concrete pavements have a demonstrated improvement in performance levels as regards stormwater runoff, durability and serviceability.

See appendices for site photo number 6 and 22 dated 8/10/04.

The application of the principles described in “Urban Stormwater Best Practice Environmental Guidelines CSIRO 1999” ³² are an excellent starting point for the future development of the stormwater infrastructure.

4.5.4.4 Street & Directional Signage

The existing situation indicates that there is little or no signage for streets within the resort and no directional signage. The PILP report recommends a range of measures to improve the village streetscape from both an environmental and aesthetic perspective and also from the serviceability perspective. The report describes landscaping solutions including retaining walls, colour palettes and makes reference to “Volume 5 Landscape Manual for Perisher Valley”.

4.5.4.5 Street Furniture & Lighting

There is no street furniture and or lighting within Range resorts. The only exception is a small amount of street lighting in Guthega. The proposed village design by PBL will incorporate thematic furniture and lighting to enhance the village appeal and convenience for users.

4.5.4.6 Traffic Control

The “Traffic Management Plan for Kosciuszko National Park” prepared by Parsons Brinckerhoff in September 2002³³ presents a number of suggestions for signage for both traffic control and information on weather conditions and chain fitting. See later reference to alternate gate entry proposal at Sawpit Creek.

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³⁰ From Pilot Infrastructure and Landscape Plan, section 3.4, page 9, 2nd para’.

³¹ From Pilot Infrastructure and Landscape Plan, section 5.1, page 37, “Driveways”.

³² See Appendices Reference 14

³³ See Appendices Reference No 19

4.5.4.7 Car Parking

See earlier reference under Roads Management Arrangements. PBL's car park operations are significant.

The car park pavements appear to be in generally poor condition. There appears to be an inadequate level of investment in resurfacing. The surfaces are extensively cracked, potholed and in disrepair. The proposed Perisher Village Centre development will necessitate extensive areas of the Perisher central car park being impacted by the development. We presume this may be part of the reason the maintenance of this area has been neglected as PBL have the responsibility to maintain, replace, repair and rebuild the car parks.

See appendices for site photos numbered 54 and 16 to 19 dated 16/09/04. Also photo number 25 dated 8/10/04.

Given that PBL have both maintenance and replacement responsibilities under the terms of their lease, we presume that the present deteriorated condition of the car park pavements is evidence of a flawed lease. The advanced deterioration suggests that the pavements have not been adequately maintained.

4.5.4.8 Paths

The PILP report observes that the village precinct shows sign of environmental damage and is vulnerable to further degradation if management practises do not change. The report³⁴ recommends that the pedestrian movement should be facilitated with the development appropriately designed networks of "paths and steps" in conjunction with the development of the village roads infrastructure.

4.5.5 **Solid Waste (Garbage Disposal & Recycling)**

4.5.5.1 Existing Arrangements

The NPWS have a number of bulk bins assembled at various sites for the collection of waste and recyclables. The NPWS operate a compactor truck which collect the waste from the bins and transports them to the NPWS operated land fill at Sawpit. The site holders are responsible for the delivery of the waste and recyclables to the bins. The bins are labelled and colour coded to aid the correct sorting of the waste into the correct bins by the site holders or their contractors.

The PILP report (1998) observes the adverse effects of providing over snow collection services to remote sites and supports road³⁵ based solid waste collection systems.

See appendices for site photo numbered 2 dated 16/09/04 also photos numbered 1 and 16 dated 8/10/04. Hans Oversnow transport also offer a twice-weekly collection service based upon a \$7.50 per bag charge for the collection of putrescible waste.

4.5.5.2 Waste Management Report

The existing landfill site is approaching the end of its useful life, as are the other landfill sites in the region. In 2003 the NPWS, Snowy River Shire Council and Cooma Monaro Shire Council engaged engineering consultants URS Australia Pty Ltd to advise them upon Waste Management options. As a result the NPWS joined with the Councils to sign a Memorandum of Understanding for the development of Regional Waste Services and to form a Regional Waste Management Committee under the provisions of the Local Government Act to oversee the process.

In 2004 the Regional Waste Committee commissioned a detailed investigation report into the provision of waste collection and transfer services for the Perisher Range Resorts. A draft final report³⁶ dated

³⁴ From Pilot Infrastructure and Landscape Plan, section 5.1, page 38 "Parks & Steps".

³⁵ From Pilot Infrastructure and Landscape Plan, section 5.1, page 37, "Driveways".

³⁶ See Appendices Reference 9.4

September 2004 was published with the title “Waste Management Options for the Perisher Range Resorts, Kosciuszko National Park, NSW”. That report presents waste collection data for the area, presents a number of options, a financial analyses and makes recommendations for the collection, transport and disposal of waste and recyclables. The report also concluded that the continued operation of a landfill site at Sawpit Creek is neither desirable nor economically feasible. Following an initial review the author has been requested by NPWS to undertake further investigations and the results of that further report have yet to be produced.

See appendices for site photos numbered 30 to 41 dated 16/09/04, depicting existing landfill site.

That report separates its considerations for the lower and upper mountain areas. It discussed a number of scenarios including garbage collection services (on cleared roads, over snow, transfer stations etc) and included consideration of the disposal of waste from Charlotte Pass.

The report makes a range of recommendations including the development of a transfer station at the comfort station site at Smiggin Holes. During our discussions with PBL they indicated a concern about the appropriateness of that location, both in terms of location and cost.

The report also canvassed collection service options including a cleared road collection service. It also recommended that the existing skip bins be replaced with new “Sulo 1,100 litre bins or equivalent” and the construction of waste huts for the commercial sites outside the Perisher Village Centre.

4.5.5.3 Regional Waste Management Group

The Regional Waste Management Group is seeking to develop a new regional landfill facility. That facility is likely to be situated at a location closer to the main population centres requiring longer haulage distances and result in increased operating cost. From 2004/05 the NPWS will be ³⁷contributing \$75,000 per annum (to be confirmed) towards the development of a regional waste facility.

However we note the NPWS Municipal Services Unit Budget 2004/05 suggests a Solid Waste budget of \$273,000. - a substantial increase from \$188,000 per annum in 2002.

The 2004/05 budget describes the regional waste facility annual contribution as being only \$40,000. Also a further contribution to the rehabilitation of the tip at Waste Point of \$50,000 and a LEMP (ie. a Landfill Environmental Management Plan) contribution of \$10,000. The 2004/05 budget also describes a \$75,000 recycling contract not mentioned in the 2002 document.

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³⁷ From NPWS Infrastructure Strategy appendix G Projected Works Schedules, table G.22.

4.5.6 Public Facilities & Amenities

4.5.6.1 Existing Facilities

The existing public facilities and amenities at Perisher are limited to the Visitor Centre, within the Municipal Office & Workshops building. The facilities provided include a public shelter with a notice board, general signage, public information and a toilet facility incorporated. We understand this building was originally developed as a site office for the Skitube project and later taken up by NPWS. It is proposed for demolition due to the impending 800 bed village development and replacement in another location at Perisher

This building although clean is in a run down condition and we suggest not suitable as a facility typical of tourism based enterprise. They are poorly situated, under utilised by the public and not readily recognisable as the centre for public facilities and information. The orientation of the building is poor and its floor plan not conducive to the throughput of large numbers of visitors. See appendices for site photos number 15 dated 16/09/04.

The presence of the garbage skips, the compactor truck and maintenance vehicles contributes to a perception that the area is not frequented by the general public.

4.5.6.2 Municipal Office Accommodation & Workshops

The proposed village centre development includes the redevelopment of the existing municipal office accommodation facilities, the information centre and the workshop.

4.5.6.3 Information Provision (Information Centres)

The provision of information services provided by NPWS within the resorts is presently limited to the Visitor Centre at Perisher. As above the centre is under-utilised by the general public. It is not situated in an area visited by the general public.

Visitors can view a series of information panels and take pamphlets from the centre. There is a small customer service window through which they can seek information from NPWS staff, during business hours. The staff also hand out information and sell maps to visitors.

There is an area of 57 square metres planned within the new Village development which would be appropriate for the provision of Visitor Services and Information.

4.5.7 Emergency Services

Perisher Valley has the following emergency services located within the Village.

4.5.7.1 NSW Police Service

We understand the NPWS rent the office space at the Skitube terminal at Perisher to accommodate the Police Station from PBL.

A police station is currently centrally located with access to over snow and vehicular transport. It operates during the winter season and throughout the remainder of the year Police services are provided from Jindabyne. Generally up to 6 officers are stationed at the Police station during the winter season.

We understand the office accommodation arrangements are poor. The offices are cramped and their skidoos are housed in the Ambulance station some distance from the terminal. Police vehicles are parked outdoors, adjacent to the station but in the congested commercial vehicle area.

See appendices for site photo number 13, dated 8/10/04.

4.5.7.2 NSW Fire Brigade

We understand that NPWS's major contribution to Fire Protection for the resort is the provision of fire hydrants with adequate water supply and pressure for the fire brigade to respond to fires.

A permanently staffed, dedicated Fire Station is located on the Kosciuszko Road in the centre of Perisher Valley. It was established in 1997. The service is attended both summer and winter. At least one officer is in attendance throughout the year. During the winter season, there is a 4-man crew on site 24 hours a day, 7 days per week. The roster is 28 days on and then they rotate back to Sydney. There are 5 crews in the rotation and the same crews are used all the time.

See appendices for site photos numbered 9, 10 & 11 dated 16/09/04.

The site was established in 1997. Communication is via 000 as there is no link to the NPWS radio. There are combined radio channels for all emergency services. Contact to Perisher Blue is via phone. They advise that they have experienced no water pressure problems in any of the incidents that have occurred in the Resort and there has been an adequate water volume.

Bushfire coordination is undertaken by NPWS.

Typically there are about 600 incidents per year which typically comprise:

- Electrical fires, which occur in both Lodges and Commercial businesses.
- Gas leaks
- Automatic fire alarms.

The stand-alone station has been well constructed and has all the necessary facilities and equipment for efficient and effective operation. In particular, they have the following equipment:

Qty	Description
1	On-road fire tanker
2	Over snow fire tankers (Haaglund's)
2	Skidoos
2	All terrain quad bikes

4.5.7.3 NSW Ambulance

A permanently staffed, dedicated Ambulance Station is located on the Kosciuszko Road in the centre of Perisher Valley. It is adjacent to the Fire Station and the close proximity to one another makes for good communication.

The Ambulance Station is operated during the winter season only with service provided from the Jindabyne station during the remainder of the year. The Station has been well planned and constructed. It provides all the facilities and equipment necessary for efficient and effective operation. In particular, they have the following equipment:

Qty	Description	Comment
1	Haaglunds Over snow Vehicle	Trailer Ambulance
2	All terrain quad bikes	
2	Skidoos	
1	Aluminium boat with outboard	
1	Kassbohrers over snow ambulance	
1	Normal Road Ambulance	
1	Covered trailer	Stainless
2	Sleds for (horizontal) patient transfer	
1	Rubbish sled	
	<u>Police</u>	
3	Skidoos	(stored in Ambulance station)
	4 Wheel Drives	

See appendices for site photos numbered 9 & 12 dated 16/09/04.

4.5.7.4 Helipad

The NPWS have recently constructed a formal Helipad for medical evacuations and emergency other purposes. The Helipad has been developed adjacent to the church, having access to cleared roads and in close proximity to the village centre, ambulance station and medical centre.

The NSW Ambulance Service and the Perisher Valley Medical Centre coordinate the use of the dedicated helipad facility that is located at the rear of the Ambulance and Fire Stations.

The Helipad is an authorised landing site only, ie. is not formally a licensed landing site.

The NPWS operational obligations for the Helipad are limited to maintenance of the access track and snow clearing, the ³⁸landing lights and windsock.

4.5.7.5 Ski Patrol

The Ski Patrol is managed by PBL. The Ski Patrol is located in buildings on the front valley ski slope. The buildings also provide accommodation for ski patrol staff. The facility only operates during the winter season and combines both professional and volunteer workers.

We understand that NPWS do not contribute to the provision of ski patrol services or infrastructure.

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³⁸ No confirmation of landing lights being installed.

4.5.7.6 State Emergency Services (SES)

The SES is primarily a volunteer organisation and provides support to the incident commander during major incidents. The Jindabyne SES gives assistance with minor or major incidents.

A Disaster Plan has been developed for incidents within the Snowy River Shire Council area, which outlines the response to disaster and major incidents as well as the responsibilities of the appropriate emergency services. The area covered by the Plan includes the Perisher Valley. In most major incidents or disasters the NSW Police have the responsibility to take overall control.

Perisher Blue has developed their own emergency procedures for the management and coordination of incidents throughout the Perisher Range Resorts.

4.5.8 **Freight and Passenger Services**

4.5.8.1 Freight

The NPWS budget provides for the rental of space within the Skitube terminal for the transfer of goods to and from road/rail transport to over snow vehicles. The terminal has become a significant freight interchange with a high level of transfers to and from commercial vehicles and over snow transport.

See appendices for site photos number 3 dated 16/09/04 and photo 14 dated 8/10/04.

4.5.8.2 Skitube Rail Service

Skitube transports a significant number of patrons and goods to and from the resort via Bullocks Flat. It is a significant piece of infrastructure, which is managed and owned by private operators. PBL expressed concern about the current gate entry pricing structure being a disincentive to Skitube users. In particular they refer to the fixing of that price as a proportion of the entry fee charged to bus or coach patrons.

The car park at Bullocks Flat is a significant piece of infrastructure. The management and care of which rests with Skitube lessees.

4.5.8.3 Bus Services

We understand that NPWS does not operate a shuttle bus service from Jindabyne to Perisher. In-resort bus services are provided by PBL (see earlier discussion) as a free service. That service concentrates on the transfer of patrons to and from Smiggin to Perisher.

They operate the following vehicles.

- 3 x 52 seat buses
- 2 x 22 seat buses

We note there is an open bus shelter at Perisher adjacent to the Skitube terminal. We do not know of the tenure or ownership of this shelter. See appendices for site photo number 5 dated 16/09/04.

4.5.8.4 Oversnow Transport Services

We understand that the NPWS have little input to the provision of over snow transport services. The use of over snow vehicles (including skidoos) is regulated. Also Hans Oversnow has an operating license, which returns revenue to the NPWS. This licence expires in 2006 in line with a clause in the Skitube lease related to areas used for over snow transport management, freight and medical services. As above they operate from facilities at the Skitube terminal that is rented by the NPWS.

4.5.9 Medical Centre

4.5.9.1 Accommodation

The NPWS contribution to the provision of medical services is limited to the rental floor space in the Skitube terminal at Perisher from PBL to accommodate the medical Centre.

The Medical Centre is located at the eastern end of the Skitube Terminal at Perisher Valley. The floor space of about 200 square metres, is rented from PBL at a commercial rate. It provides emergency and general health care service on a bulk-billing basis. In consultation with the Department of Health, NPWS 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. The medical centre is closed during the off-season, and services are provided from Jindabyne.

See appendices for site photos numbered 5 & 6 dated 16/09/04 and photo number 12 dated 8/10/04.

4.5.9.2 Medical Services

The on-site Doctor for the Perisher Range Resorts has also been the doctor at Thredbo for the last 15 years.

In his opinion the centre was located correctly as it was accessible over snow and by road. In addition, the proximity to the Skitube means that patients who need to return to their cars in Bullocks Flat can be sent there comfortably in a wheelchair or on a trolley, and / or a wheelchair can meet them at the station. Both the Ambulance and Ski Patrol have access to the Medical Centre and transfer to the helipad is only a short distance by road. The Doctor advises that the majority of his patients transfer out of the Medical Centre either direct to vehicles outside the Centre or vehicles at Bullocks Flat.

4.5.9.3 Incident Statistics

The incident statistics for Thredbo are 4.5 to 5 accidents per 1,000 skier days. Perisher currently runs at 70% of this rate, or 3 to 3.5 accidents per 1,000 skier days.

The Medical Centre provided treatment to 4,500 people over the last 18 months. Daily workload during the season is typically 70 to 80 people, but on a bad day this can increase to 90 to 95 people.

During the season there are typically 500 broken wrists and 100 broken legs.

5 Review of PRRISS (Perisher Range Resorts Infrastructure Services Strategy)

5.1 Water Supply and Distribution

5.1.1 PRRISS Proposal - Water

Works identified in the DPWS Concept Report form the basis for the works program contained within the PRRISS. The main elements of augmentation works included in the PRRISS capital works budget are as follows:

- Construction of two new reservoirs providing a peak days storage improving reliability of supply
- Expansion of raw water storage in part in relation to provision of environmental flows
- Upgrading of UV disinfection facilities to meet projected demands
- Installation of hypochlorite dosing facilities as a back up to UV disinfection when turbidity of raw water exceeds 1NTU.
- Augmentation of various transfer mains both pumped and gravity
- Augmentation of various pump stations including provision of diesel generator back up to improve reliability of supply
- General works improvements in relation to OH &S issues at various facilities
- Refurbishment works at various weirs
- Decommissioning of North Perisher Weir

The majority of these works have been implemented in accordance with the DPWS and PRRISS reports.

Exceptions to this include:

- Linkage of Perisher and Smiggin Holes supply networks to enable sharing of source water
- Provision of additional off stream storages to cater for environmental flow requirements

The PRRISS report mentions that an allowance has been made in the capital cost projections for the installation of water filtration in the future to meet anticipated demand for a higher quality water supply from consumers. No such allowance has however been included in the capital cost estimates appended to the PRRISS report.

Based on our interpretation of the combined water supply capital works programs contained in Appendix G of the PRRISS report total capital expenditure over the period 2001/02 to 2029/30 is approximately \$13.3m. The majority of this expenditure relates to works recently completed as described above. Capital works expenditure projected by PRRISS beyond 2005/06 relates essentially to allowances for significant renewals and refurbishment of works after periods of approximately 10, 20 and 30 years. Such allowance would seem prudent.

Operating costs are tabulated in Appendix G of the PRRISS report generally being of the order of \$230,000 pa. We note that the recurrent costs listed in the PRRISS report include allowance for increasing costs each year for consumables such as power and chemicals associated with increased demand for water as patronage of the resorts increases.

The recurrent cost estimates contained in the PRRISS report include an item for each of the resort supplies for "Purchase of Water @ \$100/ML" amounting to a cost of approximately \$23,500 per year in 04/05 increasing in line with projected increasing demands. We are advised by NPWS that at present bulk water is supplied to the resorts at no charge.

In addition to the above the PRRISS report also increases recurrent costs by 1% per year as a "Cost Contingency". The net effect is that by the end of year 30 all recurrent costs are calculated to be 30% higher than in year 1. The report contains no explanation as to the need for this cost contingency.

Over the 30 year period 2000/01 to 2029/30 the total estimated recurrent cost included in the PRRISS report is approximately \$8.0m

5.1.2 Earth Tech Proposal - Water

Generally, the works either implemented or proposed as a result of the PRRISS are consistent with good engineering principles for the provision of a water supply scheme and are constructed with sufficient robustness to provide a satisfactory level of service in a demanding environment. Works constructed to date have the capacity to provide supply to meet demands of the planned expansion of the resorts. The capital works program for water supply is therefore the same for both the growth and no growth scenarios.

Potential weaknesses in the current strategy include:

- Lack of provision of chlorine residual to protect supplies from recontamination following UV disinfection.
- No monetary allowance in the Capital Works Program for installation of water filtration plant even though it is flagged in the report as being provided in year 15.
- No monetary allowance in the Capital Works Program for provision of off stream storage or other headwork's to ensure that environmental flow requirements of the extraction licences can be met
- No resolution of environmental flow issues and hence no security of supply for either existing or expanded development.

The Australian Drinking Water Guidelines strongly recommends the provision of residual disinfection in any potable water delivery network but recognises that this is not always easy to achieve. Risks due to recontamination of water supplies can be minimised by the implementation of practices such as:

- Isolation of the supply system from the external environment (roofing and vermin proofing of storages etc)
- Chlorination of affected mains following repair works
- Installation of appropriate backflow prevention devices

We understand that the above practices are routinely undertaken by operations staff.

Earth Tech recommends that a risk assessment analysis be undertaken for each of the individual water supply systems with a view to development and implementation of a Risk Management Plan to properly resolve the requirement or otherwise for residual disinfection. Earth Tech makes an allowance of \$60k for risk analysis and preparation and implementation of a Risk Management Plan for the Perisher resorts with a further \$250k for implementation of residual disinfection.

Possible filtration of the water supply is flagged in the PRRISS report though no allowance is made in the capital works program for the implementation of such works. The need for filtration of the supplies is dependant upon a number of factors including:

- Risk of catchment degradation due to bushfire activity

- Ability of offline storages to act as settling basins or to be of sufficient volume so as to be able to allow poor quality water to bypass the storage
- Source of water (we understand that alternative sources of water for the resorts are being considered eg Guthega Dam)
- Changing consumer expectations

It is beyond the scope of this report to investigate the need or otherwise for the introduction of filtration. We recommend, however, that the current investigation into the provision of raw water supply to the resorts consider issues in relation water quality in conjunction with issues of reliability and the protection of environmental flows. Earth Tech have been advised by NPWS that works to be undertaken in 2004/05 include the provision of additional monitoring equipment throughout the system to better account for bulk water movements including system losses. An amount of \$200k has been included in the capital works budget for this item.

The capital works program prepared by Earth Tech makes no allowance for the provision of filtration plant to any of the Perisher Resort supplies.

Total projected capital expenditure for the period 2000/01 to 2029/30 is estimated to be approximately \$18.4m. All figures are presented in 2000/01 dollars.

Capital expenditure estimates for the period 2000/01 to 2029/30 prepared by Earth Tech differ from those prepared by PRRISS in the following respects.

Figures for 2000/01 through to 2003/04 represent actual capital expenditure.

Figures for 2004/5 to 2006/7 have been modified to include:

- construction of the Perisher to Smiggin Holes connecting main (\$350k),
- implementation of additional monitoring equipment (\$200k),
- preparation of Risk Management Plans (\$60k)
- and the implementation of residual disinfection (\$250k).

Figures for 2007/08 and 2008/09 include a nominal amount of \$5m for augmentation of headwork's associated with the provision of environmental flows.

Figures beyond 2009 are estimated to be as per the PRRISS report.

The recurrent cost estimate over 30 years contained in PRRISS is approximately \$8.0M compared to the revised estimate prepared by ET of \$5.8M.

In the main Earth Tech recurrent costs have been calculated based on figures obtained from the 2004/05 NPWS Municipal Services Budget combined with one-off items contained in the PRRISS recurrent costs listing.

ET estimates of recurrent expenditure for 2003/04 and preceding years have been based on the figures contained in the NPWS Municipal Services Budget for 2003/04. Estimates for year 2004/05 and thereafter are again based on figures in the budget for 2004/05. No actual current expenditures have been included for preceding years. All figures have been adjusted to 2000/01 dollars.

It is of note that the operation and maintenance costs reported for 2003/04 and projected for 2004/05 in the budget are lower than those contained in PRRISS. The three main contributors to the difference in estimates are as follows:

- Power costs contained in the 04/05 budget are significantly lower than those contained in the PRRISS document at \$22,600 compared to \$37,400. We assume that the more recent figures obtained from the current budget are the more accurate.

- At present bulk water is provided to the resorts free of charge. The Earth Tech recurrent cost estimates assume the continuance of this practice. The PRRISS estimates however include allowance for purchase of water at \$100/ML amounting to approx \$23,500 pa. Should the resort management arrangements change there may be a strong case for the imposition of such charges in line with State Government policy at the time.
- Earth Tech estimates for recurrent costs have not been inflated by the Cost Contingency amount of 1% included in the PRRISS estimates.

Should the planned expansion of the resorts not take place then there will be some reduction in recurrent expenditure due to lower use of consumables such as power and chemicals. Based on a zero growth assumption the total recurrent cost estimate for the 30 year period is \$5.1m approximately \$700k less than the estimated recurrent cost associated with the planned expansion.

We note that the recurrent expenditure program contained in PRRISS makes no allowance for an apportionment of Administration staff, outdoor staff, vehicle costs, Office and workshop accommodation to provision of services related to the water supply scheme. These costs have been included in the Administration budget. For the sake of consistency and to enable comparison we adopt the same methodology. It must be recognised however that the true cost of provision of water services is therefore not reflected in these estimates.

5.2 Sewerage

5.2.1 PRRISS Proposal - Sewer

Works to be undertaken in relation to Sewerage upgrades are not clearly identified in the PRRISS report. The report, issued March 2002 states that the sewerage service at Perisher *“was recently upgraded to meet the relevant legislative requirements and to meet the projected loads”*. There is no description in the report of the nature of those works. Works associated with the recent upgrade and included in the PRRISS capital works program are essentially related only to the provision of additional sludge storage.

The sewerage system has undergone a series of significant upgrades since the preparation of a report entitled “Perisher Range Sewerage System Upgrading and Augmentation EIS – 1997” as amended by subsequent submissions to the Minister. That report considered three upgrading strategies and recommended adoption of Option 3 which consisted essentially of the following elements:

- New inlet works
- New Extended Aeration Tank (EAT)
- Additional Blower capacity
- Additional chemical storage and dosing facilities
- Modifications to the catch/balance pond
- New Sludge handling and dewatering system
- Associated civil works

In addition to recommending the above works the report also recommended against the installation of additional sludge storage.

Following issue of the EIS amendments were made to the program of works as follows:

- Construction of new Extended Aeration Tank Deferred
- Construction of sludge storage included
- Process heating included

As noted previously Ministerial approval to departures from the originally proposed program was obtained in February 2002 following extensive discussion and reporting to both EPA and DUAP.

Construction of sludge storage facilities have allowed the full treatment capacity of the EATs to be utilised. Prior to provision of these facilities one of the tanks was required to be used towards the end of the peak season for sludge storage, thus reducing the capacity of the plant from its nominal 8000 EP to approximately 6000 EP.

The installation of gas heating to maintain process temperatures in the range 10-12 degrees centigrade has been achieved by the injection of hot water (treated effluent) into the sewage inflow. Some inefficiency in the heating process was noted in the "Report on Performance for the Perisher Valley Sewerage Treatment Plant – August 2001 GHD". We understand that these have been addressed by operations personnel. Heating has been introduced to the process to ensure that temperatures are maintained in a region that will ensure stable environment for nitrifying bacteria necessary for the treatment of ammonia in the waste stream. This is particularly important for plants such as the PVWTP that experience shock loads.

Works constructed to date have the capacity to service the planned expansion of the resorts. The capital works program for the sewerage system is therefore the same for both the growth and no growth scenarios.

Capital expenditure in the year 1999/00 was reported in PRRISS as approximately \$5.5m. We have been advised however that the corrected figure is approximately \$7.0m

The PRRISS capital works program indicates that the majority of works required for the system upgrade had been undertaken at the time of writing of the report with capital expenditure for the years 00/01 through to 03/04 totalling approximately \$2.65m. Actual capital expenditure over that period is reported by NPWS however as being approximately \$7.89m. The net result of these apparent differences is that over the period 1999/00 to 2003/04 the PRRISS capital cost estimates for that period were estimated at approximately \$8.15m whereas actual expenditure is reported at approximately \$14.89m.

With the exception of those works described above the majority of the remainder of the capital works program contained in PRRISS is related to renewals. The total capital works program over the period 2000/01 to 2029/03 is estimated in the PRRISS report to be \$11.9m.

Operating costs are tabulated in Appendix G of the PRISS report generally being of the order of \$450,000 pa. We note that the recurrent cost estimates contained in PRRISS are based on continued growth of patronage of the resorts with a resultant increase in the cost of consumables over time (eg power costs for pumping). The recurrent cost estimates also include a 1% increase in recurrent costs per annum as a Contingency allowance. The purpose of such an allowance is not clear.

Over the 30-year period 2000/01 to 2029/30 the total estimated recurrent cost included in the PRISS report is approximately \$15.6m

5.2.2 Earth Tech Proposal – Sewer

The capital works program required to upgrade the collection and treatment system to cater for the anticipated growth has to a large extent been completed. It would be prudent however to make some allowance, for the future improvement of effluent quality as may be required by tightening of discharge conditions. NPWS advise that the treatment plant is currently meeting the phosphorus discharge level target of 0.3 mg/L. This is mainly achieved through the addition of Aluminium Sulphate to the process. We understand that there has been some discussion with EPA regarding acceptable levels of trace aluminium in the final effluent. Should it be determined that the current level of Alum dosing is not sustainable over the long term then it may be necessary to reduce the use of this chemical. If this were to occur or if the target discharge level for phosphorus of 0.3 mg/L were to be tightened then it may be necessary to introduce tertiary filtration to the plant. Following discussions with NPWS an allowance of \$2m is made in the year 2009/10 for the possible implementation of

tertiary filtration. The need or otherwise for inclusion of this item on the capital works program should be reviewed on a continuing basis.

The sewerage system overall, and in particular the treatment plant, has been provided with a robustness suited to operation in a remote and difficult environment combined with the challenges of fluctuating and at times shock loads.

With the possible exception of a requirement to improve effluent quality over time with changing discharge licence conditions the capital works program adopted by Earth Tech from the date of this report is based on the same program as contained in the PRRISS report with the majority of works being related to renewals and most of this is programmed to be expended beyond a 20-year horizon. Earth Tech do not propose the implementation of any significant capital works outside of those contained in the PRRISS program.

The total cost of capital expenditure over the period 2000/01 to 2029/30 is estimated by Earth Tech to be approximately \$19.2m. All figures are presented in 2000/01 dollars.

As previously discussed the majority of the difference between this figure and the \$11.9m contained in the PRRISS report is due to capital already expended.

We note that the total capital cost estimate for the implementation of upgrading works recommended by the Perisher Range Sewerage System Upgrading and Augmentation EIS – 1997 was \$10.2m including provision for filtration. Capital expenditure to 2003/04 has amounted to approximately \$17.2m with an additional amount of \$2m to be spent on filtration.

Recurrent costs have been calculated in the main based on figures obtained from the 2004/05 Municipal Services Budget combined with one off items contained in the PRRISS recurrent costs listing.

ET estimates of recurrent expenditure for 2003/04 and preceding years have been based on the figures contained in the Municipal Services Budget for 2003/04. Estimates for year 2004/05 and thereafter are again based on figures in the budget for 2004/05. All figures have been adjusted to 2000/01 dollars.

Adjustments have been made as follows for years after 2004/05.

- Recurrent estimate for 2005/06 has been reduced from that budgeted for 2004/05 by \$200,000 in recognition of an extraordinary item contained in the 04/05 budget for geotechnical stabilisation works associated with Perisher STP.
- Recurrent estimate for 2006/07 and thereafter has been further reduced by \$50,000 in recognition of a high level of repair work carried out in 04/05. For the purpose of our estimate it has been assumed that similar money will be expended in 05/06 but that after that date repair works will be minimal.
- Recurrent estimates for Guthega and Blue Cow sewerage have been reduced after 2004/05 by \$7,000 each in recognition of one off pump remediation works undertaken in that year.

Introduction of gas fired heating at the STP has resulted in a significant recurrent cost being incurred in relation to supply of the gas. The estimated cost for supply of gas included in the 2004/05 budget is \$95,000. We understand that a report on the “Proposed LP Gas Heating of the Sewage Inflow” prepared by Elgas in conjunction with a heating consultant estimated gas consumption of the order of \$35,000 per year³⁹ prior to its adoption. It may be possible that gas consumption could reduce over time as operators become more attuned to operation of the plant with this facility and are able to utilise

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³⁹ We note that the Elgas report estimated a consumption of 73,000 litres (for June/July/August) and note the budget indicates they are currently using in excess of 200,000 litres per year. We understand the onsite storage was initially limited to 18,000 litres, requiring replenishment via oversnow transport. The storage capacity may have since been upgraded.

heating more efficiently. Conversely heating requirements may increase with increasing loads on the plant due to growth in visitor and bed numbers.

The recurrent cost estimate over 30 years contained in PRRISS is approximately \$15.6m compared to the revised estimate prepared by ET of \$19.0m. Essentially this amounts to approximately \$150,000 per year in additional recurrent cost.

Our review of the PRRISS identified no indexation, but a series of provisions at 5 year intervals which allow for scheduled events such as “a review of asset conditions”, “environmental procedural audits” etc. We support this.

Earth Tech has sought additional information from NPWS in relation to the calculation of recurrent cost figures in Appendix G of the PRRISS report. Analysis of the figures used to calculate O&M costs in that report reveals the following significant differences to the figures contained in the 2004/05 MSU Budget. All figures are displayed as \$2000/01.

Comparison of PRRISS & MSU Budget 2004/05 (Converted to 2001 dollars)

	PRRISS	MSU Budget
<u>Sewerage Treatment Plant O&M</u>		
Power (Electricity)	\$70,358	\$35,500
Gas (Heating)	\$5,000	\$84,400
Desludging including catch pond	\$46,236	\$66,600
Chemicals	\$31,218	\$62,200
Laboratory Consumables	\$5,412	\$17,800
<u>Perisher Valley Sewerage (non STP)</u>		
Electrical/Mechanical Contractors	\$0	\$26,600
Totals	\$158,224	\$293,100

The items listed above would appear to account for the majority of the discrepancy between the estimated recurrent costs included in PRRISS and those of the MSU budget, which has been taken as the basis for the development of recurrent costs by Earth Tech.

In addition to the above the Earth Tech estimates do not include the increase in recurrent costs of 1% per year by way of a Cost Contingency assumed in the PRRISS estimates.

Should the planned expansion of the resorts not take place then there will be some reduction in recurrent expenditure due to lower use of consumables such as power, chemicals and LPG. Based on a zero growth assumption the total recurrent cost estimate for the 30 year period is \$16.5m approximately \$2.5m less than the estimated recurrent cost associated with the planned expansion.

We note that the recurrent expenditure program contained in PRRISS makes no allowance for an apportionment of Administration staff, outdoor staff, vehicle costs, Office and workshop accommodation to provision of services related to the water supply scheme. These costs have been included in the Administration budget. For the sake of consistency and to enable comparison we adopt the same methodology. It must be recognised however that the true cost of provision of sewer services is therefore not reflected in these estimates.

5.3 LP Gas Supply & Distribution

5.3.1 PRRISS Proposal – LP Gas

The PRRISS suggests that at the time of writing (March 2002) the NPWS were negotiating with Elgas to provide a “centralised gas distribution network”. There is an existing storage and some limited

reticulation infrastructure at Perisher. There are no cost provisions suggested in the PRRISS capital works or operating budgets to facilitate this. We suggest there will need to be nominal provisions to meet the costs of preparing documents, tender and contract administration.

We were recently advised that the NPWS are now considering the preparation of a tender specification for the development of a centralised LP Gas storage and distribution system.

5.3.2 Earth Tech Proposal – LP Gas

5.3.2.1 Development Methodology

We propose that the right to develop the LP Gas infrastructure should be market tested through a public tender process.

We understand that there are no existing concessions, contracts or other rights in Elgas' favour that grant them privileges over other prospective suppliers or developers. Consequently we suggest there is no basis for the NPWS to negotiate directly with Elgas.

The development of a centralised LP Gas reticulation system at Perisher Range Resorts should be a concession based tender arrangement to ensure a cost effective outcome for the consumer and the State (NPWS). A centralised storage facility will make the use of larger capacity road tankers viable and introduce significant economies of scale in transport, handling and purchasing power.

A large capacity storage facility would also warrant the use of a deluge system for fire protection and other more sophisticated levels of risk management.

5.3.2.2 Tender Specifications

The successful tender/operator would be responsible for making new service connections, recovering payments from consumers, maintaining service levels, responding to development proposals and compliance with the relevant codes and regulations.

The capabilities of the tenderers will vary as will their estimate for the potential business, interpretation of the relevant codes etc. Accordingly the potential response from tenders may vary considerably, tenderers may also see that as a disincentive. Tender evaluation will also be difficult unless the requirements of the tender specification are made quite clear and specific.

We suggest that such a tender process would include the following elements;

- Clear definition of the technical infrastructure standards that apply.
- Clear definition of the qualitative requirements for the LP Gas to be supplied.
- A conceptual design solution to ensure appropriate placement and extents of infrastructure.
- Implementation of supportive regulatory measures to encourage the removal of oil tanks etc.
- A fixed term (say 25 years) lease through which the developer/operator has access to install and operate the infrastructure.
- A fixed term (say 25 years) concession arrangement or license which defines the terms and conditions under which the developer/operator conducts his business.

There are significant legal and engineering support costs associated with the preparation of the tender documents, administration of the tender process and implementing the contract.

5.3.2.3 Concession Options

The development of a bulk LP Gas storage and associated reticulation system is well suited to a concession-based contract. There is currently a strong private sector presence and capability available to participate in a competitive tendering process, for the development and operation of this type of asset.

Based upon the experience of other ⁴⁰ resorts with LP Gas reticulation systems we envisage the Perisher Range Resorts would potentially consume from 600 to 700 tonne of gas per annum within 3 to 5 years. This quantity of gas will make the development of this infrastructure an attractive commercial prospect. The likely development costs for this infrastructure are estimated to be of the order of \$3 to 3.5M.

Likely tenderers for such a contract would include but not limited to the following;

- Elgas
- Kleenheat
- Mobilgas
- National Power Services (Western Australia)
- Origin Energy
- GEO Co.'

The operator is required to be a licensed LPG supply and maintenance firm.

Any concession-based contract should include an annual license fee and a return to the "land manager" for the continued occupation of the land to conduct a business. That return may be based upon a % of ⁴¹turnover or fixed on a "length of trench" or "area" based lease.

5.3.2.4 Sewerage Treatment Plant LPG Usage

The NPWS recently upgraded the ST Plant and incorporated a significant LP gas fired boiler room. The 2004/05 Operating budget indicates that the estimated LPG consumption cost will amount to \$95,000 per annum.

These consumption levels require significant storage capacity and advance purchases of fuel before the snow season. Any economies to be offered through bulk storage and reticulation may translate into substantial savings for the NPWS and site holders.

5.4 Roads (local & common assets)

5.4.1 PRRISS Proposal – Roads

5.4.1.1 Road Development

The updated NPWS road development program proposes a rolling program of road construction based upon an "all concrete road pavement solution". We note that the actuals to 2004 planned by PRRISS are lower due to some of that work scheduled not actually been constructed. We understand that this is due to unavailability of funds.

As earlier (refer this report clause "4.3.4 Road Asset Values"), IPART have directed that in recognition of the updated road development strategy adopted by NPWS, that the brief for this report would be amended to allow that updated program to be considered as part of this report in lieu of that presented in PRRISS.

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⁴⁰ The Alpine Resorts Commission initially developed the reticulated LP Gas systems at Mt.Buller in 1991. That system now consumes from 1,200 to 1,400 tonne per annum.

⁴¹ This is the current arrangement at Mt.Buller. The Mt.Buller LP Gas bulk storage system was acquired by Elgas and the reticulation was acquired by Indigo Way Services as the result of a privatisation tender outcome in 2002.

We note that the Internal Road development program outlined in PRRISS described a capital works program for the Stormwater & Road Services valued at ⁴²\$13,840,000 (for the 5 year forecast) and at ⁴³\$21,711,000 (for the 30 year forecast).

The updated NPWS road development program from 2004/05 valued at \$19,320,892 over a 5 year period. This figure has not been adjusted back to 2001 dollars.

5.4.1.2 Management Arrangements

The management arrangements for roads within the Resorts are complex and involve a number of different management agencies and service providers. Briefly those arrangements are as follows;

- NPWS manages most of the internal roads, ie. the village site access roads and the roads of the national park.
- NPWS internal road services group maintains certain resort roads by arrangement.
- RTA manages the Kosciuszko Road and the Alpine Way.
- PBL manages the car parks and the various ski field access roads.

Each of the above organisations funds the maintenance of those roads from different sources. The RTA and NPWS seek funds from Treasury for the development of these assets. The NPWS also seeks contributions from site holders within the resort. All three agencies separately engage the same snow-clearing contractor to clear roads of snow during winter. This is a source of confusion as the contractual arrangements are different for each agency.

The roads and car parks contribute the majority of the stormwater runoff for the resorts. They are also the principal source of pollutants for the receiving waterways. This observation is supported by several references including the PRRISS and PILP

The ⁴⁴major access roads are currently in the care of the RTA as are most major thoroughfares in NSW. This is consistent with road management arrangements elsewhere and contributes to a continuity of service levels, standards, signage and management practises. Road users unfamiliar with the area would not necessarily readily appreciate, anticipate or comprehend the need for a change in these arrangements.

5.4.1.3 Car Parking

The public car parks are maintained and managed by PBL. Extensive sections of the Perisher and Smiggins car parks are in an advanced state of deterioration, having extensive structural pavement and surface failures. These areas no longer drain freely and require major pavement repairs and resurfacing. Other areas will retain structural capacity in the short term, however, the surfacing is badly oxidised and in need of crack sealing and rejuvenation or resurfacing.

There appears to be no direct revenue source for PBL to recover any costs for this service under their lease with NPWS.

The NPWS Infrastructure Strategy (PRRISS) omits the development and maintenance of car parks from its consideration. We have observed that the car parks are in a deteriorated state. Whilst the Perisher car park will be impacted upon by the proposed Village Centre development, its poor surface and significant expanse have adverse implications upon the quality of stormwater runoff (refer to appendices for existing conditions photography).

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⁴² From table 3.1, page 19 of PRRISS.

⁴³ From table 3.2, page 21 of PRRISS.

⁴⁴ Kosciuszko Road and the Alpine Way.

5.4.2 Earth Tech Proposal – Roads

5.4.2.1 Road Development

We generally support the program proposed by PRRISS with some modifications regarding a prevailing preference for through roads (or loops) to form nodes, wider roads for through roads etc. Also we propose to reschedule the work originally scheduled to have been constructed by now, that was have not been completed under PRRISS.

Snow clearing operations impact heavily upon the quality of stormwater runoff, particularly on gravel pavements and to a lesser extent bituminous surfaces.

Previous reports have also identified bituminous spray surfacing and asphaltic surfacing as a significant source of stormwater pollutants. We believe that the long-term impacts of the extensive areas of unsealed road surfaces have a more detrimental effect than the short term beneficial effects of a bituminous surface. In our view the development of concrete roads is unnecessarily delaying the surfacing of the roads because of the unavailability of a long term commitment for funds.

Concrete road pavements have a life expectancy of better than 25 years whilst conventional asphalt surfaced pavements will last 15 years in the alpine environment. In our view staging the development of the roads and utilising bituminous surfaces as an interim measure until they are concreted, will accelerate the process and provide improved environmental and operational benefits at a faster rate.

5.4.2.2 Integration of Car Parks & Roads Management Responsibilities

We propose that the management of the village roads, car parks and stormwater drainage should be considered as one single asset class under the care of one accountable service provider.

Most ⁴⁵visitors to the resorts interact with the village roads and car parks. The provision of information, regulatory and directional signage, street lighting and furniture is also a subset of the roads and car park infrastructure. It is impractical to separate the management arrangements for this infrastructure.

The future development of the resort, as is the current operations, are heavily dependent upon car park operations. There is no incentive in place to encourage patrons to utilise public transport. The Perisher car park is large and unattractive. Parking appears to be more closely managed during periods of high activity when parking is in demand. There are no incentives in place to provide parking control as a customer service.

To ensure transparency and recovery of “real costs” we have reintroduced consideration of car park operations and development for this review.

5.4.2.3 Access Road Snow Clearing

Due to the RTA’s management of the main access roads there does not appear to be any direct cost recovery mechanism for the clearing of snow and the general maintenance of main access roads. Under the present arrangements this is neither an equitable nor a readily recoverable cost.

We suggest that in our view the most equitable way road users could be called to account for the clearing of the access roads is through a levy being placed over and above park entry.

Kosciuszko Road is in the direct care of the Roads Traffic Authority (RTA). The RTA utilise a local Berridale contractor⁴⁶ for the winter snow clearing operations. This same contractor is also contracted to PBL and the NPWS to clear roads and car parks.

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⁴⁵ Skitube patrons generally leave their vehicles at the Bullocks Pass car park that is maintained by Skitube (PBL). The operation of that car park is outside the scope of this review.

⁴⁶ As advised by PBL 7/10/04.

We understand from our discussions with PBL that the contractor has been active in researching alternate snow clearing methods and exploring snow management techniques used in North America. He has been experimenting with wet and dry salt, grit and is contemplating trialing “hot sand”.

The clearing of snow along the Kosciuszko Road, whilst effective, was observed to have a considerable adverse effect upon the roadside. The use of blowers has caused some deterioration of the unsealed shoulders and contaminates the adjacent snow and contaminates the waterways with sediment.

Most Victorian resorts no longer use blowers and prefer to use pushing blades or ploughs. They believe blowers are too costly, unnecessarily noisy, create dirty snow embankments and cause too much damage to road pavements, other vehicles and infrastructure. Likewise in Victoria when snow depths are too great for pushing and air temperatures are low enough they prefer to “pack” the snow rather than clear it, allowing vehicles to drive over the compacted snow.

5.4.2.4 Bridges

We note that the best information available regarding bridges is a DPWS Bridge Audit Report dated 2001. Also the Asset Management Report (PRRAMP) quotes that report saying there are a total of 16 bridges in the care of NPWS.

We understand that these bridges include vehicular (road) bridges and pedestrian (foot) bridges. We have no asset valuations for the bridges. Refer to appendices for our estimated value for these assets.

5.4.2.5 Road Names

Due to the almost total lack of local names the in-resort roads are difficult to accurately describe. The works program tends to refer to nearby lodges to describe the location and extent of works, eg. “South East - Eremo to Valhalla Ch. 0 – 230”.

These descriptions are not readily identified nor are easily located without a map detailing site names and chainages.

5.4.2.6 Bases of Capital Costs

Earth Tech’s suggested road CAPEX program reflects actual costs since 2001 which have been discounted back to 2000/01 dollars.

We note that the NPWS ⁴⁷“updated road development program” for road works for the period up to 2005 t has not been achieved due to unavailability of funds.

We generally support the NPWS ⁴⁸“updated road development program” with some provisos’ as follows;

- PRRISS proposes the construction of extensive over snow roads (ie. \$3M at Perisher alone being \$1M per annum for 02/03, 03/04 and 04/05)?? In our view this is difficult to explain and not justified in PRRISS. We would expect that with construction of the roads the over snow vehicles should be confined to the snow covered areas. Other than some bridges or culverts it is difficult to understand why?
- PRRISS also make provision for the replacement of various bridges without a clear explanation of which bridges or why? The subsequent bridge report is contradictory and needs to be reconciled against these provisions.

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⁴⁷ As advised by NPWS during a meeting (Queanbeyan 18/2/05) convened by IPART to review the draft version of this report

⁴⁸ As advised by NPWS during a meeting (Queanbeyan 18/2/05) convened by IPART to review the draft version of this report

- Both PRRISS and the NPWS updated road development program proposes to construct (in concrete) the road to the sewerage treatment plant. We suggest that this 1.3 km long service road has low traffic volumes and need not be a cleared road and therefore need not be a concrete pavement. Whilst PRRISS makes budget provision for this work to be funded, the NPWS understand that it is to be funded by PBL. However, PBL⁴⁹ have indicated that they do not intend to fund this road construction.
- As earlier our program suggests a modified program based upon a series of sequential packages of works designed to encourage a continuity of manageable amounts of work, thereby ensuring a competitive pricing from locally based tenderers looking to invest in their capability and the prospect of ongoing work. We are advised that the NPWS have had a poor level of tender response to date. Likewise the work needs to be scheduled to ensure the works conclude at appropriate points (intersections) to ensure they are serviceable until the next stage of work is undertaken. To facilitate a competitive outcome our suggested value for annual packages equate to about \$1-1.5M. This will necessitate some of the roads being asphalted initially and then concreting them after 15 years once the asphalt had reached the end of its effective life.

We propose a formal road hierarchy within the village. This hierarchy consist of two levels of road, ie. a collector road (2 lanes wide) for through roads and a narrower road (single lane) for dead end property access roads. We note that the PILP report proposes a road hierarchy, with classes specifying design standards and service levels. Whilst we support this hierarchy approach, we believe it requires further review and development to reflect recent changes and to take into account new information not available at the time of its preparation.

- We have made no provision for the replacement of the car parks. The village centre development takes up part of the Perisher car park and assume that it will be repaved, refurbished or reconstructed as part of that project. As regards the Smiggin Holes and Guthega or other car parks we similarly have made no provision. However we observe that it would be in the best interests of the resort that the car parks were under the same care and management arrangements as the roads.

5.4.2.7 Bases of Recurrent Costs

PRRISS does not appear to address the higher maintenance costs likely to arise through the development of the village roads. Existing road maintenance costs are minimal, however with development of the roads the pavements will need to be swept at least twice annually. The existing gravel roads are not swept. Likewise line marking will need to be refreshed at least every two years.

We suggest that the PILP report is mistaken when it refers to bituminous surfaces as being a source of dust which is blown of the roads during the snow clearing operations. The Department of Commerce also⁵⁰ refers to "asphalt dust" in an extract from a recent design brief.

The accumulated debris is worst at the unsealed edges of the road and car park pavements. It includes gravel from the unsealed shoulders and debris from vehicle mudflaps.

Similarly, the development of constructed roads in place of gravel tracks brings with it a range of expanded associated infrastructure, signage, street furniture, street lighting and drainage infrastructure. None of which was previously in place and therefore not maintained.

We have built into our suggested recurrent costs provision for a higher level of service (ie. general grounds, street furniture, signage, lighting and roads maintenance) anticipated as the village road system becomes more developed. More significantly we have also proposed that the car park maintenance be consolidated with the roads maintenance.

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⁴⁹ Refer PBL submission to DIPNR on Cleared Roads Issues Paper 15/02/05

⁵⁰ Refer to extract form Design Brief provided by facsimile from department of Commerce dated 23/2/05.

Our suggested budget structure also allows for the incorporation of the car parks within the overall village roads maintenance program. This will bring with it significant economies of scale and remove potential overlaps and duplication.

5.5 Solid Waste (Garbage Disposal & Recycling)

5.5.1 PRRISS Proposal – Solid Waste

5.5.1.1 Regional Landfill

The recommendations in the PRRISS make only nominal provision for the development of the regional landfill facility. The recommendations have been significantly updated by the subsequent report “Waste Management Options for the Perisher Range Resorts, Kosciuszko National Park, NSW”.

5.5.1.2 Existing Collection Arrangements

The current waste disposal arrangements are considered substandard and detract from the general amenity of the resort. The unsightly presence of large skips at various locations on roadsides around the resort, the over snow transport of garbage bags on skidoos to the skips and the poor sorting of the recyclables is self evident.

5.5.2 Earth Tech Proposal – Solid Waste

5.5.2.1 Existing Arrangements

During our site inspection, NPWS representatives advised that they had regularly received complaints from the contractor that received the recyclables (based in Canberra) suggesting that the containers were severely compromised with regular mixing of recyclables and contamination of waste.

The current arrangements also preclude the implementation of any effective user pays arrangements. The best way to implement any form of cost recovery we believe is the introduction of a collection service. In our view a collection service will enable the identification of site holders generating the most waste, and those site holders not appropriately sorting their recyclables.

5.5.2.2 Transfer Station

We propose that the CAPEX not include a waste transfer station. The siting of a waste transfer station is contentious and we believe not readily resolvable. The removal of the landfill from the resort precinct is a significant step forward for environmental sustainability in our view. Likewise the placement of a transfer station we believe is not in keeping with the pristine objectives of the resort.

We propose that the collection service be based upon a compactor truck that will compact and transport the waste direct to the proposed regional waste disposal facility or to the Jindabyne transfer station.

5.5.2.3 Collection Service

Through the provision of a solid waste and recycling collection service a “user pays” arrangement can be introduced, whereby site holders use only designated garbage/recycling lockers assigned to them. The lockers can be similar to those already in use at Thredbo. The lockers are fitted with a clever hang down tab to indicate to the collector that there is waste in the locker to be collected.

Site holders placing bags in the locker enclose the tab behind the door when they close it. Likewise that indicates to the collector that there is waste to be collected from inside the locker. The vehicle is stopped and the locker opened to collect the waste and place into the truck, in doing the tab is left over the door to indicate the locker has been cleared. See appendices for site photos numbered 21 & 22 dated 16/09/04.

Site holders generating more waste will pay more in collection fees. Likewise the collector can readily identify site holders contaminating their recyclables and an infringement notice issued. A well-planned cost structure could readily penalise waste generation and reward recycling.

A cost effective collection service will necessitate a cleared village road network. The most cost effective method for garbage collection is the use of a compactor truck. Over snow collection would necessitate a transfer to a wheeled vehicle for transport to the landfill site. The cost prohibitive nature of over snow operations precludes any serious consideration of broader whole of village over snow collection service.

There are numerous private industry service providers with the appropriate equipment and scales of operations to offer economies of scale over a reasonable contract period, ie. suggest a 3-year contract with 2-year option to extend subject to satisfactory service.

The potential for a 5-year contract will give comfort to a tenderer contemplating any investment into specialised equipment, ie, a 4WD compactor truck, snow chains etc.

5.5.2.4 Recurrent Costs

Earth Tech's recurrent solid waste costs have been drawn from the recent Waste Management Review, which we understand reflects current costs in comparison to PRRISS.

The majority of the PRRISS recurrent provisions appears to be taken up with plant replacement and not the provision of services. Earth Tech's proposal does not include any provision for plant replacement nor does it reflect any windfalls from disposal of plant or equipment.

5.6 Public Facilities & Amenities

5.6.1 PRRISS Proposal – Facilities

5.6.1.1 Need to Redevelop Public Facilities & Amenities

The PRRISS quotes the NPWS as acknowledging that the existing facilities are “below target service levels” and make some provision for upgrades of these facilities. The report also suggest that the “Information Centre” will be demolished and proposes that it may be incorporated within PBL's facilities in conjunction with their tourist information services.

5.6.1.2 Jindabyne Visitor Centre

We understand the budget structures proposed in PRRISS include forecast expenditures for the Jindabyne Visitor Centre. However the precise manner in which this work was funded and the ongoing costs are unclear. The development of this facility was a significant boost to the local Jindabyne community and significantly enhanced the off-mountain operations of the NPWS.

5.6.2 Earth Tech Proposal – Facilities

The future management arrangements for the resort are key to the determining the appropriate scale of these facilities. The existing facilities are shabby and in generally poor condition. They are under utilised by the public and not readily recognisable as the centre for public facilities and information.

The presence of the garbage skips, the compactor truck and maintenance vehicles contributes to a perception that the area is not frequented by the general public.

These facilities are the front door for future resort users. The upgrade or relocation of these facilities and the manner in which it is implemented needs to be resolved as soon as practicable.

The PRRISS budget structure makes analysis of the costs difficult. The distinction between public information, amenities and facilities is ambiguous. Likewise, we suggest that the unclear funding arrangements for the Jindabyne Visitor Centre suggests that there is some blurring between the

budget/costs structures for the provision of on-mountain and off-mountain services. We suggest a review of the budget structure and development of a chart of accounts will make this clearer.

Earth Tech proposes a CAPEX which is largely taken from tables 3.1 and 3.3 of the PRRISS. For some reason these numbers are not reflected in Appendix G, we do not know why.

The PRRISS includes provision for \$800,000 in 2002/03 for staff car parking (+ 20% engineering fees). Similarly, there is a \$550,000 provision for skidoos, quad bikes and generators and \$434,000 for a new roof on the office/workshop every 10 years?? In our view these provisions are not supported or adequately explained in PRRISS. We suggest the plant replacement should be through utilisation/depreciation. The re-roofing is unusual, if not bizarre and appears to be an error.

The PRRISS appears to significantly understate the cost of operating the public facilities and amenities. We suspect their costs barely cover the cost of consumables (ie. paper and detergents), utilities (power) and cleaning in the existing rundown facilities. We have made provision for what we believe will be required for the new facilities including an allowance for rental (since the new facilities are to be within the new village centre).

5.7 Emergency Services

5.7.1 PRRISS Proposal – Facilities

The PRRISS makes no real provision for the development of new emergency services facilities, however it does propose that emergency assembly areas be incorporated within the proposed village centre.

5.7.2 Earth Tech Proposal – Facilities

Earth Tech observes that there are needs in the emergency services areas for improvement that should be incorporated into the forward budget structure. In particular expanded if not relocated facilities for the Police and expanded facilities for the Medical Centre.

The PRRISS provisions for the maintenance of these facilities is unclear and varies in subsequent MSU budgets. Likewise the development of the Helipad was provided for in the original budget. Again we suggest a review of budget structures and formalisation of a chart of accounts to reflect these costs is necessary.

5.8 Freight and Passenger Services

5.8.1 PRRISS Proposal – Freight

5.8.1.1 Freight

The PRRISS propose no increase in floor area for freight, however, it does propose improvement works for the adjacent parking, vehicle movements and freight handling to “improve aesthetics, circulation and food handling”.

5.8.1.2 Skitube Capacity

The NPWS Infrastructure Strategy (PRRISS) suggests that there is some surplus capacity in Skitube, which can be taken up with the addition of extra carriages.

5.8.2 Earth Tech Proposal – Freight

5.8.2.1 Freight

We question the appropriateness of the present high level of activity in the centre of the village adjacent to the Skitube terminal at Perisher. The high number of heavy vehicle movements, the garbage truck, over snow vehicles etc. Likewise the significant impact of the Charlotte Pass traffic at this location is an added level of unnecessary congestion. These activities have a poor impact upon “the front of house” and are a risk to the safe movement of pedestrians.

The freight interchange should be situated away from the general public. The Charlotte Pass traffic should also be moved away from this facility. A cleared road scenario will allow freight deliveries directly to the lodges/hotels without the need for an interchange area.

5.8.2.2 Skitube Capacity

We are advised that Skitube has significant limitations in regard to increasing the number of carriages, ie. the platform at the Perisher terminal has limited length (ie. about 80m) and capacity (2 tracks, 3 platforms) and can only safely service trains of limited length (ie. 3 carriages).

See appendices for site photos numbered 9, 10 & 11 dated 8/10/04.

The capacity of the system is further limited by the nature of the infrastructure, ie. long deep, steep and unventilated single tunnels. There are no alternate means of access or evacuation. Stranded passengers have to walk through the carriages to safely exit from the end of the train then walk to the nearest terminal. This requires walking along the track, potentially in darkness (and smoke), over a steep rough stone ballast in ski boots.

5.8.2.3 Recurrent Costs

The PRRISS proposes to extend the leased area for the freight centre but makes no provision in the forecasts?? Earth Tech recommends that extended clearing costs for the section for the Kosciusko Road from Perisher to the Perisher Gap where the new Charlotte interchange is proposed or the alternative of clearing the entire road, should be borne by Charlotte pass visitors.

5.9 Medical Centre

5.9.1 PRRISS Proposal – Medical

5.9.1.1 The Facilities

The PRRISS acknowledges that additional floor space is required and suggest that the flat will no longer be available once the NPWS office is demolished?? The PRRISS also proposes that the facilities will be incorporated into the Village Centre complex.

5.9.2 Earth Tech Proposal – Medical

5.9.2.1 The Facilities

We suggest that the PRRISS proposals need to be reviewed in the context of the current Doctor's comments and advice. Likewise the reference to the NPWS office flat seems no longer relevant to the existing arrangements, ie. there is a flat with the Skitube which the Doctor no longer requires and proposes to expand the Centre into it.

Dr. Breathour advises that the construction of the Centre leaves a lot to be desired, as it was not purpose built for use as a medical centre. The windows have been sealed (by the Doctor) to prevent ingress of dust when the train descends (and creates a vacuum). When consideration is given to upgrading / re-modelling the Centre then the windows must be double-glazed. In addition, it is currently a long rectangular shape, which makes observation of patients difficult and bed layout congested.

The most appropriate layout for effective treatment is a square configuration, which allows a central observation point with the beds around. In addition, a consultation room needs to be part of the Centre. Another essential need is increased storage space. This could be achieved by relocating the doctor's living quarters away from the Centre (he believes that it is inappropriate for the doctor to live in the work area). The space released should also provide enough room for storage and also a small tearoom for staff.

The PRRISS suggests that the Medical Centre was scheduled to have been completed by now, it has not. The precise nature of their provisions is not clear to us. Earth Tech proposes to simply reschedule or move that work ahead in the program to ensure that it is not overlooked.

5.10 Other Issues

5.10.1 Resort Development Strategy

The layout of the Perisher Range Resort(s) is inefficient as regards the provision of services infrastructure. The Perisher Valley in particular has a sparse, costly and difficult site layout. The services reticulation is often dependant upon single feed lines of infrastructure, eg. water and roads.

There are considerable economies in encouraging the development of sites closer to the centre of the village the cost of providing additional infrastructure for any development of sites situated at the outer extremities of the village needs to be met by the developer.

5.10.2 Geographical Impact of Development

Whilst PBL have an expectation of securing the proposed "800 beds & commercial floor space" as part of the Village Centre development there is some question of how the remaining new beds are allocated. Whilst the broader geographical location of the remaining new beds (520) has been determined, the specific siting of the new beds has not.

Generally, the capacity of the existing infrastructure is greatest in the vicinity of the proposed Village Centre at Perisher, ie. being adjacent to the main sewage pump station, at the low point in the water supply infrastructure, adjacent to the emergency services, car park and transport infrastructure.

The closer any new development is to the centre of the existing infrastructure the less likely any major infrastructure upgrades will be required.

If the new beds are developed at the outer extremities of the infrastructure the resultant impacts are likely to be more significant.

5.10.3 Seasonal Cost Structure

There are clearly significant differences between summer and winter operations. The cost of service provision should reflect this.

Winter operations require specialised vehicles, protective clothing, extended work hours, increased village populations and workload. Consequently there are economies during the summer due to smaller village populations, reduced day visitor numbers and commercial activity etc.

5.10.4 Sawpit Creek Entry Gate Proposal

A Traffic Management Plan (TMP) prepared by Parsons Brinckerhoff Australia Pty Ltd (October 2002) considered the traffic management arrangements for the KNP and developed a number of recommendations for the improved safety, reduced delays and improved movement of traffic through the park.

Clearly this report post dates PRRISS. Accordingly the issues raised are not considered nor does the PRRISS forward works program address them.

See appendices for site photo of existing entry station numbered 27, 28 & 29 dated 16/09/04.

The report describes traffic queues “backing up” down the road as far as Jindabyne from the ⁵¹ existing gate entry facility. The existing gate entry station has only two ticket sales outlets and a limited 2 lane, on-road queuing capacity. The road is narrow, situated against a steep roadside cutting and overlooks a similarly steep fill embankment which descends into a waterway.

That report recommended the development of a new gate entry facility at the entrance to the Resorts, ie. at Sawpit Creek utilizing the former service station site. The development included a terminal for the shuttle bus, an adjacent car park, better queue management, re-development of the land fill site, increased transaction service rate of up to 500 vehicles per hour, meeting or exceeding the approach road capacity.

We note that the report estimated the cost to develop this facility at \$2.89M. This estimate did not include the cost of rehabilitation of the existing landfill, which has been estimated at \$600 k.

5.10.5 Charlotte Pass

The impact upon the Perisher Range Resorts from access to Charlotte Pass being restricted to over snow vehicles during winter is significant.

The interchange or transfer of passengers and goods from Skitube to over snow transport, also from road transport to over snow vehicles and the disposal of garbage is noticeable at the Perisher Skitube Terminal and detracts from the amenity of the area.

The car park side of the Skitube terminal at Perisher is not good. The external appearance of that site to visitors is congested, almost industrial and dominated by heavy vehicle movements, engine noise and exhaust smoke. The pavement is slushy, rough and uneven, poorly drained and unwelcoming to pedestrians. It does not convey an image of being a desirable location or a starting point for a holiday or recreation, offering no welcome, clear passage or safety refuge.

The effect of the Charlotte Pass Road closure introduces an unnecessary level of activity and congestion to the patrons of Perisher Valley. That congestion could be significantly reduced if the following activities were transferred clear of the terminal if not Perisher Valley.

- Transfer of Passengers
- Freight
- Solid Waste and Recyclables
- Fresh food and perishables.
- Parking for patrons and staff.

If these activities were to be transferred away from Perisher Valley the cost of providing services to the patrons of Charlotte Pass could be more equitably accounted for and recovered from the users.

In addition to these activities clearly detracting from the amenity of Perisher Village Centre there is a perception that the Charlotte Pass operations are heavily subsidised by the Perisher Range Resort.

5.11 Cleared Roads or Uncleared Roads

5.11.1 Background

Climate Effects

We understand that the Australian alpine regions have conditions peculiar to the southern hemisphere. The dramatic variances in ambient temperatures through any 24-hour period and the

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⁵¹ From page 16, stakeholder comments on the draft TMP.

relatively high average winter temperatures have an impact upon snow retention and road management practises.

Likewise whilst snow cover and hardness may varies throughout the season, it can also vary within a 24 hour period. When snow cover wanes during mid season, it may warrant the abandonment of over snow access. The over snow vehicles rely upon cleats fixed to the tracks to provide traction. Most cleats are made of aluminium and they cause only minimal damage to road surfaces. However, some cleats are also fixed with steel ice picks, which can cause considerably more damage. Likewise the snow clearing equipment often utilises hardened wearing surfaces on the wheel chains to ensure reduced wearing and longer operating life. The harder surfaces again are a significant source of damage to road surfaces, concrete and bitumen alike.

Marginal Snow Cover

Most pavement and surface damage occurs when the snow is soft, cover is light and there is a mix of over snow and conventional wheeled traffic. The pavement is often saturated due to the ponding of water and the formation of ice dams on the surface.

As earlier, whilst this phenomenon is an unavoidable consequence of the Australian climate, the adverse effects on the road pavement are most apparent in the more heavily trafficked areas.

Freeze-Thaw Cycles

In North America and Europe the alpine regions have considerably lower temperatures and in some places a permafrost effect. As a result the road pavements in these regions experience several freeze-thaw cycles during any winter. In Australia road managers working in a milder alpine environment, ie. with lower altitudes and higher temperatures may experience several freeze-thaw cycles in a 24 hour period. As a result road pavements deteriorate more quickly.

Typically a freeze-thaw cycle creates an opportunity for voids within the pavement to fill with water during a thaw phase they quickly refreeze when temperatures suddenly drop with a freeze. The frozen water expands and causes the material confining it to crack and split, an effect referred to as “spalling” in concrete and “heave” in crushed rock pavements.

5.11.2 Why Clear Snow From The Village Roads?

If the snow is cleared from the most heavily trafficked areas, there is a reduced potential for pavement damage. Likewise the designation of cleared roads will help delineate the operational limitations of over snow vehicles. Cleared roads also provide better environmental outcomes with reduced siltation and sediment entering the waterways.

Cleared roads also provide an opportunity for improved access throughout the village for pedestrians, new visitors, infrastructure service providers, emergency services, passenger and freight service providers. Improved universal access will translate into economies for service providers and site holders and contribute to an improved economic outcome for the village as a whole.

Oversnow transport is specialised, noisy, uncomfortable, cumbersome and expensive to operate. They are also limited in number and availability.

The Earth Tech proposal is that the roads that should be cleared would only involve the road loops and inner roads of the resort. Map 19 shows the roads in Pinnacle Valley to be cleared on that basis.

5.11.3 Concrete Versus Asphalt Road Pavements

Current Practice

The Department of Commerce⁵² have made reference to a SMEC report considering concrete versus asphalt pavements. Unfortunately that report has not been made available. The Department of Commerce also provided an extract from a design brief, which refers to “NPWS Roads Design Policy and Guidelines” which is currently being developed by the Department’s Wollongong office.

The brief reflects the DOC’s preference for concrete road pavements in alpine areas.

Importance of Maintenance

Concrete surfaces with imperfections are particularly prone to water ingress and spalling. Scratches or gouges in a concrete surface that are not repaired will continue to degrade from season to season. Voids are an unavoidable consequence of concrete pavements. In Victoria the road authority developed a concrete mix design, which reduced the propensity for spalling by reducing the size of the voids.

The deterioration of concrete pavements through spalling, however, can be a long-term process whereas the ingress of water into a crushed rock pavement results in a comparatively earlier structural failure.

Similarly, cracked bituminous surfaces are also susceptible to water ingress, freezing and spalling. Aged, oxidised and poorly maintained bituminous surfaces will degrade and introduce water to the crushed rock pavement beneath and ultimately contribute to heave and ultimately total structural failure of the pavement.

Both concrete and bituminous surfaces need to be maintained to ensure longevity.

Victorian Experience

Reinforced Concrete roads were first introduced to alpine villages in Victoria in a limited fashion in the mid 1980’s at Dinner Plain, a privately developed resort. After addressing some initial teething problems the practice was adopted more widely in the other resorts from 1989.

The current concrete standard AS.3600 calls for 40 MPa strength concrete in pavements with steel wheel traffic. The chains fitted to conventional vehicles during winter are equivalent to “steel wheels”. In recent years (from 1998) the concrete roads constructed in the Victorian Alps have been upgraded from 25 MPa to 40 MPa to address the observed deteriorating effects of the weaker concrete.

However, the perils of construction in the alpine areas go beyond the specifications. Concrete pavements are susceptible to the vagaries of the weather and sudden changes in conditions are common. Unexpected overnight drops in temperature can disrupt the curing process and prevent slabs from achieving their design strength. Measures can be implemented to reduce the potential for these incidents, ie. controlled curing, covers, steam curing, or limited construction seasons, ie. no pours before December or after March?? Such measures can be costly and have significant impact upon production.

Concrete Roads & Services

The construction of a concrete road has significant impacts beyond the material cost of developing the pavement. The permanent nature of concrete and the difficulty associated with subsequently trenching through it, demand close attention to the careful positioning of services beforehand. New developments in under road boring systems have reduced the inconvenience of road openings.

Asphaltic pavements are relatively easily opened up and repaired.

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⁵² Facsimile from Department of Commerce 23/2/05, advised of a report prepared by SMEC “Perisher Roads – Concrete Versus Asphalt Pavements”. As at the time of writing we have not received a copy of that report.

Longevity

There is no disputing the better design life and reduced maintenance benefits favour concrete pavements, ie. 20 to 30+ years. However, with good effective and timely maintenance combined with appropriate management practises asphaltic surfaces can achieve up to a 20 or 30 year design life. This readily demonstrated by the existing road surfaces throughout the alpine regions of Australia.

Summary

It is our view that concrete is clearly the preferred surface in an intensively snow cleared road environment, ie. such as proposed within the inner village area (Perisher). Concrete pavements also provide an opportunity for the introduction of electrically heated (or hydronically heated) pavements for ice control.

The increased capital development costs are readily offset by the high maintenance inputs necessary to sustain an asphalt surface under the same operating conditions. However, asphalt is an option worthy of further consideration in areas not subject to heavy traffic and intense snow clearing activity.

Additional Comparison Information on Cleared vs Non-Cleared Roads

Background

The Earth Tech report supports a cleared village road network to facilitate the delivery of services and improved level of access to the sites (see 6.4.5.1).

The report also proposes that the cleared roads should prioritise the inner village areas, particularly through or loop roads.

PRRISS Recurrent Provision (Snow Clearing)

The PRRISS proposes snow annual clearing contract budgets (as below) for Perisher and Smiggin Holes only. There is no provision for snow clearing at Guthega. There is no explanation offered as regards which roads are to be cleared.

- Perisher \$30,000 per annum for each of the projected 30 years with no escalation.
- Smiggin Holes \$10,000 per annum for each of the projected 30 years with no escalation.

A total provision of \$40,000 per annum.

We presume this provision is nominal only, ie. no scheduled village road clearing is proposed, provision is only made for clearing during periods of poor or diminished cover and to open the roads at the end of season (to wheeled traffic). We also presume this provision assumes continuation of existing snow clearing practises.

Earth Tech Recurrent Provision (Snow Clearing)

Earth Tech recommends (see section 6.4.5.1) an initial provision of \$100,000 per annum to extend existing snow clearing operations and clear up to an additional length of 1,500m of road at Perisher and 340m at Smiggin Holes, based upon the existing paved surfaces available (not already cleared). This being equivalent to a provision of \$50/m per annum.

Earth Tech also proposes that from year 5, on completion of the road construction program the clearing budget should expand to \$200,000 per annum to allow the total cleared network to expand to 4,500m in length (4,500m at Perisher and 960m at Smiggins and 740m at Guthega).

Ultimately, the report suggests that the entire network (up to 6,200m) could be cleared for \$300,000 per annum. Whilst the report stops short of recommending this, Earth Tech's recurrent cost schedules clearly budget for it.

Current Snow Clearing Practise (Blowing)

The current clearing methods involve the use of blowers. The blowers are usually diesel powered machines mounted on another vehicle. We estimate the likely cost of operation is up to \$200/hr for a 120 kW⁵³ machine with a similarly powered blower attached. Real costs may vary significantly when market tested.

We understand that the snow-clearing contractor does push some snow (Smiggin Holes) but blows the majority of it (Perisher). Blowers often have to keep blowing the same material over and over to move it any significant distance.

Recommended Snow Clearing Practise (Pushing)

Earth Tech recommended pushing the snow to clear the roads based upon the experience of the Victorian resorts where blowers were abandoned some years ago. Both blowers and pushers have similar running costs (exclusive of the blower unit), ie. the vehicle is powered by a similar engine, there is also an operator, cutting edges, tyres and chains. However the blowers have significant costs in fuel and maintenance, ie. operating the blower engine which powers the screw/blower unit, also wear and tear maintenance of the associated cutting edges, the screw, shaft and shutes etc.

Mt.Buller (Victoria) Comparison

The Operations Manager at Mt.Buller advises that blowers were abandoned because of the following;

1. They were too expensive to operate.
2. Impacted on the amenity, blowing litter and debris over clean snow.
3. Were causing damage to the road surfaces (asphalt and bitumen in particularly).
4. They excavated shear walls (vertical faces) along side the roads causing safety issues for pedestrians.
5. Were too noisy in the village environment (most clearing is done at night). The operation of two high powered diesel engines under load can be very noisy.
6. They caused a lot of damage within the more enclosed village environment, ie. to road side infrastructure (signs, street furniture etc), other vehicles and buildings.

We estimate that Mt. Buller currently spends from \$50,000 to \$80,000 per annum on snow clearing the village roads and car parks depending upon the snow cover/season. They prefer a machine equivalent to a Cat 950 Front End Loader, and sometime use a smaller machine ie. a Cat IT (Tool Carrier) or Cat 938 Front End Loader. We estimate the cost of operations for pushing snow with these machines varies from \$100 to \$150/hr depending upon the size of the machine.

Pushed snow clearing methods are most effective when the snow is pushed downhill. Uphill pushing is unavoidable in some cases, so the stockpile sites are chosen carefully to maximise the downhill pushing. Uphill pushing incurs higher fuel consumption and increased wear and tear on the machine. Ideally the stockpile sites are placed convenient to the ski fields where groomers can collect the relatively clean snow for reuse to patch or repair adjacent oversnow routes or ski areas.

Briefly, a fully laden machine pushing downhill can push up to 40m³ at a time and move same up to 300m (maximum). Clearly shorter distances are more efficient, the Operations Manager at Mt.Buller advises that a length of up to 100m is desirable.

Partial Snow Clearing (Village Roads)

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⁵³ Cordell's Commercial & Industrial Building Cost Guide (January 2005) suggests a 120kW machine costs approximately \$100/hr to operate exc' GST and location allowances etc.

Earth Tech raises the prospect of partially cleared village roads as a viable prospect, placing greater emphasis upon the inner village areas, where usage/traffic is highest and where redevelopment opportunities are greater and commercial activity is greatest. The dispersed nature and distribution of the sites at Perisher is unique. The introduction of road clearing for the entire village is of doubtful economic benefit; as is the construction of roads (in concrete) with little or limited traffic.

Earth Tech surmises that an inner loop of roads at Perisher could become arteries for through traffic movement to facilitate the access of service providers to service the outer areas of the village via service nodes. Rather than have all services radiating from one congested central point (as it is now) a series of several service nodes could facilitate a more cost effective service outcome.

The definition of the inner loop(s) and the siting or designation of the service nodes is beyond the scope of this report because there are no fixed road alignments upon which the nodes can be situated. Likewise a snow management plan needs to be developed in conjunction with PBL to ascertain their preferred stockpile locations. Similarly the over snow transport provider(s) need to be consulted to ensure adequate consideration is given to their needs, likely utilisation levels and long term capabilities.

Likewise the site holders need to be consulted to ensure their service expectations are considered and where practicable adequately addressed. In doing so we are mindful of the submissions made with respect to the perceived need (held by some site holders) that the “snow bound aesthetic” is imperative to the character of the resort. The partial snow clearing option would still allow a “snowbound village” to be maintained.

The more remote sites should have a relatively low service level expectation (ie. with respect to road access) whilst those close to concrete road pavements would expect a Cleared Village Roads to provide relatively ready, if not convenient access.

SUMMARY

The Earth Tech recommendation contends the following;

Uncleared Village Roads

- Require considerably less recurrent cost inputs, ie. to clear the roads and to maintain or repair the roads as a result of damage during the clearing operations. That is to maintain the existing provision of \$40,000 per annum.
- Provide constraints upon the provision of efficient services.
- Endure less wear and tear due to snow clearing and therefore raises the prospect of asphalt roads as an alternative to concrete pavements. This translates to a saving of about 15% in construction (capital) costs.
- All roads have to be cleared during marginal snow cover periods, ie. during poor snow cover and at end of season.
- Waste collection and other services would continue at the current levels, with associated inefficiencies and problems.

Cleared Village Roads

- Require significant recurrent costs to sustain cleared roads.
- Require the development of concrete pavements (not asphalt) at an increased capital cost (+15%).
- Substantial savings (-40%) in waste collection costs even with the improved level of service can be achieved. In addition other significant cost savings (that are subjective in nature) ie reduction in double handling of freight, improved access for passengers and reduced times for emergency services are likely.

- Offer flexibility to the providers of services and improved access options for patrons and site holders.

Partially Cleared Village Roads

See below tabulation.

	Uncleared Village Roads	Cleared Village Roads	Partially Cleared Village Roads
Snow Clearing Operations	\$40,000 per annum	\$300,000 per annum	\$100,000 per annum
Development Costs (Road Construction)	(-) 15 %	TBC	TBC
Recurrent Costs	Improve with concrete.		
Provision of Services	Limiting	Not Limiting	
Aesthetic Impacts (snow bound village)	None	High	Partial
Waste Collection	Existing recurrent	NA	NA
- Waste Collection with ILOS	TBC	(-) 40 %	(-) 15 %
Other Services (freight, passenger access and emergency service response times)	These services are hard to quantify but considerable savings could be achieved by reduction in double handling for freight.		

COMPARISON OUTCOMES.

1. From the foregoing we conclude that the initial length of cleared village roads as proposed by Earth Tech (ie. nominal 1,500m at \$100,000) is a reasonable provision for the introduction of a partially cleared village road network based upon an inner village loop of through road(s) at Perisher and Smiggin Holes only for which the alignment(s) is/are yet to be confirmed.
2. Also that the provision for an expanded network of cleared village roads be the subject of a continuing review process to meet the needs of the village.
3. That a service node structure for the delivery of a road based (for abutting sites) and over snow transport (for the outer areas) be developed based upon the "inner loop" approach in consultation with the service providers, site holders, PBL and the over snow transport operators.
4. A partially cleared road system will result in more efficient and effective services, both waste and recyclables, by reduction in over snow transport and removal of waste directly from lodges or waste collection stations to off mountain facilities. It will also enable a competitive outcome for waste collection services by calling tenders.

6 Conclusions

6.1 General

- The recently published MSU budget gives us a significant insight into the post PRRISS changes in recurrent costs. We have also had access to some limited capital cost outcomes as provided by Treasury and NPWS.
- As at the time of writing we do not have reported actual recurrent expenditures across the services, only capital costs. All costs presented in this report are based upon 2000/01 dollars, no indexing is used for forward costs. Actual capital expenditures have been discounted back to 2000/01 dollars @ 3% per annum.
- Perisher Range Resort offers site holders a lower level of services than other comparable Australian resorts.
- The resolution of the environmental flow issue is fundamental to the future security of water supply and the continued operation of the resort with or without expansion.
- The continued use of heating oil and individual gas storages is not sustainable and an environmental risk.
- Current snow clearing practises are unacceptable aesthetically, environmentally and economically.
- Future development of the village centre should be facilitated to utilise the existing infrastructure and development of the outer areas should be discouraged, (where infrastructure is scant)

6.2 Management Arrangements

6.2.1 Backlog of Infrastructure

The current capital and operating cost structures for the Perisher Range Resorts is comparatively expensive when compared to the other resorts. We believe that the reason for this is a combination of the following;

- A significant historical back log in capital infrastructure investment.
- The apparent inefficient mix of service delivery models that are currently in place cause duplication, a lack of transparency and poor reconciliation of costs against revenues.
- Changes in regulatory environment and community expectations.
- There is an apparent conflict between the conservation interests of a national park and the commercial operation of alpine resorts within that park.

6.2.2 Enhanced Transparencies

Are best achieved through the following initiatives

- Introduction of a formal chart of accounts based upon resources and infrastructure with clarification of administration and management costs and overheads.
- Removal of the Charlotte Pass operations from the Perisher village centre.

6.2.3 Enhanced Operations

The provision of services shall be improved through the following enhanced operational arrangements;

- Introduction of a cleared village road network within the village centre area.
- Abandonment of snow blowers for snow clearing operations.
- Prioritise the surfacing of the main access road shoulders.
- Limit snow-clearing activities to paved road surfaces only.
- Expedite the road construction program by constructing asphalt surfaces and upgrading to concrete as funds and time permits.
- To limit congestion and conflicts between patrons and vehicles, apply curfews for the access of heavy vehicles for the delivery of goods etc.
- Introduce a garbage collection service and introduce tighter constraints and inducements to encourage better recycling and pre-sorting.
- Provide improved facilities for the Medical Centre.
- Introduce a regulated bus service, with schedules, formal set-down and pick up areas, pedestrian crossings etc.
- Introduce more regulated car park management arrangements to encourage off-mountain parking and reduce snow-clearing operations.
- Implement a streetscape strategy to improve signage, street lighting, facilities and general grounds maintenance.
- Encourage better stormwater practises by site holders, adopt and implement water sensitive urban design principles.
- Utilise a cleared road network (for the village centre at Perisher) by adopting a service node approach to service delivery and avoid unsightly clutter, make services more cost effective, remove unsatisfactory traffic movements and relieve peak time congestion around the village centre.
- Recognise that the village centre at Perisher is an area dominated by commercial activity and the front door of business at the resort.

6.3 Capital Cost Review

The current arrangements for financing the development of infrastructure at the resort lack transparency and appear at times to be ad hoc, largely as a result of the uncertainty of funding availability from year to year. The recent expenditures serve to make up for inadequate investment in the years past.

6.3.1.1 With Expansion of the Resort

If the resort was to expand as planned, the status of the existing services and infrastructure could be summarised as follows;

	<i>Status</i>	<i>Comment</i>
Primary Infrastructure		
1. Water Supply & Distribution	80% Complete	Additional storage required and environmental flows secured.
2. Sewerage Services	90% Complete	Subject to review of ST Plant development strategy. Minor works remaining.
3. LPG Storage & Distribution	Not complete	To be developed
4. Roads (local & common assets) incorporating		
- External Roads (common assets)	Not Complete	Extend cleared roads, seal shoulders.
- Internal Roads	Not Complete	Seal unsurfaced roads, extend cleared road network.
- Stormwater Drainage	Not Complete	Implement sediment control and litter traps as per Enviro Plan.
- Street & Directional Signage	Not Complete	Develop with expansion of roads.
- Street Furniture & Lighting	Not Complete	Develop with expansion of roads.
- Parking & Traffic Control	Not Complete	Develop with expansion of roads.
- Car Parking	Not Complete	Redevelop existing car parks, enhance drainage, and maintain surfaces.
- General Grounds Maintenance	Not Complete	Increase service standards.
5. Solid Waste (garbage disposal & recycling)	50% Complete	Complete closure of landfill at Sawpit and implement collection services.
Secondary Infrastructure		
6. Public Facilities & Amenities		
- Municipal Office Accommodation & Workshops	Not complete	Redevelop as part of planned village centre. Relocate and consolidate workshops.
- Information Provision		
7. Emergency Services		
- Police	Not complete	New facilities required.
- Fire Brigade	Complete	
- Ambulance	Complete	
8. Freight & Passenger Services	NPWS	Relocate Charlottes Pass interchange
9. Medical Services	Not complete	Expanded facilities required

6.3.1.2 Without Expansion of the Resort

It would appear that the capacity of the infrastructure, ie. water and sewerage has been substantially increased without any direct contribution from the developer(s).

If the resort was to not expand as planned the status of the existing services and infrastructure could be summarised as follows;

	<i>Status</i>	<i>Comment</i>
Primary Infrastructure		
1. Water Supply & Distribution	80% Complete	Additional storage required and environmental flows secured.
2. Sewerage Services	90% Complete	Minor works remaining.
3. LPG Storage & Distribution	Not complete	To be developed
4. Roads (local & common assets) incorporating		
- External Roads (common assets)	Not Complete	Extend cleared roads, seal shoulders. Seal unsurfaced roads, extend cleared road network.
- Internal Roads	Not Complete	
- Stormwater Drainage	Not Complete	Implement sediment control and litter traps as per Enviro Plan.
- Street & Directional Signage	Not Complete	Develop with expansion of roads.
- Street Furniture & Lighting	Not Complete	Develop with expansion of roads.
- Parking & Traffic Control	Not Complete	Develop with expansion of roads.
- Car Parking	Not Complete	Redevelop existing car parks, enhance drainage, and maintain surfaces.
- General Grounds Maintenance	Not Complete	Increase service standards.
5. Solid Waste (garbage disposal & recycling)	50% Complete	Complete closure of landfill at Sawpit and implement collection services.
Secondary Infrastructure		
6. Public Facilities & Amenities	Not complete	Redevelop as part of planned village centre. Relocate and consolidate workshops.
- Municipal Office Accommodation & Workshops		
- Information Provision		
7. Emergency Services		
- Police	Not complete	New facilities required.
- Fire Brigade	Complete	
- Ambulance	Complete	
8. Freight & Passenger Services	NPWS	Relocate Charlottes Pass interchange
9. Medical Services	Not complete	Expanded facilities required

If the planned expansion is abandoned there is a risk that the Perisher Range Resort site holders may be burdened with the debt of the repayable advances.

6.3.1.3 Treatment of Management & Administration

The NPWS Infrastructure Strategy (PRRIS) capital works budget includes provision for management administration expenses which incorporate engineering and supervision.

In our view it would be more appropriate if these costs were assigned directly to the infrastructure costs for which they are incurred. That way the costs could be more transparent and readily recoverable.

6.3.1.4 Treatment of Renewals

With further development of PRRAMP and the implementation of life cycle costing, adequate provision can be built into the capital works program for renewals. Until that occurs we suggest any provision for renewals should be treated as nominal.

6.3.2 Water Supply Capital Works

The water supply system has undergone significant augmentation in recent years. From our review of drawings and documentation relating to the upgrading works recently constructed, and our inspections and consultation, it appears works have been undertaken in accordance with recommendations contained in the report “Perisher Range Resorts Water Supply – Concept Report” prepared for NPWS by DPWS. Capital expenditure on the augmentation has been consistent with estimates contained in PRRISS.

The issue of provision of environmental flows however remains unresolved. Diversion licences with respect to each of the source water creeks require the passage of varying levels of environmental flows. Licenses require that extraction from the creeks cease when flows are less than nominated minimums. Department of Commerce have commenced investigations into options for augmentation of headworks to provide for varying levels of compliance with the requirements of the diversion licenses. Capital cost estimates for options considered vary up to in excess of \$5M. The preferred option is yet to be identified and these costs are yet to be confirmed.

Satisfactory resolution of this issue is of primary importance to the continued operation of the resorts at either existing or expanded population levels (ie. with or without expansion).

The net result of our analysis of expenditure to date and the works yet to be constructed is that the 30 year projection for capital expenditure has risen from \$13.3M (PRRISS) to \$18.4M (ET revised estimate includes \$5M for headworks augmentation). The majority of the discrepancy between the two totals is due to the addition of an allowance for augmentation of the headwork’s associated with environmental flows and some minor increase in actual cost to date over that contained in PRRISS.

The capital works program proposed by Earth Tech has been adjusted to take into account actual expenditure in relation to recent augmentation and upgrading works. The revised capital expenditure program also includes items of works from the PRRISS that have been reprogrammed for implemented in 04/05 and 05/06. The Earth Tech program also recognises the implementation of additional monitoring equipment to be installed in relation to the ongoing investigations into the provision of environmental flows.

Earth Tech recommends that Risk Management Plans be prepared for each of the supply systems to consider among other issues the provision of residual disinfection. The lack of such residual protection would appear to provide a level of risk that may be unacceptable on closer examination.

6.3.3 Sewerage Capital Works

The sewerage system has undergone a series of significant upgrades since the preparation of a report entitled “Perisher Range Sewerage System Upgrading and Augmentation EIS – 1997”. That report considered three upgrading strategies and recommended adoption of Option 3, which consisted essentially of the following elements:

- New inlet works
- New Extended Aeration Tank (EAT)
- Additional Blower capacity
- Additional chemical storage and dosing facilities
- Modifications to the catch/balance pond
- New Sludge handling and dewatering system
- Associated civil works

Following initial issue of the EIS a number of modifications were made to the upgrade strategy including:

- deferral of construction of 4th EAT
- deferral of construction of tertiary filtration
- installation of process heating to promote establishment of nitrifying bacteria
- installation of sludge storage facilities.

These modifications from the originally proposed works have been the subject of considerable scrutiny by EPA and DUAP with Ministerial approval being received in February 2002.

The Perisher Range Infrastructure Services Strategy (PRRISS) report flagged capital expenditure in the years 2000/01 to 2003/04 of approximately \$2.6M mostly in relation to the provision of additional sludge storage at the plant.

We have been advised however that the Capital expenditure over this period has amounted to approximately \$7.92M (ie. an additional \$5.2M). We also understand that a further amount of \$2M is to be allowed for the possible introduction of filters for additional phosphorus removal to meet anticipated tightening of EPA requirements.

The majority of the difference between the capital expenditure program contained in PRRISS and that prepared during the course of this report results from the summation of the additional expenditure to date and the allowance for higher rates of phosphorus removal.

With the exceptions discussed above the majority of the remaining capital expenditure projected over the 30 year scenario is related to renewals. For the purpose of this report and based on no information available to contradict the proposed program we have adopted renewals costs as proposed in PRRISS.

It is noteworthy that the STP upgrades have been designed on the basis of providing the plant with capacity to treat loads resulting from growth in both bed numbers and day visitors to the planned ultimate development of the resort.

The net result of our analysis of expenditure to date and works yet to be constructed is that the 30 year projection for capital expenditure has risen from \$12.0M (PRRISS) to \$19.2M (ET revised estimate).

The capital works cost projections contained in PRRISS and Earth Tech proposals differ mainly due to the latter taking into consideration the actual reported cost of works to date.

The overall sewerage collection, transfer and treatment system has been upgraded to include the level of robustness and redundancy required for operation in an alpine environment.

With respect to future works Earth Tech propose no significant works outside of the PRRISS program other than ensuring that the program recognises an amount of \$2m to be set aside for augmentation of phosphorus removal works should discharge limits be tightened or the level of aluminium contained in effluent be determined to be above sustainable limits.

6.3.4 LP Gas Storage & Distribution Capital Works

Earth Tech supports the PRRISS proposal for the introduction of a bulk storage and reticulated LP Gas distribution system. This infrastructure will have a significant benefit to the resort aesthetically, economically and environmentally.

The methodology through which this infrastructure is developed should be a competitive tendering process with performance criteria and contractual arrangements which ensure a continued level of contestability. To attain this we suggest that a tender specification be developed incorporating

qualitative requirements for the LP Gas and infrastructure, fixed terms (25 years for the lease and concession arrangement or license).

The lease and license ensure sufficient time to recover the cost of development, yet allow such arrangements to be revoked and tendered in the event of a substantial contractual breach or other non-performance.

6.3.5 Roads Capital Works

We estimate that there is presently a total of 9.4 km of gravel roads and 3.1 km of asphalt or bituminous surfaced roads for which the NPWS MSU is directly responsible.

As earlier we propose that the inner village roads be prioritised for construction.

We suggest that the construction of the roads should be scheduled to accommodate the expansion of the cleared roads network. If funds allow the roads should be concreted. If not they should be asphalted with a view to follow up concrete upgrade work when funds become available.

By allowing approximately \$1M per annum for a road construction program the Land Manager can determine whether he can afford concrete or asphalt. Also the size of contracts offered can assure some interest from contractors and economies of scale.

6.3.5.1 Bases of Road Construction Costs

The composite rates adopted for costing new road construction includes nominal amounts for stormwater infrastructure, street lighting, signage and ancillary works such as shared trenching for relocated services infrastructure etc.

See earlier "Estimated Road Asset Value" for the rates upon which the following costs are based.

6.3.5.2 Perisher Valley Road Construction

2006/07 Valhalla Road will be reconstructed completing the existing 210m of concrete road to Jolly Swagman. COST ~ 487m @ \$1,050/m = \$511,350. Pavement width 4.8m.

The **Kosciuszko to North Carpark Loop Road**⁵⁴ currently gravel will be reconstructed to concrete. COST ~ 170m @ \$1,600/m = \$272,000. Pavement width 7.0m.

North Carpark Loop to Lampada Lodge Road* will be reconstructed to asphalt. COST ~ 921m @ \$750/m = \$690,750. Pavement width 4.8m.

2007/08 The gravel section of **Swagman Road** will be reconstructed to concrete meeting with Valhalla (reconstructed 06/07) completing the South Perisher East Loop. COST ~ 320m @ \$1,050 = \$336,000, Pavement width 4.8m.

Matterhorn Road will be completed with asphalt over a three year period. The new reconstructed asphalt will meet the existing concrete, completing the South Perisher West Loop. COST (FIRST YEAR OF CONSTRUCTION) ~ 442m @ \$750 = \$331,500. Pavement width 4.8m.

The **North Carpark Loop*** will be completed with asphalt reconstruction over a two year period. The new asphalt will meet the existing concrete road, completing a fully surfaced loop. COST (FIRST YEAR OF CONSTRUCTION) 261m @ \$1095 = \$285,795. Pavement width 7.0m.

2008/09 Kandahar Lodge to Edelweirs Lodge Road* is to be reconstructed to asphalt.

COST 221m @ \$750 = \$165,750. Pavement width 4.8m.

Matterhorn Road will be completed with asphalt over a three year period. The new reconstructed asphalt will meet the existing concrete, completing the South Perisher West Loop. COST (SECOND YEAR OF CONSTRUCTION) ~ 442m @ \$750 = \$331,500. Pavement width 4.8m.

The **North Carpark Loop*** will be completed with asphalt reconstruction over a two year

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⁵⁴ * Road name is not official - for descriptive purposes only

period. The new asphalt will meet the existing concrete road, completing a fully surfaced loop. COST (**SECOND YEAR OF CONSTRUCTION**) 261m @ \$1095 = \$285,795.
Pavement width 7.0m.

2009/10 Matterhorn Road will be completed with asphalt over a three year period. The new reconstructed asphalt will meet the existing concrete, completing the South Perisher West Loop. COST (**THIRD YEAR OF CONSTRUCTION**) ~ 442m @ \$750 = \$331,500. Pavement width 4.8m.

2022/23 max Matterhorn Road will need to be upgraded to a concrete surface.
COST ~ 1,326m @ \$525 = \$696,150. Pavement width 4.8m.

Kandahar Lodge to Edelweirs Lodge Road* will need to be upgraded to a concrete surface. COST ~ 221m @ \$525 = \$116,025. Pavement width 4.8m.

2023/24 max North Carpark Loop* will need to be upgraded to a concrete surface. COST ~ 522m @ \$800 = \$417,600. Pavement width 7.0m.

North Carpark Loop to Lampada Lodge Road* will need to be upgraded to a concrete surface. COST ~ 921m @ \$525/m = \$483,525. Pavement width 4.8m.

6.3.5.3 Smiggin Holes Road Construction

2005/06 Kosciuszko Arcade / Hotel Road* is to be reconstructed to asphalt

COST ~ 94m @ \$750 = \$70,500. Pavement width 4.8m.

COST ~ 117m @ \$1,095 = \$128,115. Pavement width 7.0m.

TOTAL COST \$198,615.

Arcade to Muniong Lodge Road* is to be reconstructed to asphalt over a two year period. The **first** section to be reconstructed will be the section of proposed road that lies between Muniong Lodge and the NPWS accommodation building.

COST (**FIRST YEAR OF CONSTRUCTION**) ~ 266m @ \$750 = \$199,500

2007/08 Arcade to Muniong Lodge Road* is to be reconstructed to asphalt over a two year period.

The **second** section to be reconstructed will be the section of proposed road that links the first section the main road running through Smiggin Holes.

COST (**SECOND YEAR OF CONSTRUCTION**) ~ 166m @ \$750 = \$124,500

2020/21 max Arcade to Muniong Lodge Road* will need to be upgraded to a concrete surface.

COST ~ 432m @ \$525 = \$226,800. Pavement width 4.8m.

6.3.5.4 Guthega Road Construction

2005/06 The remaining asphalted region of **Guthega Main Road*** will be concreted.

COST ~ 837m @ \$525 = \$439,425. Pavement width 4.8m.

The remaining asphalted region of **Guthega Main Road*** will be concreted.

COST ~ 292m @ \$800 = \$233,600. Pavement width 7.0m.

2009/10 The **Service Road*** will be concreted from existing asphalt surface to concrete.

COST ~ 156m @ \$525 = \$81,900. Pavement width 4.8m.

6.3.5.5 Road Construction Program

We have reviewed the updated NPWS Roads Program as provided at the review meeting (Queanbeyan 18/2/05). We note that the data includes road lengths, estimated costs and order of works. A total of 6,085 lin.m of road is to be constructed over a 5-year period for a total cost of \$19,320,892.

We note that there is an apparent inbuilt provision for a 5% per annum cost escalation. Also we note there is no apparent provision for variations in or discrimination between road widths, ie. single lane or two lanes.

There is some variance between the two programs with respect to lengths which we put down to scaling and alignments variances. This occurred because there are no design alignments or appropriate mapping from which this data can be accurately ascertained. Earth Tech compiled its own mapping for that purpose when it became apparent that there was no mapping available.

The Earth Tech development plan (see above) provides for a total road length of 5,758 lin. m and a total cost of \$12.2M.

We suggest that the use of 2005 values, a 5% cost escalation, the lack of any discrimination between road widths, the use of asphalt surfaces (by Earth Tech) and the variance in road lengths adequately explains the disparity in the Earth Tech and NPWS road development plans.

The significant difference however between the PRRISS 30 year program and the Earth Tech program is the treatment of bridges in 2023/24, refer to earlier discussion (also see ⁵⁵PRRISS Appendices).

6.3.5.6 Non Road Construction Capital Costs

On completion of the road construction program in 2010/11 we have allowed for a nominal amount for ongoing installations and upgrades of new and additional signage, line marking, street furniture, lighting and stormwater upgrades at \$50,000 per annum.

6.3.6 Solid Waste Capital Works

With the introduction of a garbage and recyclables collection service we propose that the NPWS or Land Manager will develop the lockers described earlier. Assuming that approximately 200 sites will require garbage and recycling lockers, we propose that a nominal charge be made to the site holders for the manufacture and installation of these lockers.

We suggest a nominal budget for each locker of \$200, total provision being \$40,000. Also allow an additional \$10,000 per annum for garbage and recycling bags, litter bins and associated distribution costs. The lockers should be renewed say every 10 years.

6.3.7 Public Facilities & Amenities Capital Works

The development of a new Municipal Services Office, Workshop and Information Centre at Perisher is planned as part of the Village Centre development.

In the Infrastructure Strategy (PRRISS) there has been an ongoing provision from 2002/03 to 2003/04 (total \$6.798M for MSU Office/Workshop) which we understand has not been spent in anticipation of the Village Centre development.

It is unlikely in our view, that the new MSU facilities will cost \$6.798M. We understand that there are no commercial arrangements in place for the development of new facilities. In our view there needs to be an analyses of the comparative benefits of leasing or building new facilities. It may well be more cost effective to lease these facilities from the developers.

Likewise there has been some discussion about shared workshop facilities with PBL. They are also considering the relocation and consolidation of their workshops. This requires further analyses, however, it would appear to be an appropriate outcome.

We believe that the Sawpit Creek Entry Gate Proposal has some merit because it allows for the potential collection of resort revenue separate from NPWS gate entry charges. The estimated cost to develop this facility was noted at \$2.89M. We suggest that construction should be programmed for 2010, ie. once the majority of the resort roads are developed etc.

We also note the Infrastructure Strategy (PRRISS) describes the development of the NPWS Jindabyne Centre as having a cost of \$3M and provision for repayment of \$3M within the 2001/02 capital works budget. Also Appendix J of PRRISS describes existing assets as having a value of \$4.250M "Plus \$3M to pay back Jindabyne Head Office less \$2M which was given as the value of exist. offices to be demolished." The impact of these financial arrangements is unclear to us as they

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⁵⁵ Refer to PRRISS Appendices, Table G.15 Perisher Roads Services Capital Works Program also Table G.17 Smiggin Holes Road Services Capital Works Program.

may or may not impact upon the capital costs within the resorts. For the purposes of this review we have excluded all consideration of capital expenditure outside the physical environs of the Resort.

This area should no longer include costs for provision of freight facilities (see below Freight & Passenger Services).

6.3.8 Emergency Services Capital Works

We note that the Infrastructure Strategy (PRRISS) makes no provision for expenditure in this area.

However, given the earlier observed inconsistencies in the allocation of costs, we can assume that the NPWS will continue to purchase furniture and fitout the facilities it rents for the Police.

6.3.9 Freight & Passenger Services Capital Works

We note that the Infrastructure Strategy (PRRISS) makes provision of \$120,000 per annum for three successive years for the expansion of the freight terminal unloading areas. We suggest this may be deferred in favour of relocating the Charlotte Pass operations. The need for future upgrade should be reviewed after the Charlotte Pass interchange (or cleared road to Charlotte Pass) has been in operation for a season or two.

The Charlotte Pass operators and site holders as described above should fund the development of a freight and passenger interchange at Perisher Gap (should this option be chosen)

As earlier this area has previously included costs for medical centre furnishings etc. We propose that does not continue and that the medical centre costs be assigned to the medical centre area.

6.3.10 Medical Services Capital Works

The Infrastructure Strategy (PRRISS) makes provision for expenditure of \$418,000 over a 5-year period up to 2004/05, which we understand has not been spent. We are unsure as to the nature of this expenditure.

We understood the work described by the Doctor as being minor renovations and alterations of the existing facilities at the Skitube terminal. However, we do not have any knowledge of any other works that may be proposed at other sites.

We suggest this provision be simply moved forward to allow the necessary renovations to take place.

6.4 Operating Cost Review

The existing budget structure lacks transparency and is poorly structured. The interpretation of the budget varies from year to year. The budget does not reflect operational reality and is inconsistent with the arrangements at other resorts.

The management and administration arrangements and the treatment of site rental are fundamental to the future commercial sustainability of the resort.

6.4.1.1 With Expansion of the Resort

The entire cost and revenue planning arrangements require review to reflect operational reality and management arrangements. The current service arrangements need to be expanded and improved to meet the expectations of patrons and the changing regulatory environment.

The expansion of the resort offers significant benefits through economies of scale. There are no direct impacts upon manning levels in the water and sewerage services etc. However, the expanded road network and the implementation of new services as discussed above are new costs.

6.4.1.2 Without Expansion of the Resort

If expansion did not proceed as planned, there is not likely to be any impact upon the operational arrangements recommended above.

However, there is a net loss of recurrent revenue that will impact upon the existing site holders.

Whilst the continued development of the resort requires additional infrastructure the increase in operational costs is marginal in comparison to the economies of scale and relatively significant potential increase in revenue.

6.4.1.3 Treatment of Management & Administration Costs

We note the NPWS Infrastructure Strategy (PRRISS) isolates management and administration costs from the individual service areas. The treatment of these costs varies from year to year, ie. some years it includes vehicles and fuel and in other years it does not, likewise in some budgets some services such as Guthega Water had separate administrative costs whilst in the same budget Perisher did not. These inconsistencies make historical comparisons difficult.

As earlier a formal chart of accounts may clarify this treatment in future.

For true transparency, we suggest that the administration and management costs could be treated as a oncost for cost of service recovery when setting service related charges.

6.4.2 Water Supply Recurrent Works

In the main, recurrent costs have been calculated based on figures obtained from the 2004/05 NPWS Municipal Services Budget combined with "one-off" items contained in the PRRISS recurrent costs listing.

ET's estimates of recurrent expenditure for 2003/04 and preceding years have been based on the figures contained in the NPWS Municipal Services Budget for 2003/04. Estimates for year 2004/05 and thereafter are again based on figures in the budget for 2004/05.

It is of note that the operation and maintenance costs reported for 2003/04 and projected for 2004/05 in the budget are lower than those contained in PRRISS.

The recurrent cost estimate over 30 years contained in PRRISS is approximately \$8.0M compared to the revised estimate prepared by ET of \$5.8M (based upon the NPWS Municipal Services budget for 2004/05).

The major differences are as a result of power cost estimates in PRRISS being significantly higher than allowed for in the recent and current MSU budgets and the fact that PRRISS assumes that raw water is to be purchased at \$100/ML whereas water is currently supplied at no charge to NPWS.

As with the sewerage scheme the recurrent expenditure program contained in PRRISS makes no allowance for an apportionment of Administration staff, outdoor staff, vehicle costs, Office and workshop accommodation to the provision of services related to the directly to the water supply. These costs have been included in the Administration budget. For the sake of consistency and to enable comparison we adopt the same methodology. It must be recognised however that the true cost of provision of water supply services is therefore not reflected in these estimates.

6.4.3 Sewerage Recurrent Works

Recurrent costs have been calculated in the main based on figures obtained from the 2004/05 Municipal Services Budget combined with "one off" items contained in the PRRISS recurrent costs listing.

ET's estimates of recurrent expenditure for 2003/04 and preceding years have been based on the figures contained in the Municipal Services Budget for 2003/04. Estimates for year 2004/05 and thereafter are again based on figures in the budget for 2004/05. Adjustments have been made as follows for years after 2004/05.

- Recurrent estimate for 2005/06 has been reduced from that budgeted for 2004/05 by \$200,000 in recognition of an extraordinary item contained in the 04/05 budget for geotechnical stabilisation works.
- Recurrent estimate for 2006/07 and thereafter has been further reduced by \$50,000 in recognition of a high level of repair work carried out in 04/05. For the purpose of our estimate it has been assumed that similar money will be expended in 05/06 but that after that date repair works will be minimal.

Introduction of gas fired heating at the STP has resulted in a significant recurrent cost being incurred in relation to supply of the gas. The estimated cost for supply of gas included in the 2004/05 budget is \$95,000. We understand that a report on the "Proposed LP Gas Heating of the Sewage Inflow" prepared by Elgas in conjunction with a heating consultant, estimated gas consumption of the order of \$35,000 per year⁵⁶ prior to its adoption. It may be possible that gas consumption could reduce over time as operators become more attuned to operation of the plant with this facility and are able to utilise heating more efficiently. Conversely heating requirements may increase with increasing loads on the plant due to growth in visitor and bed numbers.

We note that a report on "Performance of Sewage Treatment Plant _ August 2001 GHD" highlighted inefficiencies in the wastewater heating system. We are unaware of whether or not these inefficiencies have been addressed.

The recurrent cost estimate over 30 years contained in PRRISS is approximately \$15.6m compared to the revised estimate prepared by ET of \$19.2m.

We note that the recurrent expenditure program contained in PRRISS makes no allowance for an apportionment of Administration staff, outdoor staff, vehicle costs, Office and workshop accommodation to provision of services related to the sewerage scheme. These costs have been included in the Administration budget. For the sake of consistency and to enable comparison we adopt the same methodology. It must be recognised, however, that the true cost of provision of sewer services is therefore not reflected in these estimates.

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⁵⁶ We note that the Elgas report estimated a consumption of 73,000 litres (for June/July/August) and note the budget indicates they are currently using in excess of 200,000 litres per year. We understand the onsite storage was initially limited to 18,000 litres, requiring replenishment via oversnow transport. The storage capacity may have since been upgraded.

Recurrent cost estimates included in the PRRISS report are significantly lower than those estimated by Earth Tech. Earth Tech estimates are based on the most current information provided during the course of this report being the 2004/05 MSU budget estimates. Adjustments have been made to take account of one off items included in the 2004/05 budget.

6.4.4 LP Gas Storage & Distribution Recurrent Works

As earlier, being a concession based operation no recurrent item is proposed for LP Gas other than the consumption costs for NPWS operations. These costs, however, should be recovered or accounted for in the areas in which they are expensed, ie. the LP Gas consumption at the sewerage treatment plant will be a cost against the operation of the sewerage treatment plant. However, there will be a recurrent income derived from lease payments to the NPWS (Land Manager) by the operator.

6.4.5 Roads Recurrent Works

6.4.5.1 Snow Clearing

As regards Village Roads, initially we propose to clear the inner roads at Perisher and Smiggin Holes. Guthega would be cleared once the road construction program is completed. This clearing work will enable garbage collection service for those sites with road access and also enable onsite parking and vehicular access for “set-down and pick up” and service delivery. Snow clearing is more effective and less damaging when involving concrete roads. Asphalt or bituminous roads are more prone to damage from clearing operations. Ideally cleared roads should be through roads and not dead ends. Turning or reversing vehicles can be hazardous for pedestrians and other road users.

Initially, at Perisher we propose to clear a total of approximately 1,500m (length) at Perisher being for the inner areas only and 340m at Smiggins. These additional road-clearing costs are estimated to cost \$100,000 per season (approximately \$50/m). This limited length is suggested as an interim arrangement until there are more concrete roads available for clearing. This additional cost will be met through the sale of vehicle access permits, onsite parking permits and a surcharge to service providers such as the garbage contractor.

In our view the blowing of snow is costly, creates an unsightly effect and causes significantly more damage. Ideally snow clearing operations would be reviewed to utilise cleaner methods, ie. we suggest pushing snow with blades. Snow clearing operations are most effective when pushing snow downhill. The snow needs to be stored in designated areas that need to be negotiated and agreed in advance with site holders. Clean snow can be readily utilised within the ski area if conveniently placed.

As more roads are constructed the road clearing operations would extend. We have allowed for an additional \$200,000 per annum from year 5 to extend the total cleared network to 4,500m at Perisher, 960m at Smiggins and 740m at Guthega. In total we suggest allow \$300,000 to clear 6,200m or \$48/m. Again we suggest this additional cost will be met through the sale of additional vehicle access permits, onsite parking permits and an expanded surcharge to service providers such as the garbage contractor.

6.4.6 Solid Waste Recurrent Works

With introduction of the proposed contract garbage collection service and the implementation of the regional landfill there will be no need to operate a landfill, compactor truck etc. Other than the provisions for contributions to the regional waste facility, the garbage collection service will be self funding, requiring the NPWS will have to meet its direct costs for the emptying of litter bins in public places, its own garbage services etc.

6.4.7 Public Facilities & Amenities Recurrent Works

The existing PRRISS recurrent budget structure includes what we presume to be cleaning costs and consumables. With development of new facilities, this will change.

6.4.8 Emergency Services Recurrent Works

The existing lease arrangements are likely to continue.

6.4.9 Freight & Passenger Services Recurrent Works

Again the existing lease arrangements are likely to continue.

6.4.10 Medical Services Recurrent Works

As above.

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7 Recommendations

7.1 General

7.1.1 Management Arrangements

- That the Land Manager's role be reviewed with a view to consolidating the service delivery arrangements, removing potential overlaps and omissions and introducing transparency...
- The conflicts of interest between NPWS as an operator of a national park and the best interests of the resort need to be resolved by implementing a dedicated resort management structure, preferably either through a head lease arrangement or a modified NPWS sponsored RMB model.
- That the existing NPWS chart of accounts be reviewed and rationalised to better reflect services provided and activity based costing.
- That the geographically remote nature of the resorts, limited availability of local resources, the harsh environment and its dependence upon skier patronage be recognised as key factors in planning for the development and maintenance of services infrastructure.

7.1.2 Asset Management

- That the "Perisher Range Resorts Asset Management Plan" be completed and adopted as key "living" reference document in the future development of the resort infrastructure. The PRRAMP should be reviewed annually and the associated assets registers updated.

7.1.3 Infrastructure Development

- That any infrastructure development works necessary to provide an Improved Level of Service (ILOS) be funded by a provision within the recurrent budget applied across all of the consumers/beneficiaries.
- That with the development of new roads provision is made for the introduction of satellite service nodes to replace the existing centralised activity adjacent to the ski tube terminal at Perisher.
- That the service nodes be scattered around the perimeter of the cleared village road network to remove concentration and clutter of garbage skips, improved freight delivery services, broader passenger set downs and pickup facilities, an expanded village shuttle service

7.1.4 Charlotte Pass

- That the Charlottes Pass passenger and freight interchange operations be relocated away from the Perisher Village Centre to a new site to be developed at Perisher Pass. A second option would be to provide a cleared road directly to Charlotte Pass.
- That the Perisher Pass interchange for Charlottes Pass include a car park for staff and patrons, a freight and passenger terminal for the transfer from road to over snow transport.
- That the 2.0 km of Kosciuszko Road beyond Perisher be regularly cleared of snow throughout the snow season to facilitate road transport from Perisher to Perisher Pass, or the entire road be regularly cleared, the cost for which shall be borne by the operators of Charlotte Pass resort.

- That a conventional road based shuttle vehicle provide a scheduled service to transfer passengers and freight from Skitube to the proposed Perisher Pass interchange or the full distance to Charlotte Pass..

7.2 Infrastructure

7.2.1 Water Supply

- The supply of raw water across the whole of the resorts be reviewed and considered following completion of the current investigation by the Department of Commerce into environmental flows and off-line storage requirements.
- That the capital works program recognise a nominal amount of \$5M to be spent on augmentation of the raw water supply.
- That the water supply upgrade strategy as developed by the Department of Commerce proceeds as planned to completion.
- That all water supply systems be reviewed to ensure that each independent system include as a minimum a storage capacity of 0.5 Mega litres to ensure adequate supplies for fire fighting.
- That a separate water supply and fire protection plan be developed and maintained, locating all key water supply infrastructure components, storages, pipe sizes/types, valve and hydrant locations, complete with static pressures.
- That all buildings identified as having water supply pressures and fire protection below that required by AS.2419 be advised in writing and accordingly suggest they take appropriate fire protection measures and precautions to protect themselves.
- That a Risk Assessment be undertaken on each of the water supplies to determine whether a form of residual disinfection should be implemented to provide protection against recontamination of the potable supply as recommended by the NSW department of Health.

7.2.2 Sewage Systems

- That the efficiency of the gas fired wastewater heating system be reviewed with a view to ensuring optimal use both in terms of process requirements and gas consumption.
- That the apparent increase in operating costs of the Sewerage Treatment Plant be incorporated into the projected operating costs.
- That “trade waste agreements” (TWA's) be introduced for commercial site holders to provide a mechanism to reward clean operators and penalise dirty operators, ie. site holders will be encouraged to install grease traps, triple interceptors and coalescing plate separators as a means of removing greases, oils and fats from the waste stream before it gets to the treatment plant.

7.2.3 LP Gas Reticulation

- That a long-term concession based contract be tendered for the development, implementation and operation of a reticulated LP Gas system across the Perisher Range Resort.
- That the removal of heating oil storages, appliances and appropriate restoration of any contaminated sites be enforced by the Land Manager.

7.2.4 Roads & Car parks

- That the management of the village roads and car parks be placed under the management of one service provider who collects revenue for that purpose and expends those funds in the care and maintenance of those assets.
- That the management of the access roads remains with the RTA.
- That the surfacing of the village roads be prioritised so as to enable the earliest possible surfacing with a multi-layer spray seal as a matter of priority to enable the following;
 - to address sedimentation problems,
 - to facilitate snow clearing,
 - to facilitate the provision of all weather vehicular access to selected sites to enable,
 - the provision of a garbage/recycling collection service,
 - the provision of conventional vehicle access for delivery of goods and passengers,
 - the provision of onsite parking for patrons and site holders,with a view to subsequent upgrading to concrete pavements as funding permits.
- That site holders and service providers wishing to access the village road network be required to hold the following;
 - a license to provide a specified service within that specific area (eg. Delivery of goods, pick up, transport and drop off of passengers etc.
 - a license to operate a vehicle in that specific area.
 - a permit to park at a specified location within a specified area.The revenue collected from the issue of the above licenses and permits will be dedicated to the maintenance of these roads and clearing the clearing of the snow from these roads.
- That snow clearing operations be reviewed with a view to producing “a cleaner” roadside.
- That with the development of new roads provision be made for the routine sweeping of road surfaces with street sweeper vacuum trucks, at least twice annually (ie. pre- ski season and post-ski season).

7.2.5 Village Road Snow Clearing

- That the clearing of the village roads within the central precinct at Perisher Valley be made a priority throughout the ski-season regardless of snow cover.
- That “snow pushing” become the preferred methodology for snow clearing.
- That new road development work take into account the practise of pushed snow clearing methods, ie. providing adequate storage areas at strategic and suited locations.
- That the “village roads snow clearing policy” acknowledge the role of cleared roads as reducing the reliance upon over snow transport, reducing costs and improving access to patrons, commercial operators, service authorities and emergency services alike.
- That a “village roads snow clearing policy” be developed in consultation with stakeholders, taking into account extents of cleared roads, stack sites for cleared snow, environmental impacts and mitigation measures, service levels for maintaining cleared roads in designated areas, intervention levels at which uncleared roads will be changed to cleared roads etc.

7.2.6 Solid Waste

- That provision of the solid waste and recycling collection service be based upon a user pays arrangement whereby site holders use only designated garbage/recycling lockers similar to those in use at Thredbo. Site holders generating more waste will pay more in collection fees.
- That a garbage collection and recycling service be offered for public tender as a 3 year contract with options to 5 years.

- That the Land Manager continues to support the Regional Waste Management initiative and implement the rehabilitation and restoration of the Sawpit landfill site.

7.2.7 Freight & Passenger Services

- That the Land Manager provides opportunities for alternative service delivery arrangements through competitive tendering and licensing.
- That the existing congestion at the Perisher centre be addressed as above.
- That the movement of commercial vehicles be regulated to lessen the impact upon patrons.

7.2.8 Emergency Services

- That during development of the Village Centre, or more particularly when the Skitube station is being redesigned, a stand alone Police Station should be designed and constructed adjacent to the existing Ambulance and Fire Stations. This will provide an emergency services complex that will complement each service and provide operational efficiencies. It could also encompass an emergency response centre for disaster management.

7.2.9 Medical Services

- That during development of the Village Centre, or more particularly when the Skitube station is being redesigned, a properly designed Medical Centre should be designed and constructed in the existing location. Relocation of the existing Post Office would probably allow adequate space for this to occur.

*Prepared for Earth Tech Engineering Pty Ltd
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Draft Final 2/03/05*

8 APPENDICES

8.1 *Engineering Drawings*

- 2004342-00 Cover
- 2004342-01 Overall Resort Layout
- 2004342-02 Perisher Valley Overall Layout
- 2004342-03 Perisher Valley Roads Infrastructure
- 2004342-04 Perisher Valley Sewer Infrastructure
- 2004342-05 Perisher Valley Water Infrastructure
- 2004342-06 Perisher Valley Site / Precinct Layout
- 2004342-07 Smiggin Holes Overall Layout
- 2004342-08 Smiggin Holes Roads Infrastructure
- 2004342-09 Smiggin Holes Sewer Infrastructure
- 2004342-10 Smiggin Holes Water Infrastructure
- 2004342-11 Smiggin Holes Site / Precinct Layout
- 2004342-12 Guthega Overall Layout
- 2004342-13 Guthega Roads Infrastructure
- 2004342-14 Guthega Sewer Infrastructure
- 2004342-15 Guthega Water Infrastructure
- 2004342-16 Guthega Site / Precinct Layout
- 2004342-17 Bullocks Flat Layout
- 2004342-18 Overall Resort Road Development
- 2004342-19 Perisher Valley Road Development

8.2 *Existing Conditions Photography*

- Site Photography 16/09/04
- Site Photography 8/10/04

8.3 *Assets Register*

- Brief Summary of Assets by Type, Value, Capacity and Extents

8.4 *Financial Modelling*

- Model Map (only)
- NOTE; Digital version of model is available by arrangement.

8.5 *Visitation Forecasts*

- Draft Report by CIE "Forecasting Skiing Demand for the Perisher Range Resort", 1/11/04.

8.6 Operations Costs Analyses

- Summary of NPWS Operating Budget 2004/05 (1 sheet)
- Summary of NPWS Operating Costs – Typical "Typical Annualised Recurrent Costs" as reported in the NPWS Infrastructure Strategy (PRRISS) Appendix G for 2002, (1 sheet)
- Typical RMB Management Arrangements & Operating Costs (2 sheets)

8.7 Capital Costs Analyses

- NPWS Forecast Infrastructure Services capital Costs 2000/01 Dollars as reported in the NPWS Infrastructure Strategy (PRRISS) Appendix G for 2002, (1 sheet)
- Summary of Capital Works planned from 1999 to 2030
A compilation of works planned by infrastructure type from the NPWS Infrastructure Strategy (PRRISS) Appendix G (1 sheet)

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9 References

9.1 Reference Documents

1. Extracts from the NPWS Perisher Ranges Resorts Infrastructure Services Strategy, (69 page bound document)
 - 9.11 Pilot Infrastructure and Landscape Plan; The Marritz Precinct, Perisher Valley, (87 pages August 1998), Jackson Teece Chesterman Willis
2. Invitation To Tender (Review of Capital Costs and Operating Costs at Perisher Range Resorts), (9 page document in proposal file)
3. Perisher Range Resorts Asset Management Plan (2003- 2004) (100+ page bound document National Parks & Wildlife Services)
4. Perisher Blue Ski Resort Ski Slope Master Plan May 2002 (100+ page bound document)
5. Perisher Range Resorts Environmental Study October 2000 (95 page bound document)
6. Perisher Range Resorts Master Plan November 2001 (168 page bound document)
7. Walker Inquiry February 2001 (101 page bound document)
8. Department of Public Works & Services Reference Documents
 - 8.1 Perisher Range Sewerage Augmentation (Treatment Plant) Vol. 1 (150+ page NSW Department of Public Works & Services Document May 1999)
 - 8.2 Perisher Range Sewerage Augmentation (Treatment Plant) Vol. 3 Drawings (195 page NSW Department of Public Works & Services Drawings May 1999)
 - 8.3 Perisher Range Sewerage Augmentation (Sludge Storage) Vol. 1 Drawings (200+ page Bound Document NSW Department of Public Works & Services)
 - 8.4 Perisher Range Sewerage Augmentation (Sludge Storage) Vol. 2 Drawings (85 page NSW Department of Public Works & Services Drawings May 1999)
9. National Parks & Wildlife Services Reference Documents
 - 9.1 Infrastructure Services Strategy (Executive Summary) (100+ page National Parks & Wildlife Services March 2002)
 - 9.2 National Parks and Wildlife Amendment (Kosciuszko National Park Roads) Bill 2004 (5 page bound document with Environmental Planning and Assessment Amendment)
 - 9.3 Perisher Range Resorts Master Plan Kosciuszko National Park November 2001 (168 page bound document)
 - 9.4 Waste Management Option Assessment for the Perisher Range Resorts (2 copies) (90+ page bound document September 2004)
 - 9.5 Perisher Range Resorts Water Supply Demand Management & Water Pricing Options – Final Draft (35+ page bound document May 2004)
 - 9.6 Perisher Range Resorts Water Supply Water Pricing Technical Paper – Draft (15+ page bound document July 2004)
 - 9.7 Perisher Range Resorts Water Supply Upgrade (100+ page bound document December 2001)
 - 9.8 Specification For Perisher Range Water Supply Upgrade (Construction of Pipelines) (100+ page bound document Specification & Drawings National Parks & Wildlife Services May 2002)
 - 9.9 Tender Document For Water Supply Infrastructure For Perisher Range Water Supply Upgrade Vol. 1 of 2 (300+ page Bound Document National Parks & Wildlife Services, July 2002)
 - 9.10 Tender Drawings For Water Supply Infrastructure For Perisher Range Water Supply Upgrade (101 page Bound Document National Parks & Wildlife Services, July 2002)

10. NSW Department of Commerce Reference Documents
 - Perisher Range Resorts Concrete Road Construction – Snow Bunny Road & Guthega Road Vol. 2 (28+ page Drawing Set NSW Department of Commerce)
 - Tender Specification For Perisher Range Resorts Concrete Road Construction – Snow Bunny Road & Guthega Road Vol. 1 of 2 (150+ page Bound Document NSW Department of Commerce October 2003)
11. Alpine Resorts 2020 Strategy, Victorian Resorts, (Department of Sustainability & Environment Colour Document)
12. Environmental Planning and Assessment Act 1979 No. 203, (263 page bound document)
13. Environmental Planning and Assessment Amendment (Ski Resort Areas) Bill 2001, (10 page bound document with National Parks and Wildlife Amendment added)
14. Urban Stormwater Best Practice Environmental Guidelines, published by CSIRO 1999
15. Perisher Range Resorts Village Master Plan Environmental Impact Statement, published 1997
16. Draft Plan of Management, Kosciuszko National Park 2004
17. Detailed Village Design Plan, published by Perisher Blue Limited 2003
18. A Comparison of Occupier Related Charges at Ski Resorts and Municipalities, for Mt.Buller Alpine Resort Management Board, by Bill Unkles for Saturn Corporate Resources Pty Ltd 2 April 2003.
19. Report on Site Values, Rents & Costs in NSW and Victorian Alpine Resorts by McCann Property & Planning and Cogsraves property Advisors. 2004.
20. PBL Submission to DIPNR Discussion Paper “Cleared Roads in Perisher Range Resorts, Kosciuszko National Park” (February 2005)

9.2 Acknowledgements

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