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**BLUE MOUNTAINS
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TWO



Dept of Tourism Photo

FOOTNOTES

**BLUE MOUNTAINS
STRATEGY PLAN**
Technical Analyses

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The Blue Mountains Strategy Plan consists of three separate volumes:

- Volume 1 - ALTERNATIVE FUTURES
- Volume 2 - TECHNICAL ANALYSES
- Volume 3 - MAPS AND DIAGRAMS

I.D. DASH,
MAYOR



VOLUME 2 - TECHNICAL ANALYSES

CONTENTS

PAGE

A. ENVIRONMENT

1.	Environmental Goals	A 1
2.	Environmental Areas	A 2
3.	Levels of Perception	A13
4.	Recreation	A24
5.	Bush Fire Control	A32
6.	Existing Environmental Pollution	A41
7.	Conclusions	A43
	Appendix - Council Historic Sites	A50
	Appendix - National Estate Submission	A51
	Appendix - Objections to Scheme (Historic)	A54

B. THE PEOPLE

1.	Demographic Characteristics	B 1
2.	Existing Social Structure	B11
3.	Medium Density Development	B16
4.	Conclusions on Existing Situation	B21
5.	Ideas on Future Planning Action	B23
6.	Implications of Alternative Futures	B29

C. TOURISM

1.	Existing Developments, Trends and Problems	C 1
2.	Tourist Potential and Implications of Alternatives	C29
3.	Action Plan Programme	C38
	Appendix - Easter 1974 Survey Questionnaire	
	Appendix - 1968 Tourist Accommodation	
	Appendix - 1974 Tourist Accommodation	

D. INDUSTRY

1.	Existing Industrial Structure	D 1
2.	Blue Mountains as an Industrial Location	D11
3.	Industrial Potential and Implications of Alternatives	D22
	Appendix - Employment and School Leavers	
	Appendix - Physical Assessment of Industrial Zones	



E. COMMERCE

1.	Existing Commercial Facilities	E 1
2.	Shopper Characteristics	E 5
3.	Provision of Office Facilities	E 9
4.	Retail Structure	E11
5.	Provision of Future Commercial Space	E13
Appendix - Commercial Analysis		

F. TRANSPORTATION

1.	Roads and Traffic	F 1
2.	Railways	F 6
3.	Bus Service	F 8
4.	Air Transport	F 9
5.	Journey to Work	F10
6.	Tourists	F12
7.	Summary of Problems, Constraints & Conflicts	F13
8.	Implications of Alternatives	F16

G. PUBLIC UTILITIES

1.	General	G 1
2.	Water Supply	G 1
3.	Sewerage	G 2
4.	Electric Power	G 3
5.	Gas	G 4
6.	Telephones	G 4
7.	Solid Waste Disposal	G 4
8.	Conclusions and Implications	G 4
Appendix - Report on Water Supply by City Engineer (1973)		G 4

TECHNICAL ANALYSIS 'A'



THE ENVIRONMENT

1. ENVIRONMENTAL GOALS

2. ENVIRONMENTAL AREAS

- 2.1 Natural Environmental Areas
- 2.2 Resources in Intermediate Areas
- 2.3 Urban Areas - Historic Sites and Buildings

3. LEVELS OF PERCEPTION

- 3.1 Views from the Lookouts
- 3.2 View from the Road and Rail
- 3.3 The Urban Experience

4. RECREATION

- 4.1 A General Appraisal

5. BUSH FIRE CONTROL

- 5.1 Bush Fire History
- 5.2 Levels of Responsibility
- 5.3 Blue Mountains Burn Areas
- 5.4 Conflicts and Constraints
- 5.5 Existing Fire-Prone Areas
- 5.6 Potentials

6. EXISTING ENVIRONMENTAL POLLUTION

- 6.1 Sources
- 6.2 Pollution Areas

7. CONCLUSIONS

- 7.1 Environmental Perspectives
- 7.2 The Classification Problem and Need
- 7.3 Impact of the Strategies
- 7.4 Issues and Inequalities
- 7.5 Critical Environmental Areas
- 7.6 Action Requirements



THE ENVIRONMENT

1. ENVIRONMENTAL GOALS AND LEVELS OF PERCEPTION

The goals of environment management are three-fold:

1. To delineate, define and classify areas of environmental uniqueness.

The first goal of delineation was accomplished at a large scale with the establishment of the Blue Mountains National Park in 1958.

Other large areas of delineated open space are also contained within the City boundaries including State Forests, water catchments, and local recreation areas. (See Figure A1). Interim Development Order 26 (Escarpment Preservation), which defines "escarpment areas," is another example of this goal.

2. To ensure the preservation of unique environmental areas.

For example, Interim Development Order 26 will reduce the visual impact of housing within the eastern "escarpment preservation area". The preservation of historic sites and buildings also comes under this second environmental goal. Council's usual method of preserving unique environmental areas is to zone them "Special Uses - Historic", or to dedicate open space areas for various recreational purposes.

3. To define and maximise suitable uses within environmental areas.

Management policies to guide and control activities in environmental areas. One instance is the current non-urban zones in the Planning Scheme limiting the subdivision of land in Megalong Valley

The National Parks and Wildlife Service is in the process of evolving management principles to achieve this goal within the National Park. Other open space land in the Mountains suffers from a lack of similar management plans partly due to different land ownership, but largely due to a lack of overall open space policies.



2. ENVIRONMENTAL AREAS

2.1 Natural Environmental Areas

2.1.1 Blue Mountains National Park

The vastness of the Blue Mountains National Park is impossible to grasp except from the air. The total area of land contained within the Park is about 984 square kilometres (380 square miles) or 56% the size of the existing Sydney Metropolitan Region.

Compared with other major National Parks near Sydney, the Blue Mountains National Park is about five times larger than each of the Royal National Park, Ku-ring-gai Chase National Park and the Dharug National Park.

Although 276 square kilometres (106 square miles) of the Park is outside the Blue Mountains City boundaries, virtually all access to the Park is from the City area.

The Park is trisected by the Great Western Highway and Bells Line of Road. Each of these three park areas afford different levels of access and facilities, and each exhibits distinctly different patterns of usage.

Southern Park Portion

The southern-most portion of the Park (Blue Labyrinth area) is bounded by the Great Western Highway, and Nepean River, the Warragamba Catchment and Kings Tablelands Road. This portion covers about 25% (246 square kilometres) of the total Park area. By far the most heavily used portion, most of this area is fairly accessible by vehicle. One track, originally constructed in 1958 as a fire trail, links the lower to the central mountains from Glenbrook to Woodford passing through the heart of this Park portion. Facilities in the area include a ranger station/visitor centre at Glenbrook, seven major camping facilities, seven picnic areas and two scenic lookouts (Mt. Portal and Nepean lookouts). The analysis of receipts taken by the Glenbrook admission station shows approximate peak levels of 400-500 vehicles per day.

Central Portion

The central portion of the Blue Mountains National Park covers about 40% of the total Park area and is generally bounded by the Great Western Highway and Bells Line of Road. Major physiographic features within this Park portion are the Carmarthen and Kolonga Labyrinths, Devil's Wilderness and



the Grose Valley. Access by vehicle is severely restricted by a combination of strong terrain and private ownership of peripheral land. Good access is afforded, however, to bush walkers. Tracks begin at Perry's Lookout, Govett's Leap and Evans Lookout north of Blackheath. Other tracks begin at Pierces Pass and Banks Walls off the Bells Line of Road, and from several points in the central and lower mountains. Provided facilities currently include nine picnic areas, one camping ground and nine major lookout points.

The use of the central portion is overwhelmingly peripheral. The most heavily used parts are scenic lookout points trafficked by visitors, and light uses of the strip bounding existing developed lands. Only fairly serious bush walkers traverse this portion or penetrate into central parts.

Northern Portion

The northern-most portion of the Park covers about 30% (295 square kilometres) of the total National Park area. Less than 10%, however, is contained within the Blue Mountains City boundaries. This park portion is exclusively wilderness area. Virtually no vehicular access can be gained, and no organised tracks or facilities exist. The popularity of the portion and its related use appears to be low. Certainly, the lack of access and facilities ensures that this park portion remains a true wilderness environment.

Administration

The National Park is administered by the National Parks and Wildlife Service (NP&WS) with high level coordination with the Parks and Gardens section of the Department of Lands. Until 1970, the Park was administered by the Blue Mountains National Park Trust consisting of representatives from the Blue Mountains City Council, NSW Department of Lands, NSW Department of Main Roads, Sydney Metropolitan Water Sewerage and Drainage Board, the National Parks Association of NSW, and the NSW Forestry Commission.

Upon disbandment of the Blue Mountains National Park Trust, the National Parks and Wildlife Service appointed a district superintendent responsible for the whole of the Blue Mountains, Bathurst, Oberon, Jenolan region. There are four park rangers living within the Blue Mountains and responsible for administering and maintaining 380 square miles of park.

At present, there is no coordination between Council and the NP & WS at an official level. Council's bushfire control officer currently continues coordination with officials and rangers of the National Parks and Wildlife Service concerning bushfire prevention and suppression (see Section 5 below).



Management Policy

The National Parks and Wildlife Service is currently financially committed to two major works for the Park. These commitments are:

- * Park headquarters facility at the end of Govett's Leap Road in Blackheath (cost in the order of \$400,000).
- * College of Conservation facility, east of Evans Lookout Road, on Council-owned land in Blackheath; to include a residence for the district superintendent.

The Blue Mountains National Park Advisory Committee, although a purely advisory body, has had many past members of the discontinued Blue Mountains National Parks Trust and has established a number of policies. These policies include bushfire protection and control and land management policies.

The Committee's past efforts and research in the Blue Mountains Area culminated in a report concerning management policy for the Park, presented in May 1974 to the NP & WS. Among the major recommendations of the report was that the Blue Mountains National Park be organised and administered under four descriptive land use classifications as follows:

- * Wilderness Areas
- * Natural Areas
- * Outstanding Natural Areas
- * Development Areas

TABLE A1

BLUE MOUNTAINS NATIONAL PARK AREAS

Park Portion	Square Kilometres
Northern (Wollangambe)	196 (20 in BMCC area)
Central (Grose Valley)	442
Southern (Blue Labyrinth)	246
TOTAL	984



Conflicts and Constraints

Conflicts

Major existing conflicts with National Park use are the prevalence of encroaching subdivision activity in previously undeveloped portions adjoining Parklands, and the increasing building and occupation of established subdivisions in these areas. Although the problems are most acute in unsewered residential zones, erosion and damage caused by increased surface run-off and domestic chemical drainage are prevalent. All of the present sewerage treatment plants eventually empty into Parklands; existing pollution levels in these areas are well into the contamination classification.

Domestic garden cuttings dumped into Park areas have already resulted in the establishment of non-native trees and shrubs in the Park and along the urbanised fringe.

Mining activities and leases are incompatible with Park uses. Many would argue that vehicular tracks of any type should also be prohibited.

Constraints

Upon disbandment of the Blue Mountains National Park Trust in 1970, the resources available for managing the Park plummeted. Previously the Trust could call on many bodies for equipment, funding and manpower, and had available a considerable number of individuals with extensive professional knowledge of the Park. The current phase of the NP&WS is geared towards ambitious land acquisition programmes and training of existing personnel. As a consequence, the operation of the Park is suffering from under-funding and under-staffing. The most serious problem is the current situation of insufficient Park staff attempting to cope with very real bushfire dangers, and Park usages which are increasing to capacity.

Potentials

The needs of the National Park are clear. More funds, more trained manpower, more expertise and equipment for bushfire control, and clear land management policies through which assistance can be gained. Statutory controls on land adjacent to Park boundaries have been established in many cases. Council has indicated its willingness to cooperate with future Park expansion plans. The Bushfire Brigades in the Mountains area are willing to assume responsibilities for new Park acquisitions until the NP&WS fire fighting resources can adequately cope with the increased area. The National Parks Advisory Committee has often asked for increased participation in Park operations.



The problem of the National Park is one of re-establishing the cooperation existing in the Park Trust period, and for the Parks Service to admit to the need for coordination and assistance.

The rationalisation of Park boundaries based on topographic considerations would neutralize many of the problems of access, maintenance and urban impacts.

2.1.2 Warragamba Catchment

About 184 square kilometres (71 square miles) of the Warragamba Catchment falls within the Blue Mountains City boundaries. The catchment is administered by the Metropolitan Water Sewerage and Drainage Board. Officially, the catchment is out of bounds to the public although some non-intensive usage probably does occur.

It appears certain that two major changes in the use and management of Warragamba catchment will occur. The first change is the possibility that a large portion of MWS&DB land will be added to the Blue Mountains National Park south of the Blue Labyrinth area. The second possible change is that controlled boating uses (for sightseeing purposes) may be introduced from either the dam site or from Nattai, or perhaps a water route connecting these points. The introduction of water craft into the dam would significantly increase access into the southern portions of an enlarged National Park.

2.1.3 State Forests

The only state park within the City region is the Erskine Creek State Forest located along the southern boundary. The total area of the Forest is 74 square kilometres (26 square miles) or 6,775 hectares (16,742 acres).

Selected felling of hardwood is carried out by the New South Wales Forestry Commission. Access for timber extraction is along Kings Tableland Road.

The impacts of future development of the Mountains on the Erskine Creek State Forest will be minimal unless access to the Forest is significantly increased. The Forest does not qualify as a true wilderness area due to the existing logging operations.

2.1.4 Escarpment Areas

The scenic and topographic uniqueness of the Mountains is largely attributable to its extensive escarpment system. Large portions of the Blue Mountains City area are delineated by escarpment (see Map A2).



Over 165 kilometres of escarpment are contained within Council boundaries as follows:

- * East escarpment (Lapstone and north) 26km
- * South-western escarpment (Jamison and Megalong Valleys) 52km
- * North-western escarpment (Grose Valley) 48km
- * Northern escarpment (Banks Walls/Grose Valley) 39km

2.2 Resources in Intermediate Environmental Areas

2.2.1 Land Currently Zoned under Planning Scheme

A total of 11,186 hectares (27,629 acres) is used for, available, or proposed for open space and recreation within the Council area. The amounts of land zoned in the exhibited Planning Scheme are set out below.

Existing "Recreation Zones" totalling 10,872 hectares (26,855 acres) are the largest areas of this total. The majority of existing uses are proximal to urbanized townships and adjacent to the National Park. In many instances these uses provide a much desired buffer area between residential areas and the National Park, or between the Great Western Highway and the Park.

Open space areas for "Parks and Recreation" total 182 hectares (450 acres) throughout the City area; the majority located in the central and lower mountains.

At present, "Private Recreation" uses cover a total of 131 hectares (324 acres). All of these private uses are located between Mt. Victoria and Linden. Golf courses and bowling clubs are the major categories within private recreation uses. The Everglades in Leura, a National Trust owned and operated garden, is not however, classified as private recreation and is zoned for residential under the exhibited scheme.

Council will receive, or is committed to the purchase of about 60 hectares (155 acres) of land to be used for future recreational purposes. Much of this land will be dedicated to Council in lieu of local open space money contributions by developers in the Lower Mountains.

TABLE A2 - PLANNING SCHEME ZONINGS

	Area	
	Hectares	Acres
Existing Recreation Zones	10,872	26,855
Open Space Zones	182	450
Private Recreation Zones	131	324
Proposed Recreation Zones	63	156
TOTAL	11,248	27,785



2.2.2 Water Catchment Areas (BMCC)

Blackheath Water Supply Catchment

The Blackheath Catchment covers 579 hectares (1,430 acres) and contains the Greaves Creek Reservoir and Lake Medlow. The Catchment is currently being used for Upper Mountains water supply. This catchment currently contains about 20% of the catchment area in pinus radiata plantation. Planting and maintenance are carried out jointly by the Council and the Rotary Club of Blackheath.

Katoomba Catchment

Covering an area of 309 hectares (763 acres), the Katoomba catchment is a main source of Upper Mountains water.

Wentworth Falls Catchment

Covers an area of 140 hectares (346 acres) located north of the Great Western Highway between Blaxland and Mt. Hay Roads. The catchment is accessible on all four sides. A portion of land abutting the dedicated area is used for a rifle range. A sand and gravel extraction operation is currently being carried out within the catchment. The existing reservoir is completely silted up and unusable for catchment and supply. The revocation of a 'catchment dedication' could release this valuable land for much needed open space or preservation usage.

Woodford Water Catchment

Covers 452 hectares (1,116 acres) abutting the Blue Mountains National Park to the north. The catchment area is adjoined by Waterhouse Park, Bull's Camp Park and Dawes Park. Considerable development exists within the natural Woodford catchment area in Mt. View Avenue and other local roads extending off the Great Western Highway.

A comparable summary of catchment areas owned or controlled by the Blue Mountains Council is detailed on the following page.



TABLE A3

CATCHMENT AREA SUMMARY

	Area		Owner- ship	Primary Use
	Hectares	Acres		
Blackheath	579	1,430	BMCC	Water supply & pine forestry
Katoomba	309	763	BMCC	Water supply
Wentworth Falls	140	346	BMCC	Unused for water supply purposes
Woodford	452	1,116	BMCC	Water supply
TOTAL	1,480	3,655		

2.3 Urban Areas - Historic Sites and Buildings

Present National Trust Classifications

The National Trust (NSW) adopted a new classification system in May 1973. In place of the old A, B, C, D system, only two categories are now in use. These new categories are "Classified" and "Recorded". Generally, all buildings previously classified under the old system of A, Potential A, and B, will become "Classified" under the new systems. Building previously termed C and D will become "Recorded".

The list of buildings in the Blue Mountains classified by the Trust are listed below with their expected new designations:

Town/Building	New Classification	Date
<u>Katoomba</u>		
Carrington Hotel (Windows only)	R	
Lilianfels	R	
<u>Lapstone</u>		
Lennox Bridge	C	1833
<u>Medlow Bath</u>		
Store Cottage	R	

Mt. Victoria

The Grange	R	1876
Post Office, Stables	R	1895-97
Toll Bar House	C	1849

Woodford

Woodford Academy	C	1830
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Historic Sites Identified By Council

In the 1967/68 Town Planning Reports, Council planners identified "places of historical and scientific interest" which are listed in Appendix "A".

BMCC Submission to the Committee of Inquiry into the National Estate (Environmental)

In response to the Committee, the Blue Mountains Council prepared a list of "areas to be affected" in 1973. These environmental areas include the following:

- Eastern Escarpment (covered by IDO 26)
- Southern Escarpment (Kedumba, Jamieson, Megalong, Kanimbla Valleys and Hartley Vale)
- Northern Escarpment (Grose Valley from Mt. Hay to Bell)
- The Valleys (Kedumba, Jamieson, Megalong and Kanimbla Valleys and land within the Fitzgerald Creek/Long Angle Gully basin)
- Carmathen Mountains (Mt. Tomah, Mt. Wilson and Mt. Irvine)

Council's policy was not to acquire freehold land within these described areas but to seek methods of shaping or controlling growth. The alienation of Crown or Reserve Lands would not be approved if the National Estate principles are negated.

Historic Buildings and Parks

Council planners have identified 34 buildings and parks for inclusion into the National Estate. These sites and parks are included in Appendix "B".

Planning Scheme Ordinance

The Blue Mountains Planning Scheme Ordinance lists three buildings under Clause 62 (page 57) to which alterations, additions, painting or demolition may not be carried out. The buildings are:

- Stone Cottage "The Gate House", Mt. Victoria
- Stone Cottage, Station Street, Medlow Bath
- The Woodford Academy, Woodford



Historic Buildings and Sites Identified by Objectors to the Planning Scheme

More than 60 sites and buildings of historic significance have been identified by objectors to the Blue Mountains Planning Scheme (as exhibited). Appendix "C" details these sites and identifies groups which classified them.

Conflicts and Constraints

To the six surveys covered above must be added the lists and opinions of other local historical groups and residents. It appears certain that a considerable number of buildings and sites which do not appear on these lists should be preserved.

The National Trust has demonstrated that its most valuable role is the rigorous investigation and grading of buildings. Many of the sites and buildings in the Mountains will obviously not qualify for Trust listing, yet are vital to the preservation of the historic/pioneering character of the region.

The National Trust will probably adopt the role of pointing out significant historical areas to local and State authorities, rather than investigating strong legislation for preserving these areas.

Local Councils are severely restricted in preservation by both lack of finance and lack of practical legislation.

The major obstacles to historic preservation have always been a lack of finance, the rights of owners to alter their property, and a lack of public awareness of the value of preservation. The Mountains is fortunate to contain a very large number of coordinated preservation groups with significant memberships. The past efforts of these groups to implement efforts to preserve and maintain areas and encourage public awareness is impressive, and should be further encouraged.

Potentials

The Mountains abounds with historic places of all types. One can easily locate a score of buildings and structures, pioneering and exploring sites and works, magnificent man-made environments and habitats and widespread aboriginal sites and relics. Yet these places are being destroyed by ignorance and a lack of coordination, awareness, funds, legislation and suitable alternatives.



The following steps are needed:

- * A comprehensive survey of sites with input from local historical groups, residents, the National Trust and governmental bodies, Council, the Department of Planning and the Environment, the National Estate, and individual scientists and historians;
- * The evolution of a policy for the classification of sites;
- * The establishment of responsibilities according to classification;
- * Exploration of ways and means to implement and maintain responsibilities without undue burden on any single responsible body;
- * Establishment of continuing methods to incorporate new sites, expand existing ones and maximise public access and awareness.

Historic preservation in Australia is still in its infancy. Serious legislation has still to be enacted. The sharing of financial burdens has not yet been explored. Alternatives to prohibitive restrictions have not been discovered. Much can be gained from preservation efforts and accomplishments in other countries. Practical methods of preservation can be found if the desire is strong enough. Strong Council policies could serve as the needed catalyst.



3. LEVELS OF PERCEPTION

The environmental goals of "delineation, preservation and use" must be based on how humans perceive the physical environment. In the Blue Mountains, the physical environment is perceived at three distinct levels.

1. Perception of the National Park, and related encompassing views from escarpment lookouts.

National Park areas are mainly "Natural Environments". Adjoining areas also in largely natural conditions are the Warragamba Catchment and Erskine Creek State Forest.

Views from escarpment lookouts are the single most important reason for tourist visitation to the Blue Mountains; these views encompass not only natural areas, but also other escarpments.

2. Moving views from the road and railway.

An inherent physical asset of the Mountains is the contrast between open space and urban space, along the Highway and railway line. (See Figures A1 and A3). An increasing movement towards ribbon development is blurring what should be distinct contrasts between villages and open spaces. This contrast can only be retained if the three environmental goals are accomplished in the intermediate areas between the Towns, and in areas such as the Megalong Valley and Mounts Wilson, Irvine and Tomah.

3. Perception of urban (or man-made) environments.

The static experience within towns encompasses townscape aesthetics such as design, density, historic and cultural aspects, and the overall 'feeling' of an urban environment.

Environmental needs and available resources of the Blue Mountains are discussed below according to these three levels of perception: Views from the lookouts (based on natural environment areas); views from the road and rail (mainly intermediate areas); and the urban experience.



3.1 Views from the Lookouts

By far the most heavily visited escarpment system is the south-western segment overlooking Jamison Valley and containing the Three Sisters. The Cliff Drive provides an excellent scenic ring-route along most of the escarpment with many vantage points accessible by vehicle.

The eastern escarpment, overlooking the Cumberland Plain, has recently received the first step towards visual preservation. Interim Development Order No. 26 will restrict tree removal, height of building, colour of structures and general visual constraints to development over about 1,696 hectares (4,192 acres) of land along this escarpment.

The northern/north-western escarpment (Grose Valley and Banks Walls) was described by Charles Darwin as probably the most extensive perpendicular walled canyon system in the world. This escarpment system is the least visited or viewed in the Mountains due to very severe problems in access to vantage points. The most used vantage points are located east of Blackheath on separate non-connecting roads. Faulconbridge Point offers magnificent views but is accessible only by a very bad vehicular track. The Mt. Banks/Banks Walls lookout points have been closed to all but National Parks and Wildlife Service personnel.

Escarpment Preservation Goals.

The goals of escarpment preservation and scenic enjoyment are four-fold:

- * To delineate and preserve escarpment areas.
- * To minimise unsuitable development along escarpments visible from both vantage points along the escarpments, and from park and valley regions below the escarpment.
- * To provide access to suitably selected escarpment vantage points by vehicle and pedestrian uses.
- * To provide a buffer zone between escarpments and development areas, within which to allow a multiplicity of recreation uses.



Conflicts and Constraints

South-Western Escarpment

The most serious existing conflicts are within the Jamison Valley escarpment area where long-established development encroaches upon views from the Echo Point area. Both Sublime Point and Malatia Point contain structures which seriously detract from the visual amenity of the south-eastern escarpment. The most practicable and feasible method of camouflaging these unsightly areas is to establish natural tree cover within the grounds of the offending uses, or failing that, tree cover on adjacent properties. While it may be argued that owners along the escarpment have the right to maximise views from their property, this right should not be to the detriment of all visitors and other residents.

The Tree Preservation Order (IDO 25) will do much to prevent wholesale tree felling within escarpment preservation zones as well as generally. Several test cases have been successfully carried out by the Blue Mountains City Council and policing of the Order has been satisfactory for the current level of development pressure.

Grose Valley Escarpment

Very serious constraints currently exist to the use of the Grose Valley escarpment. The problem of providing access to the vantage points is not only the lack of finance for road and outlook construction and maintenance, but also a lack of coordination between the National Parks and Wildlife Service and Council. The access route from Bells Line of Road to the Mt. Banks lookout and Banks Walls escarpment has been closed to the public by the Service. This is the most beautiful vantage point among the few along Bells line. The construction of this access road and lookout facility was one of the major contributions to use of the Park by the Blue Mountains National Park Trust, and its closure will be a major loss to the public.

The Faulconbridge Point Lookout, at the end of Grose Road, is another potential spot for upgrading. The majority of this road is within Park boundaries, therefore the financial responsibility of upgrading the existing track rests with the Service.

Other Escarpment Issues

Council's subdivision and building approvals are being carried out according to the principles of IDO 26 (Escarpment Preservation) and Clause 67 of the Planning Scheme Ordinance.



These principles mainly concern site clearing and earthworks, height, colour and general visual impacts of development. It is expected that a considerable amount of development will be carried out under these principles until such time as the Order and the Ordinance are gazetted. The major development pressures are in the Lower Mountains, however, and many adverse Local Government Appeals Tribunal determinations can be expected unless IDO 26 and Clause 67 are strongly and expertly defended.

Doubts as to the effectiveness of these statutory controls on development along the eastern escarpment (Lapstone monocline) have been raised by the National Trust. Their 'Report to the Committee of Enquiry into the National Estate' stated:

"The Trust is particularly conscious of the need to retain scenic landscapes, whether they be in public or private ownership.

Of great significance in this regard are escarpments such as those along the eastern edge of the Blue Mountains and at the back of the Illawarra Plain. In the former case the Trust has proposed that the land be added to the Blue Mountains National Park; this has been refused and a zoning scheme has been announced which the Trust does not regard as a satisfactory substitute. "

This sentiment has been echoed by residents and conservation groups. The Lower Mountains Conservation Society in its objection to the Planning Scheme stated:

"This Society is of the opinion that the eastern escarpment of the Blue Mountains should be preserved in a natural condition to the fullest possible extent for the people of New South Wales. "

The Society's statement was based on the scenic, ecological, geological, and historical significance of the escarpment area. Practical methods of consolidating public land and invoking recreational zonings are suggested.



3.2 View from the Road and Rail

As urban expansion spreads westward from Sydney and population growth continues within the Mountains, the use of the Great Western Highway for tourism, commuting and services will increase. If the Bathurst-Orange growth comes to fruition, a sharp increase in traffic through the Mountains is inevitable. Almost 90% of all Mountains visitors travel by car; driving for pleasure can be expected to increase significantly. Traffic volumes along the Highway already justify widening to four lanes from Katoomba eastwards.

The importance of the Great Western Highway is indisputable. Yet the journey along the Highway is largely a depressing and frustrating affair. The glimpses of natural parklands are few and obscured; roadside rest areas are inadequate, poorly marked, and non-uniform. Visual blight is routine along the Highway - dull and unexciting ribbon development is common. Is this non-experience to be accepted?

"Ugly roads are often taken to be one price of civilisation, like sewers or police. The boring, chaotic, disoriented roadscape seems to be the natural habitat of that useful but awkward monster the ... automobile. The authors take a different position: road-watching is a delight, and the highway is - or at least might be - a work of art."*

Elements of the Moving View

The elements contributing to a positive highway experience are: diversity and contrast in urban and non-urban land uses; visual attractions such as natural views and interesting urban textures; rhythms between these visual attractions; and a chance to participate in these experiences by stopping easily and safely.

The railway experience is superior in terms of views and lack of diversion, but stopping and re-embarking are major barriers. Less than 10% of visitors now arrive by rail; this proportion is likely to drop with time.

Existing Problems

The major problem is a lack of roadside diversity and contrast due to ribbon development and uninspired urban design. The Highway segment between Glenbrook and West Blaxland, for example, is virtually a uniform corridor of commercial and residential development unbroken by clear views of the natural environment or non-urban open space.

* Appleyard, Lynch, Myer: "The View From the Road", 1964



Very little information is presented to the driver to encourage the use of roadside rest areas or natural attractions off the Highway. A barrage of advertising signs and hoardings is partly responsible.

Visual blight is also presented by gaudy service industries such as car sales yards, bus depots, and warehousing.

Future Problems

Among major problems in the future will be a continuance of ribbon development unless firm measures are taken now. The spectre of the Great Western Highway as a Parramatta Road is not an exaggeration. Pressures towards development in non-urban areas between the Mountains towns is presently intense and is likely to continue as development demands increase.

Conflicts among resident, tourist, commuter, and through traffic will increase unless road separation and road hierarchy is introduced.

Future road widening and the by-passing of towns will tend to diminish existing problems of congestion, noise and vehicle pollution. This widening may also reduce the exposure of car travellers to historic towns in the Mountains and restrict the opportunity to implement a comprehensive system of roadside rest areas.

The 1963 Buchanan Report ¹ stated:

"In addition to danger and anxiety, the motor vehicle is responsible for a great deal of noise. This has recently been under consideration, along with other aspects of noise, by an official committee set up by the Minister for Science.² In their report, the committee concluded that in London (and no doubt this applies to other large towns as well) traffic is, at the present time, the predominant source of annoyance, and no other single noise is of comparable importance".

Potentials

Council's most important contribution towards improving the moving view lies in the area of road and rail environments. Rezoning and protecting non-urban land from adverse development is high on the list, as is restricting commercial ribbon development with kerbside parking on the Highway. The

1. "Traffic in Towns" (shortened edition of the Buchanan Report) HMSO, 1964
2. Report of the Committee on the Problems of Noise, HMSO, 1963



reservation of railway stations as historic precincts is also important. Intensifying existing commercial zones may be one method; dispersing commercial areas is another although fraught with additional implications such as lack of accessibility (see Section E of this Report)

A major immediate improvement can be made by standardizing the graphics, size, and location of commercial signs and hoardings. Traveller information centres offering maps and literature concerning attractions, roadside rest, camping and picnic areas would improve proper uses of these areas and increase visitor satisfaction. The establishment of information centres would require a co-ordinated effort in identifying, improving and sign-posting these facilities. Initial programmes towards this goal in the Upper Mountains scenic lookouts have proved highly successful. The demand and potential for adequate information centres were identified by visitor surveys carried out in 1969 and 1974 by the NSW Department of Tourism and Urban Systems Corporation (see Section C of this Report): The success of the National Park information centre reinforces this potential.

A certain amount of reduction in visitor-resident traffic conflicts can be accomplished by establishing road hierarchies, grade separation and the construction of new ring roads (cliff drives). Section H of this report poses possibilities in these fields.

Once non-urban lands are protected from ribbon development, the next step is to improve the aesthetics and amenity of urban areas. Potentials in urban design and implementation are covered in the following section.

3.3 The Urban Experience

Existing Problems

With few exceptions, the urban experience of the Blue Mountains is one of uniform dullness, poor layout, traffic congestion, and lack of suitable amenity. Virtually all centres are located facing busy roads - in conflict with passing traffic, and have car parking problems. The only centre having an identifiable "sense of place" is Leura by virtue of its grassed median strip, grade separation, and location away from the Great Western Highway.

Detailed development control plans are required to implement comprehensive and co-ordinated development. A sense of cohesion in architectural styles, scale, and building materials is required. Privacy and separation from busy roads is currently scarce in urban centres. Acoustics and climate considerations all largely ignored resulting in noisy, wind-swept spaces open to cold and rainy weather.

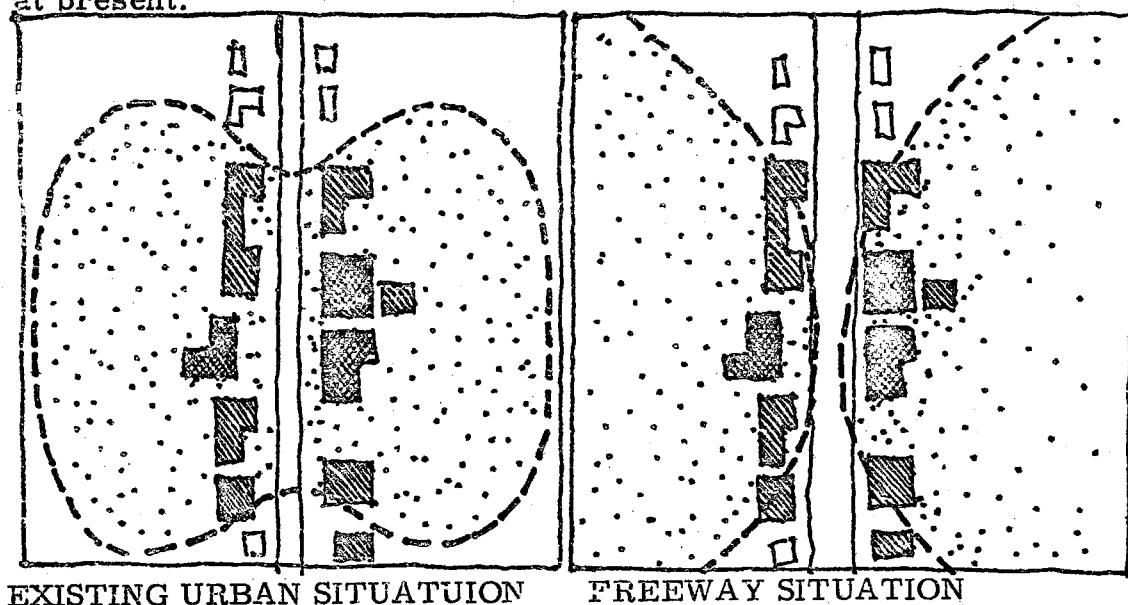


Relatively low population levels have forced urban centres into neighbourhood-service roles requiring long journeys to Katoomba, Springwood or Penrith for comparison shopping.

Future Problems

With few exceptions, all existing urban centres are proximal to the Great Western Highway and rely on the Highway for primary access. The exacerbation of current conflicts between traffic congestion, noise and pollution, and good urban design will be largely linked with future road proposals. The major factor contributing to future "urban experiences" in the Mountains will be how proximity to the Highway and other busy roads is handled.

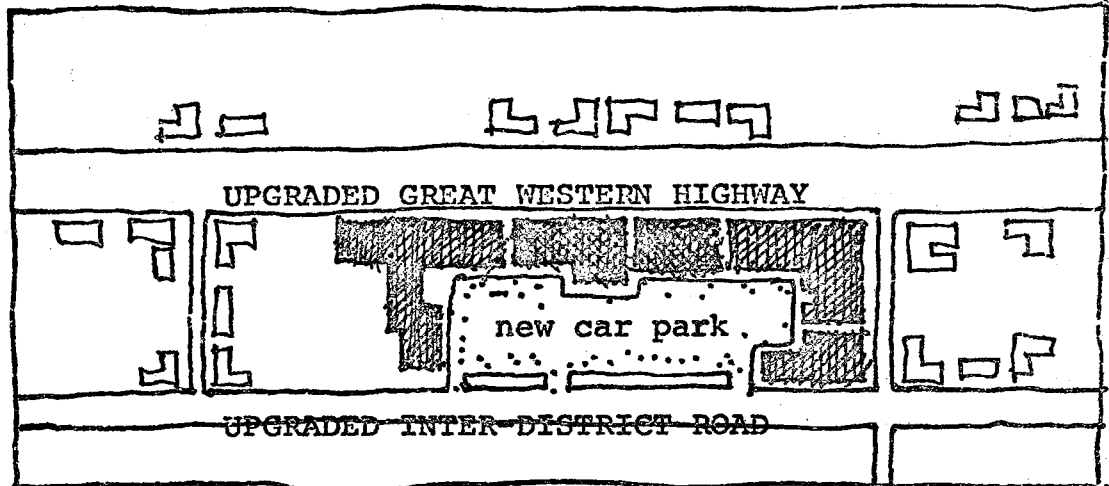
Future road widening proposals linked with increased through-traffic volumes can be expected to complete the current fragmentation of many urban centres along the Highway. The inevitable result will be separate unconnected centres on either side of the enlarged Highway where one exists at present.



Depending on anticipated traffic increases, several existing urban centres could be by-passed by the Great Western Highway, with a result similar to the Springwood centre. In many cases, however, either terrain or high land acquisition costs for Highway re-alignment may require improvements to be made within existing rights-of-way. Depending on the eventual degree of restricted access to, and turning movements along the widened Highway, difficulties in access may require completely new centres in areas such as North Katoomba, South Wentworth Falls, Northern Faulconbridge, Springwood and Blaxland.



The exhibited Planning Scheme contains measures to reduce kerbside parking along the Great Western Highway by providing off-street parking with access via secondary roads. Section H of this Report points out the need for inter-district roads under Alternative Futures 4 and 5; these roads are mapped in Volume I in the Principles Diagrams. Future problems could arise where current centres and off-street car parking areas were sandwiched between the Highway and these busy inter-district roads.



The paradox facing future urban centres in the Mountains is best summed up by the Buchanan Report...

"In the case of small towns, especially those situated on main routes between large towns, the through traffic may be an important element in the congestion. Indeed there are thousands of small towns, villages, and hamlets from which through traffic ought to be removed on the grounds of the nuisance and danger which it causes within the settlement. By-passes in these cases would give much-needed relief, though not necessarily permanent relief in view of the way in which local traffic is itself likely to increase in the future."

Potentials

There are two primary goals in the improvement of urban centres in the Mountains.

The first goal is physical separation of centres from busy roads and provision of adequate car parking facilities. Almost all existing centres along the Great Western Highway currently require this separation. The ramifications of increased traffic and by-passes have been discussed above. Springwood, Glenbrook and Leura have already accomplished this separation but exhibit problems of either car-parking or high future traffic volumes through the centres.



The second urban goal is to concentrate activities to create an urban "sense of place" in each centre. The elements of urban layout simply stated are :- good townscape and streetscape design, sufficient amenity and diversity, and sensitive environmental design. Although implementing these urban elements may require a long-term effort, great potentials and flexibility are presented by current low settlement densities, low land occupation characteristics, relatively low land prices, and an abundance of urban open space. The proposed civic centre in Katoomba is one example of this required concentration of activities. However, Katoomba, as well as Blackheath and Mt. Victoria may require road closures to accomplish activity concentration and separation from busy roads. Social facilities needed under present conditions (see Section B of this Report), should also be located to concentrate and re-inforce existing urban centres.

The introduction of new or more intensive activities into existing centres often offers a series of opportunities. For example, where a substantial addition to an existing centre is contemplated, increased traffic generation usually requires road closures, off-street parking and arcades. The opportunity arises for covered malls, mini-parks, and a comprehensive system of landscaping, urban furniture, and streetscape ideas. The area may become suitable for medium density housing for aged persons with related social facilities. Self-generating entertainment activities could emerge, and tourist-resident conflicts could be reduced.

This potential is especially present in Katoomba, Blackheath, Leura and Mt. Victoria where there is an opportunity to combine visitor destinations with needed facilities and possible historic precincts.

Certain historic precincts however, may demand a slightly different approach:

"We could do no more in this study than consider the broad principles upon which the traffic and planning problems of a historic area might be tackled. The main principle is abundantly clear - if the environment is sacrosanct, and if no major reconstruction can be undertaken, then accessibility must be limited. There can be no question about this."*

* "Traffic in Towns", HMSO, 1964.



Regardless of where or what type of urban improvement programmes are implemented, good planning and architectural design is vital. The time and expertise put into development control plans ultimately determines the success of urban proposals. Current and future needs for urban improvement programmes are identified below in each section of this Report. These programmes require coherent urban policies and short term action to freeze development in critical urban areas pending detailed development control planning.



4. RECREATION

4.1 A General Appraisal

The recreationalist can be defined as the resident of the local community who is utilizing the open spaces, recreational resources and cultural amenities available within the city region. In the Blue Mountains City Region, the tourist activity system with its metropolitan, intra and interstate catchment, and the more localized recreation activity system have many points of overlap which generate conflict in terms of residential and tourist needs, and the sharing of limited resources. With increases in the residential population, the demand for open space resources both for active and passive recreation needs increases.

Open space should be part of the total fabric of any urban plan and in particular, it should be an element woven into and structuring residential areas. Open space exists in all sizes, shapes and forms and is used by all ages of the population in a variety of ways.

Open space is both Private and Public in ownership though each can contain or be utilized for similar recreational activities. These activities can similarly be divided into Active and Passive, but again there are usually active units within passive areas and vice versa. Any single open space element can be developed or used separately or combined with any number of other elements.

Open space may be very extensive (eg. the National Park, hundreds of square miles in extent) or just a few hundred square feet such as a swimming pool. It may be entirely natural such as a beach, partly natural and partly man-made such as a bush area with cleared playing space. It can be entirely man-made as in a swimming pool or sports oval.

Some open space such as playing fields, requires reasonably flat land, others such as golf courses and bush parks require hilly or undulating land.

Whatever the shape, size and usage, some open space elements should be included in all urban development. It is an integral part of the health and enjoyment of all members of the community. The varying elements which are to be included in each area should be designed to satisfy the needs of the people living, working or playing there. They should be interspersed throughout the whole urban fabric and, where possible, within walking distance of the majority of users.



The amount of space and the different units to be provided varies to a certain extent within each community, depending on the particular social and environmental circumstances of the community. Planning for open space necessarily involves consideration of several general principles - location, access, area standards, variety and use.

Active Sports and Recreation

Council's planning department has made exhaustive inventories of the active open space at local and district levels which, in aggregation, constitute the active recreational resources currently available within the City region. Council has been acquiring local open space by dedication for recreation purposes. Certain areas have also been designated where major sports complexes could locate. With regard to smaller local park areas there would appear to be a lack in provision due in large measure to an overall lack of areas suitable for them. There would also appear to be a need for increases in the provision of smaller natural parks, not for active recreation purposes but as environmental areas of natural landscape integrated with the general fabric of the urban areas. Such areas, integrated into an open space system to structure urban development, are important in the context of the Blue Mountains area as a "leisure region".

Only 17 sporting ovals are presently dedicated and suitable for active sports (see Map A6).. An additional six can be used for very limited active sports but a few are capable of up-grading. Bowls and golf are well catered for but waiting lists for new membership are fairly long, indicating that capacity levels are being reached.

Court sports such as tennis and squash appear to be adequate for the low popularities extant for their uses.

The one motor racing facility of Catalina Circuit is becoming increasingly popular but expansion is extremely limited here. The Katoomba Showground on the other hand receives no organised use and presents good potential for multi-purpose activities. There are no athletic tracks or bicycle facilities of modern standards.

Miscellaneous uses such as roller skating and ice skating, stables and equestrian facilities, and mini-bike or trail bike areas are unprovided. Youth-oriented activities such as vocational encouragement, youth and scout camps and field study groups are detrimentally non-existent.



Passive Activities

Urban parks of excellent standard appear in Blackheath (Memory Park) and Leura (Everglades owned by the National Trust). Although other portions of land with botanical variety and interest do exist in the Mountains, most are privately owned.

Most of the Mountains towns contain dedicated open space land, very few of these portions have acceptable facilities or are in suitable condition.

As a leisure area of regional, state and national significance, the passive recreation resources of the Blue Mountains region in general are an important consideration in terms of both the present and future residential population and the tourist. Dealing with the small scale localized passive recreation resources firstly, there would at present appear to be a need for more small natural landscaped areas as mentioned earlier. There is also a need for more roadside stops/resting areas/picnic areas on the main transport corridor and plateau areas which have no direct visual linkage to wilderness areas.

At the large scale the major passive recreation resources are the wilderness areas to the north and south of the urbanized corridor, largely comprising the Blue Mountains National Parks. These large areas of wilderness do function essentially as extensive passive recreation areas for residents and tourists alike, although they do incorporate very low intensity active recreational facilities. Wilderness areas are the major contributor to the role of the Blue Mountains as a leisure region. As such, they are of not merely local but of regional, state and national significance. The National Parks and Wildlife Department will possibly be acquiring further wilderness areas to augment the provision of these resources and to conserve them. There are other areas of Crown Land which are currently passive open space areas.

Cultural Activities

The sole facility used for live theatre and the performing arts in the Mountains is in Springwood and is sub-standard. Other halls and schools of art exist but are inadequate and unused.

The Blue Mountains Arts and Crafts Centre is a semi-commercial training facility, which is in need of expansion, encouragement and emulation throughout the Mountains. A very high interest in the Arts has been demonstrated and a serious lack exists.



The Blue Mountains City Band is established, popular and of high standard. A good Youth Orchestra has been formed in the Lower Mountains. Suitable acoustic halls do not exist.

A number of historic museums and "art galleries" are set up throughout the Mountains, notably at Mr. Victoria, Hobbys Reach/Wentworth Falls, Mt. York and the Norman Lindsay Gallery in North Springwood. While most of these are tourist-oriented and several exceptionally well run, a lack of publicity and integration limits their effectiveness and flexibility.

4.1.1 Acquisition and Provision Policies

Passive

There are large tracts of wilderness area which are currently zoned non-urban which could be acquired and conserved because of their regional significance. Council has already received \$350,000 from Federal funds in order to conserve the escarpments in the mountains. The SPA has to date not acquired through its funds, any open space of regional significance in the Blue Mountains area.

In the light of this, close consideration will need to be given to strategies of acquisition. The rating and finance system which is currently on a centre or village basis would, in this context, need to be re-evaluated. In the sense that these areas are the responsibility of the city and the state as a whole, further efforts may need to be made to enable federal funding of acquisition programmes. Acquisition strategies may need to be considered in relation to the broader alternative growth strategies for the region as a whole.

Active

In 1964, recommendations were made, which were accepted by Council, on a quantitative basis (area related to population), that active recreational requirements (per 1,000 population) be based on the following standards :-

Team and organized sport (active space)	2.5 hectares
(spaced 1.5-2.5 kilometres apart)	
Childrens playgrounds	0.02 hectares
(spaced 0.3 kilometres apart)	
Passive recreation space	0.06 hectares
	<hr/> 3.3 hectares <hr/>

After consultations with the SPA, Council decided to adopt a policy requiring a minimum dedication of 2.8 hectares/1,000 population of Public Reserve space, made up by:



Organized sport (active space)	1.8 hectares
Childrens playgrounds	0.02 hectares
Passive space	0.08 hectares
	<hr/>
	2.8 hectares

These areas were regarded as a minimum requirement based on the low figure of 3 persons/dwelling and in view of the decrease in working hours and the greater recognition of the advantages to health by active sport participation. It was also acknowledged that the general need for active recreation space would increase.

In certain areas such as Glenbrook, Blaxland and Warrimoo, there has been an extreme shortage of level land suitable for active recreation purposes. The Department of Lands has offered more recreational space in these areas. However, it was acknowledged that for existing and potential populations in certain areas within the region, particularly in the Lower Blue Mountains, there was insufficient open space for active recreation purposes.

In 1967, when the Scheme was being prepared, it was accepted that, although there was sufficient recreation space provision for Blaxland and Glenbrook, the bulk of it was located at Glenbrook and that the residents of Blaxland would, of necessity, have to travel south for sporting activities.

It was considered desirable to plan for the provision of sports areas within sub-areas and that Council should negotiate with the Department of Lands for the acquisition of suggested extra suitable sites.

In 1973, recommendations were made with regard to the Faulconbridge/Katoomba/Leura area to acquire certain areas for active recreation purposes and to also place other Public Reserve Lands under Council's trusteeship. In areas such as Springwood, Valley Heights, Winmalee and Yellow Rock, rapid increases in development have involved proposals submitted on lands ideally suited for active recreation requirements and the subsequent increase in population growth in such areas has created an added demand for existing facilities. Rapid development of vacant land in the ward and the consequent increase in land values has exacerbated the problem of providing for and acquiring sufficiently suitable open space for active recreation purposes. The adequacy of provision, location and distribution of areas suitable for active recreation is an important consideration in terms of serving both present and future residential populations. Areas suitable for such purposes as sports complexes, ovals, playing fields have been identified and listed by Council's Works and Town Planning Committee. Those open spaces suitable for active



recreation have been located in accordance with the principle that the location and distribution of existing active recreation facilities have, in general, shown a marked imbalance in that the majority of the population served by these areas is up to 6 miles distant from the sites. (10 kilometres)

4.1.2 World Trends in Recreation Demands

Great pressures currently exist on recreation areas which are adjacent to urban centres (such as the Blue Mountains and Royal National Parks and areas at intermediate distances from urban centres (Gosford-Wyong, south coast). However, it is estimated that global trends are accelerating the demand for resource-based recreation areas which are fairly distant from population centres. The American recreationalist Clawson, in an article entitled 'The Crisis in Outdoor Recreation'* forecasts a tenfold increase in demand for outdoor recreation between 1950 and the year 2000. Clawson feels that this increase will be distributed unequally among three types of recreation areas:

A fourfold increase in user-oriented areas which are proximal to large urban centres where the natural environment may have been considerably altered by man to cater for a very large number of users. (Euroka Picnic Ground in the National Park)

A sixteenfold increase in intermediate recreation areas which are mainly characterised by day and weekend trips, and to varying degrees may have been altered by man. (Megalong Valley, Mt. Wilson, etc.)

A fortyfold increase in resource-based areas which occupy the natural end of the recreation continuum. These areas are fairly distant from urban centres and are seldom altered by man. See Table A4 for description of classifications.

4.1.3 The Future Recreational Role of the Blue Mountains

To date, Australian open space standards have been based on pre-World War II British standards, directly related to area and population. These quantitative standards of the past have been arbitrary and have led to a tendency towards sporadic siting, often unrelated to the community, with little regard to how the space can be used. It has generally been imposed as a 'green area' on plan rather than emerging from considerations of community needs and the way in which these needs might best be met. They have been arbitrary in the sense of not having any relation to spatial distributions in the real world and unique features of particular landscapes such as the Blue Mountains region.

* "Outdoor Recreation for America : Report to President and Congress", Outdoor Recreation Resources Review Commission, 1962.



Recreation facilities are a manifestation of social needs, and these needs are constantly changing. A determination of open space standards for particular recreation facilities based on area and population alone is no longer functional. The conclusions of the Outdoor Recreation Resources Review in the United States indicates the importance of developing new theoretical perspectives:

"The arbitrary drawing of a circle with a specific radius, and the enumerating of so many facilities and acres per 1,000 of population when planning for the provision of recreation is an antiquated a planning concept as is the grid iron street pattern for proper subdivision and traffic control."

While it is possible to speculate about demands for types of recreation in general terms, it is more difficult to predict demands for specific outdoor recreation or for specific facilities. In a "leisure region" such as the Blue Mountains, there are many imponderables in this respect, particularly in view of the possibility of a reduced working week with its potentially profound implications for recreational demand. A wide range of possibilities should therefore be provided and space must be left which can be adapted to a variety of uses, even allowing for multiple co-existing uses. Open space is an uncertain and unpredictable class of land use. It not only provides for outdoor recreation but serves other purposes which need not be mutually exclusive, for example - conservation, aquatic precincts, beautification, pedestrian links, structuring and buffering of development.

A coherent policy for the most appropriate single or multiple use of open space within the framework of demand, quality required and the ecology of the area is essential for the Blue Mountains. There is no absolute or constant best-use of a resource such as open space, thus the planning proposals relative to open space must be flexible in time and in scale.

TABLE A4

OPEN SPACE AND RECREATION FACILITY CLASSIFICATION

ITEM	USER ORIENTED	RESOURCE BASED	INTERMEDIATE
1. General location	Close to users; on whatever resources are available.	Where outstanding resources can be found - may be distant from most users.	Must not be too remote - best resources available on distance limitations.
2. Major types of activity	Games e.g. golf tennis, swimming, walks, horse-riding, zoos.	Major sightseeing; sightseeing and historical; hiking and mountain climbing; camping; fishing and hunting.	Camping, picnicking, hiking, swimming, fishing, hunting.
3. When major use occurs	After hours.	Vacations.	Day outings, weekends.
4. Typical area sizes	1 - 100 acres	1,000 acres and over	100 - 1,000 acres
5. Common types of body responsible	Local Government; private.	National Parks; National Forests; seashore.	State Parks; private

Source : M. Clawson



5. BUSH FIRE CONTROL

5.1 Bush Fire History

Progression of Fire Control Measures	Serious Bush Fires
	1896 Victoria & NSW 1905 Blue Mountains
First bush fire brigades formed	
1906 Local Government Act authorised Councils to form brigades	
1919 Act amended to allow Councils to require landowners to remove hazards	
	1926 Western NSW, several million acres burned, plus loss of life and property
1927 Royal Commission investigated deficiencies in existing organisations	
	1931 Western NSW
1932 Act amended to define powers of fire brigade officers	
	1936 Blue Mountains and eastern NSW.
1937 Bush Fires Advisory Committee formed	
	1938/39 Very bad fires throughout eastern Australia and South Australia 1944 Blue Mountains widespread property damage
1949 Bush Fires Act; Bush Fire Committee. Committee became a statutory body, funds for equipment established	
	1951/52 Eastern and Central NSW (approx. 1 million acres)
1952 Bush Fire Committee improvement of standards and surveys	
	1957/58 Blue Mountains severe fires in Leura.
1958 Nine bush fire prevention associations in eastern NSW	
	1965 NSW (560,000 acres) 1968 NSW south and north coasts property damage Blue Mountains severe loss of property and life.
1970 Bush Fires Act revised to provide wider coordination in eastern NSW. Eleven statutory prevention associations.	



5.2 Levels of Responsibility

There currently exist eight bodies responsible for fire prevention and suppression within Council boundaries:

- * New South Wales Fire Brigade - water reticulated areas
- * New South Wales Bush Fire Brigades - unreticulated areas
and rural areas
- * National Parks and Wildlife Service - National Park
- * Metropolitan Water, Sewerage and Drainage Board - Warragamba
catchment
- * Forestry Commission of New South Wales - State Forests
- * Blue Mountains Bush Fire Prevention Association
of New South Wales - regional prevention
- * Department of Main Roads - roads
- * NSW Government Railways - railway property

By far the best equipped group is the Bush Fire Brigade which is annually funded by State Government (25%), Local Council (25%), and NSW Fire and Accident Insurance Underwriters (50%).

Among the lowest levels of resources relative to large land areas and high needs are found within the National Park. Since enactment of the National Parks and Wildlife Act of 1971, the Service can be sued for property damage arising from fires starting within National Parks.

5.2.1 Blue Mountains Bushfire Prevention Association*

The Association was formed at Katoomba in 1958 to provide means for coping with the serious bushfire problems of the Blue Mountains and its environs. It became a statutory body in 1970 under the provisions of Section 41B of the Bush Fires Act. Funds are provided by the Chief Secretary, based on the advice of the Co-ordinating Committee of the Bush Fire Council. The constituent bodies are:

City of Blue Mountains
Colo Shire
Oberon Shire
Blaxland Shire
Wollondilly Shire
Forestry Commission
National Parks and Wildlife Service
Board of Fire Commissioners
Metropolitan Water, Sewerage & Drainage Board

*Source: Fire Policy Plan, Blue Mountains Bush Fire Prevention Association, 1972



TABLE A5

BUSHFIRE PREVENTION ASSOCIATION AREAS
(Land tenure in square miles)

Owner /controlling body	Local Government Area					Total
	Blue Mtns	Colo	Oberon	Blax- land	Wollon- dilly	
Private Property	133	185	36	57	4	415
Leasehold	4	51	17	5	-	77
Crown Land	39	696	45	384	-	1164
National Parks	260	22	139	95	-	516
Forestry Commiss.	28	73	100	87	-	288
Misc. reserves	32	5	-	2	1	40
M.W.S. & D. Board	51	-	43	-	53	152
TOTAL	547	1032	380	630	63	2652

N.B. The City of Blue Mountains includes 80 square miles of Fire District within which the Board of Fire Commissioners is responsible for protection.
One square mile equals 2.59 square kilometres.

The Association's main role is to study problems affecting more than one organisation and propose or execute means for their solution, including the provision of facilities for coordination if considered necessary.

5.2.2 Main Responsibilities of the Association

- * To construct and maintain fire trails and provide means for detecting, preventing, controlling and suppressing bush fires on unoccupied Crown Lands
- * With the concurrence of the Coordinating Committee and with the permission of the appropriate owner/occupier, lessee or trustee, to construct and maintain fire trail on other classes of land
- * To authorise and/or execute the construction of firebreaks and hazard reduction measures on public lands, subject to the appropriate permission being obtained from the authority responsible for an area.
- * To assist the Coordinating Committee to assess the incidence of hazards on private or public land and furnish reports and recommendations to the Committee on any other aspect of bushfire protection at the request of the Committee or on the initiative of the Association



- * To assist the Coordinating Committee with any arrangements the Committee may make with Councils and other public authorities for the reduction of hazards
- * To assist the Coordinating Committee in the preparation and implementation of plans for the coordination of fire fighting activities in emergencies.

5.2.3 Integration of the Association's Responsibilities and Objectives

The Association classifies the problems of the Blue Mountains into three main zones, described as the urban, intermediate and hinterland zones. The problems of each and the principles proposed for their amelioration are discussed below.

5.2.4 The Urban Zone

These are areas on the periphery of and sometimes within the boundaries of towns, where houses are located in proximity to bushland and are therefore vulnerable to ignition by contact with flames or from airborne fire brands. The Coordinating Committee describes these as Special Risk Areas.

The Association aims at the elimination or reduction of fuel in proximity to houses to a width not less than 50 metres and to such additional and wider extent as can be organised.

In the City of Blue Mountains, most of these special risks lie within the Board of Commissioner's Fire District.

The Association's aims are as follows:

- * To stimulate and support the efforts of Councils in their use of Section 13 of the Bush Fires Act in the elimination of hazards.
- * To stimulate and support the efforts of public authorities to carry out their responsibilities in the reduction of hazards in these situations.
- * To stimulate and support the role of bushfire brigades in similar situations in this respect.
- * To provide assistance in suggesting the role the Board of Fire Commissioners might play to facilitate activities by these various organisations.



- * To study the adequacy of these various hazard reduction measures and, in the event of a task being beyond the capacity of normal facilities, to propose to the Co-ordinating Committee such additional facilities eg. trails as might be required, including estimates of cost and for cost-sharing.
- * To seek the support through appropriate channels, such as Progress Associations, to influence private citizens to provide their own protection without waiting for a Council to require action using its powers under Section 13.
- * To recognise that while prescribed burning is usually the most economical form of hazard reduction, other methods should be encouraged. These include the thinning out of native vegetation and the substitution of relatively flame-proof vegetation for native vegetation.
- * The Association aims also to play an active role in advising Councils on the following aspects of town planning to provide firebreaks or places of refuge.

Planning subdivisions to provide peripheral fire trails surrounding groups of houses.

The siting of house blocks back from the edges of cliffs and similar fire funnels.

The location of public recreation facilities such as golf courses to the best advantage for public protection.

The permanent designation of trails and other facilities, whether already constructed or to be constructed, so that they will not be eliminated by subsequent land development.

Consideration of such inducements as reductions in rates to promote interest in maintaining firebreaks on and near private property.

5.2.5 The Intermediate Zone

This zone includes farm and grazing areas in the Oberon, Colo and Blaxland Shires; also those parts of the Blue Mountains proper between the periphery of towns and such potential firebreaks as transmission lines, within which it may be practicable to develop, on a relatively extensive scale, outwards from the intensive work visualised under the section headed "Integration of the Association's Responsibilities and Objectives" (section 5.2.3).

In the case of the Blue Mountains proper the Association aims to develop such trails as already exist and to propose to Councils and also to the Coordinating Committee (if financial



assistance from that quarter is warranted) the construction of such additional trails as will provide a series of relatively small areas in which prescribed burning, usually by ground parties, will be practicable.

This intermediate zone has great strategic importance. The Association is fully conscious that this is the zone in which volunteer bushfire brigades provide most fire fighting facilities. Therefore, facilitating their entry into managed public lands in this zone is an important Association objective. Also, although the requirements of the management of the flora on such areas must be considered, the safety of fire fighters and the provision of facilities to reduce the expenditure of their volunteer time must also be of paramount importance.

5.2.6 The Hinterland

This is typically the rugged bushland of the Blue Mountains in which fire fighting is virtually impracticable unless wide firebreaks are available.

The Association aims to study the present trail system and decide whether additional trails are desirable or practicable to reinforce natural barriers used as the boundaries for hazard reduction by aerial ignition.

A number of areas have been listed as potential aerial ignition blocks. One of the objectives of the Association will be to study the fuel situation in these areas and in each year select such of these as should be treated by aerial ignition and then seek the cooperation of the appropriate authorities for doing this work. These areas are mainly within the National Park.

5.3 Blue Mountains Burn Areas

Several severe fires have occurred in the Mountains resulting in very bad property damage and loss of life. Map A9 illustrates the worst burn areas in recent times.

Bad fire conditions are brought about by high, prolonged westerly winds; the most severe conditions exist when north-westerly winds bring down hot, dry airstreams for long durations. All of the bad fires in the Mountains have occurred under north-westerly conditions.

"Fire proneness" of an area is measured by the amount of combustible material present, terrain conditions and the related degree of accessibility. Generally, a burn area is considered low-hazard until about three to five years after the burn. In the Mountains, an area becomes critical after it contains about 12.5 tonnes of combustible material per hectare. When this threshold is reached, various prevention measures are considered and implemented. These measures include controlled



aerial and ground ignition, reduction of combustible material by tritters, slashers and, to a lesser extent, bulldozing.

Zones of higher "fire proneness" are usually defined by locations exposed to westerlies and north-westerlies with uninterrupted exposure to bushlands containing high combustion levels. The presence of these areas was a major factor in the delineation of non-urban zones in the planning scheme.

Special locations are closely monitored in portions of the Mountains. In these locations unique conditions such as escarpment overshadowing and lack of access results in high combustible material build-up and hampering of hazard reduction measures.

5.4 Conflicts and Constraints

5.4.1 Administration

Some jurisdictional clashes are possible between the powers and responsibilities laid down by the National Parks and Wildlife Act and the NSW Fire Brigades Act (1909). The National Parks and Wildlife Service is empowered to fight fires within 8 kilometres (5 miles) of National Parks boundaries. In the Mountains, all existing developed areas are within this distance from Park land, and a jurisdictional overlap is present between NP & WS and the NSW Fire Brigade.

5.4.2 Fire Prevention

There are significant variations in bush fire control effectiveness due to overlapping policies among NP&SW, MWS&DB, Fire Brigade and Bush Fire Brigade. Where National Parks boundaries abut developed areas, insufficient "buffer" land is available for suitable prevention measures to be carried out and maximum risks are present. The Bush Fire Prevention Association is restricted in its controlled burning programme by lack of access and a suitable fire trail system in these locations. In many instances, access onto privately-owned land is not granted. The only alternative to the reduction of combustible material in these instances is to require fire hazard reduction by landowners under the Bush Fires Act. Often fire prevention measures are not implemented by landowners due to cost; in other cases the degree or method is either insufficient or ecologically damaging.

Some conflict arises where controlled burning may be required in districts within the NSW Fire Brigades jurisdiction. The Fire Brigades Act prohibits these Brigades from lighting any fires within its district for either prevention or suppression. The only remaining method of hazard reduction is for the Bush Fire Brigade to carry out burning under permit from the Fire Brigade. However, the Fire Brigades Act requires that the



Brigade respond to all reported fires within their district even if it is known that the Bush Fire Brigade is controlling the burn. In controlled burn programmes carried out by the Bush Fire Brigades within Fire Brigade districts, the restriction demands constant attendance by Bush Fire Brigade personnel, sometimes for several days. This problem is State-wide.

5.5 Existing Fire-Prone Areas

The pattern of development has historically been along mountain ridges. These ridges invariably extend north-south while burn lines are invariably east-west. There are many long-established subdivisions with perimeters on northerly to westerly aspects overlooking bushland gullies. These areas have repeatedly experienced damage from bush fires, and require new access routes and fire prevention measures. Often, development adjoins National Parklands where controlled burning programmes cannot be carried out without nuisance to residents.

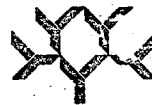
5.6 Potentials

5.6.1 Centralisation

The duplication of equipment, manpower and expenditure for training in fire-fighting is unnecessary. There is a common ground among all five fire-fighting systems in the Mountains, which is to "put it out fast". A centralised system of fire spotting and fighting would save an immense amount of taxpayers' money and would undoubtedly improve the existing level of effectiveness. A central body would improve the efficiency of fire prevention measures and could expand funds in badly needed areas regardless of ownership or responsibility.

A situation is gradually developing where the greatest level of fire prevention and suppression (Bush Fire Brigades) is being applied to less and less land. As National Park boundaries and water reticulation expands, the NP & WS and NSW Fire Brigade responsibilities expand. Steps can be taken to ensure that until the fire-fighting resources of the NP & WS expand to cover their existing and increased land areas, the Bush Fire Brigade assume responsibility for suppression and prevention.

The rationalisation of National Parks boundaries is badly needed. In situations where development and National Parks conjoin, buffer zones may need to be created in which to carry out sufficient prevention measures. Such a zone is being suggested by the National Parks Association of NSW for different but compatible purposes.



Fire prevention measures are probably best carried out by Bush Fire Brigades with their greater resources and funding. The existing legislation restricting controlled burning in Fire Brigade districts needs modification. The National Parks and Wildlife Act requires that controlled burning programmes by the Bush Fire Brigade be approved by the NP & WS and carried out under supervision. The approval-in-principle of Brigade reduction measures in Park areas should be streamlined, and free from time constraints and delays. The Act probably needs modifying now although a bad fire will probably occur before action is seen to be necessary.

The Fire Brigade needs changes in policies to cope with the rugged terrain and unusual development patterns of the Mountains. Under certain fire conditions, resources dictate that the BFB assist within Fire Brigade areas.

The two alternatives to present legislation are either to gear up for bush fire fighting, or to increase the role of the Bush Fire Brigade in bush locations within Fire Brigade District jurisdiction.

5.6.2 Forward Planning and Control

The overall danger from fires can probably be reduced considerably by increasing access to bushland gullies and constraining development in these areas. The provision of roads peripheral to development, although increasing housing prices, would certainly improve control and suppression effectiveness.

The provision of accessible buffer zones between development and bushland areas within which effective prevention policies can be implemented is needed. Council review of its existing non-urban policies is vital to the reduction of current deficiencies in fire control and fighting.

Rationalisation of National Park boundaries is obviously necessary; the active role of the Bush Fire Brigade in National Parks is an urgent interim requirement.

A major study of historic burn-areas and problems in fire control and fighting is urgently required. The severe bush fires of 1968 could easily happen again.

5.6.3 Control of Development

Clause 23(g) of the Exhibited Planning Scheme Ordinance imposes a duty on Council as the responsible authority to take into consideration arrangements made to control fire in respect of any application for development consent. To complement the Ordinance, a detailed plan should be prepared which would set out in detail for each discrete area what are the requirements of the Council in respect of fire. This could well form the subject of an action plan.



6. EXISTING ENVIRONMENTAL POLLUTION

"Environmental planning for the future activities in the Hawkesbury basin is probably of greater importance than for any other river basin in New South Wales, and possibly in Australia".*

6.1 Sources

The major sources of pollution in the Mountains are from effluent from septic or sewerage treatment plants, domestic run-off, soil erosion and from vehicular traffic.

Visual pollution of the environment is covered in other sections of this report.

6.2 Pollution Areas

Although virtually all creeks in the Mountains are contaminated, the most severe levels of creek pollution appear in Fitzgeralds Creek, Glenbrook Creek (coli bacteria), Hazelbrook Creek (phosphates) Wentworth Creek (phosphates), Megalong Creek (domestic detergents), Govetts Leap Creek (coli bacteria), and the Linden Dam. Severe discolouration can be observed in many creek systems, notably in Katoomba. "Unfit for bathing" signs and other warnings posted by Council clearly indicate the situation.

Although most development occurs on ridge lines, domestic dumping of rubbish and chemical run-off has decimated small creek habitats in many locations. Rainforest and wet-sclerophyll forests are extremely sensitive to urban encroachment and the resulting invasion of non-native flora.

Rubbish dumps have also been identified as significant sources of pollution. Alternatives in solidwaste disposal such as pulverising and primary treatment of leachate must be considered.

The location of sewerage treatment plants at the heads of major catchment areas is a controversial issue. Even if over-capacity flows are allowed for in the design and operation of treatment plants and tertiary treatment is introduced, it is possible that dangers to wildlife would still be present from phosphorous compounds, changed oxygen levels, and PH factors. Urgent study is needed by ecologists as well as civil engineering specialists. The rapid expansion of Lower Mountains development external to existing and proposed serviced areas has dire implications for local health and amenity as well as future pollution of the National Park. Tertiary treatment of sewerage is considered to be essential.

* "Hawkesbury River Valley Environment Study" NSW Minister for Environmental Control.



Air pollution by vehicle exhaust emission will increase with growth in traffic volumes. Vehicular noise pollution in townships along the Great Western Highway is already very severe and a constant source of complaint. This problem will increase drastically if road-widenings resulting in increased road usage are carried through.



7. CONCLUSIONS

Environmental Perspectives

The goals of environmental management have been defined as:

1. To delineate, define and classify areas of environmental uniqueness.
2. To ensure the preservation of these areas .
3. To define and maximise suitable uses.

The levels of perception within the physical environment of the Mountains environments are:

1. Perception of the National Park and related escarpment views, parklands experience and "The View from the Points" which mainly consist of natural environmental areas including the National Park, State Forest, Warragamba Catchment and the Escarpments.
2. Moving views from the road and rail - the contrasts between urban and non-urban ridge line patterns with emphasis on intermediate environmental areas (non-urban open space, Megalong Valley and the Mounts - Wilson, Irvine, and Tomah).
3. Perception of urban environments - richness and diversity in the man-made environmental areas (historic sites and buildings, village character, local open space and parks, and general townscape).

7.2 The Classification Problem and Need

Confusion reigns at all levels of environmental delineation and classification as Table A3 shows.

TABLE A6

EXISTING CLASSIFICATIONS

Blue Mountains Perception/ Experience Units	Existing Classification Systems
Natural Environmental Areas	<u>National Park</u> : Wilderness Area, Natural Area, Outstanding Natural Area <u>Forestry Commission</u> : Forest types: Rainforest, Eucalypt, Non-forest and Artificial. Logging - non-logging basis. <u>MSW & DB</u> : Prohibited Entry Zones <u>BMCC</u> Escarpment Preservation; Tree Preservation, Non-Urban and Open space zoning. Non-urban zoning and policy; Regional open space; Water catchments (used and unused); Tree preservation; recreation zonings under planning scheme.
Intermediate Areas	



**Blue Mountains Perception/
Experience Units**

Existing Classification Systems

Man-Made Environments

Urban parks and gardens, private open space, local recreation, historic sites and buildings, non-urban zoning, tree preservation; special uses.

Although the classification of Natural Environmental Areas is largely outside Council's control, it is in the other two zones (Intermediate and Man-Made) where the rapid erosion of distinctness requires quick positive action.

Figures A11-A17 illustrate preliminary guides for establishing Intermediate Area classification within which Council policy can be reviewed. These zones currently contain an overwhelming number of land uses and numerous overlapping proposed non-urban zonings. The fragmentation of Intermediate Areas is inevitable within the present policy structure; this fragmentation is occurring now.

Within Man-Made Areas, Council's control is greatest and classification most advanced. Great needs however, are apparent. The urban aesthetic is largely ignored. Diversity and contrast in the city scape is uniformly non-existent. Streetscape works, road closures, malls, reinforcement of historic assets, and high building design standards are urgently required within a collected townscape opportunity plan within individual towns. The contrast and unique village character of each town requires delineation and enhancement within a cohesive township structure plan.

The separate components of the village characters such as historic buildings, convict and aboriginal works and sites, urban parks and gardens have largely been identified. The incorporation and structuring of these elements within coherent village roles is the next major task.

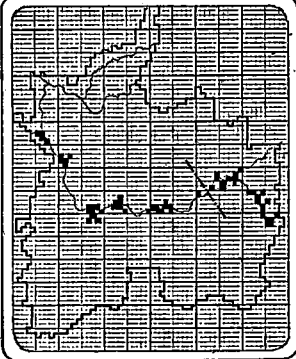
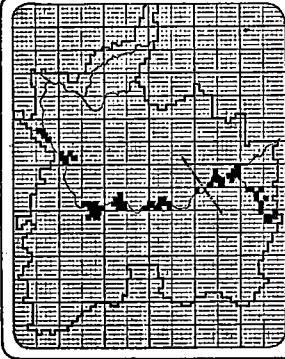
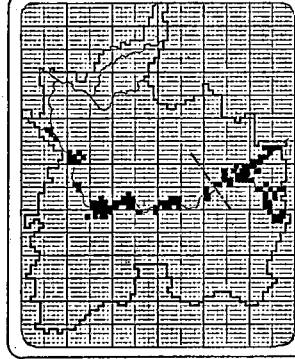
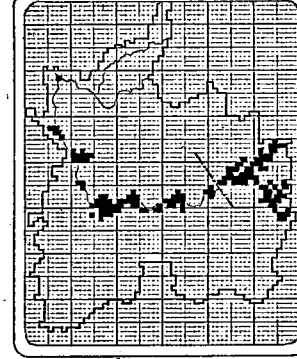
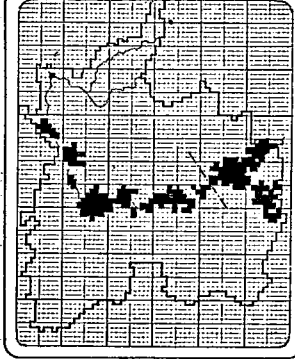
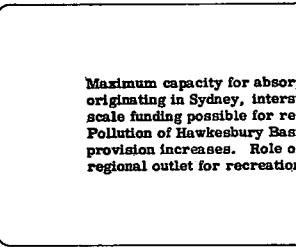
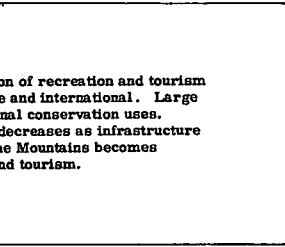
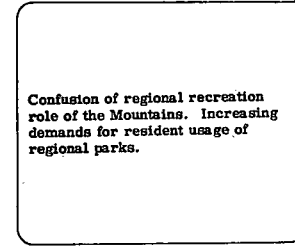
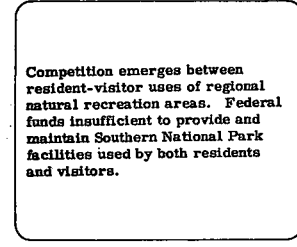
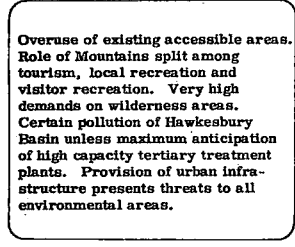
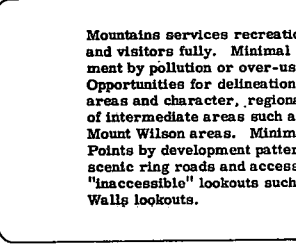
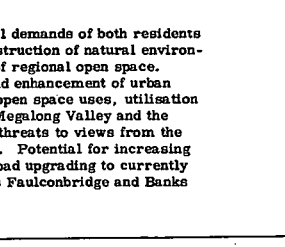
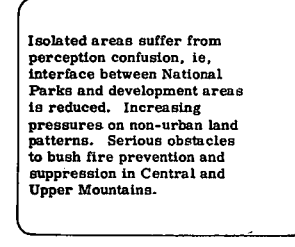
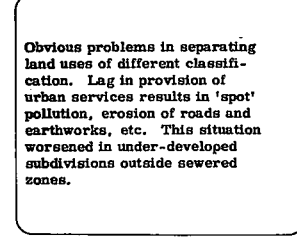
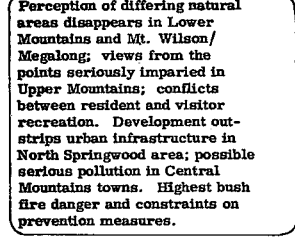
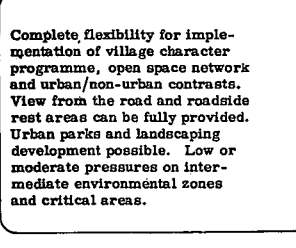
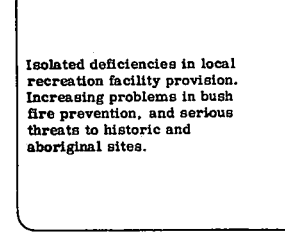
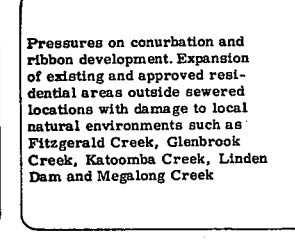
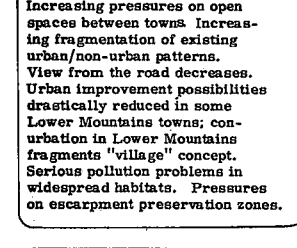
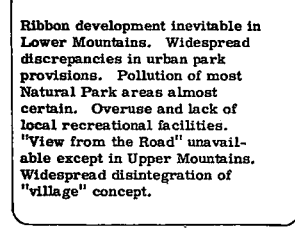
7.3 Impact of the Strategies

The figure overpage illustrates the expected impacts of the five strategies at the four levels of:

- * Region - policies of State and Federal Authorities
- * City - impacts over the whole City area
- * Township - impacts of the townships and town system
- * Town Component - impacts on township components.

The impacts of the five blanket strategies, of course, will present significant differences at the township level, mainly due to land availability, existing occupancy and future imbalances in residential and open space demands. The choice of individual strategies for each portion of the Mountains will require delicacy, skill and extensive resident participation.

BLUE MOUNTAINS CITY COUNCIL
Blue Mountains Strategy Plan
ENVIRONMENTAL IMPLICATIONS OF
ALTERNATIVE FUTURES

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
REGION 					
	<p>Maximum capacity for absorption of recreation and tourism originating in Sydney, interstate and international. Large scale funding possible for regional conservation uses. Pollution of Hawkesbury Basin decreases as infrastructure provision increases. Role of the Mountains becomes regional outlet for recreation and tourism.</p>		<p>Confusion of regional recreation role of the Mountains. Increasing demands for resident usage of regional parks.</p>	<p>Competition emerges between resident-visitor uses of regional natural recreation areas. Federal funds insufficient to provide and maintain Southern National Park facilities used by both residents and visitors.</p>	<p>Overuse of existing accessible areas. Role of Mountains split among tourism, local recreation and visitor recreation. Very high demands on wilderness areas. Certain pollution of Hawkesbury Basin unless maximum anticipation of high capacity tertiary treatment plants. Provision of urban infrastructure presents threats to all environmental areas.</p>
CITY OF BLUE MOUNTAINS 					
	<p>Mountains services recreational demands of both residents and visitors fully. Minimal destruction of natural environment by pollution or over-use of regional open space. Opportunities for delineation and enhancement of urban areas and character, regional open space uses, utilisation of intermediate areas such as Megalong Valley and the Mount Wilson areas. Minimal threats to views from the Points by development patterns. Potential for increasing scenic ring roads and access road upgrading to currently "inaccessible" lookouts such as Faulconbridge and Banks Walls lookouts.</p>		<p>Isolated areas suffer from perception confusion, ie, interface between National Parks and development areas is reduced. Increasing pressures on non-urban land patterns. Serious obstacles to bush fire prevention and suppression in Central and Upper Mountains.</p>	<p>Obvious problems in separating land uses of different classification. Lag in provision of urban services results in 'spot' pollution, erosion of roads and earthworks, etc. This situation worsened in under-developed subdivisions outside sewered zones.</p>	<p>Perception of differing natural areas disappears in Lower Mountains and Mt. Wilson/Megalong; views from the points seriously impaired in Upper Mountains; conflicts between resident and visitor recreation. Development outstrips urban infrastructure in North Springwood area; possible serious pollution in Central Mountains towns. Highest bush fire danger and constraints on prevention measures.</p>
TOWN 					
	<p>Complete flexibility for implementation of village character programme, open space network and urban/non-urban contrasts. View from the road and roadside rest areas can be fully provided. Urban parks and landscaping development possible. Low or moderate pressures on intermediate environmental zones and critical areas.</p>	<p>Isolated deficiencies in local recreation facility provision. Increasing problems in bush fire prevention, and serious threats to historic and aboriginal sites.</p>	<p>Pressures on conurbation and ribbon development. Expansion of existing and approved residential areas outside sewered locations with damage to local natural environments such as Fitzgerald Creek, Glenbrook Creek, Katoomba Creek, Linden Dam and Megalong Creek</p>	<p>Increasing pressures on open spaces between towns. Increasing fragmentation of existing urban/non-urban patterns. View from the road decreases. Urban improvement possibilities drastically reduced in some Lower Mountains towns; conurbation in Lower Mountains fragments "village" concept. Serious pollution problems in widespread habitats. Pressures on escarpment preservation zones.</p>	<p>Ribbon development inevitable in Lower Mountains. Widespread discrepancies in urban park provisions. Pollution of most Natural Park areas almost certain. Overuse and lack of local recreational facilities. "View from the Road" unavailable except in Upper Mountains. Widespread disintegration of "village" concept.</p>
TOWN COMPONENT 					
	<p>Maximum opportunity for cohesive urban character implementation; street closures, local parks and gardens, streetscape development, open space links and maintenance. Full opportunity for establishment and display of historic sites and buildings. Minimum demands on local parks and gardens. Full use of existing recreational facilities and complete upgrading possible.</p>		<p>Linear (ridge-top) development pattern reduces town compactness with resulting inequalities in recreation facility provision. Widespread visual impacts in Single Ridge Road, Hawkesbury Road and other Lower Mountains areas.</p>	<p>Serious problems in providing usable open space proximal to all residential areas. Development on gully slopes provide areas available for local open space use begin to disappear. Overuse of some local parks and gardens. Overall lack of both active and passive recreation areas due to large space users (industrial, schools, clubs and service industry).</p>	<p>Local open space at premium or unavailable. Serious pressures on bushland gullies and in fire-prone locations. Little or no opportunity for coherent urban landscaping pattern. Large inequalities in local recreation facilities. Historic sites and buildings endangered, widespread destruction of aboriginal sites.</p>



7.4 Issues and Inequalities

Open Space Resources

The following lands are contained within City boundaries and used or available for open space and recreation:

TABLE A7

	Square Kilometres (square miles)	Hectares (acres)
Blue Mountains National Parks	708 (270)	71,000 (175,600)
State Forests	74 (26)	6,775 (16,742)
Catchments	198 (76)	19,917 (49,190)
Escarpment (IDO 26)	17 (6.5)	1,696 (4,192)
Regional Open Space		10,872 (26,854)
Parks and Recreation		182 (450)
Proposed Recreation		63 (156)
Private Recreation		131 (182)
TOTAL		118,838 (273,366)

A great amount of this total land is completely outside the control and administration of Council. The National Park, State Forests and Warragamba Catchment are very large areas alienated from Council coordination. Under-funding and under-staffing of the National Park will further hamper its effectiveness unless rectified.

Open Space and Recreation

Significant inequalities in facility provision exist in Mountains towns. The most glaring lacks are in active sporting ovals, and regional sporting complexes.

The funds available for land acquisition are currently based on Town Improvement Levy areas. If the purchase of land for escarpment preservation is desired in Katoomba for example, only funds from rates in Katoomba are available, rather than general Blue Mountains rate money. This restriction places unfair burdens on the use of Town Improvement Levy rates in each town.



Escarpment

The goals in escarpment areas are to preserve and to reduce unsuitable development in visible escarpment areas, to maximise access, and to provide a recreational buffer strip between precipices and peripheral development.

Interim Development Order 26 will initiate these goals for the eastern escarpment; all escarpments require similar Orders and the stringent monitoring of escarpment goals.

Historical and Aboriginal Buildings and Sites.

More than 60 historic sites and buildings have been identified by Council, The National Trust and local historical groups. Over 200 aboriginal cave shelters and paintings and carvings have been identified and catalogued; no doubt even more exist.

Only seven historic buildings have been classified by the Trust. A handful of aboriginal relics have achieved unofficial status; one cave has been closed for protection from vandals. More than 50 aboriginal relics are within the developing path of urban expansion; dozens have already been destroyed or alienated.

A strong campaign of identification, classification and the establishment of preservation responsibility is vital.

Bush Fire Control

Among the eight separate bodies responsible for bush fire prevention and suppression, the best equipped body (Blue Mountains Bush Fire Brigade) is severely hampered in its prevention efforts. It appears vital that buffer zones between National Parks and developed areas be set up within which the Brigade can operate most effectively. A certain amount of cooperation of all eight bodies is required; these changes may require alterations in existing fire legislation and modifications to current equipment and training levels.

7.5 Critical Environmental Areas

The first environmental management goal of delineation is established on a large scale only in the Blue Mountains National Park; this goal is completely absent in many other critical areas which are threatened by development, pollution and over-use.

Natural Environments

Recreation points along the Nepean River which are maintained by the NP&WS are approaching capacity. Some 400-500 vehicles per peak day enter this portion. The importance of escarpment preservation has been recognized, and steps are being taken to conserve or acquire them. Unless full implementation is accomplished, the alienation of environmental management goals in escarpment areas could have drastic effects on the tourism base of the Blue Mountains.



Sewage treatment works endanger widespread natural drainage areas throughout the Mountains. Hanging swamp habitats below the escarpments will also suffer from increased septic effluent and soil erosion as urban areas expand.

Intermediate Environmental Areas

An inherent physical asset of the Mountains is the contrast between villages and separating open space. Most of this open space is proposed non-urban and is being increasingly threatened by ribbon development. Potentials for providing scenic views from the road and railway line will be restricted unless delineation and preservation of non-urban strips is accomplished.

Megalong Valley is a critical intermediate area which is coming under pressures to develop man-made tourist attractions. It may be possible to provide these attractions without detriment to the environment, but it must be done under a comprehensive and sensitive policy. Development along Singles Ridge Road and other prominent ridge-line areas in North Springwood would present serious visual detriment to both residents and visitors.

The rural atmosphere of Mts. Wilson, Irvine and Tomah is being endangered by unsuitable subdivision and development. Here, as in Megalong, sensitive but strong policies are needed to control growth into suitable forms.

Creek habitats throughout the Mountains will increasingly be polluted as development in unsewered areas continues. Among the worst present polluted creeks are Fitzgerald, Glenbrook, Hazelbrook, Megalong and Katoomba Creeks. Glossop Road in Woodford contains development physically within the Woodford Catchment.

Man-Made Environments

Most threatened are historic buildings uncategorised by the National Trust, but potentially worthy of preservation. Three buildings are protected by the Planning Scheme Ordinance, eight are classified by the Trust, and over 60 have been identified by residents and historic societies. Add to this total over 200 aboriginal relics, and the threats to a valuable resource become apparent.

Both Woodford and Mt. Victoria present great possibilities for a historic village precinct, yet both contain widespread residential areas.

Individual "village characters" can be identified throughout the Mountains. Needs within some of these villages have been identified above.

Existing railway stations are a significant and uniform historic/village asset. The implications of upgrading stations to cope with an expanding population and commutation level threaten these assets, especially within the Lower Mountains.



7.6 Action Requirements

It is vital that environmental action be separated and directed according to the perception and use levels extant in the Mountains. Action must begin with the recognition and structuring of these levels and continue along parallel courses within them.

- * National Parks boundary rationalisation. incorporation of Warragamba Catchment, and delineation of escarpments. Re-define role of BMCC regional open space. Buffer zone between Natural Areas and future development areas. Improve (centralise) bush fire control policies and levels of effectiveness.
- * Control or discontinue unsuitable uses (mining, logging, encroachment of development - sources of pollution). Explore alternatives to Town Improvement Levy area imbalances in acquisition of escarpment land and other Natural Area policy and management; funding to sights and walk groups.
- * Encourage NP&WS efforts in education, information dissemination and increase of National Park uses. Increase access to escarpment lookouts, improve facilities, scenic ring-roads (cliff drives).
- * Accurately delineate inviolable Intermediate (non-urban) Areas between existing towns (see Fig. A11-17). Major commitment needed on the future of Megalong Valley and the Mounts (Wilson, Irvine and Tomah). Roadside rest provisions.
- * Review of non-urban policies in Intermediate Areas, establishment of defence tactics. Attack conurbation/ribbon development. Assign distinct roles to BMCC open space in these zones. Increase contrast between urban and non-urban areas.
- * Establish roadside rest areas and attractions; publicise and encourage use of Megalong and The Mounts.
- * Identify, classify and protect historic sites and buildings. Establish village character policy, design standards, and role of local parks and gardens.
- * Townscape actions - street landscaping, road closures and malls, establish inviolable historic sites, design standards for new development, sign and hoarding controls.
- * Fund or establish where lacking, local historic societies and local information centres.



Action Priorities

- * Delineation of critical environments in Natural and Intermediate Areas; review non-urban policies. investigate solutions to high pollution levels and their ecological impacts.
- * Enhancement of the View from the Road - resource inventory and design standard in urban areas.
- * Evolution of Village Character:
 - Historic sites and buildings programme
 - Urban parks and gardens
 - Streetscape, road closures
 - Housing policy, design standards and structure planning
 - Detailed development control planning in Megalong Valley, the Mounts (Wilson, Irvine and Tomah), Mt. Victoria and Woodford as historic precincts; railway station precincts.
- * Escarpment preservation - funding programmes above the TIL levels; evolve a Grants Committee for high level funding and commitment from Federal and State bodies, National Estate and National Trust of NSW.
- * Monitoring of non-conforming activities - pollution; erosion; destruction of environment by development works, fire, rubbish dumping, mining and extractive operations, and tree removal.
- * Review bush fire control policies - access, levels of responsibility and effectiveness, inequalities in equipment, training and zones. Establish fire prone areas, and suitable planning controls.
- * Defence team - prevention of policy alienation in all delineated environmental areas, and detailed control programmes.
- * Grants and Aid team - identification and capture of suitable multi-level grants and loans for continuance of environmental policies and programmes; commitment of bodies to clearly stated BMCC environmental policies.



APPENDIX "A"

HISTORIC SITES IDENTIFIED COUNCIL'S 1967/68 TOWN PLANNING REPORTS

Upper Mountains

Echo Point, Katoomba
Scenic Railway, Katoomba
Explorers Tree, West Katoomba
Convict Graves, West Katoomba
The Crushers, Katoomba
The Landslide, Katoomba
Hydro Majestic, Medlow Bath
Toll Bar House, Mt. Victoria
Gatekeepers Cottage, Medlow Bath
Mitchells Ridge Monument, Victoria Pass
Mount York
Berghofer's Pass and Lawson's Long Valley
Lithgow Zig Zag, Blaxland Shire
Water Trough Hill, East Bell
Centennial Glen Road, Shipley Plateau
Aboriginal Carving, numerous locations

Central Mountains

Kings Cave, Linden
Caley's Repulse, Linden
Bulls Camp, Linden
Woodford Academy, Woodford
Weatherboard Inn, Wentworth Falls
Hobby's Reach, Wentworth Falls
Aboriginal Carvings, numerous locations

Lower Mountains

Knapsack Viaduct, Glenbrook
Lennox Bridge, Mitchells Pass
The Zig Zag and Lucasville Station, Glenbrook
Railway Tunnel, Glenbrook
Camping Site (Blaxland, Wentworth, Lawson), Glenbrook
Pilgrim Inn, Blaxland
Cairn (Governor Macquarie camping ground), Springwood
Gatekeepers Cottage, Springwood
Sir Henry Parke's Grave, Faulconbridge
Aboriginal Carvings and Paintings, numerous locations



APPENDIX "B"

BMCC SUBMISSION TO THE COMMITTEE OF INQUIRY INTO THE NATIONAL ESTATE- BUILDINGS AND PARKS

"Closeburr" - building on the corner of Mt. York Road, and George's Parade on Lot 1 and 2, DP 2455. This building was a way-station and boarding house on the old road to Mt. York and served as a stopping place when Berghofer's Pass was opened.

"The Grange" - Wentworth Street, part portion 123. (No specific information on the date of construction nor the use of this property).

"The Bank House" - being No. 18, 20 and 22, Station Street. Part Lots 9, 10, and 11, in DP 648. This property was the first Bank opened in Mt. Victoria and operated for many years as such an enterprise. The building at present is well maintained and includes two occupied terrace type dwellings and one larger type unoccupied dwelling.

"Mt. Victoria School" - This was the first public school opened on the upper mountains.

"Mt. Victoria Railway Station Buildings" - The refreshment rooms were built in 1873, and were not closed down until 1960. The Railway Station was originally named "One Tree Hill".

"The Old Toll House" - known as Toll Bar Cottage located on the Great Western Highway at the overbridge.

"Gardener's Inn" - Great Western Highway, Blackheath. This Inn was originally built in 1829 and some of the original structure still remains in the existing building.

"The Memorial Park Gardens" - Gardener's Crescent, Blackheath. These were established by the Kirslake (?) brothers in 1927 and initiated the Rhododendron Festival in Blackheath.

"The Rhododendron Garden" - Bacchante Street, Blackheath. These gardens were established by a semi-public organisation to promote the development of rhododendrons and provide varying botanical gardens in the area.

"The Hydro-Majestic Hotel, Medlow Bath" was established somewhere about 1880 by Hargreaves and later taken over by Mark Foy. The structure containing the main Ball Room and Hall of Mirrors is of architectural merit.



"Stone Terrace Houses" - Great Western Highway, Katoomba. Located between Buti Street and Cascade Street. These dwellings were erected about 1870 and were adjacent to the first post office in Katoomba.

"The Carrington Hotel" - Katoomba Street, Katoomba. The original Carrington Hotel known as the Great Western was built in 1882. The lead light windows in the entrance and front verandah section are of considerable value and are accepted as being one of the finest examples in Australia.

"The Everglades" - The Everglades, Denison Street, Leura. This is a fully landscaped area owned and controlled by the National Trust.

"The Nest" - Kitchener Avenue, Leura. This building was erected in 1896 and with its outbuildings is one of the finest examples of this type of architecture in the Katoomba area.

"The Stone House and Coach House" - corner Fletcher and Fitzgerald Streets, Wentworth Falls, established about 1890 of a similar architectural merit as the Nest.

"Rhonda Valley", Railway Parade, Wentworth Falls.

"The Cottage" - on part allotment 2, Honour Avenue, Lawson, now occupied by Dr. King as a surgery.

"The Memorial Gardens", - Honour Avenue, Lawson.

"The Woodford Academy" - Great Western Highway, Woodford.

"The Rockcorry Cottages" - on part Lots 1 and Part Lot 2, DP 477, Old Bathurst Road, Woodford. These cottages were erected by convict labour in 1859.

"Bulls Camp" - Reserve 58281/2. This is one of the only remaining campsites associated with the construction of Cox's Road in 1815.

"Eurama" and "Weemala" - part portion 2 and part portion 23, off Sir Henry's Parade, Faulconbridge.

"Sir Henry Parkes' Grave Site" - and the cemetery surrounds.



"Everton" - cnr. Everton Road and Great Western Highway, Faulconbridge. This building was erected by the Foy family and at one time was occupied by Norman Lindsay's family.

"Coomassie" - a similar structure to Everton, located on the Grose Road, Faulconbridge.

"Norman Lindsay's House" - Chapman Parade, Faulconbridge. This is a National Trust building.

"Karkoola" - located on Lot 1, DP 9834, Great Western Highway, Springwood. This building was erected in 1870 and at one time was occupied by Charles Moore.

"Buttenshaw Park" - this is a Crown Reserve under the trusteeship of the Council and has been developed as an urban Park.

"The Presbyterian Church" - Macquarie Road, Springwood. This is a fine example of the stonework of the time.

"Hartfields" - Lot 1, Hawkesbury Road, Winmalee. Originally a school for girls and erected in the 1890 period. The building has been restored to its original condition by the present owner.

"Braemar" - Macquarie Road, Springwood.

"Lennox Bridge" - Reserve 77476, Mitchell's Pass, Glenbrook.

"Whitton Park" - Reserve 78582, Great Western Highway, Glenbrook. This Park is adjacent to Glenbrook Oval and is the first campsite of Blaxland/Wentworth and Lawson in their crossing of the Mountains.

"Knapsack Viaduct" - This viaduct was erected in 1863 and is a fine example of stone masonry and one of the few examples remaining in Australia.

APPENDIX "C"HISTORIC BUILDINGS AND SITES IDENTIFIED BY
OBJECTORS TO THE EXHIBITED PLANNING SCHEME

Building or Site/Town	Objector
Falls House, Katoomba	BMEPA/KPA, BMPF
Zig Zag Railway, Lapstone	LBMCS, KDWCS
Old Bathurst Road	LBMCS
Mitchell's Pass Road	LBMCS
"Old house in RAAF Base"	LBMCS, BMPF
Water Tank footings, Glenbrook	LBMCS, BMPF
Old Station House, Glenbrook	LBMCS, BMPF
Hartfields, North Springwood	LBMCS, SHS, BMPF
Karkoola, Springwood	LBMCS, SHS, BMPF
Everton, Faulconbridge	LBMCS,
Coomassie, Faulconbridge	LBMCS, BMPF
Weemala, West Faulconbridge	LBMCS, SHS, BMPF
Henry Parkes' House, Faulconbridge	LBMCS, BMPF
Henry Parkes' Grave, Faulconbridge	LBMCS, BMPF
Carrington Hotel, Katoomba	SHS
Coopers Grand Hotel, Mt. Victoria	SHS, BMPF
The Grange, Mt. Victoria	SHS, BMPF
The Imperial Hotel, Mt. Victoria	BMPF
Bank House, Mt. Victoria	BMPF
Railway Station, Mt. Victoria	BMPF
Public School and Buildings, Mt. Victoria	BMPF
Church of England, Mt. Victoria	BMPF
Railway Cottage, Mt. Victoria	BMPF
Toll Bar House, Mt. Victoria	BMPF
Old Barracks, Mt. Victoria	BMPF
Gatehouse, Mt. Victoria	BMPF
Larsen's Cottages, Mt. Victoria	BMPF
Lawsons Long Alley, Mt. Victoria	BMPF, KDWCS
Cox Pass, Mt. Victoria	BMPF
Soldiers Pinch, Mt. Boyce	BMPF
Convicts Bridge, Mt. Victoria	BMPF
Colletts Inn, Mt. Victoria	BMPF
Antique Shop Stonework, Mt. Victoria	BMPF
Caleys Repulse, Mt. Tomah	BMPF
Old Blackheath Post Office	BMPF
Old Hotel, Blackheath	BMPF
Medlow Bath Station	BMPF
Original Hydro-Majestic Building, Medlow Bath	BMPF
Everglades, Leura	BMPF
Wentworth Falls' School of Arts	BMPF
Kihilla, Lawson	BMPF
Woodford Academy	BMPF
Bangel, Linden	BMPF
Rockcorry Cottages, Linden	BMPF
Bulls Camp, Linden	BMPF
Water Lily Pool, Linden	BMPF
Corridor of Oaks, Faulconbridge	BMPF



Lindsay's House, Faulconbridge	BMPF
Presbyterian Church, Springwood	BMPF
Church of England, Springwood	BMPF
Degotardi House, Springwood	BMPF
Macquarie's Campsite, Springwood	BMPF
Royal Hotel, Springwood	BMPF
Gatehouse, Valley Heights	BMPF
Lennox Bridge, Glenbrook	BMPF
Ilford Cottage, Glenbrook	BMPF
The Spur Line, Glenbrook	BMPF
The Bluff, Lapstone	BMPF

KEY:

BMEPA	Blue Mountains Environment Preservation Assoc.
KPA	Katoomba Progress Assoc.
LBMCS	Lower Blue Mountains Conservation Society
SHS	Springwood Historical Society
BMPF	Blue Mountains Progress Federation
KDWCS	Katoomba and District Wildlife Conservation



THE PEOPLE

1. DEMOGRAPHIC CHARACTERISTICS

- 1.1 Population Growth
- 1.2 Elements of Increase in Population
- 1.3 Population Characteristics
- 1.4 Year of Construction

2. EXISTING SOCIAL STRUCTURE

- 2.1 Data Collection
- 2.2 The Aged
- 2.3 Youth
- 2.4 Other Groups

3. MEDIUM DENSITY DEVELOPMENT IN THE BLUE MOUNTAINS

- 3.1 Existing Trends
- 3.2 The Need for a Variety of Housing Types in the Blue Mountains

4. CONCLUSIONS ON EXISTING SITUATION

5. IDEAS ON FUTURE PLANNING ACTION

- 5.1 Planning for Community Facilities and Social Services
- 5.2 Planning for a Variety of Housing Types in the Blue Mountains

6. THE IMPLICATIONS OF ALTERNATIVE FUTURES

- 6.1 The Blue Mountains Community
- 6.2 The Provision of a Variety of Housing Types in the Blue Mountains



THE PEOPLE

This section describes the various characteristics of persons living in the Blue Mountains, recommends priorities for future social planning and provision of housing types (regardless of strategy), and finally suggests certain implications of alternative futures on the population generally.

1. DEMOGRAPHIC CHARACTERISTICS

1.1 Population Growth

Figure No. B1 indicates the past population trends for the Upper and Lower Mountains and for the whole of the City of Blue Mountains. The Lower Mountains area is defined as that portion of the City within the Sydney Statistical Division, the eastern boundary being the Nepean River and the western boundary terminating some 0.4 kilometres ($\frac{1}{4}$ mile) to the east of Linden. The remainder of the City contained within the Outer Sydney Statistical Division, comprises the Upper Mountains region.

A semi-logarithmic scale has been used in the graph for both convenient comparison and ease of trend prediction.

While the annual compound rate of growth for the whole City has risen consistently since 1947, most of this growth has occurred in the Lower Mountains area. In 1947, the Upper Mountains contained four times the population of the Lower region but in 1971 both areas contained equivalent populations.

The very low rate of growth in the Upper Mountains region is further emphasised when compared with the growth of both the Sydney Metropolitan Area and the state as a whole. Only in 1971 was the growth of the Upper area comparable with New South Wales. Between 1961 and 1966, although the Lower Mountains population growth rate was 7.4% p.a., there was a decline in the Upper Mountains of 0.5% p.a.

Tables B1, B2 and B3 detail these growth rates.

1.2 Elements of Increase in Population

The outstanding feature of the growth of the City of Blue Mountains has been the City's ability to attract new population from elsewhere. In-migration is the major contributing factor to population growth in the area.



B2.

TABLE B1

POPULATION GROWTH 1947 - 1971

	Lower Mountains		Upper Mountains		Total City	
	No.	Annual % Growth	No.	Annual % Growth	No.	Annual % Growth
1947	4,332		16,187		20,519	
1954	5,857	4.4	16,388	0.2	22,245	1.2
1961	9,708	7.5	17,331	0.8	27,039	2.8
1966	13,838	7.4	16,893	(0.5)	30,731	2.6
1971	18,267	5.7	18,360	1.6	36,627	3.5

Source : Australian Bureau of Statistics

TABLE B2

POPULATION GROWTH 1947 - 1971 - SYDNEY METROPOLITAN AREA

Year	No.	% Annual Compound Growth
1947	1,698,844	
1954	1,938,016	1.9
1961	2,303,464	2.5
1966	2,542,207	2.0
1971	2,807,828	2.1

Source : Australian Bureau of Statistics

TABLE B3

POPULATION GROWTH 1947 - 1971 - NEW SOUTH WALES

Year	No.	% Annual Compound Growth
1947	2,984,838	
1954	2,423,529	2.0
1961	3,917,013	2.0
1966	4,237,901	1.6
1971	4,601,180	1.6

Source : Australian Bureau of Statistics



During the 1961-66 period there was a decline in the population of the Upper Mountains, most of this decline occurring through out-migration rather than an excess of deaths over births. In contrast to this, the Lower Mountains experienced a high proportion of in-migration. However, in the Upper Mountains in the 1966-71 period there occurred an excess of deaths over births which was more than offset by in-migration. In-migration also continued to be an important component of growth in the Lower Mountains, although natural increase contributed to 25% of the population change.

The volumes of net migration, and of net natural increase in the total City population between the 1966 and 1971 Censuses, have also been analysed by age groups, in order to indicate the proportion of net migration in each age group.

These findings apply to the total population, including tourists as well as permanent residents. It would be invalid to assume that the tourist population is distributed evenly throughout the age range.

Between 1966 and 1971 there were 3,187 births recorded in the City of Blue Mountains. The natural and net migration increases were allocated to specific age groups by applying the average Australian mortality rates to the 1966 age groups and thus calculating the survival rate at 1971. The differences between the population enumerated at the 1971 Census and the estimated number of new born and other persons surviving since 1966, shows the remaining number of persons in each age group in the City of Blue Mountains as the result of net migration between 1966 and 1971. The complete results of this analysis are detailed in Table B5.

While much of the Blue Mountains' population growth results from in-migration most of this is occurring in the older age groups. There was an actual out-migration in the 15-19 age group and a negligible increase in the 20-24 age group. This would suggest that these groups are dissatisfied with the facilities and lifestyle provided by the Blue Mountains.

The resulting population structure therefore predominates in these older age groups and a severe age imbalance occurs. If a lessening of this imbalance is considered preferable, then more attention appears to be needed in providing the facilities and general lifestyle which will reverse the present out-migration in the younger age groups and actively encourage younger people into the area.



TABLE B4

COMPONENTS OF POPULATION INCREASE

Age Group	1966 Pop.	Est. Deaths by Age Group 1966-71	1971 Pop.	Natural Increase Component	Net Migration Component	Migration as % of 1971 Age Group Population
0-4	3,133	29	3,699	3,187	512	13.8
5-9	3,135	2	3,600	3,104	496	13.8
10-14	2,663	2	3,234	3,133	101	3.1
15-19	2,110	2	2,380	2,661	(281)*	(11.8)
20-24	1,613	2	2,120	2,108	12	0.6
25-29	1,798	2	2,357	1,611	746	31.6
30-34	1,655	2	2,248	1,796	452	20.1
35-39	1,716	4	1,926	1,651	275	14.3
40-44	1,730	5	1,918	1,712	206	10.7
45-49	1,568	7	1,944	1,725	219	11.3
50-54	1,667	13	1,799	1,560	239	13.3
55-59	1,545	21	1,985	1,654	331	16.7
60-64	1,601	34	1,955	1,524	431	22.0
65+	4,797	523	5,562	1,567	3,995	71.8
Total	30,731	648	36,727	28,993	7,734	

* Brackets denote net out-migration. All other figures are net in-migration.

Source : Australian Bureau of Statistics



1.3 Population Characteristics

1.3.1 Age

Figures B2 and B3 illustrate the population profiles for both the City of Blue Mountains and New South Wales for 1954 and 1971 respectively.

Particularly significant, in both periods, was the proportion of the population in the Blue Mountains aged 70 years and over. This was considerably in excess of the NSW figures in 1954 and has since increased until, in 1971, the proportion of the Blue Mountains population, in this age group, was almost double the NSW average.

This large proportion of elderly persons in the population is contrasted by a lower than average number of persons in the 15 to 24 age group. This situation was more marked in 1971 than it was in 1954 especially with regard to males in the 20-24 age group (3.5% less than the NSW average). Between 1954 and 1971, the percentage of persons under 9 years of age increased significantly in the Blue Mountains, almost doubling during this period.

Further information about the age structure of the population is obtained from considering the individual population profiles for 1971 for both the Lower and Upper Mountains (Figures B4 and B5).

The population profile of the Upper Mountains indicates a marked predominance of people in the older age groups, particularly in the post-retirement age population. In the Lower Mountains however, there is a much greater proportion of young and middle-aged people.

This emphasises the need to consider the two areas, for some purposes, as being separate parts of the whole rather than a uniform situation. Social facilities, in particular, will vary between the two areas. Retirement facilities will assume the same importance in the Upper Mountains as youth-oriented facilities will assume in the Lower Mountains area. The degree of provision of employment opportunities may also vary between the two areas as a result of this dual population profile situation.

A more detailed analysis of several population characteristics was performed by grouping the 1971 Census Collectors Districts into areas corresponding with the 1971 Journey to Work data collected by the Australian Bureau of Statistics. These areas generally reflect the town patterns within the City. Figure B6 illustrates these grouping boundaries. Numbers have been allocated to areas to facilitate description when dealing with rural areas.

TABLE B6

INDUSTRY OF WORKFORCE (as a percentage in each area)

Area No.	Agri-culture	Mining	Manu-factur-ing	Electrical	Construct-ion	Whole-sale & Retail Trade	Transport	Communic-ations	Finance	Public Adminis-tration	Comm-unity Services	Enter-tain-ment	Other & not stated	Total
662	40	0	2	0	0	21	4	2	2	2	7	13	7	100
663	2	2	15	3	9	21	7	2	4	5	16	12	2	100
664	1	0	12	3	9	16	5	3	6	6	13	23	3	100
665	3	0	8	4	10	20	4	4	7	5	17	13	5	100
666	1	1	8	3	8	21	5	3	8	5	20	12	5	100
667	1	0	9	1	6	21	5	4	7	6	27	10	4	100
668	2	1	14	2	6	15	6	5	8	5	26	6	4	100
669	42	0	16	3	3	3	0	0	0	19	7	1	6	100
670	1	1	12	3	10	18	7	3	6	9	19	8	5	100
671	1	1	17	3	8	17	5	3	11	12	16	4	2	100
672	1	1	19	3	8	18	5	3	10	10	15	4	3	100
673	1	1	19	4	9	18	3	4	9	9	18	4	1	100
674	1	1	13	3	10	15	5	4	6	10	23	6	3	100
675	1	1	22	2	8	17	4	4	10	8	17	3	3	100
676	1	1	22	3	8	18	4	3	10	11	14	3	2	100

Source : Australian Bureau of Statistics



Katoomba and Leura both contain high proportions of persons aged 65 years and over. All other areas contain between 7 and 19% of the population in this age group.

A particularly high proportion of people in the 25-44 age group is located in the Blaxland-Mt. Riverview area. The availability of employment in nearby Penrith may be one factor influencing this residential location decision. 7% of the population of this area is aged between 45 and 64. In most other areas approximately 20% of the population is in this age group.

When compared with the New South Wales average, no one particular area contained a significant proportion of young people and this age group requires consideration. As previously noted, much of the out-migration occurring in the Mountains is in the 15-19 age group, therefore indicating a degree of dissatisfaction with one or several aspects of the facilities and/or lifestyle provided in the Blue Mountains.

1.3.2 Workforce and Employment

The proportion of males aged 15-65 employed in the male workforce varies among areas from 79% to 96%. This is comparable with the New South Wales average of 88%. The areas with the highest proportions are areas 675 and 676 which include the towns of Valley Heights, Warrimoo, Mt. Riverview and Blaxland. The high proportions of the male population in the 15-65 age group would account for this. Areas 662 and 664 also have high proportions of the male population employed in the workforce.

In only one area, Wentworth Falls-Leura, does the proportion of the female population, aged 16-65, employed in the workforce exceed the State average of 47.5%. All other areas record lower figures although none, except area 669, are greatly below the average. Those areas which do experience a low proportion of the female population in the workforce are generally rural and therefore probably lack those opportunities for female employment which would probably be found in most towns.

Much of the professional workforce resides in the belt between Linden and Glenbrook, probably because of the proximity of these areas to the professional employment opportunities in Penrith, Parramatta and Sydney. Within this belt at least 45% of the workforce are employed in professional occupations, an extremely high proportion when compared with the New South Wales average of 10.2%.

Each of the two predominately rural areas, 662 and 669, contain high proportions of the workforce employed as farmers, with 45% and 38% respectively.



All areas, with the exception of area 662 to the north of the City, contain approximately one quarter of the workforce in trade, production and process occupations. This proportion is slightly less than the New South Wales average of 32.7%. Table B6 details these occupation figures by area and occupational grouping.

TABLE B5

OCCUPATION OF WORKFORCE (as a proportion in each area)

Area No.	Profess- ional, Technical	Farmers & Miners	Trades- men, Product- ion & Process Workers	Service, Sport & Recreat- ion	Sales, Transport & Commun- ication	Total
662	27	45	0	11	17	100
663	32	4	30	16	18	100
664	36	4	26	19	15	100
665	27	5	28	23	17	100
666	34	2	25	22	17	100
667	43	2	18	20	16	100
668	37	4	24	18	17	100
669	23	39	19	6	13	100
670	36	4	29	17	14	100
671	47	2	26	12	13	100
672	48	2	28	8	14	100
673	49	2	28	10	11	100
674	39	3	27	18	13	100
675	45	1	27	11	16	100
676	49	1	27	11	12	100

Source : Australian Bureau of Statistics

No significant variances from the normal pattern were observed with regard to the proportion of the workforce in each industry grouping. The areas with the highest proportions of the workforce in manufacturing are around Blaxland-Mt. Riverview and Glenbrook. High proportions of the workforce in the Finance industry were also recorded in this area.

Much of the workforce involved in community services is located in the Leura-Wentworth Falls area. The entertainment industry appears to be the dominant form of employment in the Medlow Bath area although the relatively low population may account for this unusual trend. Table B7 details the proportions of the workforce in each area employed in each industry grouping.



1.3.3 Dwelling Occupancies

Very high proportions of unoccupied dwellings were recorded in the Upper Mountains, particularly in the Mt. Victoria-Bell and Medlow Bath-Katoomba areas where 53% and 44% respectively, of the total dwelling stock, was unoccupied. In the Lower Mountains however, this proportion was very low, being only 5% in the Blaxland-Glenbrook area.

Table B8 details the reasons for unoccupancy in each area.

TABLE B7

REASONS FOR DWELLING UNOCCUPANCY
(Proportion of Unoccupied Dwellings)

Area No.	For sale, To Let	New	Vacant for Repair	Holiday Home	Temporarily Unoccupied	Other & Not stated
662	12	0	0	73	12	4
663	11	1	2	70	12	5
664	6	0	1	85	4	3
665	13	1	1	41	33	12
666	17	3	4	46	19	10
667	5	1	1	64	23	7
668	6	1	3	78	9	3
669	0	0	0	13	63	25
670	18	6	5	48	12	11
671	19	6	5	12	45	12
672	5	1	1	65	17	11
673	11	6	4	27	33	19
674	3	8	3	35	25	27
675	4	8	10	20	39	20
676	12	13	1	16	46	12

Source: Australian Bureau of Statistics

Most of the unoccupied dwelling stock, particularly in the Upper Mountains, comprises the stock of holiday homes. In the Lower Mountains much of the stock is "temporarily unoccupied", but because of difficulties experienced by the Australian Bureau of Statistics in data collection, this grouping is not particularly meaningful. Data collected from other sources would suggest that much of the unoccupied dwelling stock in the Lower Mountains is, in fact, for sale or just recently completed.



B10.

Most of the dwellings in the Blue Mountains are separate houses although the figures for Katoomba indicate a relatively high proportion of self-contained flats. The Warrimoo-Valley Heights area also contains a substantial proportion of flats. The number of persons per dwelling for self-contained flats varies little between the Upper and Lower Mountains, being 2.19 and 2.06 persons per flat respectively. With regard to separate houses however, these rates do vary, being 2.89 persons per house in the Upper Mountains but 3.25 persons per house in the Lower Mountains. The younger age structure and higher proportion of children in the Lower, compared with the Upper Mountains, would account for this variation.

1.4 Year of Construction

A comparison of the date of construction of dwellings in each area indicates much more building activity in the Lower Mountains than in the Upper Mountains. North Springwood and Blaxland-Mt. Riverview in particular, have experienced quite substantial growth in the 1966-71 period. Building statistics available from Council's records further substantiate the rapid development in this Lower Mountains area.



2. EXISTING SOCIAL STRUCTURE

2.1 Data Collection

Because of time constraints, information collected on the community structure of the population in the Blue Mountains has been of a general nature only. Interviews with persons considered to be particularly aware of community problems have been conducted and this information together with that provided by the Blue Mountains City Council and the Bureau of Census and Statistics, have been assessed in order to obtain an overall appreciation of the situation. However, it should be stressed that a social survey of residents in the Blue Mountains area should be carried out in order to quantitatively assess relative satisfaction or dissatisfaction with conditions existing at present in specific localities.

The data collected for this report is a broad indicator of social problems in the area. Persons of varying degrees of expertise and fields of interest were interviewed. They included journalists, Ministers of various churches, members of charitable organizations, social workers, school teachers and other interested citizens.

The community has been investigated by age group rather than locality. Some of the problems tend to be confined to specific areas, but it appears that certain groups are at a disadvantage throughout the whole of the Blue Mountains area.

2.2 The Aged

The number of old aged persons in the Upper Blue Mountains is quite a remarkable feature of the age structure of the population in the area. It appears that there are two main groups in the community - those brought from institutions mainly in the Sydney Metropolitan Area and those who have moved to the area to retire or who have lived in the Blue Mountains for many years. Although total numbers of old aged persons has been provided by the Commonwealth Bureau of Census and Statistics, it has not been possible at this stage to obtain any further details, such as the number of persons living in guest houses, hostels and private hospitals, numbers of persons who came to the Blue Mountains to retire and numbers who have resided in the area for many years.

2.2.1 Old Aged Persons brought into the Blue Mountains

A number of aged persons have been brought from institutions where they were originally placed, up to hostels, guest houses and private hospitals in the Blue Mountains. This was the result of a reaction against cutting off aged persons from the community by placing them in institutions and



is an attempt to get them back into society. Unfortunately in some cases it appears that it may be impossible for a number of aged persons to readjust for they had been living apart from the community for too long. The accommodation in which some of these persons are living is, in many cases, of a poor quality with few amenities for any hobbies or pastimes that aged persons enjoy.

2.2.2 Retired Couples and Long Located Aged Persons

Because of the healthy environment and relatively cheap cost of land some years ago, the Upper Blue Mountains became quite popular as a place for retirement. Particular problems often arise if one partner dies, for the other may have left all close friends behind when they moved, be unable to afford to move again, and be left very much in isolation from the rest of the community. A number of aged persons living in the area as a whole appear to have become too isolated and withdrawn and eventually frightened of help even when needed. Although such problems are typical of those associated with aged persons generally, it is considered that they are particularly significant in the Upper Blue Mountains area because of the greater than average numbers of aged persons.

2.2.3 Facilities for the Aged

Certain deficiencies of the Upper Blue Mountains locality add to problems already being encountered by aged persons. There are no adequate premises with comprehensive facilities for the aged available and although these are being planned, they appear long overdue. Such facilities, especially provision for a mid-day meal, are seen by many persons working for the aged as an essential means of reducing much loneliness and deprivation at present being endured. Supportive services associated with such premises could provide an additionally valuable contribution.

Transport services are also very poor in the Upper Blue Mountains - especially at night - and aged persons may have little option but to remain indoors. In a situation where they need every encouragement to join in with community life this lack of mobility further adds to difficulties.

2.2.4 Spatial Characteristics

Aged persons brought from institutions have been located in the Upper Blue Mountains primarily at Katoomba, Wentworth Falls and Leura. This is also the case for many of the retired persons although other towns have also been popular.



2.3 Youth

There appear to be two main problems with regard to young people in the area. Firstly, there is a general lack of facilities for entertainment; transport for those without cars is poor; and local job opportunities are small. Secondly, related to this problem is the out-migration of young people from the community, especially in the 15-24 age group.

2.3.1 Lack of Facilities

Although some steps have been taken to remedy the situation, there is a serious lack of youth-oriented entertainment for young people in the Blue Mountains. Sporting facilities appear reasonably comprehensive but many clubs lack adequate club rooms and supportive facilities for social activities. There is a picture theatre at Glenbrook and one at Katoomba, but because of poor transport in the area, especially at night, young persons without cars are at an extreme disadvantage, especially if they are not living in either of these two towns.

Because of previous experiences of brawling and rowdy behaviour, there appears to be a certain reluctance to hold dances, although this situation is being improved. Dances are usually held at Springwood and Katoomba and are one of the few opportunities young people have to meet each other. Bus trips to the beach at the weekends during summer months has been suggested as one means of improving recreation, while snooker rooms also appear to be popular, but facilities are at present inadequate. Arts and crafts facilities are also limited, and those operating seem to be very popular. However, transport and the expense of some classes are problems for some young people.

Social workers in the area relate higher than average juvenile delinquency levels to the lack of entertainment for the young. Also fathers may see very little of their families if commuting to Sydney each day, and often the family is without transport until he arrives home. Generally, all facilities provided for the young should be designed in association with the provision of suitable transport.

The type of weather experienced in the Blue Mountains is also a problem. Fogs and mists tend to be frequent, and poor weather generally often prevents outdoor activities being carried out. Because of this, there is a particular need for covered areas - such as the Indoor Recreation Centre proposed for Katoomba - in as many towns as possible in the area. At present, a number do not even possess adequate meeting room facilities. A number of persons interviewed suggested



that schools could be utilized to a far greater extent after hours for recreational purposes.

School leavers at 4th form level in particular are a problem, for often they are not able to find many local job opportunities available in the area which means that they may be forced to travel long distances or live away from home at an early age. The sections on Industrial and Commercial Activities describe this situation in greater detail, but generally it is very difficult for young people to find local employment in the Blue Mountains.

2.3.2 Migration of Young People from the Community

Because of the situation described above and other factors such as the need to attend tertiary education institutions in Sydney, and the draw of the metropolitan area as a more exciting environment for young people, there is a significant out migration of young people between the ages of 15 and 24 (see age/sex profile in previous section). This has certain undesirable effects on the community in that the number of energetic, enthusiastic persons with new ideas - particularly characteristic of young persons - is diminished and those young people who prefer or are forced to remain in the Blue Mountains have less people their own age with whom mix and relate to. The problem becomes self perpetuating in that the migration pattern and present situation are not easy to alter once established.

2.3.3 Spatial Characteristics

The lack of youth oriented activities and migration from the Blue Mountains appears to be a problem throughout the whole City, although some of the more newly established areas (eg Mt. Riverview) may not have encountered these problems to date because of the large percentage of young families. Poor transport facilities also appears to be a common occurrence throughout the City.

2.4 Other Groups

Among many residents there is a feeling that the Blue Mountains' towns and villages provide an atmosphere conducive to meaningful community life. There is also a healthy environment relatively free from pollution common to more dense metropolitan areas and an abundance of easily accessible open space. Hence a resident chooses a habitat given a balance of needs - the Blue Mountains has many physical and environmental assets, but problems of isolation, transport etc.

Commuting, isolation and transport appear to be the three factors most seriously affecting persons in the Blue Mountains. However, parts of the Blue Mountains area in particular have been subdivided quite recently and this land has been settled to a large extent by young persons buying their first home. These young persons are often at a



greater disadvantage than those who have resided in the area for some time for this latter group usually have friends to visit and activities to attend which have been established over the years. However, it should be noted that any new developing area is inevitably faced with problems and the Blue Mountains area is similar in this respect.

The necessity to commute long distances to work is a problem which affects all groups in the Blue Mountains. The lack of local employment is outlined in a following section, but long journey to work times mean that husbands may be away from their families for extended times and consequently see very little of their children during the week. If no second car is available, young wives tend to be very much bound to the home with insufficient contact with other members of the community. This problem may become particularly severe if there are no child-care facilities available. It has not been possible to meaningfully ascertain the severity of problems caused by commuting. Before any predictions can be made, detailed social research would need to be carried out.

Long travelling distances also make it difficult for any extra money to be earned by part-time employment and, for low income groups in particular, the time and expense of travel plus the difficulties associated with obtaining satisfactory part-time employment may lead to especial hardship.

In certain areas there are insufficient entertainment facilities for young women, many of whom appear to be isolated from the community to some extent. Two areas in particular - Mt. Riverview and North Springwood/Winmallee - show deficiencies but further examination of the problem is likely to identify other areas in particular need of a greater diversity of activities.

Provision of adult education classes, more facilities for child minding, improvement of local transport, the improved provision of facilities for meetings, arts and crafts and other means of encouraging greater community involvement for young women have been suggested as means of improving the existing situation. Although library facilities are planned, it appears that the demand and need have been there for some time and will be greatly appreciated.

Although pre-school kindergartens exist at Blackheath, Katoomba, Springwood, Blaxland, Glenbrook and Lapstone, there is a day-care centre only at Springwood, with another in the Lower Mountains area being built. It is suggested that these facilities for child care are inadequate - especially in the Katoomba area, where there are a number of single parent families and that consideration should be given to subsidising the cost, according to the needs being met.



3. MEDIUM DENSITY DEVELOPMENT IN THE BLUE MOUNTAINS

3.1 Existing Trends

The 1971 census has shown that of the total occupied dwellings in the Blue Mountains, 7.6 percent of the dwelling stock was comprised of flats. The Upper and Lower Mountains had proportions of 11.9 and 3.0 percent respectively, while the average proportion of flats in the Sydney Metropolitan Area was 25 percent.

A total of approximately 4.8 percent of the population lived in flats, the proportion varying from 7.9 percent in the Upper Mountains to 1.7 percent in the Lower Mountains. The relatively higher proportion in the Upper Mountains is largely due to the large numbers of aged persons in unit accommodation and guest houses which have been converted into flats. The highest proportions of over 10 percent were in Katoomba and Leura.

Medium density forms of housing including town houses, villa units and semi-detached dwellings accounted for 9.7 percent of housing stock, 14.9 percent in the Upper Mountains and 10 percent in the Lower Mountains. These figures compare with 33 percent for the Sydney Metropolitan Area as a whole.

TABLE B8

PROPORTIONAL DISTRIBUTION OF DWELLINGS BY CLASS

	Upper Mtns.	Lower Mtns.	Total	Metrop. Area
Separate Houses	83.5	95.2	89.1	65.6
Medium Density* (including flats)	14.9	4.1	9.7	33.7
Other	1.6	0.7	1.2	0.8
Flats**	11.9	3.0	7.6	25.2

Source : Australian Bureau of Statistics.

* Includes : semi-detached house, attached house, terrace or row house, villa unit or town house.

** Includes : self-contained flat and non self-contained flat.

Between 1954 and 1971, the proportion of flats increased from 11.7 percent of total housing in the Sydney Metropolitan Area to 25 percent, an average annual change of 0.8 percent. Indications are that this rate of change is likely to increase substantially. For example, the



proportion of flats built in 1971/72 in the metropolitan area was 49 percent. The comparative figure for the Blue Mountains was 3 percent.

This general increase in demand has occurred as a result of a change in life styles within a far more complex society than existed in the past. Changes have included:

- * A reduction in family size and rates of occupancy.
- * A growing dissatisfaction with the concept of the nuclear family structure and suburban living.
- * Higher land, building and service costs.
- * Increasing mobility of the population and increases in leisure and recreation time.
- * Desire by older and retired persons to avoid labour associated with a detached house.

These economic and social factors have contributed to the necessity to provide a greater range of housing types at varying densities.

3.2 The Need for a Variety of Housing Types in the Blue Mountains

The preceding section has shown that the demand for medium density development is likely to increase in the Blue Mountains. Unfortunately there are no reliable statistics available on the current demand for this type of accommodation. However, as a general planning principle, it is important that there is a range of housing types available in a community so that the varying accommodation needs of residents can be met as fully as possible.

3.2.1 Opposition to Medium Density Housing

Within the Blue Mountains community there has been a growing concern of the impacts of medium and high density housing developments. Table B10 shows the numbers of objections lodged against medium density zonings in the Exhibited Planning Scheme for the Blue Mountains.

Concerns of the residents of the Blue Mountains are, in general, consistent with wider community feelings in the Sydney Metropolitan Area which have included:

- * Opposition to the redevelopment of older and well established residential areas having renovation potential.
- * The general attitude of 'anti-developer' and opposition to the making of quick cash returns at the expense of the community and the natural environment.
- * The accelerated change of social and economic characteristics of the population as a result of migration, relocation and effects on established social networks.



TABLE B9

OBJECTIONS TO MEDIUM DENSITY ZONINGS IN THE
EXHIBITED SCHEME (AUGUST-DECEMBER 1973)

Upper and Central Mountains		Lower Mountains	
Mt. Victoria	14	Linden	Nil
Blackheath	3	Faulconbridge	65
Medlow Bath	Nil	Springwood	7
Katoomba	Nil	Valley Heights	Nil
Leura	6	Warrimoo	24
Wentworth Falls	4	Blaxland	74
Lawson	7	Glenbrook	25
Hazelbrook	11	Glenbrook (Assn.)	973
Woodford	1		
Blue Mountains generally	8		
	54		1,168

M.A.F.I.A. petition, Blaxland and Warrimoo - 2,147 signatures

More specifically, objections to the intrusion of medium density forms of development into detached housing areas are based on the fear that such developments would threaten existing life styles by:

- * Reduction of privacy
- * Overshadowing
- * Problems associated with the generation of additional traffic including noise pollution and safety
- * Generally affecting amenity and environment as a result of visual impact
- * Increasing property rates which may cause hardship or relocation

These are pertinent points and there are many examples throughout the Sydney Metropolitan Area where indiscriminate, poor quality medium density construction has reduced the residential amenity of an area. Because the quality of the natural environment in the Blue Mountains is one of the most important features of the City, special attention must be given to these questions.

3.2.2 Community Requirements for Medium Density Housing

Although adverse reactions to medium density development are understood, the problem still remains that there will be a demand for increased medium density accommodation in the City. A number of groups may be identified which particularly require this form of housing.



Aged Persons

The level of maintenance required for a detached dwelling becomes too great for a number of persons as they grow older and they are forced to look for alternative means of accommodation. In addition, they may no longer require large areas of living space - especially if they are living alone - and need only a small compact dwelling to serve their needs. Such persons may have become part of a local community and frequently prefer to remain in a locality where they have established friends, community living patterns, and perhaps have their family living close by. It is considered desirable that such persons have some alternative forms of accommodation to detached dwellings available to them rather than forcing a change in locality or binding them to a form of housing totally unsuited to their needs.

Young Married Couples and Young Single Persons

This group is particularly in need of a relatively cheap, compact form of housing requiring little maintenance. The present lack of this housing contributes to migration of young people out of the community - even if they would prefer to remain in the area.

Short Term Residents

A number of persons may live in a community for a short period of time and require only temporary accommodation. Medium density housing is often particularly suited to their needs and may discourage some persons from working in the locality if not provided. Such persons include school teachers, nurses, government officials, bank clerks etc. and other persons in the moving workforce in the Blue Mountains.

In addition to these specific groups, there are also financial aspects which should be considered. The cost of building in the Blue Mountains is relatively expensive because of the terrain and the travelling distances involved. Medium density development provides a cheaper alternative to the purchase of a detached dwelling, and, depending on the standard of design, can serve the needs of some persons just as adequately.

3.2.3 Alternative Forms of Medium Density Development

Because of the numerous examples of poor medium density development in the State of New South Wales generally, it is often assumed that this is the only form of development which may be expected. However, by the careful selection of sites and the use of stringent controls, it is possible to improve the



type of development constructed. In addition to the common three storey walk-up flat, there are a number of alternative forms of medium density development which should be considered as viable options, such as cluster housing, terraced housing and group housing. These forms of housing often provide greater opportunity for sympathetic integration with a natural environment and may be less dominant than detached dwelling forms.

3.2.4 Development Control

The Blue Mountains City Council has adopted two codes - one for "villa homes" and another for residential flat buildings. Although a reasonable development control is assured, it is considered that certain aspects could be improved and additional principles adopted along the lines suggested by the State Planning Authority Bulletin No. 3 'Planning Control of Residential Development.' Emphasis will need to be placed on the individual characteristics of areas in the Blue Mountains when formulating detailed controls so that optimum forms of development will be encouraged.



4. CONCLUSIONS ON EXISTING SITUATION

- 4.1 The outstanding feature of the growth of the City has been the City's ability to attract new population from elsewhere. This in-migration creates severe implications for the future planning of the area because the facilities and provisions required by these people are immediate. Where a population expands through natural increase there is a delay between births in the community and the demand for educational, cultural and social facilities. Planning for the Blue Mountains does not have the benefit of this delayed demand, the needs of specific groups in the community are immediate.
- 4.2 Because much of the in-migration into the Upper Mountains is in the post-retirement age group, and much of the Lower Mountains in-migration is in the 25-39 age group, particular emphasis must be placed on the demands of these people.
- 4.3 There are no adequate premises with comprehensive facilities available for aged people in the Upper Mountains area. Such facilities are seen as an essential means of reducing much loneliness and deprivation presently being endured.
- 4.4 The lack of established friendships and opportunities for social interaction has led to problems of isolation within young families relatively new to the Blue Mountains area. Because much of the residential development occurring in the City is in the Lower Mountains, there should be a particular concentration in this area, of suitable facilities such as adult education classes, child-minding centres, arts and crafts centres, meeting rooms, etc.
- 4.5 Because of out-migration occurring in the 15-19 age group and negligible in-migration in the 20-24 age group, there appears to be some dissatisfaction within these age groups with the facilities and lifestyle provided by the Blue Mountains. Such a situation is common to more rural environments, however, it is considered that a program for improved youth facilities should be given high priority. Although Council has already initiated a number of projects, further emphasis could be placed on indoor recreation rooms such as snooker rooms, arts and crafts centres and opportunities for informal gatherings. Sporting facilities appear reasonably comprehensive but many clubs lack adequate clubrooms and supportive facilities for social activities.
- 4.6 The necessity to commute long distances to work is a problem which faces all groups in the Blue Mountains. This may result in income-earners being away from their families for extended periods of time, a reduction in the time available for leisure and recreation, greater than average travelling costs and reduced opportunities for part-time employment.



- 4.7 Infrequent public transport services available in the Blue Mountains reduces the mobility of all groups within the community who are dependent on this transport. These problems are particularly emphasised at nights and on weekends when existing services are curtailed further, even though it is at these times that demand for transport services for recreation and social purposes are greatest. Attention could be given to special transport facilities to provide access to specific recreation areas such as the southern beaches, and in the evenings throughout the Blue Mountains.
- 4.8 There appears to be considerable opposition and conflict amongst the community with regard to the construction of medium density development in the Blue Mountains, but there is a need for an increased number of medium density dwellings in the Blue Mountains and this demand is likely to increase in the future. Although residential development codes have been adopted by the Blue Mountains City Council, it is considered that these could be improved in some aspects.



5. IDEAS ON FUTURE PLANNING ACTION

5.1 Planning for Community Facilities and Social Services

5.1.1 Council Involvement

Although there are a number of organizations providing social services and recreation to persons in the Blue Mountains generally, there is no overall coordination of these groups, and gaps in the levels of service being offered are apparent. For example, in Katoomba, although a small meals-on-wheels service operates in the area, there are no adequate facilities for more mobile and more numerous aged persons to visit for an inexpensive meal. Similarly, although Lions Clubs, Apex Clubs, Rotary Clubs, RSL Clubs etc. exist for adults, insufficient organizations or amenities appear to be available for the younger age groups.

Overall, there is insufficient social data for the Blue Mountains available. Previous sections have described certain problems that became evident after discussions with persons in the community, but there may well be other needs or problems which only are identifiable after more detailed study. An adequate data base is essential for future planning of social facilities so that energies can be carefully and precisely directed at specific areas in order to maximise results achieved. Past and present efforts to improve facilities provided have not been carried out within any clear overall framework for social planning, and it is suggested that this is a future key area for Council activity and intervention. The amount of responsibility accepted by Council to meet the social needs of persons in the Blue Mountains will need to be increased in order to achieve significant and worthwhile results.

5.1.2 Approach to the Problems

If Council was to assume the role of an administrator, carrying out the management and coordination of social services in the area, the first task would be to thoroughly investigate the existing situation. The numbers of persons of varying needs in the City would need to be ascertained, the existing services available to them, the suitability of those services, and other related variables studied to understand the current conditions. Once such data has been obtained it would then be possible to identify problems in detail and arrive at appropriate courses of action for their solution. With the establishment of a needs programme, Council would be in a strong position to make representations for financial assistance, and it is feasible that additional aid from both private and governmental agencies could be obtained.



The following table shows the facilities which presently exist in the Blue Mountains.

TABLE B10

EXISTING FACILITIES

User Group	Services Needed	Existing Provision
1. Young mothers & children	<ul style="list-style-type: none">* Ante & post natal consultation & advice* Infant (& mother) welfare consultation & advice* Child care centres* Kindergartens* Family Planning Clinic	<p>Only at Katoomba Hospital</p> <p>5</p> <p>No centre available, but some run by private individuals</p> <p>6</p> <p>Nil</p>
2. Primary School Children	<ul style="list-style-type: none">* Primary education* Playgroups, clubs (after school)* Play supervision	<p>19 State primary schools</p> <p>5 private schools</p> <p>No established organization but some by private individuals</p> <p>Some during holidays and some by private individuals but no centre available</p>
3. Youth (young single adults & secondary school children)	<ul style="list-style-type: none">* Secondary education* Sporting facilities* Clubs* Employment services	<p>2 State high schools</p> <p>2 private high schools</p> <p>1 technical college</p> <p>Appear reasonably adequate</p> <p>Limited</p> <p>Commonwealth Employment office (at Katoomba)</p>
4. Aged	<ul style="list-style-type: none">* Recreation* Education* Clubs	<p>Limited</p> <p>Nil</p> <p>Organizations formed but inadequate facilities for meetings etc.</p>
5. Young Married Persons & Others	<ul style="list-style-type: none">* Education* Recreation/Sporting Facilities* Family Planning clinics* Day Nurseries	<p>Classes at S'wood High School</p> <p>Appear reasonably adequate</p> <p>Nil</p> <p>Some day care by private individuals - no centre established</p>

Library facilities (at present being planned by the Blue Mountains City Council) would be utilized by all groups.



It is important that future social planning in the Blue Mountains results in not only greater provision of community services but community services which are the most responsive to the needs being catered for. There are important characteristics of the Blue Mountains locality which need to be paid particular attention when designing for future requirements, such as the spacing of small communities along the Great Western Highway, with very often poor levels of public transport between towns; the changing types of persons throughout the City (eg. Lower Mountains attracting large percentage of middle class professional persons); the weather conditions; and the varying levels of mobility amongst different age groups.

The influence that some of these characteristics may have on the optimum planning of future facilities depends on the user-group being served. For example, the provision of services for infant welfare and ante and post natal consultation and advice should be as accessible to young mothers as possible. Because of poor public transport available, and often poor mobility because of children, their immediate needs may best be met by mobile services, perhaps located in different primary schools on specific days of the week with a larger centre being provided in an area accessible on a wider basis and open for greater periods of time. No definite location principles can be stated except that of maximizing convenience, and each situation will need to be studied independently in order to provide the most adequate level of service. Similarly, the large numbers of aged persons in the Upper Mountains will have implications for library facilities being planned. It is essential that reading material suitable for such persons be provided for a maximum of enjoyment to be obtained.

Hence, when providing community facilities, success is totally dependent on the unique requirements of a specific group in a specific locality being satisfied and sufficient background data must be collected in order to ensure that resources will be utilized to the utmost.

In addition to the provision of facilities, the work of professionals skilled in community organization could be of particularly valuable assistance in the Blue Mountains, especially with regard to young people. Such persons join a community - their purpose not being made known - to assess the strength of various problems and formulate means of attacking them. For example, a community development officer may initiate the setting up of a coffee shop or particular club which could then be taken over and run by young people as one means of stimulating more activity in a particular locality.



A detailed investigation of conditions in the Blue Mountains will suggest a large number of future action areas for Council and the ideas described in this section are only a small part of an overall programme. The existence of a data bank at present being utilized by Council is an asset which should not be overlooked with regard to social planning. It is suggested that the inclusion of socio-economic data be investigated as a means of both examining existing conditions and monitoring the effects of future planning in the area.

Once a social planning programme has been developed, Council will be in a better position to guide development by government bodies and private enterprise in the area. In particular, it would be desirable if the Education Department and Council could work together in an effort to maximise benefit to the community as a whole rather than one sector in particular. Opportunities exist for the sharing of facilities, especially at night and during weekends, and combining other community facilities in close proximity to schools. Similarly, future building by the Housing Commission of New South Wales could be coordinated with future community facilities.

Hence, the acceptance of a new area of responsibility by Council in social planning is seen as the best means of improving existing community services in the Blue Mountains. This widening of role is not unique to the City of Blue Mountains but is becoming an increasingly common occurrence in many local government areas in New South Wales.

5.2 Planning for a Variety of Housing Types in the Blue Mountains

It is suggested that the problem of providing for medium density development in the Blue Mountains should be related to the characteristics of each particular locality. In this way, important environmental assets could be protected, yet a greater diversity of housing types could be made available to serve those persons at present being placed at a disadvantage. Each locality could be the subject of an action plan, where important features are identified and the most suitable forms of development for sites in this locality selected. Specific controls could be formulated to ensure that a good standard of development results and a careful selection of appropriate sites made. The situation may arise where it is found that some localities simply are not suitable at all for medium density development while others could absorb significant development without being detrimentally affected. Emphasis must be placed on the individuality of each particular locality.

The selection of areas or zones for medium and possibly high density development should take the following points into consideration.



Topography, Views and Quality of Existing Landscape

Terraced housing developments and cluster housing schemes are often particularly suitable for steep areas, for such building forms can take advantage of the natural environmental features. In addition, development can be concentrated on as little as 10% of the site area leaving large areas of communally owned natural open space. Generally, compactness, adaptability and versatility of these forms of housing offer wide scope for visually attractive and integrated landscape, in addition to providing a high quality living environment both from a convenience and aesthetic viewpoint.

Existing Physical Conditions and Homogeneity of Residential Areas

There are areas in the Blue Mountains where high environmental quality is dependent on low densities. On the other hand there are areas of old, poor quality and scattered housing where the environment would be enhanced by redevelopment. Medium density forms of housing are particularly suitable for areas requiring gradual or slight change.

Proximity to Town Centres, Shopping, Cultural and Transportation Facilities

The provision of medium and high density forms of residential development in close proximity to these facilities provides the opportunity for more efficient use of transportation systems and would certainly reduce the demand for commuter parking at railway stations. Increased population at such locations would encourage greater diversity and social integration and prevent centres becoming deserted at night. The concept of mixed uses ie. vertical separation of commercial, residential and tourist accommodation would also have similar advantages, although great care would need to be taken in the redevelopment of existing town centres. Such developments including high residential developments would require the preparation of specific and detailed three dimensional control plans. However, it would be emphasised that medium density development is suitable for a great variety of locations and need not be located predominantly in town centres.

Townscape and Urban Structure

One of the unique qualities of the Blue Mountains is the spatial patterns of development of the towns and hamlets. The towns are still relatively compact and separated both physically and visually by stretches of natural bushland. This sharp contrast between urban and rural is an important element to be maintained and possibly intensified. This is particularly true of the Upper Mountain towns.



At the same time, however, there currently exist opportunities to expand the populations of some of these towns to a size where they can support higher levels of service for commercial, community and cultural facilities. In order to maintain or increase the level of compactness, and to conserve areas of undeveloped land, it may be desirable to increase the intensity of residential development rather than permit urban sprawl and the coalescence of towns.

Hence, it is possible by careful planning and control to maximise the number of facilities being offered by the City. Medium density development and the preservation of environmental quality are not mutually exclusive elements but require detailed planning to ensure that an optimum relationship is ensured. It is Council's responsibility to determine what proportion of total dwelling stock should be composed of medium density housing.

TABLE B11

SELECTED FACILITIES ESTIMATED FOR ALTERNATIVE FUTURES

Facility	S T R A T E G Y														
	1			2			3			4			5		
	Upper Mtns. (22,500)	Lower Mtns. (24,800)	Total (47,000)	Upper Mtns. (31,300)	Lower Mtns. (33,600)	Total (64,900)	Upper Mtns. (67,400)	Lower Mtns. (45,000)	Total (112,000)	Upper Mtns. (103,600)	Lower Mtns. (69,500)	Total (173,100)	Upper Mtns. (143,100)	Lower Mtns. (131,700)	Total (274,800)
<u>Health</u>															
Community Health Centres	3	3	6	4	4	8	8	5	13	13	9	22	18	16	34
Area Health Centres	-	-	-	1	1	2	2	1	3	3	2	5	3	3	6
Regional Hospitals	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
<u>Education</u>															
State Primary Schools	3	4	7	5	5	10	10	6	16	16	7	23	21	20	41
State High Schools	2	2	4	2	2	4	5	3	8	7	5	12	10	9	19
Technical Schools	-	-	-	-	-	-	-	1	1	1	1	2	1	1	2



6. THE IMPLICATIONS OF ALTERNATIVE FUTURES

6.1 The Blue Mountains Community

A number of factors make it impossible to formulate detailed and comprehensive predictions on the implications of the alternative futures on the community structure of the Blue Mountains. Firstly, there is insufficient data at present available to give a full picture of existing conditions in the City. There may be problems existing which have not been identified and quantification of existing problem areas have not been possible in any detail. Secondly, population structure is dependent on a large number of external variables and it is only in the broadest terms that the effects of population growth on different groups in the community and the necessary provision of services can be assessed. Thirdly, the relative and proportional distribution of groups within the Blue Mountains is difficult to predict with any certainty, yet such characteristics directly determine the types of social services required and contribute to the effects of growth, therefore only broad estimates of need can be suggested. These difficulties lead to the evaluation of implications of alternative futures to be of a general nature, broad trends likely to be experienced rather than specific results being identified.

Standards on the provision of social facilities related to population need are a crude measure of the implications of the five futures. Such standards look at effects only in terms of physical provision of facilities with no regard to broader considerations such as greater opportunities for social mix, changes in the present structure and balance of the population etc. which are likely to occur as the population increases in the Blue Mountains. However, the numbers of services required may assist in conceptualizing the various futures in terms of size and may serve to provide a greater understanding of the magnitude of the choices involved. For this reason, some key community services that will be required under each future have been selected and present in the following table. The health facilities bear further explanation, as a three-tiered health service support system for a region is being encouraged by the New South Wales Department of Health. Such systems have already been adopted by the Municipalities of Fairfield and Blacktown and by Penrith.

The first tier would comprise a primary community health care centre, supported by local doctors and community nurses. Such a centre would provide services such as anti and post natal care, family planning, and baby health care. Such a centre would serve a population of 5,000-10,000 and would require an area of some 2,000-3,000 sq. ft.

Attached to these community health centres would be area health service centres and these would provide special paramedical facilities such as mental health services, child welfare and advice



and physiotherapy services. Populations of between 30,000 and 60,000 would be served by such a centre involving an area of some 7,000-10,000 sq. ft.

A regional hospital would comprise the third tier of the structure.

The broad implications of alternative futures can also be looked at in terms of effects on different groups in the community. Many of the problems occurring at present relate to the fairly small population contained in the Blue Mountains City area, and the effects of increasing population on the main groups in the community will be outlined.

6.1.1 The Aged

As population increases, the high proportion of aged persons in the Upper Mountains may decline to some extent unless the present high levels of in-migration are maintained. Although significant numbers of persons in this group are likely to continue under futures 1, 2 and 3, it is considered that by the time population capacities of futures 4 and 5 are reached that a greater balance of population age groups will occur. However, this prediction excludes external factors which may influence population structure such as a major retirement village being created.

With increasing population it is expected that public transport would be improved and aged persons would benefit particularly from having greater opportunities for movement. Similarly, the range of educational, entertainment and cultural facilities would increase and hence a greater number of activities may become available to this group than previously, especially with regard to futures 4 and 5.

6.1.2 Youth

It is expected that the present out-migration of young people in the Blue Mountains will decline as greater total populations for the area are reached. A greater number of social, recreational and cultural facilities will develop, and hence a wider range of activities for young people will become available. More suitable housing for young single and young married persons is also likely to be constructed as total population levels increase (eg. more flats, group houses etc.). Local employment opportunities will improve as population levels increase. However, the draw of a new living environment (eg. Sydney) away from childhood and family environment will always be present to some extent.



Future 5 is likely to offer the greatest employment opportunities and diversity of life style to young people in the area for the Blue Mountains would be in a position to offer many facilities which, at present, are only provided in the Sydney Metropolitan Area.

Transport facilities will improve as population levels increase and young people will benefit particularly from having present mobility opportunities improved. Also, larger shopping centres offering a greater variety of goods, especially clothing, will be another attraction.

6.1.3 Other Groups

Depending on the reasons prompting persons to live in the Blue Mountains, there are both advantages and disadvantages associated with greater population levels within the City. The small community, village atmosphere characteristics which presently exist in some areas are likely to be reduced as population approaches Future 5, although at a detailed planning stage, this could be controlled in selected areas if considered desirable. Commuting, isolation and transport problems are likely to be reduced and improved educational, recreation and cultural opportunities are likely to occur. Futures 4 and 5 offer the best opportunities for diversity of life styles and Futures 1, 2 and to a certain extent, 3 tend to preserve the smaller community, village type of living environment.

6.2 The Provision of a Variety of Housing Types in the Blue Mountains

Although it has been suggested that an increase in demand for a variety of housing types is likely to occur, even with a small increase in population, predictions must be related to the diversity of population living in the Blue Mountains. As the numbers of persons particularly in need of medium density housing increase, groups and individuals responding to market pressures for increased development will wish to meet this demand. It is considered that Council has an obligation to provide for the needs for as many persons in the community as possible, and provisions for medium density housing will need to be made.

Table B.11 shows estimated numbers of population which could be accommodated in medium density housing under each alternative future. It should be noted that development of zones to a maximum capacity has been assumed under futures 4 and 5.



6.2.1 Futures 1, 2 and 3

These alternative futures do not foster any further medium and high density development in the Blue Mountains. Since the demand for medium density housing increases as population levels and diversity increase, present demands and future expected demands for this form of accommodation could not be met. The need would be the strongest under Future 3, where greatest diversity of population of the three futures is likely to occur (total population 107,800) and severe problems are likely to arise. Although the number of detached dwellings would increase under each future, the proportion of medium density accommodation in the total housing stock available would decline with each succeeding future for it would remain virtually at the provision existing at present.

Such a situation would heavily discriminate against groups requiring this form of accommodation (eg. aged, young single persons, young married couples etc.) who would be increasing in number as population growth occurred under each future. Living in unsuitable accommodation or migrating out of the area would be the only two alternatives open to such persons, with resulting population imbalances occurring in the population structure of the Blue Mountains generally. It is unlikely that such a situation would be able to result as the strict application of an anti-medium density policy would have great repercussions on the quality of life of persons in the Blue Mountains - especially under Future 3. The imbalance occurring between provision in the Upper and Lower Mountains is undesirable - problems created by the overall deficiency in supply would be particularly severe in the Lower Mountains.

6.2.2 Future 4

The population capacity provided by this future approaches a doubling of capacity under future 3, but under the Exhibited Scheme, provision is made for medium density development. Of the total acreage for housing, 10,300 is allocated for detached dwellings and 1,300 for medium density development. The acreage allocated for medium density development is that allowed solely by the Exhibited Scheme and does not include any modifications made by Council.

Taking into consideration current standards and regulations being used by Council, a mean gross density of 40 persons per acre was assumed as a reasonable estimate of occupancy for medium density zones. This means that a total population of 124,100 is likely to be housed in low density accommodation and 52,420 in medium density accommodation (approximately

TABLE B11

ESTIMATED POPULATION ACCOMMODATED IN MEDIUM DENSITY HOUSING UNDER EACH ALTERNATIVE FUTURE

Future	1		2		3		4		5	
	No.	% of Total Pop.	No.	% of Total Pop.	No.	% of Total Pop.	No.	% of Total Pop.	No.	% of Total Pop.
Upper Mountains	1960	8.7	1960	6.3	1960	2.9	38,000	36.7	38,000	26.6
Lower Mountains	470	1.9	470	1.4	470	1.0	14,000	20.1	14,000	10.6
Total City	2430	5.2	2430	3.7	2430	2.1	52,000	30.0	52,000	18.9



30% of the total population). In contrast to the implications of alternative futures 1, 2 and 3, this is considered too high. The proportion of persons living in flats in the Sydney Metropolitan Area is 15% which serves a far greater area of demand for medium and high density housing than the Blue Mountains, and it appears that the areas set aside may be too large when compared to the population needing to be served.

The oversupply is particularly evident in the Upper Mountains where medium density zonings could accommodate 36.7% of the population in this area, whereas in the Lower Mountains, 20.1% could be accommodated in medium density housing. Overall, the situation will need much further detailed study and could be a worthwhile subject for an action plan.

6.2.3 Future 5

Although the area devoted to medium density development is the same as that in future 4, additional land is made available for low density development. In this situation, the proportion of persons living in medium density development is expected to be approximately 19% of the total population which, although still high, appears to be a more reasonable figure, especially when viewed in the long term when medium density living is expected to increase generally. The growth rate for this form of housing construction for the Sydney Metropolitan Area bears out this expectation, showing an increasing proportion of medium density dwellings being constructed.

However, once again imbalance between provision in the Upper and Lower Mountains is a problem. Medium density zonings in the Upper Mountains have capacity to contain 26.6% of the population in the Upper Mountains, which appears to be too high when compared with averages for the Sydney Metropolitan Area. In contrast, capacity in the Lower Mountains is limited to only 10.6% of the population in this area. Although the ability of each locality to provide medium density zoning should be examined individually, there appears to be an excessive imbalance between the areas and further study of the problem is needed.

6.2.4 Conclusions

From the preceding analysis of implications of the Alternatives, the following points emerge:

- * Preventing any further medium density development under futures 1, 2 and 3 is likely to cause severe problems and certain groups in the community will be heavily discriminated against.



- * In order to retain the population levels proposed in each future and provide medium density development, areas permitted for detached dwellings would need to be reduced in futures 1, 2 and 3.
- * The implications of future 4 show unrealistic acreages being reserved for medium density development imbalances between the Upper and Lower Mountains and that further more detailed research is desirable.
- * Future 5 appears to offer a reasonable opportunity for medium density development to be provided, but imbalance between provision in the Upper and Lower Mountains requires further investigation.
- * More detailed study on medium density development for the City as a whole is required. Development and performance codes, land suitability, comparisons with other localities, estimation of need etc. are all areas which should be investigated in greater detail. This would be a worthwhile area for an action plan.



TECHNICAL ANALYSIS 'C'

TOURISM

1. EXISTING DEVELOPMENTS, TRENDS AND PROBLEMS
 - 1.1 Introduction
 - 1.2 Regional Context : The Role of the Blue Mountains in Terms of Tourism
 - 1.3 Recent Development Trends in Tourism within the Blue Mountains
 - 1.4 Evaluation of Blue Mountains Tourist Survey
2. TOURIST POTENTIAL AND IMPLICATIONS OF ALTERNATIVES
 - 2.1 Overall Potential
 - 2.2 Tourism as a General Goal
 - 2.3 Implications of Alternative Futures for Tourism
3. ACTION PLAN PROGRAMME

APPENDICES

- I Easter 1974 Tourist Survey Questionnaire
- II Inventory of Tourist Accommodation 1968
- III Inventory of Tourist Accommodation 1974



1. EXISTING DEVELOPMENTS, TRENDS AND PROBLEMS

1.1 Introduction

Although in its earliest stages, the Blue Mountains development related very much to its role as an intermediate link on the east-west transport corridor and as a source of minerals, its subsequent urbanization has been largely a manifestation of its popularity as a tourist and recreation centre. Its natural resources of magnificent scenery and invigorating climate replaced mineral resources as the major stimulus for urbanization within the region.

As the role of the region in general became more tourism/recreation oriented, so the linkage of the Blue Mountains to Sydney became more significant in terms of the volumes of people desirous of travelling to and from the Region. With the introduction of rail through the Mountains, the role of the region in general and more particularly the major centres in the Upper Blue Mountains such as Katoomba, Leura and Blackheath as foci for tourism became firmly established. Throughout the whole period of the Blue Mountains development, the nature and characteristics of tourism have always been, in large measure, functions of the level of accessibility to the region.

When rail was the major transport mode by which people visited and stayed within the region, accommodation facilities took the form of guest houses, long term lodging, and convalescent homes. In terms of psychological distance, the Blue Mountains has traditionally been much further away from Sydney than it is now.

With improvements and rationalizations to the road and rail links from the Sydney Metropolitan area to the region, and the westward growth and spread of the metropolitan area itself, the stimulus to urbanization in the Blue Mountains in general and to tourism in particular has increased. As the level of accessibility increased relative to the growing city population, so the demand for access to the region's natural resources and attractions increased. The characteristics of the tourism phenomenon as it affects the Blue Mountains has changed significantly. The major result of increased mobility and improvements to transport, together with general improvements in accessibility through the major corridor, has been to substantially reduce the initial isolation/remoteness of the Blue Mountains and to more effectively enmesh and integrate the whole region into the expanding metropolitan area of Sydney. The earlier tourist role as an isolated mountain retreat within major wilderness areas has, to a large extent, been superseded.



It is also significant that the role of climate as a determinant of the region's attractive power for tourism has been reduced. The function of the Blue Mountains as a remote 'hill station' with a healthy mountain climate has declined due to general changes in recreation patterns and demands. The demand for water-based recreation has increased dramatically in recent years. What water resources the Blue Mountains does have are limited and for the most part inaccessible.

With increases in the residential population within the region, more particularly in the Lower Blue Mountains, the areas natural resources and open spaces have come to be increasingly utilized by the resident recreationalist.

Tourism is essentially a sequence of visits by various people to various destinations. It is important at the outset to make clear the distinction between the tourist and the recreationalist.

In general, the tourist is someone who is travelling into the study area away from his residence; it is convenient to divide tourists into three distinct categories - those travelling for pleasure, those travelling on business and those travelling to attend a conference. The motivations and growth rates for each category are different; so are their travel patterns and spending habits. In the context of this study, the tourist industry refers to the provision of accommodation, food, recreation and scenic services for overseas, interstate and domestic travellers.

The 'recreationalist' can be defined as a resident of the local community who is utilizing the open spaces, recreational resources and cultural amenities available within the city region. In the Blue Mountains City region, the tourist activity system with its metropolitan, intra and inter-state catchment, and the more localized recreation activity system have points of overlap which can potentially generate conflict in terms of residential and tourist needs. This can be seen clearly for example in looking at the pattern of usage in golf clubs in the area. This particular recreation resource is now used at least as much by metropolitan visitors as by the residents of the area themselves.

1.2 Regional Context : The Role of the Blue Mountains in terms of Tourism

The Blue Mountains is strategically situated on the western perimeter of the Sydney Region. Much urban development within the region has crystallized around the major east-west transport corridor from Sydney through to the western tablelands and plains. This urbanised corridor is wedged in between large tracts of wilderness comprised largely of the National Parks which, on the eastern side, abut the Nepean-Hawkesbury River system. The area as a whole is particularly well endowed with magnificent natural scenic resources.



There are a number of major regional considerations which need to be identified because of their significance in the future with regard to tourism and recreation within the City of the Blue Mountains area. These are as follows:-

- * Within the context of the Sydney Region Outline Plan the major sectors of future metropolitan population growth will be focussed on the western corridor in the Cumberland Plain. The locus of population is moving steadily westwards from the traditional city centre. This western sector, comprising the area west of Parramatta, is regarded as being a priority sector for further urban development. The Cumberland Plain, in contrast to the Blue Mountains, is poorly endowed with recreational resources. In consequence, it is reasonable to expect much greater pressure on the Blue Mountains for the active and passive recreation needs of the future metropolitan population in the western sector.
- * The water-based recreational facilities and attractions of the Nepean-Hawkesbury system and its foreshores will similarly come under greater pressure to meet the recreational demands of the increasing metropolitan population.
- * Given a much greater level of investment in communications and public utilities through the major east-west corridor to the future Bathurst-Orange growth centre, the accessibility levels of most of the major tourist and recreation foci within the Blue Mountains region will be substantially increased. The whole history of the development, growth and change in the tourist activity systems within the region have in large measure been moulded and determined by the changes in accessibility levels. In terms of time, the region is much closer to, and more enmeshed in, the total metropolitan/urban system.
- * The future population growth within the Blue Mountains region itself as a sector within the whole of the Sydney Region will place more localized demands on the area's open space and recreational resources by the resident/recreationalist.

In conclusion, it seems that in general terms, the role of the Blue Mountains as a tourist/leisure region will be reinforced. The metropolitan population growth in the western sector will increase greatly. For a great deal of the future metropolitan population, the accessibility to the coastal recreation resources of the Sydney Region will diminish whilst accessibility to the Blue Mountains region immediately to the west will increase. The



main source of pressure and increased demand for the utilization of the Blue Mountains recreation resources will increasingly tend to be the metropolitan population in the western sector. The metropolitan day-tripper/tourist will tend to predominate in the tourist 'scene'. The demands upon the region's recreation resources in the form of local open space for active and passive recreation by future residents will also tend to increase in differing degrees relative to future population thresholds. Should the proposals for building up a large population at Bathurst/Orange come to fruition, further pressures might be expected from this direction also.

1.3 Recent Development Trends in Tourism within the Blue Mountains Region

1.3.1 Day Tripping and Driving for Pleasure.

As the evaluation of the Easter Visitor Survey shows (see Section C.1.4) the great majority of those who visit the Blue Mountains area, particularly in peak periods and weekends, do so for very short-term day-trip sightseeing purposes only. This new trend in visitation patterns generates a number of problems. These relate very much to the ways in which, and the degree to which, these visitors are utilizing the city region as a whole. They can be summarized as follows:

- * The expenditure profile of the majority of this type of visitor is very low. They spend very little within the area and consequently contribute very little to the economic base of the city.
- * By virtue of their mobility they pose a problem for the city region as a whole. They utilize many sections of the street network, creating congestion at certain focal points and increasingly tend to penetrate into the quieter residential districts in the area. This leads to a greater degree of tourist/resident conflict.
- * They pose an increasing problem in terms of pollution, litter, etc.
- * As a result of this visitation trend, new, man-made tourist attractions have tended to follow, locating fairly randomly throughout the Blue Mountains. These new attractions, in their turn, generate their own problems which will be discussed more fully in section 1.3.2.

In general, it can be said that this relatively new phenomenon of sightseeing, day-tripping and driving-for-pleasure will increase in intensity in the short-term future with increases in metropolitan population in the western sectors of the



Cumberland Plain. In this context action policies to deal with the problems of managing, guiding and controlling these increasing numbers of mobile, transient visitors need to be formulated, irrespective of which alternative growth strategy is selected. These can be summarized as follows:

Policies of Encouraging Greater Expenditure

In order to provide a greater opportunity for these visitors to spend more whilst travelling within the area, a greater range of facilities/amenities could be introduced at tourist-intensive locations. Utilization of these facilities/amenities would be at cost to the visitor.

Policies of Management and Maintenance

With an increasing influx of this type of visitor, the management and maintenance problems of those areas and locations within the city utilized by them will also increase. The associated costs will also increase.

Policies of Guidance and Control

At present, the city region as a whole absorbs in varying degrees this type of visitor. Guidance and control of the movement patterns of day-trippers will become increasingly necessary. Through policies of promoting certain selected areas (the Eastern Escarpment for example), the current pressures on residential areas and the indiscriminate penetration thereof, could be eased. By improving accessibility to certain points, introduction of extra cliff drives, appropriate publicity and signing, the use of such selected areas would be encouraged.

1.3.2 New Attractions

With increases in automobility and the greater accessibility to the region and consequently greater visitor volumes in recent years, significant changes in the type of tourist facilities and attractions have emerged. Entirely new types of unique commercial tourist attractions and leisure experiences have been developed. Such new man-made attractions rely more on the uniqueness of the leisure experience offered rather than the natural scenic resources



of the region which tend to function merely as a backdrop to the attraction in most cases. These new types of "artificial" attractions are a distinct break from the natural resource attractions upon which tourism in the Blue Mountains has traditionally been based.

The pressures to introduce more of these types of attractions such as lion parks, bird sanctuaries, miniature train rides etc. have increased in recent years. Some have been developed without any planning framework or clearly stated tourism policy guidelines. The increase in their incidence indicates new trends in tourism and tourist attractions in general. Man-made commercial attractions are tending increasingly to locate in regions well endowed with natural scenic resources. This may be a general expression of increasing preference for man-made over natural attractions. Given an increase in the development of such attractions, they will pose a problem in terms of development control without such policy guidelines. It will require positive development control policies rather than a negative regulatory approach. These new types of tourist attractions are generating the following types of planning problems:

- * Locational problems - particularly in relation to existing residential areas, the amenity of which could be seriously eroded. By their very nature, many of these developments are intrusive, used almost solely by non-residents and in consequence require very sensitive guidance in terms of their siting, or, alternatively, policies of complete exclusion from residential areas. Some of these attractions necessarily have unique locational requirements in terms of terrain, water, etc. and each needs to be judged on its own merits.
- * Space consumption problems - many of these new tourist attractions can be quite unpredictable in terms of the requirements. Some can be quite extensive (Deer Parks, lion parks, bird sanctuaries, etc.) and others not so. In the context of the higher growth strategies, the competition for limited space resources between residential uses in particular and tourist attractions could be exacerbated.
- * Environmental problems - many of these new types of attractions can have potentially serious impacts on the environment, generating certain types of pollution which could cause serious ecological imbalance, particularly in the type of terrain/landscape found in this region. Some examples of environmental deterioration due to the introduction of attractions are in evidence (the Deer park at Wentworth Falls is a case in point).



- * Traffic generation problems - many, if not most of these tourist attractions are oriented to the day-tripper/coach tour/motorized tourist. To the extent that such developments are successful tourist attractors, they can generate a substantial amount of extraneous traffic and consequent congestion and noise pollution, particularly at peak periods of the year. This can have serious implications for the street networks within which the attractions are located. This can further erode residential amenity and further exacerbate the tourist/resident conflict. They also require large parking facilities which, in many cases, cannot be satisfactorily introduced into the immediate area.
- * Visual/aesthetic problems - many artificial attractions tend to be visually and aesthetically unsympathetic in relation to their surroundings. Gross conspicuousness of such developments can be detrimental to the fabric of residential areas. New attractions being offered on privately owned rural land within the region pose similar problems in visual and environmental terms. The effects of adding man-made structures and artifacts to areas of fine visual quality (eg. Megalong Valley) in the Blue Mountains are of critical importance. The following factors should be considered in regard to controlling the addition of all new structures and objects related to tourism - location in sympathy to the natural environment, scale, colour and form in sympathetic relation to topography and landscape, appropriate materials, signs and hoardings.

In conclusion, the cumulative effects of such new attractions in aggregate can have damaging consequences for the area. There is a general need to formulate a classification of man-made tourist attractions by type according to such criteria as traffic generation, parking requirements, environmental and visual impact. A coherent attack is needed on the problems of tourist-activity location within the context of a general management plan for tourist activities. Location policies are required which will positively encourage the clustering/concentration of man-made attractions by different types in certain selected areas best suited to absorb these types of development. The process whereby a number of new attractions are developed through appeals against Council is due in large measure to the absence of positive guidelines and controls. Opportunities do exist to locate clusters of attractions in certain non-urban areas which are suitable and could absorb them without erosion of visual and environmental amenity. The need for these sorts of policies and controls becomes even more important in the context of conservation-based growth strategies.



1.3.3 Tourist Roads

To date there has been little development in the provision of roads specifically oriented to tourist, day-tripper use from which to view the magnificent natural attractions in the region. The Bells Line of road partly fulfills this function as well as being an alternative east-west link through the Mountains. The Cliff Drive in Katoomba, Leura, Wentworth Falls is the best existing example of this type of road and is intensively used, forming a part of the regular route of most coach tours. The Megalong Valley road is another example though less intensively used. There are a number of areas which are potentially suitable for the introduction of further tourist roads of the Cliff Drive type, namely north and south of Wentworth Falls, Leura, south of Mount Victoria near the Kanimbla Valley. Another possibility would be to introduce a tourist road on the Eastern Escarpment linking the Hawkesbury Lookout to Yellow Rock Lookout and, across Fitzgerald's Creek to Glenbrook. This would provide another alternative circular tourist route on the eastern perimeter of the City, in close proximity to the western sectors of the Metropolitan area. If this link were introduced together with a sufficient range and depth of tourist facilities along the route, its use by visitors could, to some extent, discourage their further penetration into the Upper Blue Mountains area.

There are a number of other existing unclassified roads through the major wilderness areas to the south of the corridor which, at present, are only partially sealed thus limiting access. They are (1) the road through the National Park, linking Glenbrook to Woodford, (2) the road to Narrow Neck and (3) the road from Wentworth Falls to the Warragamba Dam, along the Kings Tableland which is 28 miles in extent. There is also Mt. Wilson Road to the north of the Bell Road, 20 miles long and sealed.

These existing roads through the wilderness areas could be upgraded and their use encouraged.

There are other areas adjacent to the Blue Mountains, Colo Shire for example, that have similar potential for the extension and promotion of tourist roads.



1.3.4 Current Subdivision Patterns and Tourism

Major natural elements which are an integral part of the Blue Mountains such as the Megalong Valley where there is a non-urban zoning, 300 acre minimum subdivision require close consideration in terms of tourism/recreation potential. At present, this area is predominantly characterized by normal farming activities and both passive and active recreation usage. Recently, pressures to introduce man-made tourist attractions have emerged. Such major natural elements which are visually and environmentally significant require close assessment in terms of what types of activity in general, and tourism/recreation in particular, should be promoted.

There are other areas within the City which are presently subdivided and completely surrounded by wilderness areas. These are Mount Wilson, Mount Tomah and Mount Irvine. These areas have considerable tourist potential and could absorb tourist facilities. The cumulative effect of large subdivisions is damaging to this potential. At present, such areas can only develop in the form of low density suburban sprawl which in this context, would be quite detrimental to their unique environment.

These areas should be regarded as critical development areas within the city in terms of tourism and recreation, and should receive close planning consideration to ensure that the scenic quality and recreation potential of such areas are not destroyed by unwise subdivision or development. It would be recommended that these sub-areas be the subject of more detailed environmental study and action planning work in order to firstly identify their roles, problems and potentialities within the context of the particular growth strategy opted for in the region as a whole, and secondly to carefully prepare detailed Development Control Plans.

1.3.5 Accommodation Trends

Since 1972, there has been somewhat of a boom in the provision of tourist accommodation. The general future in terms of occupancies provided in the 1972 NSW Department of Tourism based on data collection carried out in 1969 has changed significantly in the interim period. With substantial improvements in accessibility from Sydney to the Blue Mountains, the stimulus to develop accommodation facilities has increased. See Appendices II and III.



In the last few years, a number of major motels have been built, in some cases incorporating separate convention facilities. The two major motels at Leura capture most of the medium-sized convention market due to extensive publicity and high standards in terms of facilities/accommodation.

The annual average occupancy rate for motels in the upper Blue Mountains (Blackheath-Katoomba-Leura) is about 65%. In general, this recent development in large motels is an expression of a move away from the older type of 'full board' service offered by such establishments as the Carrington at Katoomba and the Hydro Majestic at Medlow Bath. Such operations require large staffs, with high associated costs in terms of maintenance, wages, etc.

Some of the older motels such as the Three Sisters/Echo Point Motels have recently added more suites and licensed restaurants. With the advent of more recent motels, and a greater spread thereof throughout the Upper Mountains area in particular, the accommodation industry has become more competitive.

With the completion of the major western freeway to the foot of the Mountains and the associated increase in accessibility levels bringing the whole area closer to Sydney, the demand for the more transient type of bed/breakfast accommodation has increased in contrast to the more permanent full board/holiday-type facility. Thus, the recent stimulus in tourist accommodation development in 1972-73 saw a substantial increase in the total provision of rooms with an increasingly competitive situation as a result. New motels were built and existing ones increased both their capacity and their range of facilities in order to retain their earlier high annual average occupancy rates.

There is a greater spread of motels in response to increases in the demand for short-term/weekend/overnight accommodation related to specific recreation purposes such as golf, bushwalking, etc. This type of demand focuses on weekends throughout the year and peak tourist periods.

Demand during the week generally and in off-peak periods is at best stable, at worst, falling off due to higher tariffs etc. This factor is significant in terms of the traveller trade which tends to avoid high-tariff accommodation. With the exception of the major motels with convention facilities such as the Leura, Everglades and Alpine which have the highest tariffs, the average tariff structure over the whole area is fairly even. Due to high initial construction costs and high operational costs (wages/food, etc.), tariffs in the area are constantly on the increase. Relatively high wages for motel staff are having a deleterious effect on



other tourist facilities in the area such as restaurants, some of which are now being leased out. Labour in this area, though not in abundance, is not an endemic problem for motel operations and is generally available throughout the year; labour is now on a casual/part-time basis rather than employing permanent staff, largely due to the high award wages.

In larger operations such as the Hydro Majestic in outer areas which requires a large staff, labour is a chronic problem however.

There is a clear pattern expressed in the location of new accommodation facilities in recent years. There are two basic categories - highway-oriented accommodation and resource-oriented accommodation. The latter usually are larger operations offering a greater range of facilities with higher tariffs. They have tended to locate in prime residential areas near major wilderness areas which offer magnificent scenic views, etc. They have been generally built to high design standards with landscaping and, in consequence, have not caused any erosion of residential amenity. The highway-oriented operations are generally cheaper, offer less facilities and tend to capture more of the traveller trade.

On these current trends, it can be expected that the demand for this type of accommodation will increase in the short-term future, irrespective of the alternative futures posed.

Because of this it will become increasingly important to foresee and anticipate such developments and form a broad management plan to give guidance, control and positive encouragement to this tourist accommodation development.

In similar fashion to the recent growth in the number of tourist attractions, a number of problems requiring such planning guidance can be foreshadowed. These can be briefly identified as follows:

- * Siting problems - The siting of these accommodation facilities is one facet of tourist accommodation development that is already emerging as a problem and will become exacerbated with further urban growth. Indiscriminate location and distribution of tourism accommodation throughout the area can potentially lead to traffic generation and noise problems which could be quite detrimental to residential amenity. A recent application for a major motel in Blackheath is a case in point.



- * Space consumption problems similar to those related to tourist attractions. This will be a problem of greater significance in terms of the alternative futures posed.
- * Environmental impact problems - indiscriminate and uncontrolled siting can potentially lead to serious effects on the natural environment which is quite fragile in many areas of the Blue Mountains.
- * Architectural and visual problems - the architectural and visual standards of tourist accommodation require close consideration. These aspects are an important contributor to the 'image' of the Blue Mountains and as such should be controlled on the basis of high standards. The promotion and encouragement of high standard accommodation is also important in economic terms; demand for high standard accommodation at higher tariffs in the Blue Mountains is increasing and greater than that for lower standard accommodation.

In conclusion, it is important for Council to anticipate the increased demand for accommodation and the problems that will emerge as a consequence. There is a need to formulate policies for the guidance, control and management of new developments and to focus on suitable potential accommodation areas within the City where this form of development can be positively encouraged to locate. Closest consideration should be given to those areas which can offer sites for accommodation for example areas near the major golf clubs at Katoomba and Leura. Such areas are designated for these purposes implicitly in the 1973 exhibited Planning Scheme. It would be recommended however, that this be the subject of detailed and comprehensive investigation.

1.3.6 State and Commonwealth Aid for Tourism

The State Government has approved the preparation of legislation which would levy a $2\frac{1}{2}\%$ bed tax on public accommodation in the State. The funds so raised will be used to help establish a Tourist Development Assistance Fund rather than go into consolidated revenue. The State will contribute to the Fund on a one-for-two basis. The legislation is likely to go into effect early in 1975. The money collected will be spent in the region from which it came. The Government contribution could be spent in areas where it ^{saw} a particular need. It is expected that money from the Fund would be spent for the most part on tourist attractions and projects, as well as assisting tourist accommodation. The proposed legislation includes provision for a Tourist Development Advisory Board, comprising members from within the tourist industry as well as Government. The Advisory Board, directly responsible to the Tourism Minister, will have the major function of sifting applications for development assistance from the regions and make recommendations.



At the Commonwealth level, there have been recent developments which could lead to direct federal/local involvement in the tourist industry, with a view to making the travel industry as a whole more viable. A recent joint submission* to the Commonwealth Government by the Australian National Travel Association and the Australian Tourist Commission sought to clarify ways in which the Government could assist the Australian travel industry to expand in response to demand and to compete more effectively with alternative destinations abroad. One of its basic recommendations is to create a fund to provide financial assistance by way of grants to public sector developments, and loans and mortgage guarantee insurance to facilitate private sector investment. It seeks the establishment of a Tourist Development Fund, incorporating and expanding the scheme of Commonwealth Financial Assistance and would provide grants for public sector developments by the States and local governments. The report suggests the benefits to be derived through the stimulation of both public and private sector investment, the upgrading of tourist plant and the creation of a more viable tourist industry. These developments are of great importance in the context of the Blue Mountains. In terms of the private sector, it will improve the industries capacity to provide the needed tourist facilities and attractions required by domestic, interstate and international visitors. It will also assist in providing local government with the stimulus to act as catalyst in fostering tourism by augmenting their economic resources. This possibility should receive close consideration by Council. A comprehensive investigation should be undergone by Council to establish ways and means of establishing public sector involvement in stimulating tourism, particularly in areas where Council is a major landowner and a potential shareholder.

1.3.7 Major Tourist Accommodation Facilities

In recent years there have also been new pressures to introduce major accommodation facilities in the form of international hotels/motels. One such complex was considered for Blackheath. This area is particularly suitable for such a major complex in view of its proximity to the only airport in the region, and the magnificent scenic views this area

* "Specific Incentives for the Tourist Industry" : Joint submission to the Minister of Tourism and Recreation by the Australian Tourist Commission and the Australian National Travel Association, May 1973.



affords from the plateau over the valleys and gorges adjacent. It is important for Council to foresee and anticipate the possibility of this new more intensive type of tourist development forthcoming in areas in the upper Mountains like Blackheath, and Mount Wilson. Overseas experience suggests that this type of high standard accommodation is tending to locate in such highly desirable natural areas. The New Zealand experience of this type of development is noteworthy in this respect.

1.3.8 Tourism as Employment Source

The following table gives an indication of the current situation in terms of the degree to which the current population in the Blue Mountains is employed in tourist/recreation and entertainment activities.

TABLE C1

	Numbers Employed	Total Workforce	% Workforce	Area
UPPER BLUE MOUNTAINS	6	47	12.76	Mt. Wilson
	12	605	1.98	Blackheath
	51	223	22.86	Medlow Bath
	43	332	12.95	Katoomba
	303	2529	11.98	Central Katoomba
	71	700	10.14	Leura
	23	386	6.0	Wentworth Falls
	0	31	0.0	National Park
	43	567	7.6	Mt. Victoria
	34	580	5.9	Hazelbrook-Lawson
TOTAL	586	6060	9.7	
LOWER BLUE MOUNTAINS	55	1252	4.4	N. Springwood
	35	834	4.2	Springwood
	30	689	4.4	Valley Heights/ Warrimoo
	19	640	3.0	Blaxland
	93	3048	3.1	Glenbrook
TOTAL	232	6453	3.6	

Source: 1971 Census Analysis



In general terms, the Upper Blue Mountains, with slightly less total workforce than the Lower Blue Mountains, offers greater opportunities in terms of employment in tourist and associated activities. 9.7% of the total workforce in the Upper Blue Mountains are so employed, in comparison to only 3.6% in the Lower Blue Mountains. This is clearly an expression of two factors, (1) the Upper Blue Mountains is more remote and has a greater aggregation of attractions both natural and man-made; it is at a greater distance than the Lower Blue Mountains from metropolitan employment opportunities, and (2) the Lower Blue Mountains is comparatively less well endowed with attractions and is closer to metropolitan employment opportunities. As population increases, this proportion of the workforce is expected to decline, there is likely to be a relatively small overall growth unless specific actions are taken.

The preceding evaluation indicates that the travel industry in the Blue Mountains after suffering a decline is now becoming more economically viable, stable and capable of continued growth. The accommodation sector is the most important of a number of related sectors within the travel industry. Spending in cafes and restaurants, on recreation and scenic attractions, and buying goods and services from retailers are another impact of travel on the Blue Mountains. It enables the benefits of travellers' expenditure to be felt throughout the economy of the region. The travel industry and associated activities employ more than 800 persons in the area. This employment is spread geographically across the Blue Mountains, with greater emphasis on the Upper Mountains area.

There has been an increased investment in Buildings, plant and equipment by the accommodation industry in the period 1971-1973. Investment in new plant and facilities is an important contribution to the area's continued growth.

In the long term then, the travel industry in the Blue Mountains will be operating in an expanding market and can potentially create employment opportunities at a faster rate than other industries. While its gross output may be small in comparison with manufacturing, its wide distribution and potential for growth assume greater significance and, in broad terms, the gross value of the industry, consisting of its total income from consumers within the Blue Mountains, is likely to increase.

Considerations of time, data and resources have precluded the achievement of a rigorous determination of the contribution of the travel and tourist industry, and to the local economy of the Blue Mountains. The lack of reliable statistical data



Blue Mountains. The lack of reliable statistical data concerning the industry militates against identifying more clearly the economic role and significance of tourism. The potential of tourism to contribute to the development of regions such as the Blue Mountains less favoured for industrial or commercial development should be closely considered. In assessing this contribution, five aspects should be reviewed:

- * the income generated;
- * the scale and distribution of the industry;
- * the effect on public sector revenues and expenditures;
- * the wages and employment generated;
- * investment patterns

Not all of these are measurable, and there is an inherent risk in making broad generalizations on the economic benefits, particularly within the context of a strategy plan where a number of alternative growth strategies are posed. Lack of data concerning the industry is a critical factor in terms of identifying in detail the income likely to be derived in the future from travel and tourism, and the contribution to public revenues. The economic significance of the industry also includes other less measurable aspects - its stability, potential contribution to the future of the economy and the ability to overcome such problems as seasonality. These factors, too, are important to the future of tourism in the Blue Mountains.

1.3.9 Holiday Homes

With increasing affluence generally, there has been an increase in the number of holiday homes purchased or developed in the Blue Mountains in recent years by people living in the Sydney Metropolitan region. The 'second home' boom is already strongly in evidence overseas, particularly in the USA, in areas similar to the Blue Mountains which are of high environmental quality and on the fringe of large urbanized regions. With continued increases in living standards and greater metropolitan growth, these developments can be expected to continue and become more widespread.

A problem that does emerge in relation to the growth of holiday homes is that of building standards and visual/architectural appearance. Many have been built in the past to low design and construction standards, thereby lowering the amenity of the more permanent residential building stock. Because they are not built for permanent residential purposes, the owners generally tolerate these lower standards.



More stringent controls in the form of standards of design and construction will be required in the future with respect to this more permanent form of visitor accommodation. Council should be cognizant of this phenomenon and should formulate these sorts of control policies to deal with it. It is important that all development applications for the construction of holiday homes in the area be made to divulge the purposes for which the dwelling is to be constructed in order that, (1) Council be made aware of the purpose in dealing with the application, and (2) that Council may be better able to record and monitor the numbers and distribution of holiday homes being developed in the area.

1.3.10 Tourism and the Major Wilderness Areas

The role of the Blue Mountains National Park areas can at present be characterized as follows:-

- * Due to the reduction of access points to a minimum, and lack of promotion, they are not being intensively used, except at certain areas immediately adjacent to the access points. The Parks still function essentially as prime wilderness areas for passive recreation on the part of residents and tourists.
- * The facilities for tourism and recreation are limited and consist of a number of picnic and camping areas and bushwalking tracks.
- * Tourist roads are kept to a minimum. The topographic constraints on such roads are considerable. Except for that section of the Bells line of road through the Park to the north, the only other roads are unclassified, unsealed and little used.
- * The Parks are utilized at present by comparatively small numbers of recreationalists/tourists engaged in active recreational pursuits.
- * Other than camping facilities, there are no other forms of accommodation available within the Park.



1.4 Evaluation of Blue Mountains Tourist Survey

An interview programme was undertaken over the Easter vacation period and the results tabled and analyzed to assess and evaluate tourist visitation patterns, catchment areas, expenditure profiles, modes of transport and accommodation preferences. From this analysis developments in tourism were evaluated in the light of earlier research (1971 Dept. of Tourism Study) with a view to discerning significant trends, changes and patterns of tourist behaviour.

The evaluation of the interview programme conducted over Easter Saturday, April 13, Sunday April 14, Monday April 15 and Tuesday April 16 is summarized as follows:-

- * The total number of respondents interviewed who were tourists, was 714. Only 16 were residents of the Blue Mountains.
- * The great majority of visitors (459 - 65% of total) were in the area for private day-trip, sightseeing purposes only, ie. they stayed in the area for only one day or more. 18% were staying for no longer than the Easter period. Responses of those there for business or conventions was negligible. (Table C2).
- * 35% of the visitors (256) came to the region from the west of Sydney, 131 (18%) from north of Sydney. Only 5.7% of visitors were interstate and 3.2% overseas. Irrespective of origin, the majority of visitors from all destinations were there for private trip purposes only. Generally, 85-90% of all visitors from the Sydney area were day trippers. The area in general is used predominantly by people from the west of Sydney rather than the eastern, coastal areas. (Table C3). (Figure C.1.)
- * Of all categories of visitors by origin, by far the greatest percentage (79.4%) of visitors from west of Sydney were there for one day only. (Table C4).
- * The most intensively used locations were as follows :-
 - a) Echo Point)
 - b) Hawkesbury Lookout) Mountain views
 - c) Govett's Leap) in general
 - d) Wentworth Falls)

The first three had a clear predominance of day trippers. In general, all locations catered for this category of visitor.

- * Slightly more (31% of total) were visiting for the first time. 27.3% had made four to six visits to the region. In both cases, 75-91% of the visitors were there on day trips.



- * 90% of all visitors travelled to the region by car. All other modes were negligibly used. (Table C2). Most visitors on buses were on organized tours. The utilization of the car for day trip-purposes was clearly expressed. Bushwalkers tend to use the train to get to the region.
- * Katoomba/Blackheath/Leura are clearly the major destination points. Again, day trippers predominate at those destinations as well as the less intensively used destinations. Katoomba also figures as a major destination point for bushwalkers.
- * Private day trips and short trips to the Blue Mountains are clearly predominant. Other destinations do figure but not very significantly, but still utilizing the Blue Mountains region as part of a day trip.
- * 60% of all visitors came into the region via the highway through Penrith for the purposes of day tripping. 7.2% came into the area via Kurrajong. In general, other routes from east and west figure insignificantly as access to the region. Most of those coming in from all access points are day trippers.
- * The most intensively used attractions were Skyway/Echo Point/Scenic Railway. The others were much less intensively used.
- * 30% (other) came from place of residence for private trips. 8.8% had stayed with friends, half of which as part of an extended visit. 6.6% had stayed at motels. Hotels/guest houses figured very low. Camping figured more significantly than motels. Only 14.7% had stayed in some form of payed accommodation (hotel/motel/guest house/rented house) in the region on short trips.
- * Very few single persons were visiting the area. Couples predominated (25%). Irrespective of group size, the vast majority were in the region on short trips.
- * Young people with and without children were marginally predominant over middle aged people with or without children. Higher percentages of the young were there for short trips only. Young people were predominant for purposes other than for visits, such as pleasure, bushwalking.
- * The 26-35 and 36-54 groups were predominant. Only 13% of the total were over 55 and 20% were under 25. All age groups there were mainly on day trips
- * 65% of the total were male; 35% female. No distinct differences in purpose of visit on part of either sex. Males were more predominant in other trip purposes such as business/convention/bushwalking.



- * 68% of all visitors spent nothing at all on food or very little (\$1-\$10). Of this category of visitor, the vast majority were day trippers. 14% spent between \$11-\$30 on meals. Again, of these, 77 to 83% were day trippers. 5.7% spent over \$100 on food and of these, 93% were day trippers.
- * 47% of the total spent only \$1-\$5 on fuel to visit the area. 22.5% of the total spent nothing on fuel while travelling to and within the area.
- * Again, a significant 64% of the total directed very little of their spending on tourist attractions. 83% of these again were day trippers and 2.8% bushwalkers, 6.8% visitors to the area. Another 22% spent only \$1-\$5 on such attractions. Very few of the total spent any greater significant amount on such attractions. This is a broad indicator of (1) the popularity that natural attractions still retain over artificial attractions, and (2) feasibility problems that exist in relation to locating new commercial tourist attractions in the area.
- * Echo Point figures predominantly in the total number of people interviewed. 38% of the total number interviewed were at this location. Day trippers were more predominant at these more intensively-used locations. At less intensively-used locations such as Govett's Leap, Wentworth Falls, more people were staying for a longer period.
- * Whilst the natural scenic resources and man-made attractions of the region are used predominantly by people from the western sectors of the Sydney Metropolitan area, given the emergence of Bathurst-Orange as a growth centre with a larger population, these resources would draw much greater numbers of visitors from this western sector.

Conclusions

One of the main motives in conducting the visitor survey in the peak Easter period was to evaluate its results in the light of the earlier survey conducted by the NSW Department of Tourism in the Easter holiday period in 1969 in order to discern any significant changes or trends in the intervening period.

In general terms, there would appear to be little substantial change in visitation or expenditure patterns. Little has occurred in the past six years which would indicate that the role of the Blue Mountains as a region intensively used by metropolitan day-trippers and sightseers (see Table C1), is changing to any substantial degree. Accommodation facilities in aggregate have grown in the interim period, almost exclusively in the form of motels.

It would appear that one of the main motives for visiting the area, for day trippers, sightseers and those just driving for pleasure is to enjoy the natural attractions without having to spend a great deal of money in doing so.



C21.

Table C2
Length of Stay

EASTER 1974 TOURIST SURVEY

	Row Total	One Day	Two Days	Up To Easter	Over Easter	DK/NA
Column Total	701	458	26	126	73	18
Transport						
Car	633	424	21	109	66	13
	90.3	92.6	80.8	86.5	90.4	72.2
	100.0	67.0	3.3	17.2	10.4	2.1
Bus	22	17	1	2	-	2
	3.1	3.7	3.8	1.6		11.1
	100.0	77.3	4.5	9.1		9.1
Train	34	13	3	10	6	2
	4.9	2.8	11.5	7.9	8.2	11.1
	100.0	38.2	8.8	29.4	17.6	5.9
Other	10	3	1	5	-	1
	1.4	.7	3.8	4.0		5.6
	100.0	30.0	10.0	50.0		10.0
DK/NA	2	1	-	-	1	-
	.3	.2			1.4	
	100.0	50.0			50.0	



Table C3
Length of Stay

EASTER 1974 TOURIST SURVEY

	Row Total	One Day	Two Days	Up To Easter	Over Easter	DK/NA
Column Total	700	458	26	125	73	18
Origin						
Interstate	41	23	2	8	5	3
	5.9	5.0	7.7	6.4	6.8	16.7
	100.0	56.1	4.9	19.5	12.2	7.3
Overseas	22	17	2	-	2	1
	3.1	3.7	7.7		2.7	5.6
	100.0	77.3	9.1		9.1	4.5
West NSW	16	12	1	1	2	-
	2.3	2.6	3.8	.8	2.7	
	100.0	75.0	6.3	6.3	12.5	
South NSW	11	7	-	2	1	1
	1.6	1.5		1.6	1.4	5.6
	100.0	63.6		18.2	9.1	9.1
North NSW	21	4	-	11	4	2
	3.0	.9		8.8	5.5	11.1
	100.0	19.0	52.4	19.0	9.5	
East NSW	81	46	3	17	12	3
	11.6	10.0	11.5	13.6	16.4	16.7
	100.0	56.8	3.7	21.0	14.8	3.7
West Sydney	253	201	4	32	11	5
	36.1	43.9	15.4	25.6	15.1	27.8
	100.0	79.4	1.6	12.6	4.3	2.0
South Sydney	71	47	3	12	9	-
	10.1	10.3	11.5	9.6	12.3	
	100.0	66.2	4.2	16.9	12.7	
North Sydney	130	76	7	28	18	1
	18.6	16.6	26.9	22.4	24.7	5.6
	100.0	58.5	5.4	21.5	13.8	.8
East Sydney	44	19	4	12	8	1
	6.3	4.1	15.4	9.6	11.0	5.6
	100.0	43.2	9.1	27.3	18.2	2.3

Table C4
Purpose of Visit

EASTER 1974 TOURIST SURVEY

	Row Total	Conven- tion	Business	Pleasure	Tour	Trip	Bushwalk	Visit	Education	Other	DK/NA
Column Total	714	1	1	5	20	602	22	47	1	12	3
Origin											
Interstate	41 5.7 100.0	-	-	-	5 25.0 12.2	28 4.7 68.3	-	7 14.9 17.1	-	1 8.3 2.4	-
Overseas	23 3.2 100.0	-	-	-	6 30.0 26.1	15 2.5 65.2	1 4.5 4.3	1 2.1 4.3	-	-	-
West NSW	16 2.2 100.0	-	-	-	-	12 2.0 75.0	-	3 6.4 18.8	-	1 8.3 6.3	-
South NSW	11 1.5 100.0	-	-	-	-	8 1.3 72.7	-	2 4.3 18.2	-	1 8.3 9.1	-
North NSW	21 2.9 100.0	-	-	-	-	16 2.7 76.2	-	5 10.6 23.8	-	-	-
East NSW	85 11.9 100.0	1 100.0 1.2	1 100.0 1.2	-	1 5.0 1.2	73 12.1 85.9	2 9.1 2.4	5 10.6 5.9	-	2 16.7 2.4	-
West Sydney	256 35.9 100.0	-	-	1 20.0 .4	5 25.0 2.0	230 38.2 89.8	6 27.3 2.3	9 19.1 3.5	-	3 25.0 1.2	2 66.7 .8
South Sydney	73 10.2 100.0	-	-	2 40.0 1.5	- 10.8 1.5	65 13.6 85.5	3 4.3 3.1	2 6.1 6.1	- .8	1 8.3 1.5	-

Row	Total	Conven- tion	Business	Pleasure	Tour	Trip	Bushwalk	Visit	Education	Other	DK/NA
North Sydney	131	-	-	2	112	4	8	1	2	-	-
	18.3		40.0	10.0	18.6	18.2	17.0	100.0	16.7		
	100.0		1.5	1.5	85.5	3.1	6.1		1.5		
East Sydney	47	-	-	-	38	5	2	-	1	1	1
	6.6				6.3	22.7	4.3		8.3		33.3
	100.0				80.9	10.6	4.3		2.1		2.1

Table C5
Purpose of Visit

EASTER 1974 TOURIST SURVEY

	Row Total	Conven- tion	Business	Pleasure	Tour	Trip	Bushwalk	Visit	Education	Other	DK/NA
Column Total	704	1	1	5	20	592	22	47	1	12	3
Length of Stay											
One Day	459	-	1	2	14	407	9	15	1	7	3
	65.2		100.0	40.0	70.0	68.8	40.9	31.9	100.0	58.3	100.0
	100.0		.2	.4	3.1	88.7	2.0	3.3	.2	1.5	.7
Two Days	27	-	-	-	1	18	5	3	-	-	-
	3.8				5.0	3.0	22.7	6.4			
	100.0				3.7	66.7	18.5	11.1			
No Longer than Easter	127	1	-	2	1	92	6	21	-	4	-
	18.0	100.0		40.0	5.0	15.5	27.3	44.7		33.3	
	100.0	.8		1.6	.8	72.4	4.7	16.5		3.1	
Longer Than Easter	73	-	-	1	1	64	2	5	-	-	-
	10.4			1.4	1.4	87.7	2.7	6.8			
DK/NA	18	-	-	-	3	11	-	3	-	1	-
	2.6				15.0	1.9		6.4		8.3	
	100.0				16.7	61.1		16.7		5.6	



1.4.1 Ranking of Problems Encountered by Tourists in the Blue Mountains

The following is a ranking of problems as perceived by respondents. 53% of all respondents (373) stated that they did not encounter any problems at all in touring through the area.

GROUP A	Bad roads, pot holes, bad edges and shoulders	48
	Bridge under at Yarramundi, not high enough	29
	Lack of direction/sign posts, mileage posts, advanced warning posts, alternative routes	29
	A lot of traffic	28
	Narrow roads	21
	More slow lanes for traffic/passing lanes	9
	Too many semi trailers, caravans on road	13
	Bridge closed at Richmond/flooding	7
	Slow trains, overcrowding, breakdowns, too expensive	6
	Lack of parking, road service and shops	4
	Two broken windcreens and a flat tyre, poor roads	2
	Bad railway crossing at Katoomba	1
	Rocks on road damaged petrol tank	1
	Tracks to Perry's Lookout, Victoria Falls, Mt. Victoria need attention	1
	Traffic lanes badly marked	1
	Should have restricted speed sign at Lookout from Springwood	1
	No other way (route) out	1
	* * *	
	Public toilets - poor, bad, dirty, smelly, no paper, no water, flooded (in most areas including caravan parks and camping areas), not enough	36
GROUP B	More caravan parks/camping areas and better supervision of these	8
	Disgraceful accommodation, dirty cold, no lighting, lack of accommodation, too dear also.	7
	Lack of firewood at fireplaces	6
	More walks, clearly marked/maps of walks, clean walks	6



Shortage of kiosks and Devonshire teas	6
Pollution, litter, etc. mainly in picnic and fire areas, but everywhere, need more litter bins	6
Trouble finding tourist bureau/not enough pamphlets available, more maps/not open on Good Friday as promised	6
Bus fares too high	4
Food prices too high	4
No telescope at Hawkesbury lookout	2
Blackheath Camping area needs improving	1
No kiosk at Hawkesbury Lookout	1
Inadequate refreshments available	1
More barbecues and seats/more picnic areas and fire places	15
No kiosk at Buttershaw Park	1
No variety of food at Skyway	1
Skyway area bad	1
Govett's Leap Pass, hand rail is too low down on Pass	1
Flooding at Blue Pool	1
Smell in creek at Leura Cascades	1
Eyesore of pool at Leura Falls	1
* * *	
Weather poor/rain, wind	12
Re-open Catalina Park for bikes	1
Lack of refreshment bar on train	1
Dogs not allowed in National Park	1
Too much sprawl of housing	1
Would like family concessions on scenic rides	1
Price into Norman Lindsay House too much	1
Guest houses too old	1
Surcharge at Commercial Hotel, Lithgow	1

Conclusions:

The following conclusions can in general be derived from this ranking of perceived problems:-



- * Most of the problems in the first section (Group A) perceived by visitors relate very much to transport factors such as road capacities, conditions, accessibility, public transport, costs. etc.
- * Next in general significance (Group B) are the problems which relate to facilities/amenities, their adequacy of provision, condition, maintenance, and standard of services provided.

The predominance of these two basic categories of problems perceived, namely movement and facility problems can furnish useful guidelines for both general policies and detailed action planning.



2. TOURIST POTENTIAL AND IMPLICATIONS OF ALTERNATIVES

2.1 Overall Potential

From the preceding analysis of the traditional role of the Blue Mountains as a tourist resort, recent trends in the development of new types of accommodation and man-made attractions, and the visitor interview programme, a number of general conclusions can be drawn which will have a significant bearing on the overall potential for tourist development within the region:-

- * The initial isolation of the region and its consequent role as a mountain retreat offering full board holiday accommodation appears to have fundamentally changed.
- * The area, by virtue of its greater accessibility to the expanding metropolitan area, will increasingly be used by the metropolitan population, particularly from the expanding western sectors. Sightseers, day trippers and those staying overnight or for weekends only would become increasingly predominant within the total of visitors to the area.
- * New modes of accommodation have increasingly tended to locate in the region in response to this change in tourist patterns and to meet the increasing demand for more transient accommodation.
- * With the greater proximity of an increasing and more mobile metropolitan population to the Blue Mountains, together with a major change in its role as a tourist region, the increasing number of the more transient metropolitan visitors are tending to reduce their tourist expenditure to a minimum.
- * With the increase in the transient and mobile visitor to the region, new commercial, artificial attractions have similarly tended to locate in the region. These man-made attractions have initially been dependent upon the region's natural attractions for their success and in aggregate have come more recently to be in 'competition' with these natural attractions.

It is clear that the future of the Blue Mountains in general, and more particularly the Upper Blue Mountains, is inextricably involved with tourism, irrespective of the degree to which the tourist 'phenomenon', its characteristics and patterns, have changed and will increasingly tend to change in future in the region. It is important for Council, (1) to be cognizant of ways in which the Blue Mountains is becoming more enmeshed and integrated into the expanding Sydney Metropolitan region, and (2) in consequence, to acknowledge the greater regional significance of the Blue Mountains as a tourist and leisure region.



2.2 Tourism as a General Goal

At a United Nations Seminar on Planning for Tourism Development, the following statement evolved which reflected the philosophy on the process of tourist industry planning. It seems to fit well in the Blue Mountains context :-

" Tourism development is a multi-sectoral activity that demands comprehensive planning at the national, regional and local level. It demands a continuous linkage in the entire process and within the general planning framework of national development.

" Tourism, more than any other activity, depends on the physical environment, whether man-made or natural, which provides motivation for tourism. The preservation and development of the environment is a condition for tourism; hence the importance of physical aspects within comprehensive planning and development. "

Consolidating, promoting and expanding tourist facilities/ attractions, and seeking ways and means of making tourism a more effective and substantial contributor to the city's economic base are, in large measure, goals which should be regarded by Council as of differing importance and concern within the context of the different alternative futures posed.

Policies of promoting or discouraging tourism also need to be considered in terms of the basic alternative regional roles that the city might fulfill, namely an autonomous, self-sufficient role, or a dependant dormitory role.

2.3 Implications of Alternative Futures for Tourism

The five alternatives posed in the Strategy for the Blue Mountains will result in different levels and distributions of population within the region and consequently different areal demands. Looking in general at the two extreme options, the implications of Alternative 1 (the maximum conservation strategy) in terms of environmental impact, urban form and population capacity (only 47,000) would be markedly different from Alternative 5 with a population of roughly 6 times the size.

Evaluation of the implications of the 5 alternative futures for the Blue Mountains in terms of tourism involves many imponderables.



Whilst tourism, and the ways in which it impacts upon the Blue Mountains region, is becoming primarily a function of increasing metropolitan growth of the Sydney Region, the future potential for successfully encouraging the consolidation and expansion of the range and depth of tourist facilities and attractions and the economic viability thereof is in large measure contingent upon the degree and intensity of urbanisation implicit in the alternative futures posed.

It is, in consequence, difficult to undertake forecasts with any quantitative rigour. Two major assumptions need to be explicitly stated prior to any assessment. Firstly, that the attractive power for tourism of the region as a whole (ie. its aggregation of natural and man-made resources/attractions) will in large measure be a function of, or contingent upon, the degree and extent of urbanisation within the region. The greater the degree of urbanisation, the more area taken up by development, the more the region would become enmeshed in the metropolitan area and, physically, form part of its general urban fabric. The attractive power of the Blue Mountains* as a tourist/leisure region would decline as a result of this lack of any ostensible difference from the urban area, particularly if there is a maximisation of industrial manufacturing operations. Secondly, with increases in Sydney's metropolitan population, particularly in the western sectors of the Cumberland Plain, the Blue Mountains region will tend to be increasingly used by larger numbers of the more transient type of visitor, the day-tripper, sightseer and those staying for very short periods for specific recreational purposes (golf, etc.)

Both these assumptions are in some degree mutually exclusive and as such they are an expression of the difficulties involved in making any clear predictions as to what the implications of the alternative futures would precisely be or how such alternative futures would impact upon tourism and its motivation in general.

It is clear, however, that some of the current trends and changing characteristics of tourism at present in evidence in the region, would become critical under certain alternatives.

A preliminary assessment of the major implications of alternative futures are listed overleaf. The two extreme alternatives are dealt with firstly because, within the context of these extremes, the major implications are identified and highlighted more clearly.

* The Blue Mountains in this context refers to all those areas within the City boundaries capable of absorbing further development and population growth as well as extra tourist facilities and attractions.



Alternative 1

1971 population plus dwellings approved 1971-73 (inclusive)
Population total 47,000 (22,500 UBM and 24,800 LBM)

The implications of this maximum conservation strategy for tourism can be summarised as follows :-

- * In general, with a policy of maximum constraint on population growth and urbanisation, the role of the Blue Mountains as a leisure region on the perimeter of Sydney with potentialities for tourism expansion and consolidation would be greatly enhanced and reinforced.
- * There would be relatively little constraint on the availability of space, resources and locations suitable for such expansion.
- * In consequence, the current pressures to introduce a greater range and depth of tourist facilities (accommodation, etc.) and attractions would have ample scope in terms of available space resources. Such pressures could reasonably be expected to grow, thereby generating the need for policies of location, control and management in order to avoid environmental conflicts and land-use conflicts.
- * There would be marked constraints on labour availability with respect to any significant expansion of the tourist industry. The labour availability for tourism facilities/attractions will be to a great extent affected by alternative manufacturing employment opportunities.
- * Greater pressures and consequent potential tourist/resident conflict, would emerge relative to major recreation facilities such as golf courses, clubs, etc., which would increasingly tend to be utilised by the metropolitan population.
- * A total 'freeze' on all forms of urban development within the region could lead to a situation which would be regarded as being ideal in general terms for the consolidation and expansion of the range and depth of tourist facilities and attractions.
- * Development control policies for the growth and distribution of tourist attractions would become more crucial in this context.



- * Given greater metropolitan growth in the western sectors of the Cumberland Plain, in relation to this maximum conservation policy of retaining the region as essentially a 'leisure region', the pressures upon, and the demand for, the utilisation of the major wilderness areas within the Blue Mountains would be expected to increase.
- * Policies of inextricable involvement in tourism would be needed by Council in this situation, in particular coherent development control policies to deal with the overall problem of locating and managing the influx of a greater range and depth of tourist facilities and attractions.
- * Policies of encouraging new tourist attractions in aggregate to locate in the Upper Mountains only would be preferable to allowing an indiscriminate spread throughout the whole area.
- * The need for the introduction of a greater number of Cliff Drive-type tourist roads would increase.
- * The need for greater ongoing coordination between Council and the administrative levels of the National Parks and Wildlife Service would be greater in view of the more intensive demands likely to be brought to bear on the major wilderness areas.
- * In conclusion, the overall policy of maximum conservation of the region, would tend to reinforce even further its role as a 'leisure region'. Its natural resources would come under even greater pressures. In short, it would seem that this strategy of conserving the existing situation would generate problems in terms of increasing the region's attractive power, thereby encouraging the consolidation and reinforcement of tourism, in some cases in new and unpredictable forms.

Alternative 5; 1967 Scheme plus all developable areas (up to slope 1 in 5) adjacent or connected to existing services. Assuming high density areas as in 1973 scheme (40 p. p. a.); other areas 10.8 p. p. a. - total population 275,000.

Under this maximum growth alternative with a population capacity approximately 6 times as great as that implied under Alternative 1, the major implications can be summarized as follows:-

- * In general, with a policy of maximum growth and urbanisation, the role of the Blue Mountains as primarily a leisure region of great attractive power to tourism would be likely to significantly decrease, particularly within the main corridor. Policies of specific involvement by Council



in tourism would in this context assume relatively less importance if large scale industrial expansion is envisaged in order to achieve a measure of self-containment.

- * The need to utilise all developable areas for residential purposes, together with open space for residential active and passive recreation, different levels of manufacturing employment, major commercial centres and other community facilities will clearly tend to impose limitations on the availability of space resources and desirable locations for specifically tourist-oriented facilities/activities/attractions.
- * The unpredictable demands for space by new tourist attraction types could require policies of complete exclusion in this context.
- * Given a general decline in the Blue Mountains role as primarily a leisure region, a reduction in aggregate of the range and depth of specifically tourist-oriented facilities and attractions likely to be attracted to locate in the area would be a likely consequence.
- * With an increase in the range and depth of facilities and amenities for residents as part of this high growth strategy, tourists would be attracted to use these as well.
- * There would be a much greater overall availability of labour for the operation of specifically tourist-oriented facilities and attractions. However, this would be influenced by the degree to which manufacturing employment opportunities are encouraged.
- * Movement problems would be exacerbated; the utilization of street networks of limited capacity by increasing volumes of residential and visitor traffic would create congestion.

Alternative 2

Alternative 1 plus all serviced vacant lots, assuming all new dwellings fully occupied at existing occupancy levels (no increase in flats).

- * In relation to Alternative 1, this growth strategy is not likely to generate a wholly new set of implications for tourism in the Blue Mountains. With only a 30% increase in population capacity over and above Alternative 1, a capacity which could be reached in the medium term, the role of the region as a leisure region would still be retained.



- * Pressures to introduce a greater range and depth of tourist facilities and attractions would again have scope in terms of available space resources.
- * The concomitant need for policies of location, distribution, control and management of these facilities and attractions would be more important because of the extra areal requirements for residential and other purposes implicit in this greater population capacity.
- * With a total increase of population of 30% relative to Alternative 1, labour availability for tourism expansion would not be so constrained.
- * The utilization of major recreation facilities by both metropolitan visitors and an increased number of resident/recreationalists again could be expected to be an even greater potential source of conflict.
- * Pressures on and demand for the utilization of the major wilderness areas within the Blue Mountains would again be expected to increase due to increased metropolitan growth.
- * Similarly, the need for further Cliff Drive-type tourist roads would increase.
- * In conclusion, the 'role' of the Blue Mountains as primarily a 'leisure region' would be generally conserved under Alternative 2. This strategy would generate a similar set of problems to Alternative 1 in relation to the management of an expected further influx of tourist attractions and facilities. In consequence policies of inextricable involvement in tourism by Council will be necessary.

Alternative 3

Strategy 2 plus all vacant approved subdivision lots, assuming full occupancy at existing levels (no increase in flats) - total population 107,800.

- * This growth strategy is basically situated in the middle ground between the two extremes. It is a strategy which will achieve a balance between conservation and urbanization. Because of this, any evaluation of what the implications of this strategy might be, for tourism potential (the motivation for tourist facilities and attractions to locate in the Blue Mountains) becomes more difficult.



- * The unpredictability of tourism and its land-use requirements in the Blue Mountains will, in many ways be dependent upon (1) the degree to which urbanization pushes back the frontiers of the natural environment, (2) the form and quality of the built environment, and (3) the scale and intensity of development.
- * Assuming that tourist facilities and attractions will continue to locate in the Blue Mountains, as this degree of growth is achieved, the need for policies of controlling their location, distribution and space consumption will become even more crucial than under Alternatives 1 and 2.
- * Relative to Alternatives 1 and 2, there would be a greater availability of labour for tourist operations, facilities and attractions.
- * At this population level, together with increased metropolitan growth, pressures on the wilderness areas could be expected to increase considerably.

Alternative 4

1973 exhibited planning scheme areas capacity plus approved subdivision (to be added). Residential 'A' areas assumed gross density 10.8 p. p. a. Other residential areas assumed gross density 40 p. p. a. Total population 173,100.

Under this broad growth strategy involving a population capacity almost 4 times that implied in Alternative 1, the same basic threshold would be crossed as in the extreme Alternative 5 in terms of the problems and potentials for tourism in the area. The implications can be summarized as follows:-

- * With this degree of urbanization through the major corridor and a long-term population capacity of 173,100, the role of the Blue Mountains as a region of attractive power to tourism would be likely to be effected substantially. It may not actually decrease but at this level of development, when finally reached, the threshold between the Blue Mountains as primarily a natural environment and as a more urban environment would be crossed.
- * At this level of urbanization, the range and depth of services in the form of entertainment and recreational facilities to serve the residential population primarily would also be able to more satisfactorily meet the demands of the tourist.



- * At this population level, the labour availability for the operation of specifically tourist-oriented facilities and attractions would be greater.
- * As under Alternative 5, the pressures on the major wilderness areas and the more remote areas such as the Megalong Valley and Mount Wilson would increase. By virtue of their relative remoteness, the latter could be expected to meet greater demands for tourist facilities and attractions.
- * Given a continued increase in the type, range and depth of tourist attractions that may still wish to locate within the main corridor areas, the problem of competition for space resources would be exacerbated as urbanization reached this target capacity. This would be further exacerbated by the requirements of any large-scale expansion of industry envisages under this strategy.



3. ACTION PLAN PROGRAMME

As a result of the situation analysis of current trends, problems and conflicts in relation to tourist activities, facilities and attractions in the Blue Mountains area, a number of priorities for detailed action planning can be identified. Such an action planning programme could be initiated irrespective of which overall growth strategy is decided upon for the City region as a whole.

It is recommended that a continuing programme be launched for the preparation and implementation of detailed action plans and control policies to guide and govern the development of future tourist activities, facilities and attractions within the region.

The priorities which will govern this action planning programme for tourism will necessarily be dictated by :-

- * the overall broad growth strategy decided upon.
- * the need to take action before events occur which could make proposals physically or economically impracticable.
- * the need to establish control to ensure that opportunities will not be lost.

The following comprises a possible programme of action plans which could include :-

- * the preparation of a detailed classification of tourist attractions by type, together with development control policies to guide and govern their location, distribution and environmental impact.
- * a detailed investigation of the potential of certain selected non-urban areas within the City region for the promotion of clustered tourist attractions and facilities.
- * a detailed investigation of potentially suitable tourist accommodation areas within the City region with a view to clustering accommodation facilities around recreation foci such as golf courses.



- * detailed investigation of the subdivision patterns of certain critical areas within the region such as the Megalong Valley, Mount Wilson, Mount Irvine and Mount Tomah, with a view to establishing their suitability for the promotion of tourist facilities and attractions.
- * a comprehensive investigation of the potential for locating tourist roads/cliff drives in certain selected areas within the region such as the Eastern Escarpment, Mt Victoria, Kanimbla Valley, Wentworth Falls.
- * a comprehensive investigation of the overall provision, range, depth and standard of tourist facilities and amenities provided at tourist focal points throughout the region. A study of the ways and means of improving their provision, standards and the possibilities of promoting certain amenities from which to derive a financial return, by generating greater consumer spending and to cover increasing maintenance expenditure.
- * a comprehensive investigation of the ways in which to promote certain day-tripper routes in certain areas within the region.
- * detailed urban design studies of all centres within the region, particularly in the Upper Mountains for their visual and environmental improvement and to enhance their image and 'sense of place'. This study should incorporate low-cost streetscape improvements and redesign of city street furniture.
- * detailed studies of access points to the major wilderness areas, particularly the National Park, to improve accessibility and parking capacity.
- * investigation of ways and means of improving the range and depth of evening entertainment facilities in the major centres.
- * detailed investigation of the ways and means of overcoming the problems of seasonality in the area.

APPENDIX C1

EASTER 1974 TOURIST SURVEY QUESTIONNAIRE

The following questionnaire was utilized in the interviewing programme conducted over the Easter period.

Q1. Location	Echo Point	1
	Wentworth Falls	2
	Govetts Leap	3
	Hawkesbury Lookout	4
	Glenbrook National Park Entrance	5
Q2. Day of Interview	Saturday	1
	Monday	2
	Tuesday	3
Q3. Weather	Sunny	1
	Cloudy	2
	Rainy	3
<hr/>		
Q4. Is this your first visit to the Blue Mountains? (IF YES CIRCLE, IF NO ASK) ... How many other times have you visited here during the past 12 months?	First visit	0
	One other visit	1
	two visits	2
	three to five visits	3
	More than 5 visits	4
<hr/>		
Q5. Which of these phrases best describes the purpose of your present visit? (READ OUT)	Mainly business (Convention)	1
	Other business	2
	Mainly pleasure (Convention)	3
	Organised tour	4
	Private trip	5
	Bushwalking	6
	Visiting friends or relations	7
	Education	8
	Other purposes	9
	(SPECIFY).....	
<hr/>		
Q6. What kind of transport did you use to get here? (READ OUT)	Mainly car	1
	Mainly bus/coach	2
	Mainly train	3
	Other (SPECIFY).....	
	Don't know/not stated	
<hr/>		
Q7. What other areas have you visited or will you visit on this trip in the Blue Mountains? WRITE IN		



Q8. Is the Blue Mountains the destination of your trip, or are you here merely on the way to somewhere else? If so where are you going? (WRITE IN ANSWER)

.....

Blue Mountains is destination	1
Part of a tour	2
In transit to Sydney	3
South Coast	4
North Coast	5
Western NSW	6
Other NSW	7
Interstate	8
Other (SPECIFY).....	9
Don't know/not stated	

Q9. What route did you take to get to the Blue Mountains? WRITE IN

.....

Q10. Is there anything about your journey that has bothered you? (RECORD FIRST ONE GIVEN ONLY BUT EXCLUDE PETROL)

.....

Q11. What attractions have you actually visited or will you visit on this trip to the Blue Mountains? (PROBE TO 3 ATTRACTIONS)

.....

Q12. How long will you be in the Blue Mountains?

One day	1
Two days	2
No longer than Easter	3
Longer than Easter	4
Don't know	5

Q13-14. Where did you stay last night and/or where will you stay tonight?

	Last night	Tonight
Motel (WRITE IN NAME).....	1	1
Hotel (WRITE IN NAME).....	2	2
Guest House (WRITE IN NAME).....	3	3
Rented flat/house	4	4
Friends/relations	5	5
Camping/caravan park	6	6
Other (SPECIFY).....	7	7
Don't know/not started	8	8

Q15. Where do you normally live? (WRITE IN) Postcode or suburb

OR overseas country.....

Q16. How many persons are there in your party? (Include all relations, friends children)

No.

APPENDIX C2



INVENTORY OF TOURIST ACCOMMODATION 1968*

ESTABLISHMENT	NUMBER OF ROOMS				NUMBER OF BEDS			
	MOTEL	HOTEL	G.H.	TOTAL	MOTEL	HOTEL	G.H.	TOTAL
High Mountains	21				53			
Carrington		150				260		
Hoylake			29				60	
Three Sisters	20				50			
Leura	44				122			
Cecil			20				43	
Parklands		65				146		
3 Explorers	12				43			
Everglades	30				90			
Echo Point	30				85			
Swiss Inn	14				43			
GROUP "A"	171	215	49	435	486	406	103	995
Pioneer Way	13				26			
Palais Royale		78				168		
Hydro Majestic		131				310		
Old Colony	24				62			
Jamieson House			7				11	
Katoomba		25				40		
Oriental		14				24		
Mt. Victoria		12				26		
Koala Sky-Rider	22				69			
St. Elmo	18				49			
Redleaf			17				38	
Norwood	6				13			
Gearins		47				100		
GROUP "B"	83	307	24	414	219	668	49	936
Grandview		19				34		
Beaucourt			9				21	
Wainscourt			18				38	
Imperial			32				45	
Felton Woods			38				54	
Redlands			18				29	
Majestic			30				45	
Craigielee			34				54	

* Source: The Blue Mountains, New South Wales, Australia
A Travel Study. N.S.W. Department of Tourism, 1971.



Q17. What type of party is this? Is it a group of

Young people without children	1
Middle aged without children	2
Mature without children	3
Young with children	4
Middle aged with children	5
Mature with children	6

Q18. Age group of respondent

Under 25	1
26-35	2
36-54	3
55 +	4

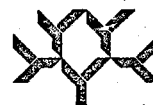
Q19. Sex of Respondent

Male	1
Female	2

Q20. Please estimate how much you will spend on this trip on:-

a) Food and other refreshments	\$.....
b) Petrol and other travel expenses	\$.....
c) Other, tourist rides, entertainment etc.	\$.....

Name of Interview.....Signature.....Date.....



INVENTORY OF TOURIST ACCOMMODATION 1974

<u>Hotels</u>	<u>Address</u>	<u>No of Rooms</u>
Alexandra Hotel	Great Western Highway, Leura	
Australia Arms Hotel	High Street, Penrith	
Blue Mountains Hotel	Great Western Highway, Lawson	
The Carrington Hotel Ltd	Katoomba St, Katoomba.	150
Gardners Inn Hotel	Great Western Highway, Blackheath.	
Hotel Grand View	Great Western Highway, Wentworth Falls	
Hotel Penrith	High Street, Penrith	
Hydro Majestic Hotel	Medlow Bath	131
Imperial Hotel	Great Western Highway, Mt. Victoria	32
Karaweera Parklands Hotel	Govetts Leap Rd, Blackheath	
Katoomba Hotel	15 Parker St, Katoomba	25
Lapstone Hotel	Cnr Great Western Highway & Murphy St, Blaxland	
New Ivanhoe Hotel	Great Western Highway, Blackheath	
Overlander Hotel-Motel	Richmond Road, Cambridge Park	
Parklands Hotel	Govetts Leap Rd, Blackheath	65
Palais Royale Hotel		78
Oriental Hotel		14
Gearins Hotel		47
Felton Woods Hotel		38
Redlands Hotel		18
Majestic Hotel		30
Craigielee Hotel		34
Redleaf Golf Lodge	15 Brightlands Ave, Blackheath	
Belfast House	Lurline St, Katoomba	
Medlow Bath Chalet	Portland Rd, Medlow Bath	
Yabba Yabba Hotel	Third St, Blackheath	



<u>Hotels (cont'd)</u>	<u>Address</u>	<u>No of Rooms</u>
Allawah Flats	125 Katoomba St, Katoomba	
Brookland Flats	171 Lurline St, Katoomba	
Commonwealth Bank Flats	Katoomba St, Katoomba	
Gloucester Flats	132 Katoomba St, Katoomba	
Hurlstone	The Mall, Leura	
Red Lion	Waratah St, Katoomba	
<u>Motels</u>		
Blackheath Motor Inn	281 Great Western Highway, Blackheath	18
* Echo Point Motor Inn	Cnr Echo Pt & Forster Roads, Katoomba	30
Everglades Hotel	70 Gladstone Rd, Leura	30
Hoy Lake Motel	16 Fitzroy Rd, Leura	29
* The Leura Motel	Fitzroy Street, Leura	80
* Motel Koala Sky Rider	Cnr Cliff Drive & Great Western Highway, Katoomba	23
Motel Norwood	209 Great Western Highway, Blackheath	6
Motel St. Elmo	224 Katoomba St, Katoomba	25
* Motel Three Explorers P/L	Lurline St, Katoomba	12
Mount Victoria Motel	Station St, Mt. Victoria	12
* Pioneer Way Motel	429 Great Western Highway, Springwood	14
Redleaf Lodge Motel	15 Brightlands Avenue, Blackheath	17
* Old Colony Motel	Great Western Highway, Katoomba	24
* High Mountains Motel	Great Western Highway, Blackheath	21
Alpine Motor Inn	Great Western Highway, Katoomba	
J.M. & J.V. Rodgers	192 Great Western Highway, Hazelbrook	
Cedar Lodge Motel & Cabins	Great Western Highway, Mt Victoria.	



<u>Caravan & Tourist Parks</u>	<u>Address</u>	<u>No of rooms</u>
Katoomba Holiday Park	Cliff Drive, Katoomba	
Lakeview Holiday Park	Prince Edward Street, Blackheat	
Leura Village Caravan Park Pty Ltd	Cnr Great Western Highway & The Mall, Leura	
Paish, P.A.	Scenic Drive, Katoomba	
Teachers College Camp	Yarramundi Road, Castlereagh	
Sutton Park	Great Western Highway, Blackheath	
 <u>Private Hotels</u>		
Belvidere House Pty Ltd	Hargreaves St, Blackheath	
The Pines Guest House	Great Western Highway, Blackheath.	
Beaucourt Private Hotel	39 Waratah St, Katoomba	10
Blue Danube	66 Waratah St, Katoomba	
Jamieson House Guest House	48 Merriwa St, Katoomba	8
Metropole Private Hotel	Lurline St, Katoomba	
Swiss In Private Hotel	Lurline St, Katoomba	29
Kubba Roonga Guest House	Brentwood Ave, Blackheath	9
Cecil Guest House		20
Wainscourt Glenella Guest House	Govetts Leap Road Blackheath	18
Belfast Guest House	Lurline St, Katoomba	
Blantyre	42 Parke St, Katoomba	
Blue Mist Guest House	217 Katoomba St, Katoomba	
Eldon Guest Lodge	9 Lurline St, Katoomba	
Wykehurst Cristian Guest House	219 Katoomba St, Katoomba	

Conclusions:

In considering Appendix C2, Inventory of Tourist Accommodation 1968 in relation to this updated 1974 inventory, it can be seen that there have been a significant number of new tourist accommodation facilities built in the interim period, almost entirely in the form of motels. Other existing motels have also in some cases increased their accommodation capacity and range of facilities in the past six years. This is indicative of an increased demand for accommodation together with greater range and depth of facilities. In general, it is an expression of an increase in the health and stability of the accommodation industry in the Blue Mountains.



INDUSTRY

1. EXISTING INDUSTRIAL STRUCTURE

- 1.1 Regional Context
- 1.2 Industry Type, Distribution and Characteristics
- 1.3 Recent Changes in Industrial Structure
- 1.4 Industrial Employment Opportunities

2. THE BLUE MOUNTAINS AS AN INDUSTRIAL LOCATION

- 2.1 Land Price Levels
- 2.2 Capacity of Existing Industrial Zones
- 2.3 Location Factors Affecting Blue Mountains Industry
- 2.4 Council Policy Towards Industrial Development
- 2.5 The Role of Service Industry

3. INDUSTRIAL POTENTIAL AND IMPLICATIONS OF ALTERNATIVE STRATEGIES

- 3.1 Summary and Assessment of Overall Potential
- 3.2 Implications of Alternatives
- 3.3 Conclusion

APPENDIX

I Employment and School Leavers

II Physical Assessment of Industrial Zones



1. EXISTING INDUSTRIAL STRUCTURE

1.1 Regional Context

The Blue Mountains City area, lying on the fringe of the Sydney Metropolitan Region, does not have a strong industrial component within its boundaries. The City's share of industrial employment within the Sydney and Outer Sydney Statistical Divisions is only 0.6% - this is only one half of its share of the area's total population (1.2%). This stems both from the physical nature of the Blue Mountains area - its rugged topography affords little land suitable to industrial development - and its relative isolation from the Sydney market. The level of industrial activity within the Blue Mountains area is below comparable fringe metropolitan zones. Thus the ratio of local manufacturing employment to local resident workforce is only 3% in the Blue Mountains as against 10% in Gosford/Wyong and 8% each in Colo and Wolondilly Shires.

However, manufacturing employment within the Blue Mountains has grown fairly rapidly in recent years - thus between 1968 and 1972, total employment rose by 38% from 285 to 393, and by 1974 it had reached 510.* Although this rate of expansion is below that experienced by such centres as Gosford and Wyong, it indicates the possible potential of the area for further expansion.

In any case, these statistics exclude service industries (such as automotive repairers, launderers, contractors, etc.) which comprise an important sector of industrial activity within the Blue Mountains currently employing 371 people in 115 establishments (40% of total industrial employment and 60% of establishments).

The industrial structure of the Blue Mountains area is marked by a dominance of female labour in comparison to the Sydney region and as a whole. Some 52% of the manufacturing workforce within the Blue Mountains is female, as against 30% for the Sydney Metropolitan region. This reflects the type of employment available within the region, which is dominated by factories producing hand-crafted goods. However, in comparison to other parts of the Metropolitan Region, the Blue Mountains area also has a lower female workforce participation ratio than the Sydney Region. The workforce participation rate of all females between the ages of 15 and 65 is 41% in the Blue Mountains, whereas the average is 47% for the Sydney region as a whole. However, this does not mean there is an immediate pool of labour to tap, as many of these women will not want to work. Owing to family commitments there is a high

*Sources: 1968-72 - Australian Bureau of Statistics
1974- NSW Dept of Labour and field surveys (April)



proportion of young families in the Lower Blue Mountains area (see Section 'B' above). Others seeking work may only want part-time employment, and others will simply not be seeking work. Of course, many females who have not registered for employment would be available for work if opportunities arose.

Apart from local employment, there is a considerable pool of industrial employees resident within the Blue Mountains City engaged in manufacturing activities - 15% of the total workforce. This is well below the Sydney figure of 29%, yet because of the lack of local industrial employment it is clear that the majority of manufacturing employees residing within the City find work outside the boundaries in centres such as Penrith, Parramatta, Blacktown, Mt. Druitt and St. Mary's (see Annexure 'F'). This is particularly true of the Lower Blue Mountains area, where local jobs are equivalent to only 20% of the total resident manufacturing workforce; in the Upper Mountains the ratio is more favourable at 35%. It is clear that in overall terms, the Blue Mountains region is highly dependent on the Sydney region for manufacturing employment. This reflects both the dormitory status of the area, and the lack of local employment opportunity (see section D.1.4). The extent of commuting traffic also indicates that there is a large pool of local labour available for new manufacturing plants within the area to tap. This is confirmed by local Commonwealth Employment Offices, who report a high demand for local employment in the face of limited local opportunities. However, any policy of encouraging industrial expansion within the Blue Mountains must have due regard to the available skills of the commuter pool (see section D.1.4). Although industrial employment forms a fairly restricted segment of the total workforce, the lack of local industrial jobs is a contributory factor to the annual exodus of school leavers to Sydney in search of employment.

1.2 Industry Type, Distribution and Characteristics

Composition

As mentioned above, service industries account for 40% of the industrial employment opportunities within the Blue Mountains area. In total, they form by far the most significant industrial sector within the City, as shown in Table D1.



TABLE D1

COMPOSITION OF BLUE MOUNTAINS INDUSTRIAL SECTOR 1974

Category	Number and Proportion			
	Employment		Establishments	
Services: Contractors, Automotive, etc.	371	42.4%	115	65.7%
Textiles, Leather, Clothing	149	17.1%	4	2.9%
Special Industries *	138	15.8%	10	5.8%
Sawmilling, Furniture, Joinery	102	11.4%	21	12.0%
Engineering, Wire, Iron Prods.	47	5.4%	12	6.9%
Printing	43	4.9%	6	3.4%
Food Processing/Packing	26	3.0%	6	3.4%
TOTAL	876	100.0%	174	100.0%

* Includes plastic products, electronics, sporting goods, sample cards, etc.

Source : NSW Department of Labour, supplemented by field survey, April, 1974.

Apart from service industries, the most important group is the clothing, leather and softgoods set which comprise 17.1% of employment, the special group 15.8% (see Table D1), and the wood products group 11.4%. The special and clothing industries groups are of significance in that they are largely composed of plants that have established (or expanded) within the last 5 years with Government and Council assistance. The products are generally light and can, therefore, withstand the relatively high transport costs to the major market area in Sydney. They are also labour intensive plants consuming little land - this type of plant appears to have considerable expansion potential within the City.

Areal Distribution

The overall distribution of industrial employment within the Blue Mountains area is illustrated in Table D2 and in Figure D1.

The following points are worth noting:

- * Katoomba-Leura clearly dominate the Mountains' industrial structure, containing 45% of employment, and 40% of establishments. However, Springwood (17% of employment), Blaxland (9%), and Lawson (7%) are also significant employment centres, and are assuming increasing importance as decentralised industry expands see section D.2.3).



TABLE D2

DISTRIBUTION OF INDUSTRIAL ACTIVITY WITHIN
BLUE MOUNTAINS, 1974

Area	Employment		Establishments	
	No.	%*	No.	%*
<u>Lower Mountains</u>				
Springwood	151	17.2	22	12.6
Blaxland	78	8.9	26	14.9
Valley Heights	22	2.5	4	2.3
Warrimoo	17	1.9	5	2.9
Faulconbridge	10	1.1	3	1.7
Glenbrook	8	0.9	3	1.7
Total Lower Mountains	286	32.6	63	36.1
<u>Upper Mountains</u>				
Katoomba - Leura	391	44.6	69	39.6
Blackheath	48	5.5	9	5.1
Lawson	65	7.4	14	8.0
Hazelbrook	33	3.8	4	2.3
Wentworth Falls	20	2.3	6	3.4
Medlow Bath	15	1.7	4	2.3
Mt. Victoria	11	1.3	3	1.7
Mt. Wilson	3	0.3	1	0.6
Linden	2	0.2	1	0.6
Bullaburra	2	0.2	1	0.6
Total Upper Mountains	590	67.4	113	64.9
GRAND TOTAL	876	100.0%	174	100.0%

* Totals may not add exactly due to rounding

Source : NSW Department of Labour records, supplemented by
field survey, April, 1974.



- * Employment is widely dispensed elsewhere, with no one centre accounting for more than 5.5% of employment.
- * There is little specialisation of particular activities within particular centres. This is indicative of the fact that few linkages exist between industrial establishments within the Mountains. However, the textiles, leather and clothing group is evenly split between Springwood (79 employees) and Leura-Katoomba (70 employees). Similarly, the specialist group is largely confined to Katoomba (75%), and Hazelbrook (10%). Other groups, particularly the services, are widely dispersed, although Katoomba, Springwood and Blaxland are still the dominant centres. This reflects the existing population distribution within the Mountains: service industries grow in proportion to the population base (see section D.2.5). Similar considerations apply to the light industrial groups such as specialist and clothing groups that employ predominantly female labour.
- * The distribution pattern also reflects the availability of zoned industrial land to a certain extent (Figure D2). However, currently, the majority of industrial activity is found outside the industrial zones. This poses problems for the future.

1.3 Recent Changes in Blue Mountains Industrial Structure

Although the Blue Mountains area has a restricted local employment base, it is undergoing a gradual expansion and re-orientation that is altering its composition of industrial activity. Until fairly recently, the 'industry' was virtually restricted to local services such as automotive repairers, panel beaters, trade contractors, building contractors, hardware and joinery suppliers and so on. Provision for such activity was seen as a major objective of Council's industrial policy as recently as 1970*. However, recently the area has become the focus of considerable interest on the part of industrialists seeking to relocate their plants away from the congested parts of the Sydney Region. With assistance from the NSW Department of Decentralisation and Council, a small number of plants have established within the area since 1969. Despite certain operating problems (see section D.2.3), most have survived, and even expanded, and this had the effect of broadening the base of the Mountains' industrial structure. Although, as shown in the preceding section, service activities still form the dominant component within the Mountains' industrial sector, manufacturing activities, of the sort described above, are becoming increasingly

* Item 101 : Town Planning Committee, City of Blue Mountains Report by Town Planner : Industrial areas in the Blue Mountains City Area, 29.7.70.



significant. There has been an increase of 11 plants since 1969 but more significantly, an increase of 225 in manufacturing employment. The following table illustrates the nature of the change.

TABLE D3

CHANGES IN THE INDUSTRIAL STRUCTURE OF
THE BLUE MOUNTAINS CITY AREA 1969-1974

ASIC Code	Product Type	No. of Plants 1969			No. of Plants 1974		
		LBM*	UBM*	Total City	LBM	UBM	Total City
21-22	Food, Beverages	2	4	6	1	5	6
23-24	Textiles, Clothing	1	2	3	1	3	4
25	Wood & Furniture	6	5	11	11	11	22
26	Paper, Printing	2	3	5	1	5	6
27-28	Chemicals, Glass	1	3	4	-	2	2
29	Basic Fabricated Metal	4	5	9	4	8	12
32-33	Transport, Household	2	2	4	-	1	1
34	Leather, Rubber, Plastic	3	3	6	3	3	6
Total Plants		21	27	48	21	38	59
% Increase					0%	+40%	+22%
Total Employment		124	161	285	161	349	510
% Increase					+30%	+117%	+96%

*LBM - Lower Blue Mountains

*UBM - Upper Blue Mountains

Sources : 1969 - Australian Bureau of Statistics Economic Census Data
1974 - NSW Dept. of Labour, supplemented by field survey

It is clear that the increase in manufacturing employment has been greatest to the Upper Mountains, where total numbers have risen from 161 to 349, an increase of 117%. The increase in the Lower Mountains has been only 30% over the same period, with no increase in overall plant numbers. The differential expansion would appear to be due mainly to recent developments at Lawson, where at least four new manufacturing establishments have developed within the last few years on the first stages of the Lawson "industrial estate". As will be seen, it is this area that has the greatest potential for future expansion; unfortunately it is not in close proximity to the Glenbrook and Springwood areas which have witnessed the greatest population



expansion within the Mountains in recent years (as detailed in Section 'B').

As far as the type of plant is concerned, the greatest expansion has occurred within the wood and furniture products field; this reflects the growing demand for such products, and the suitability of the area for this type of industry.

1.4 Industrial Employment Opportunities

Such growth in industrial employment as has occurred in recent years has broadened the employment base within the area. However, in view of the rapid population increase, particularly within the Lower Mountains area in recent years (see Section 'B') and the still small overall supply of local manufacturing jobs, the extent of out-commuting is not surprising. Assuming the proportion of manufacturing workers within the local resident population has stayed roughly constant since 1971, it appears that up to 2,000 manufacturing workers are forced to travel to areas outside the Mountains for employment*. Journey-to-work data from the 1971 Census shows that the major areas of employment outside the Blue Mountains are Sydney, Parramatta and Penrith (see Section 'F'). In view of the likely high white collar component of commuting to Sydney, Penrith, Blacktown and Parramatta appear to be the main sources of industrial employment for residents of the Mountains, particularly the lower segments. Estimates suggest such areas absorb all but a small proportion of industrial out-commuting. This is clearly a cost to those involved in terms of time and fares, and also imposes a considerable load on an already strained transport system. Although certain workers may prefer to commute, at present they have little choice either way.

In addition, as noted earlier, the lack of local industrial employment opportunities clearly exacerbates the already difficult position for school-leavers. Manufacturing jobs appear to have expanded at the rate of approximately 80-85 per annum over the last two years. This, however, compares poorly with the annual number of school-leavers in the 15-16 age bracket which is currently above 350**. In addition, there are over 200 annually leaving school in the 17-18 age brackets. Even if only a small proportion of such juveniles were seeking jobs in manufacturing, it is clear that their demands would be hard to satisfy given the competition from older and more experienced workers. In addition, the high female labour

* Current population within the Mountains appears to be around 42,000 compared to 36,000 in 1971. This suggests a manufacturing workforce of around 2,400. Local employment is only 510. The figure might be increased by cross-commuting from Lower to Upper Mountains.

** Information supplied by Nepean, Springwood and Katoomba State High Schools, and Education Department, New South Wales. See Appendix DI for details.



content of the job opportunities restrict opportunities for males. In the face of such difficulties, it is not surprising that many school-leavers migrate from the area to the 'bright lights' of Sydney. Analyses of Department of Labour returns from the Upper Mountains shows that the ratio of unfilled vacancies: manufacturing jobs sought in the area is twice as high for juniors as for adults. However, even for adults there were four times as many persons seeking manufacturing jobs as there were jobs available over the period 1972-74*. This underlines the lack of local industrial employment available within the Blue Mountains area.

But despite this apparent restriction in local employment, certain industrial enterprises within the Mountains' report difficulty in recruiting suitable labour. This is particularly so for industries requiring relatively skilled labour such as machinists: one clothing plant, opened in Springwood in 1971, was forced to close 12 months later owing to such difficulty; another in Katoomba is currently operating 20% below capacity for similar reasons.

This apparent paradox springs from four factors:

- * The high number of young married families in the Lower Mountains area means that despite below average female participation rates in the workforce (as detailed in Table D4), many women are not available for full-time employment.
- * The socio-economic structure of the population (predominantly 'middle-class', see Section 'B') in the Lower Mountains means that there are fewer women seeking industrial employment than in traditional industrial areas such as the inner city where some of the plants are relocating from.
- * The available skills of the resident workforce do not necessarily match job opportunities within the Blue Mountains; and
- * Competition for labour from non-manufacturing sectors, particularly the tourist industry, is high in the Upper Mountains area. Such industry offers superior pay** and is more attractive to many seeking unskilled employment in terms of working conditions and job interest.

The following table illustrates the spatial distribution of female participants in the Blue Mountains workforce.

-
- * Information from Commonwealth Department of Labour returns for Katoomba Office. See Appendix I for details.
 - ** Present base award rates in the tourist industry (hotels, restaurants, etc.) are up to \$20 per week above those in manufacturing industries such as clothing and textiles. (Information supplied by the Commonwealth Employment Office)



TABLE D4

FEMALE PARTICIPATION RATES IN
WORKFORCE BY AREA 1971

Area	% Female Population 15-65 in Workforce
Mt. Wilson	42.1
Blackheath	38.5
Medlow Bath	38.9
Katoomba	44.6
Leura	47.8
Wentworth Falls	46.0
National Park Zone	20.0
Mt. Victoria	41.9
Springwood	39.3
Warrimoo	42.7
Lawson	42.1
Blaxland	37.7
Glenbrook	36.7
Mean	41%
Sydney Mean	46%

Source : Analysis of 1971 Census figures by Collectors' Districts

It is clear that the participation rate area is already high in areas such as Katoomba, Leura, and Wentworth Falls where local employment opportunities are relatively high: this leaves little reserve labour. In the Lower Mountains the rates are lower, but it is here that there is a high proportion of women with young children (Section 'B').

However, the commuting pool remains, and this, together with the small reserve of female labour, underlines the need for some expansion of local employment opportunities. However, it is clear that such expansion must be selective if it is to be successful - selective in terms of location, type and workforce composition. As far as composition is concerned, the occupation structure of the resident manufacturing workforce is currently biased against the types of industries expanding most rapidly within the area - the clothing and wood products groups*. There is not a large reserve of

* Based on comparison of local employment opportunities (1974) and occupations of resident workforce, as detailed in 1971 Census. Classification difficulties prevent detailed comparison.



D10.

resident workers in these categories to tap. On the other hand, there are a large number of employees in the metal, chemical and printing trades who are apparently not working locally. It would be wise, therefore, for intending industries to bear this in mind.



2. THE BLUE MOUNTAINS AS AN INDUSTRIAL LOCATION

2.1 Land Price Levels

The Blue Mountains region has a supply of industrial land which is admittedly limited (see section D.2.3) at prices well below those of metropolitan locations as the following figures illustrate.

TABLE D5

COMPARATIVE PRICES OF INDUSTRIAL LAND, SELECTED LOCATIONS 1974

Locality	Price per Acre (\$)
Penrith	45-50, 000
Seven Hills	30, 000
Smithfield	70-75, 000.
Rydalmere	125, 000
Parramatta	120, 000
Blue Mountains	10, 000

Source : Plant Location International survey; Blue Mountains City Council

This advantage to some extent, offsets the disadvantages of remoteness and site difficulties that currently deter industrialists from establishing within the area.

It is clear from evidence collected both from local industry and the Blue Mountains Council that the comparatively cheap price of industrial land has been a major factor in attracting new establishments to the area. However, this asset has, until recently, been diminished by the lack of readily available serviced sites, and this clearly calls for concerted action on the part of Council (see section D.2.4). Moreover, every effort should be made to stabilise costs as far as possible. Recent escalation in site values, although by no means unique to the Blue Mountains region, may have mitigated against further industrial expansion within the region.

2.2 Capacity of Existing Industrial Zones

There are, in total sum, 619 acres of land zoned for industrial purposes within the Blue Mountains City area. Of this, only 26 acres is currently occupied by industrial activity with a total employment of 300 within the zones (of a total industrial employment



of 876). 77 acres of the zoned land are occupied by non-conforming uses, but it is estimated that 57 acres of this amount is available for industrial development in the short term. Thus, a total of some 572 acres are available for industrial development, on the locational basis shown in Table D6 below, and illustrated in Figure D2.

However, field survey of sites in the area and discussions with Council officers shows that a good proportion of this land is very unfavourable to immediate development, owing to unfavourable slope of land - the general shortage of flat land within the city is accentuated within industrial zones, many of which are typified by very steeply sloping land and poor access (see Appendix II). Estimates of the amount of zoned land that is potentially available for industrial development, including land where site works are feasible, shows that the only areas where really significant amounts of land are available are in Lawson (possibly 130 acres) and Katoomba (possibly 60 acres). Lesser amounts are available in Blackheath, Blaxland and Mt. Victoria.

TABLE D6

AVAILABILITY OF INDUSTRIAL LAND WITHIN ZONED
INDUSTRIAL AREAS, BLUE MOUNTAINS CITY, 1974

Area	Areas Zoned	Area Occup. by Industry+	N.C. Uses	Available for Dev.	
				Theoretical	Actual
Lawson	198.3	4.0	6.4	195.0	127.0
Katoomba	157.2	8.9	41.7	143.3	60.0
Blackheath	63.7	0.9	9.4	68.4	28.0
Mt. Victoria	56.3	1.4	6.2	46.1	20.0
Blaxland	63.4	2.2	-	55.9	25.0
Springwood	64.0	8.1	13.1	17.9	12.0
Warrimoo	11.7	0.5	-	11.2	4.0
TOTAL	619.0	26.0	76.8	567.8	276.0

* Calculated after field surveys of site, slope measurement, and consultation with Council officers.

+ Source : Plant Location International surveys, 1973; updated by field survey, 1974.

N.C. - non-conforming



Thus, the topographic constraints reduce the area available for industrial development within existing industrial zones by one half to 276 acres, of which only 41 acres (15%) is within the Lower Blue Mountains. When the requirements of service industry in these areas are taken into account, little of this land would be available to manufacturing activities. However, further areas for industrial development could be found outside zoned areas if necessary. It appears, for example, that upwards of 500 acres of land could be made available in the vicinity of Singles Ridge Road in the Lower Mountains, most of which would be topographically suitable to industrial development with normal site preparation works. However, the environmental costs involved in such a designation are likely to be high.

The capacity of these areas available for industrial development - theoretical and actual - are set out in Table D7 below. In calculating this capacity, an optimum employment density of 20 per acre has been assumed, on the basis of examination of existing conditions and of comparable industrial areas. This figure applies to manufacturing industry only.

TABLE D7

MANUFACTURING EMPLOYMENT CAPACITY ESTIMATES
INDUSTRIAL ZONES, BLUE MOUNTAINS

Area	Total Acres Available	Total Acres Usable	Employment Available	Capacity Usable	Existing Employment
Lawson	198	127	3,960	2,540	37
Katoomba	143	60	2,860	1,200	100
Blackheath	68	28	1,360	560	6
Mt. Victoria	46	20	920	400	5
Total Upper Mountains	455	235	9,100	4,700	148
Blaxland	56	25	1,120	500	23
Warrimoo	11	4	220	80	3
Springwood	50	12	1,000	240	128
Total Lower Mountains	120	41	2,340	820	149
GRAND TOTAL	575	276	11,440	5,520	297



In total terms, the additional employment capacity of 5,250 manufacturing workers means the total manufacturing employment within the Blue Mountains could rise to approximately 6,000 if all the capacity were taken up. Assuming a manufacturing component of 15% within the workforce, this implies that manufacturing jobs for a population of around 110,000 (cf Alternative 3) could be provided.*

However, this assumes that:

- * All available industrial land would be developed for manufacturing as opposed to service industry, activities. This conflicts with current policy. If the zoned areas were reserved for manufacturing employment alone, alternative locations would have to be found for service industry and related 'industrial' activities.
- * There would be little surplus land which could cause prices to rise, hence eroding the current competitive position of the Blue Mountains in this regard.
- * The bulk of manufacturing employment would be located within the Upper Mountains, at Lawson and Katoomba. This would not marry with current population trends which are leading to rapid increases in the Lower Mountains (5.7% per annum), while the Upper Mountains population is increasing at a slower rate (1.6% per annum). This has differential implications for the alternative strategies under consideration (see section D.3).

The overall implication is that there is a serious imbalance between the supply of industrial land within the Blue Mountains area and the likely future distribution of population. If there is to be a substantial increase in population, an increase in the commuting of manufacturing workers is inevitable unless more industrial land is found within the Lower Mountains.

On the other hand, the lack of available industrial land, and hence employment opportunities, within the Lower Mountains, may discourage manufacturing workers from residing in this area. The overall employment capacity for industrial workers within the Lower Blue Mountains area, (820) is only marginally above the existing number of manufacturing employees resident within the area (520). Thus the scale of the problem depends on the amount of population expansion that occurs within the area.

In overall terms, the current supply of industrial land is capable of providing local employment for a population of up to 84,000 in the Upper Mountains, but only 26,000 in the Lower Mountains. As will be seen, this is not in accord with likely future population distribution. More importantly, however, when the demands of service industry and wholesaling are considered, the local employment possibilities are reduced (see D.3.5).

* Assuming an overall workforce participation rate of 36% as compared to the present 30%.



2.3 Location Factors Affecting Blue Mountains Industry

Interviews were completed with 10 industrial organisations operating in the Blue Mountains area. This comprises approximately 16% of all non-service industry establishments, and the firms involved account for over 50% of non-service industry employment within the Blue Mountains. All significant firms with a total employment of 10 or over have been contacted - mean number of employees of these interviewed is 23 (6 overall). The following points emerge from an analysis of data collected:

- * Average length of operation in the area is 5-6 years. However, 40% of firms have established within the last 3 years. Three plants relocated from the city, two city-based firms have established branch plants in the area, and the balance set up within the Blue Mountains area. Half the firms involved have received assistance from the NSW Department of Decentralisation - this involves 60% loans on construction/establishment costs plus 30% from Council (other subsidies are also available). This was a significant incentive factor for these industries to set up and/or expand in the area.
- * Most of the industrial establishments of any significance within the area produce light goods which have a high value-to-bulk ratio (such as clothing, softgoods, leather goods, books and pamphlets, sporting goods, light furniture, etc). They employ female labour predominantly (70%). They tend to be labour intensive. The average ratio of wage: raw material cost is 60/40.
- * The average size of site is 1.25 acres, average industrial floorspace is 20,000 sq ft (approximately 0.5 acres).
- * The Sydney Metro Region provides the main market for products. The average split is as follows:

Sydney	60%
N. S. W.	5%
Interstate	30%
Overseas	5%

Products are predominantly distributed by road (mainly due to their light nature - also there are complaints of inefficiency on rail transport). Raw materials are virtually all obtained from Sydney-based suppliers and are also predominantly transported by road.

- * The most frequently cited location factors are as follows:



Proximity to management homes	5
Labour availability	5
Land Price favourable	4
Pleasant environment	2

Hence, normal economic location factors are balanced equally by considerations of being 'close to home' and having a pleasant operating environment.

*

The major perceived problems of operating in the area are:

Difficulty in obtaining services	5
Remoteness from suppliers/ market hampering operations	4
Expense and difficulty of telephone contact	4
Difficulty in obtaining labour	3

These basically spring from the relative distance of the area from the city - closer proximity to suppliers/markets would alleviate them considerably. Further development of western Sydney industrial areas should ease the problem. On the score of telephones, the fees are 29¢ for a 3-minutes STD call to Sydney in the Lower Blue Mountains area. The fee beyond Leura point rises to 57¢. Thus, all industrial establishments in Katoomba face bills of up to twice those of establishments in areas lower down.

The 29/57¢ line in fact falls between Leura and Katoomba which seems completely arbitrary. Suggestions for the whole of the Blue Mountains area to be in the 29¢ zone seem reasonable. This would certainly be of considerable assistance to industrialists who have significant linkages and contact with Sydney markets and suppliers.

Labour difficulties have already been discussed (see Section D.1.4).

Difficulties in obtaining services are mainly on the maintenance side. Few local maintenance services are available except for basic electrical and plumbing operations. Service of machinery causes problems since Sydney-based firms are unwilling to travel the distance involved.



- * Despite such difficulties, most operators agreed that advantages of the area such as the pleasant environment, good working conditions, ready access to labour and lack of journey to work problems, far outweigh the disadvantages.
- * The poor relative position of the Blue Mountains sector in comparison to other areas springs, in the industrialists' view, from several factors :
 - Lack of sites for industrial plants
 - Difficulty of access and contact
 - Lack of co-operation from Council. Several mentioned this as a definite deterrent to industrial development owing to delays and departmental wrangles in approving applications. It also appears that Council is somewhat slow to move in providing basic services to established industries (eg. special drainage, upgrading of roads, etc) which exaggerates operating problems.

Suggestions for increased incentives for industry to establish in the area include :

- Provision of fully serviced and prepared sites.
- Upgrading of infrastructure, in particular roads serving the industrial areas.
- Erection of a suite of industrial premises for lease or sale.
- Appointment of an 'Industrial Liaison Officer' by Council to deal specifically with enquiries from industry, to promote industrial development and assist in application procedures.
- Speeding up and improving coordination of application approval.

Implications

The major implication to be drawn from the Survey is that only certain types of manufacturers are suited to the environment with the Blue Mountains area - mainly non-basic activities producing light products that can easily withstand relatively high transport costs. Although clothing and textile plants dominate the industrial structure of the area, there does not appear to be unlimited scope for further expansion of this type of activity owing to the shortage of suitable labour. The emerging socio-economic structure of the population mitigates against there being a ready pool of female industrial labour.



However, a number of manufacturing workers do currently commute from the area (over 1,800 in total) and these would appear to form a ready pool to tap. Certainly, labour availability is seen as an important location factor to many firms. The scale of future population increase will clearly affect this potential.

Most operators experience some difficulty in contacting suppliers, etc, and thus it would seem worth encouraging vertically-linked groups to the area if suitable land can be found. It would also seem worth encouraging industries with linkages to those already in the area.

There is a clear need for Council to make its liaison and dealings with industry more sympathetic to overall needs and less oriented to minor details. Dealing with DA's needs considerable speeding up.

The fact that proximity to home is an important location factor suggests that efforts to promote the Blue Mountains as a joint home-work development area should be made. But this will not be possible under all alternative strategies.

The importance of D.D.D. subsidies in what industrial expansion there has been in recent years reinforces the need for these be more widely publicised.

There is a strong case for the inclusion of the entire Blue Mountains area into the Sydney Telephone District, in view of the increasing economic and social interdependence of the two areas. In lieu, the Blue Mountains area should at least be included in the Outer Sydney District as one unit.

2.4 Council Policy Towards Industrial Development

In recent years, Council has been concerned with the lack of industrial development within the Blue Mountains area. As a result, certain industries have located within the area with Council assistance under the Department of Decentralisation assistance scheme (as noted in section D.2.3). However, the six firms that have been given Council assistance to establish within the area since 1970 represent only 10% of these that have made serious enquiries concerning the possibility of locating in the area, over this period. This is a rather dismal rate of failure to offer prospective industrialists. Certain of the firms involved have lost interest owing to change of plans regarding expansion and other internal difficulties. Others, however, appear to have been discouraged by lack of available land and prepared infrastructure, as well as by delays and lack of coordination on the part of the Council.



The question of an overall developmental strategy for industry has only recently received detailed attention from Council. The matters of performance codes and statutory definitions of industry have received much more attention. However, following a report on the subject by the City Engineer in 1973*, Council has adopted a policy aimed at acquiring land and providing industrial estates at various localities within the Mountains.

The major points of the adopted policy are:

- * Development of fully serviced industrial estates
- * Reserving of areas for decentralised industry, and possible land price reductions as inducements
- * A positive campaign of development
- * A coordinated approach to industrial liaison
- * Encouragement of industries that will maximise employment opportunities and related economic expansion

A contract for the initial precinct of the first stage of the development of an integrated industrial estate at Lawson has just been let. In total, this stage provides for the expenditure of \$70,000 on the creation of nine one-acre allotments which will sell at around \$10,000 each. The market for these seems assured from enquiries that have been received.** Plans are in hand for similar developments at Katoomba and possibly Blackheath.

However, elsewhere in the mountains, Council policy appears somewhat confused by the apparent acceptance of the implication of the Sydney Region Outline Plan that the Lower Blue Mountains (at least) should be predominantly a dormitory area, continuing to rely on centres such as Penrith and Parramatta for employment (Sydney Region Outline Plan, page 75).

Land zoned for industry in this area (130 acres in all, of which only a small proportion is usable - see Table D6), is largely reserved for local service industries. Such activities are currently widely scattered throughout the settlement area, and policy is to steer them to industrial zones in the future. Whatever the wisdom of

* Sources : 1) Report by City Engineer, Item 2. Policy on Industrial Area Development, 9.1.73.

2) Item 0 - Works and Town Planning Committee.
Confidential Report by Town Clerk : Policy - Industrial Area Development 20.2.73.

** Two developments - a refrigeration systems plant (employing 10), and a photographic slide box manufacturer (employing 12 initially) are definitely committed at this stage, and others are likely to follow



this policy, it undoubtedly lowers the potential of the Lower Blue Mountains area to absorb manufacturing employment. This may be an error given that the shifting centre of gravity of Sydney's population is bringing the market continually closer to this area, this possibly increasing the potential as an industrial location. At the same time, the capacity of the Lower Blue Mountains area limits such potential.

2.5 The Role of Service Industry

The dominant role of service industry within the Blue Mountains City Area at the present time has already been noted. In general terms, the services available - automotive repairers, panel beaters, contractors (repair, hire, building etc.) - reflect the needs of the local population. Services activities are strongest within the centres of greatest population and commercial importance: Katoomba and Springwood together account for 60% of the service industrial employment and a similar proportion of service establishments within the Mountains. The only other centres of significance are Blaxland (9%) and Lawson (5%).

As pointed out, certain manufacturing establishments within the Mountains find difficulty in obtaining services; however, this tends to be for specialised requirements such as machinery maintenance rather than for basic services which appear to be reasonably well developed. The automotive and building supplies' sectors are the most significant, reflecting the rising car ownership within the Mountains on the one hand and the current building boom in the Lower Mountains area on the other.

In addition to service industry, there are also a number of wholesalers within the Mountains who employed some 205 people in total in 1969 - 51 in the Lower Mountains (10 establishments) and 154 in the Upper Mountains (27 establishments)*. Although the area is currently mainly dependant upon wholesalers outside the area for provision of stock, it seems likely that as population grows and the area becomes increasingly self-sufficient, more wholesalers will locate within the area.

Similar considerations apply to service industry - an examination of employment statistics in a number of centres close to the Sydney region shows that as the population expands, the proportion of workforce employed in service activities tends to increase to some extent. Even where the proportion remains constant, it is clear that services will expand with growing population, and hence demand more space. Current Council policy seeks to direct all service and semi-industrial activities into areas zoned for industrial activity. Given the already

* Figures supplied by Australian Bureau of Statistics, Economic Census Section.



limited amount of land available for these purposes, it is clear that the increasing demands from non-manufacturing activities as the population grows will severely limit the land available to manufacturing activities. The implications of different population levels in this respect are discussed in the ensuing section. In general, it appears that regardless of population level, if current policy is to use industrial zones for service industry persists, additional land will have to be found for manufacturing industry (in the Lower Mountains at least) if it is desired to provide a reasonable level of local industrial employment.



3. INDUSTRIAL POTENTIAL AND IMPLICATIONS OF ALTERNATIVE FUTURES

3.1 Summary and Assessment of Overall Potential

The preceeding analysis has demonstrated that the Blue Mountains City area plays a fairly limited role in industrial activities at the present time, and is largely dependent upon centres such as Penrith and Parramatta for industrial employment. The area's industrial structure is dominated by service - as opposed to manufacturing - industry activities. Although a small number of plants of a more basic nature (manufacturing goods for the Sydney market), have established within the area in recent years and widened its industrial base, the overall industrial potential of the region is clearly limited by several factors or constraints:

- * The topographic constraints clearly mitigate against any large-scale expansion of manufacturing industry within the area.
- * Existing industrial zones have limited potential for expansion in view of their largely unfavourable topographic nature. If industry is to expand markedly, the only course would be to consider earmarking existing 'residential' or non-urban zones for industrial purposes. Unless this is done, commuting to other industrial centres seems inevitable. However, the scale of industrial expansion/commuting is dependent upon population expansion (see section D.3.2).
- * The fringe location of the area currently throws up problems of servicing, supply and contact for industrial activities in the area. Any programme of industrial expansion should aim to encourage linked groups of manufacturing and service activities to establish within the area. Moves to have the Blue Mountains zone included within the Sydney Telephone zone should be supported.
- * Despite the relatively low overall female participation rates in the workforce, there is not an unlimited pool of female labour available to industry. This arises from the peculiar socio-economic and age structure of the Lower Mountains population, the already high participation rates in the Upper Mountains, and the competition from non-industrial employers (eg. tourism).
- * Although the extent of out-commuting of manufacturing employees (approximately 2,000 per day in total) means that new industry has a reasonable pool of labour to tap, the available skills of this pool, however, do not necessarily match local employment opportunities. Thus, there appears to be greater scope for the expansion of metal and chemical industries than for clothing-related trades.



- * Industries have been discouraged by the lack of provision of readily serviced land within the industrial zones. Such zones need to be provided in large portions.
- * There is currently some confusion over the role of service industry and the desirability of maintaining the dormitory role of the Lower Mountains. This area appears to have potential for industrial expansion of the sort already occurring to a limited extent. However, if industrial expansion and hence local employment are to be diversified, more land for industry will need to be found, the extent being dependent upon the level of population expansion envisaged. The role of the Mountains as an industrial location needs to be clarified.

Nonetheless, the Blue Mountains has some potential for industrial expansion. This is based on several factors:-

- * Despite the limitations on land availability within zoned areas, more land could be designated for industrial purposes. The Blue Mountains area is ideally suited to the expansion of small-scale industry of a labour-intensive nature. Manufacturers producing light products of a high value-to-bulk ratio find the area a good location. Provided suitable labour and sites are made available this type of plant deserves every encouragement to expand. Such activities need in no way harm the environment, and will, at the same time, expand local employment opportunities both for school-leavers and those forced to commute beyond the City's boundaries.
- * The price of industrial land, being well below prevailing Metropolitan levels, is a definite incentive to industrial expansion, if exploited.
- * Recently adopted Council policy to provide fully serviced industrial estates will encourage industrial expansion if pursued more vigorously and quickly. The area is clearly attractive to activities decentralising from the Sydney region, and if sites can be made available, it will place the area on a more equal footing to comparable fringe locations such as Lithgow and Gosford.
- * Department of Decentralisation subsidies are available to manufacturers locating in the area. In view of the incentive these clearly provide, they should be more widely publicised. Council should appoint an Industrial Liaison Officer to make and maintain contact with intending industrial activities.

However, it is clear that the level of industrial employment required within the City will vary not only with the desire to provide a reasonable measure of local employment, but also with the size and distribution of the future population within the area. In this respect, the alternative development strategies proposed have different implications for industrial activity within the Mountains.



3.2 Implications of Alternatives

The five alternatives posed in the Strategy for the Blue Mountains will result in different levels of population ranging from 47,000 to 275,000: each has different distributions of population within the area. This implies that there will be different numbers of people available to work in manufacturing industry. The capacity of the Mountains to provide employment for these people will determine the necessary level of commuting from the area. Although there is currently a high proportion of industrial commuting from the area, the total number involved is only 1,800. There is the possibility of increasing the proportion of people working locally if industrial facilities are expanded; however, the demands of service industry and the scale of future population growth will limit this possibility unless more land is designated for industrial purposes. The imbalance of industrial land between the Upper and Lower Mountains areas will become critical under certain alternatives.

Services

In assessing the implications of alternatives in terms of industrial zone capacity and local employment provision, the Upper and Lower Mountains have been dealt with separately owing to their different nature, likely future population levels and the differing availability of industrial land. The likely demands of service industry and wholesaling activities have been calculated first. Since the expansion of these activities is related to population levels (see Table D8), it is clear that if it is desired to accommodate service industry within industrial zones, the land available to non-service activities will decrease as population increases.

The major implications arising from the analysis of space demands in Table D8 are as follows:

- * Service industries will occupy an increasing proportion of industrial land under each alternative. The acreage involved increases from 13 to 300 in the LBM under each successive strategy and from 26 to 340 in the UBM.
- * Even assuming all industrial land was used for service industry, there is insufficient land available for services and wholesaling under Alternatives 3, 4 and 5 in the LBM, and under Alternative 5 the shortage affects both LBM and UBM areas.
- * Thus, unless the supply is increased, there would be NO LAND available for manufacturing expansion in the Lower Mountains under Alternatives 3, 4 and 5, and in the Upper Mountains under Alternative 5.

The answer to this dilemma lies in one of two solutions:

- * Under Alternative Futures 3, 4 or 5, more land must be found either for service or manufacturing industry, if it is



TABLE D8

ACREAGES REQUIRED BY SERVICE INDUSTRY AND WHOLESALING AND AVAILABLE TO MANUFACTURING UNDER ALTERNATIVE STRATEGIES
(see notes below for assumptions)

	Alternatives									
	1		2		3		4		5	
	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM
1. Employment levels										
(a) Service Industry	180	300	300	460	660	1350	1170	2640	4580	4580
(b) Wholesaling	90	190	150	280	290	760	560	1420	1820	2300
Total	270	490	450	540	950	2110	1730	4060	6350	6880
2. Land required by										
(a) Service Industry	6	10	10	15	22	45	39	88	151	152
(b) Wholesaling	7	16	12	23	24	63	46	118	151	191
Total	13	26	22	38	46	108	85	206	302	343
3. Zoned Industrial Available for Expansion	41	235	41	235	41	235	41	235	41	235
4. Land Available to Manufacturing	28	209	19	197	-5	127	-44	29	-261	-108
5. Manufacturing Employment Capacity of Additional Land (persons)	560	4100	380	3940	NIL	2540	NIL	580	NIL	NIL

Notes:

- In calculating likely employment levels; the workforce was assumed to increase from 36% and 33% total population in LBM and UBM respectively to 46% and 40% respectively. Thus it has been assumed that workforce participation levels will rise to levels approaching those of Sydney, except that participation levels will remain lower in the Upper Mountains owing to the continuing older population structure. The following assumptions were then adopted :-
 - SERVICE INDUSTRY: Employment will increase from current levels of 2% and 4% of the workforce in LBM and UBM respectively to 7.5 and 8.0% in proportion to population increase.
 - WHOLESALING: Employment will increase from current levels of 1.0% and 2.8% of workforce in LBM and UBM respectively to a level of 3% and 4% in proportion to population increase.
- The space standards adopted in calculating land requirements and employment capacities are as follows :-
 - SERVICE INDUSTRY: 30 employees per net site acre
 - WHOLESALING: 12 employees per net site acre
 - LIGHT MANUFACTURING: 20 employees per net site acre.

These standards are based on an examination of space standards in a wide range of existing industrial zones within Sydney and Melbourne.



desired to expand the latter segment. This is clearly a problem in view of the visual intrusion problems and the lack of suitable land within the Mountains. The demands of service industry must, in any case, be accommodated, as its expansion is inevitable as population rises.

- * Service industry could be accommodated outside the existing industrial areas freeing these areas for expansion of manufacturing.

Manufacturing

However, the necessity for the provision of industrial land depends on the required level of local employment as well as the likely level of population expansion. The various Alternatives imply a different number of manufacturing workers will reside within the area; it is likely that the proportion of manufacturing workers within the resident workforce will increase as population rises.* This is particularly so in the Lower Mountains, where the population is expanding rapidly: the area is becoming increasingly accessible to developing industrial zones in Penrith and Mt. Druitt. If it is desired to provide local employment for these people, different implications arise under each alternative in respect of land requirements. If, on the other hand, local employment is not considered a high priority, the levels of commuting will vary under each alternative.

In broad terms, two extreme policies are available on commuting within the constraints of existing industrial land availability:

- OPTION A Marginal expansion of manufacturing employment: Blue Mountains largely as a dormitory
- OPTION B Maximum expansion of manufacturing employment up to capacity of industrial zones.

The implications of these options arising under each Alternative is detailed in Table D9.

The major implications arising from this analysis are:

- * In the LOWER MOUNTAINS, regardless of which commuting option is adopted, the level of out-commuting is likely to be high under all Alternatives, owing to the shortage of suitable land. Even if industrial employment were expanded to capacity, (Option A), a maximum of 39% of likely manufacturing workforce can be employed locally (Alternative 1), falling to 1% under Alternative 5. This compares to a range of 11% to 1% under Option B.

* Between 1966 and 1971, the proportion of manufacturing workers in the resident workforce within the LBM rose from 16% to 20%.



TABLE D9

COMPARATIVE IMPLICATIONS OF ALTERNATIVE STRATEGIES, MANUFACTURING,
EMPLOYMENT AND COMMUTING LEVELS

ALTERNATIVES	1		2		3		4		5	
Total Population	47000		65000		112000		173000		275000	
	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM
1. Population Distribution	24800	22500	33600	31300	45000	67400	69500	103600	131700	143100
2. Workforce	8900	7400	12400	10600	10000	24600	27800	39400	60600	57200
3. Manufacturing Workforce	1800	750	2500	1050	3800	3200	5800	6300	15150	11450
4. Industrial Zone Capacity (Assuming Service Industry Accommodated)	700	4100	500	3900	160	2700	160	730	160	500
5. Numbers & Proportion Working Locally under Options A and B										
A. Manufac. Employment Expanded Marginally										
Number	200	400	200	400	200	400	200	400	200	400
Proportion	11%	53%	8%	38%	5%	13%	3%	6%	1%	3%
B. Employment Expanded to Zone Capacity										
Number	700	750	500	1050	200	2700	200	700	200	500
Proportion	39%	100%	20%	100%	5%	84%	3%	12%	1%	4%
6. Numbers Forced to Commute Under A and B:										
A. Manufac. Employment Expanded Marginally	1600	400	2300	700	3600	2800	5600	5900	14900	11100
B. Employment Expanded To Zone Capacity	1100	Nil	2100	Nil	3600	500	5600	5600	14900	11000
7. Extra Land Required For Manufacturing If Full Local Employment Required (Acres outside existing industrial zones)	55	Nil	100	Nil	180	25	280	286	750	555

Assumptions Used in Deriving Table 9:

- 1) The workforce participation rate will rise from its present levels of 33 and 36% in LBM and UBM respectively to 40 and 46% (Sydney level) as the population increases.
- 2) The proportion of the resident workforce employed in manufacturing activity will rise from present levels of 20% and 10% in LBM and UBM, respectively, to 25% (projected Sydney level) and 20% as population rises.
- 3) Capacity of industrial areas based on employment density of 20 ppa within industrial land available to manufacturing (assuming services as in Table 8).
- 4) Local employment defined as that available within the LBM and UBM, respectively.



However, under Alternatives 1, 2 and 3, the levels of commuting under Option B are lower than those under Option A: for example, under Alternative 1, although 61% of the workforce would be commuting under Option B, 89% would be commuting under Option A. But under the extreme Alternatives 4 and 5, the shortage of land means that for either option, some 6,000 and 15,000 people respectively would be forced to commute. This would clearly cause considerable, if not unbearable, strain on the transport system, as well as inconvenience to the people involved. If this is to be avoided, upwards of 300 acres of new industrial land is required, a difficult prospect given existing topographic and aesthetic constraints. Alternative 4 (the Statutory Scheme) will clearly cause considerable problems unless extra industrial land is found within the Lower Mountains.

- * The position is slightly more favourable in the UPPER MOUNTAINS: sufficient land is available to accommodate the entire likely manufacturing workforce locally under both Alternatives 1 and 2. In fact, there is excess land available which opens the possibility of providing work in the Upper Mountains for the surplus LBM workforce (without having to designate extra industrial land).

Under Alternative 3, it is possible to accommodate 85% of the manufacturing workforce locally. However, under Alternatives 4 and 5, the extra demands of service industry combined with the extra likely manufacturing workforce, make a high level of commuting inevitable under either option. No more than 12% local manufacturing employment is possible, and this means that from 6 to 11,000 people would be forced to commute. Together with Lower Mountains commuting, the strain on the transport system would be inordinate. The only way this can be overcome is through the provision of 300 acres of new industrial land under Alternative 4, and 550 under Alternative 5.

* Costs

Under any alternative, some expansion of industrial employment is envisaged. However, were such expansion marginal, as suggested under Option A, little extra land would have to be found for industry and it is likely that this would not have to be financed by Council. On the other hand, if it is required to encourage industrial expansion, it is clear that serviced sites would have to be made available to industry. The likely order of costs of such a programme, under Option B and various self-containment options, are set out in Table D.10.

The following points arise from this analysis:

1. The capital cost of providing industrial land rises dramatically as population increases. If it is desired to provide full industrial employment (100% self-containment) the total cost ranges from \$0.47 millions under Alternative 1 to \$8.1 millions under Alternative 5.



TABLE D10

**COSTS OF ACQUIRING AND SERVICING LAND REQUIRED FOR INDUSTRY
UNDER DIFFERENT DEGREES OF SELF-CONTAINMENT (\$ MILLION)**

	1			2			3			4			5		
	L	U	Tot	L	U	Tot	L	U	Tot	L	U	Tot	L	U	Tot
Option B (with Ind-zones)	0.05	0.04	0.09	0.03	0.12	0.15	*	0.08	0.08	*	0.03	0.03	*	*	*
Option C : 50% Self- Contain- ment	0.26	0.04	0.30	0.47	0.12	0.49	0.54	0.08	0.62	0.96	0.48	1.44	3.00	0.99	3.99
75% Self- Contain- ment	0.34	0.04	0.38	0.52	0.12	0.64	0.84	0.08	0.92	1.26	0.72	1.98	4.50	1.50	6.00
100% Self- Contain- ment	0.43	0.04	0.47	0.67	0.12	0.79	1.11	0.08	1.19	1.68	0.05	1.73	6.07	1.99	8.06

* Indicates no spare capacity within industrial zones

Note:

1) Based on acquisition and servicing costs at mid-1974.

For Option B, prevailing costs within industrial zones were used as a basis. For other figures acquisition costs used were those for existing non-urban land.

Costs adopted as follows: Option B : Acquisition \$6,000 p. a. ; servicing \$2,000 p. a.
Other options: Acquisition and servicing \$6,000 p.a. in LBM; \$3,000 p. a. in UBM.

2) Costs of acquiring Council owned land or Crown Land in industrial areas excluded (38 acres in LBM, 20 acres in UBM)

3) Self-containment defined as ratio of local jobs to resident workforce



This however, assumes extra land could be made available to industrial development to the tune of 1,300 acres under the extreme Alternative 5. Even assuming such land were available within the Mountains, it would involve considerable environmental disruption to provide it.

2. On the other hand, under Option B, expansion within the capacity of the existing industrial zones, Council would be committed to less expenditure - a maximum of \$0.15 millions under Alternative 2. However, as illustrated in Table D. 9, the capacity of the zones is limited and thus the degree of self-containment achieved under Option B is low.
3. Capital costs could be defrayed by sale of land and subsequent rate income, but it appears that to provide local industrial employment for the population envisaged under Alternatives 4 and 5 would make unrealistic demands on Council's revenue and borrowing capacity. In addition, the designation of the acreage involved (600 acres under Alternative 4, 1,200 under 5) would represent considerable opportunity costs in terms of environmental destruction and loss of land for recreational purposes. Alternatives 1 to 3 make more realistic demands both on capital and resources.
4. These costs could be avoided altogether if no expansion of industrial expansion is sought. However, as already noted, the levels of commuting this would give rise to high transport and congestion costs, particularly if either of Alternatives 4 or 5 were adopted, where, from 10-25,000 manufacturing employees would be forced to seek external employment.

3.3 Conclusion

From the preceding analysis of implications of the Alternatives, the following points emerge:

- * The high demands of service industry, together with the likely increase in manufacturing resident workforce under Alternatives 4 and 5, make a considerable increase in commuting of this workforce inevitable unless extra land is designated for manufacturing purposes. The shortage of land actually available suggests these Alternatives should not be accepted unless a high level of commuting is considered desirable.
- * The shortage of industrial land is most critical in the Lower Mountains, where a maximum of 40% of the resident manufacturing workforce can be employed locally - given existing industrial zone capacity. On the other hand, the land available in the Upper Mountains allows for full local industrial employment under Alternatives 1 and 2. In fact, it is possible to absorb the entire Blue Mountains industrial workforce within the Upper Mountains under these alternatives. This is not possible under Alternatives 3, 4 and 5, unless considerable acreages of



industrial land are designated. Although such land is available in the LBM, the costs of acquisition and servicing would be inordinately high, not to mention the environmental destruction involved.

- * Given this situation, and if it is considered desirable to minimise commuting from the Blue Mountains area and maximise conservation of the environment, Alternatives 1 and 2 are most favourable. Under these Alternatives, a policy of industrial employment self-sufficiency is possible, although some commuting between Lower and Upper areas would have to be accepted. Such self-sufficiency must be foregone under Alternatives 3, 4 and 5 unless between 200 and 1,500 acres of extra industrial land are designated. Although large areas of land could be designated for industry within the Lower Mountains, cost factors alone seem to rule out this course of action, and when environmental factors are considered, it appears to be completely impracticable.
- * Clearly, the amount of extra industrial land required varies with the degree of self-containment that is considered desirable. The preceeding analysis has pointed out the extremely high costs in terms of land requirements, acquisition and servicing costs, of providing for full local industrial employment.

If a lower degree of self-containment was aimed for (say 50%), clearly land requirements, and hence costs, would be lower. The total land requirements for various degrees of self-containment (and taking the demands of service industry into account) are listed in Table D11 below: in view of the limited amount of land available within the Mountains, a 50% self-containment would appear to be an upper limit for the Alternatives 4 and 5.

TABLE D11

APPROXIMATE LAND REQUIREMENTS FOR INDUSTRY IF UNDER
DIFFERENT DEGREES OF SELF-CONTAINMENT (acres)

Alternative	1		2		3		4		5	
	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM
50% self-cont.	27	Nil	50	Nil	90	Nil	160	160	500	330
75% self-cont.	40	Nil	75	Nil	140	Nil	240	240	750	500
100% self-cont.	55	Nil	10	Nil	185	25	324	315	1011	663

Source : Derived from Tables D8 and D9.

Notes

1. Assumes all industrial activity - manufacturing and service industry (including wholesaling) - would be housed within industrial zones.
2. Self-containment defined as ratio of local employment to resident workforce.



- * The degree of commuting arising from industrial development will, as pointed out, also vary with the level of local employment. A summary of the numbers involved at different self-containment levels, in comparison to Options A and B is present in Table D12.

TABLE D12

COMMUTING LEVELS FOR INDUSTRIAL EMPLOYEES UNDER ALTERNATIVES
AT DIFFERENT DEGREES OF SELF-CONTAINMENT

Alternative	1		2		3		4		5	
	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM	LBM	UBM
1. Option A										
Marginal Industry Expansion	1600	400	2300	700	3600	2800	5600	5900	14900	11100
2. Option B										
Expansion to zone capacity	1100	Nil (ie. 100% s.c.)	2000	Nil (ie. 100% s.c.)	3600	500 (ie. 80% s.c.)	5600	5600	14900	11100
3. 50% self-cont.	900	Nil	1250	Nil	1900	Nil	2950	3150	7550	5800
4. 75% self-cont.	400	Nil	600	Nil	950	Nil	1500	1600	3800	2900
5. 100% self-cont.	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Source : Derived from Tables D8, D9 and D10.

Note

1. Self-containment is a ratio of local employment to resident workforce.

- * In conclusion, it is clear that the extreme Alternatives 4 and 5 generate either such great demands for industrial land, if even a moderate measure of self-containment is aimed for, or such high levels of commuting as to raise serious implications for the future population and environment within the Blue Mountains.



EMPLOYMENT OPPORTUNITIES AND SCHOOL LEAVERS

School Leavers (Information supplied by Department of Education)

There are three major state high schools serving the Blue Mountains area: Katoomba, Springwood and Nepean. Springwood and Katoomba serve surrounding districts, whilst Nepean draws one-third of its enrolment from within the Blue Mountains City area. Total enrolments of students from within the City area stood at 2,500 in 1973. Of these there were around 350 school leavers in the 15-16 age bracket (an increase of around 200 since 1969), and another 250 or so in the 17-18 age bracket. The latter group predominantly proceeds to higher education, and hence many are obliged to migrate to Sydney for attendance at Universities, Teachers Colleges and Technical Institutions. Most of the younger leavers would be seeking local employment: the lack of opportunities clearly contributes to the high out-migration of people in this group (as detailed in Section 'B').

Details of school enrolments and leavers in the 15-16 age brackets are listed below.

SCHOOL ENROLMENTS AND SCHOOL LEAVERS, BLUE MOUNTAINS AREA 1969-1973

	Enrolments			School Leavers (15-16 age group)		
	Katoomba	S'wood	Nepean*	Katoomba	S'wood	Nepean
1969	970	400	341	136	40	NA
1970	960	525	309	183	50	NA
1971	980	650	300	135	65	NA
1972	1061	800	318	184	80	35
1973	1118	1050	333	195	120	40

* Includes only those students from within Blue Mountains City area.

Source : High Schools and Department of Education, NSW

Employment Opportunities (Information supplied by Planning & Research section, Commonwealth Department of Labour)

Details of the balance of employment opportunities as against the persons seeking jobs in the Upper Mountains area (related to the Katoomba Employment Office) are listed below by type of employment.



EMPLOYMENT OPPORTUNITIES, UPPER BLUE MOUNTAINS AREA
MARCH 1973 - MARCH 1974 (TRI-MONTHLY TOTALS ONLY)

	Notified Vacancies		Filled Vacancies		Unfilled Positions	
	M	F	M	F	M	F
Primary	-	1	-	-	-	1
Manufacturing	67	35	47	17	20	18
Construction	96	3	74	1	22	2
Transport & Communic.	12	1	9	1	3	-
Commerce	48	49	36	31	12	18
Public Admin, Health	54	101	42	58	12	43
Services (incl. tourism)	99	162	50	100	49	62
TOTAL	376	352	258	180	118	144

In general, it is clear that the total number of vacancies outnumber the vacancies filled by a fairly substantial margin. This would indicate a certain shortage of labour in the area; particularly in the services - which mainly comprises tourism. However, as the table below indicates, the number of persons unemployed exceeds unfilled vacancies, this suggesting structural imbalance between the workforce and the positions available.

EMPLOYMENT BALANCE, UPPER BLUE MOUNTAINS,
MARCH 1972 - MARCH 1974

	Unemployed				Vacancies Filled			
	Adults		Juniors		Adults		Juniors	
	M	F	M	F	M	F	M	F
Clerical	125	87	70	90	21	29	29	41
Construction	24	0	14	0	29	0	2	0
Metal Trades	27	0	31	0	44	0	6	0
Semi-skilled	143	14	69	28	57	30	8	14
Unskilled	214	1	138	3	32	7	7	2
Service	109	96	12	46	32	7	7	16
Prof, semi-prof.	20	6	35	7	0	24	1	1
TOTAL	662	204	369	174	215	97	60	74



Thus there is a much poorer ratio of unfilled jobs: unemployed persons registered amongst juniors (5 persons per unfilled job), then amongst adults (3 persons per unfilled job). This is indicative of the poor employment prospects for school leavers in particular, and the Blue Mountains population in general.



PHYSICAL ASSESSMENT OF INDUSTRIAL ZONES IN
THE BLUE MOUNTAINS CITY AREA

Site & Acreage	Access & Services	Physical Aspects
1. Blaxland - 58 acres	Very poor, through residential zone on narrow carriageway. Electricity & water supply.	Generally unfavourable slopes over 1 in 6, with many rocky outcrops. A ridge runs down the centre of the site, with reasonably gentle slopes to the west, but steep slopes to the east. Existing development confined to the western sector.
2. Springwood - 64 acres	Poor, only narrow road from Old Bathurst Road. Electricity & water supply.	Largely unsuitable as is. Land to west of access road is heavily wooded and very steep with creek course through and valley formation (slopes 1 in 10 to 1 in 6). Area to east partially cleared and filled to give level sites, but expense high. Soil heavy for excavation purposes.
3. Warrimoo - 12 acres	Very Poor, via gravel road from the Avenue; road in poor condition. Services not apparent, except electricity.	Sloping, steep to gentle - mostly 1 in 10 to 1 in 6. Heavily wooded. One development site levelled and cleared: more favourable than 1 or 2.
4. Lawson (total 198 acres)	Fair along Ridge Street. Direct off highway, but many roads unformed within area. Electricity and water supply.	Ridge Street: Sited on ridge which slopes steeply away both south-west and north-east. However, some reasonable land immediately adjacent to Ridge Street. Blaxland/Cascade Street: Generally favourable along certain developed streets where industries have been provided with sites, especially Christobel and Cascade Streets which is site of Council Industrial Estate. Land to south of area has slopes which are relatively steep.



Site & Acreage	Access & Services	Physical Aspects
5. Katoomba 3 areas 157 acres	<p>Good via bituminised road, apart from immediate service roads which are poor. Close to commercial centre and station</p> <p>Good from highway. Close to railway and centre.</p> <p>Good.</p>	<p><u>Lovell Street</u> (see Map 2): The southern half of the site is generally good - flat to gently sloping with little or no filling required. Northern half, however, is steeply sloped and heavily wooded and definitely unsuitable without extensive site works.</p> <p><u>Bent Street</u>: Some flat/gently sloping land to north of site where a handful of industries have established; to south adjacent to railway steeply sloping and extensive site works needed.</p> <p><u>Barton Street</u>: Parts of this area on the fringes are usable, but much is comprised of steep slopes centred on creek line. Drainage problems.</p>
6. Blackheath (3 areas total 63 acres)	<p>Area 1 adjacent to Aero-drome has no immediate access; area 2 in town centre good; area 3 is close to main road but service road is poor gravel surface.</p>	<p>Much of area 1 is unsuited to development as is, having slopes in excess of 1 in 6 and up to 1 in 2 in parts. Heavily wooded with highly non-porous soils. Parts of central site are good along Station Street frontage and area 3, north of town, where slopes are less steep, has some potential.</p>
7. Mt. Victoria (two sites, total 56 acres)	<p>Both sites have good access off highway; however, site 2 (see Map 2) is served by a very inadequate approach road which crosses railway by very narrow bridge.</p>	<p>Both sites have topography that is, apart from a few acres on fringes, totally unsuitable for industrial development as is. Slopes are greater than 1 in 6 and up to 1 in 2, heavily wooded.</p>



COMMERCE

1. EXISTING COMMERCIAL FACILITIES

- 1.1 Location
- 1.2 Retail Functions
- 1.3 Retail Floor Space

2. SHOPPER CHARACTERISTICS

- 2.1 Shopper Origins
- 2.2 Shopping Trip Purposes
- 2.3 Alternative Shopping Trips
- 2.4 Frequency of Shopping Trips
- 2.5 Transport to the Shopping Centres

3. PROVISION OF OFFICE FACILITIES

4. RETAIL STRUCTURE

- 4.1 Neighbourhood Centres
- 4.2 Town Centres
- 4.3 District or Regional Centres

5. PROVISION OF FUTURE COMMERCIAL SPACE

- 5.1 Estimates of Future Employment in Commercial Centres
- 5.2 Survey of Blue Mountains Commercial Establishments

APPENDIX

I Commercial Analysis



COMMERCE

1. EXISTING COMMERCIAL FACILITIES

1.1 Location

Most of the commercial centres are located along the Great Western Highway or along its old route.

Katoomba is the dominant centre in the Upper Blue Mountains, and Springwood in the Lower Mountains.

Although located outside the Blue Mountains area, Penrith is close to the area and has a vital influence on the commercial activity of the Blue Mountains.

Instances where centres are located noticeably close together are:

- * Leura, which is overshadowed by the large Katoomba Shopping Centre.
- * The Blaxland-East Blaxland-South Blaxland-Glenbrook area, where the centres are clustered quite closely, although overshadowing effects are offset to some extent by the closely settled populated areas.

1.2 Retail Functions

Retail functions are described in terms of three broad measures:

- * Retail floor space provision.
- * Shopper characteristics and trade area features.
- * Characteristics of retail establishments.

1.3 Retail Floor Space

In commercial centre analyses, three measures of floor space are commonly used. They are:

- * Net Selling Area

Net Selling Area includes those areas within a store which are directly involved in the merchandising of goods. It excludes escalators, lifts and stairs, storage space, preparation areas and staff amenity areas.



* Net Rentable Area

Net Rentable Area is the area usually rented if a shop is on lease. It includes all the area within the store, including storage and preparation areas, and internal staff amenities. Lifts, escalators and stairs within stores are also covered. It does not, however, include arcade areas, public toilets, landscaping, or other areas in communal use. It does not include parking areas.

* Gross Floor Area

Gross Floor Area is the total area occupied by the retail complex, exclusive of parking areas. It includes the actual area of the building to its outer walls and areas integral to it, eg. arcade and other paved pedestrian areas, public conveniences, landscaped areas, access and external storage space. It does not include customer parking space.

The Uses of the Space Measures

Net Selling Area is the measure most readily obtainable by field survey. It affords a realistic measure for comparison between merchandise lines and between centres, and is used to describe space provision. Net Selling Area commonly comprises about 70% of Net Rentable Area.

Net Rentable Area is the measure upon which the returns from shopping centre development are most conveniently calculated. Sales turnover and rentals are usually associated with net Rentable Area. The relationship between Net Rentable Area and gross floor space varies considerably with the design of centres, but on average, Net Rentable Area makes up 70-85% of gross floor space.

Gross floor space is used in calculations of the total land requirements of developing centres, exclusive of parking. The amount of land to be devoted to parking varies according to the standards set down by different authorities.

In the tables which follow, net rentable area has been used in all cases except for retail floor space figures in table E1, where net selling area is used to overcome the difficulties of analysing retail facilities of ranging age and design.

The unit of measurement is square metres in all cases. 1 square metre equals 10.75 square feet approximately.

Table E1 and Map E1 show the distribution of retail floor space in the Blue Mountains.

BLUE MOUNTAINS COMMERCIAL CENTRES : DISTRIBUTION OF RETAIL FLOOR SPACE, APRIL 1974

COMMERCIAL CENTRES													
NET SELLING AREAS AND NUMBERS OF SHOPS													
FLOOR SPACE CATEGORY	Net Selling Area (Sq feet)	No of Shops	Net Selling Area (Sq feet)	No of Shops	Net Selling Area (Sq feet)	No of Shops	Net Selling Area (Sq feet)	No of Shops	Net Selling Area (Sq feet)	No of Shops	Net Selling Area (Sq feet)	No of Shops	LOWER MOUNTAINS TOTAL
Lower Blue Mountains	SPRINGWOOD		BLAXLAND		GLENBROOK		EAST BLAXLAND		SOUTH BLAXLAND		FAULCONBRIDGE		
Food	11,300	12	5,700	9	5,600	7	2,550	4	700	2	3,000	6	28,850
Clothing	7,050	9	850	3	2,100	2	-	-	800	1	-	-	10,800
Small Household Items	8,900	15	7,200	8	2,300	4	1,050	2	950	3	550	2	20,950
Large Household Items	2,350	4	500	1	-	-	-	-	-	-	-	-	2,850
Personal Services	4,850	11	1,200	3	400	1	400	1	1,750	3	200	1	8,800
Hotels and Liquor	2 hotels + 1 liquor st.	3	1 liquor st.	1	1 liquor st.	1	-	-	1 hotel	1	1 liquor st. 350	1	
TOTAL RETAIL SPACE	34,450	54	15,450	25	10,400	15	4,000	7	4,200	10	3,750	10	72,250
Vacant Shop Space	Sq. Ft.:	2,700	3		2,100	4	1,000	1	600	1			6,400
(Net Rentable Area)*	% of Total:	7.7%		0%	19.4%		20%		9.5%		0%		
Upper Blue Mountains	KATOOMBA		BLACKHEATH		LEURA		LAWSON		WENTWORTH FALLS		HAZELEROOK		UPPER MOUNTAINS TOTAL
Food	16,250	20	7,560	10	4,000	8	2,890	7	2,200	5	1,980	5	34,820
Clothing	27,255	27	1,830	5	1,500	3	400	1	400	1	1,200	3	32,585
Small Household Items	36,220	51	7,170	10	4,150	8	860	2	2,200	4	2,550	4	53,210
Large Household Items	16,175	8	400	1	-	-	500	1	-	-	-	-	17,075
Personal Services	20,050	25	3,190	6	950	3	200	1	-	-	800	2	25,190
Hotels and Liquor	1 hotel + liquor st.	2	2 hotels	2	1 liquor st.	1	1 hotel + 1 liquor st.	1	-	-	-	-	
TOTAL RETAIL SPACE	115,950	133	20,150	34	10,600	23	4,850	13	4,860	10	6,530	14	162,940
Vacant Shop Space	Sq. Ft.:	1,450	3	2,250	3	3,400	9	400	1	1,400	4	650	9,950
(Net Rentable Area)*	% of Total:	1.2%		11.2%	31%		8.3%		28%		9.9%		

* Net Rentable Area is estimated as no space is used for selling

Source: Plant Location International Field Survey, April 1974



1.3.1 Upper Blue Mountains

In all centres, other than Katoomba, food and household goods lines form the dominant trading items, with much less emphasis being placed on clothing and personal services.

The food selling functions are mainly performed by small-store operations.

Household lines are mainly confined to small items.

Katoomba, as the 'capital' of the Upper Blue Mountains, plays an entirely different role. The other centres, with their very limited range of goods and quiet atmospheres serve as neighbourhood centres for local needs. Katoomba, on the other hand, fulfils many of the more sophisticated requirements of the whole area.

As a result, Katoomba is the only centre with:

- * Medium-sized food supermarkets.
- * Considerable provision of large household items, including furniture and appliances.
- * A good range of clothing stores which allow comparison shopping.
- * A wide range of personal service facilities.

Vacancy

In a shopping centre with a healthy trading performance, it is usual to find below 10% of retail floor space vacant, and most of the Upper Blue Mountains centres are reasonably close to this level. The notable exceptions are Leura (31% vacant) and Wentworth Falls (28%).

Given an estimated 1971 population of the Upper Blue Mountains of 19,390 (1971 population x 1.7% p.a.) net retail selling area per head of resident population is 0.783 square metres.

1.3.2 Lower Blue Mountains

The division of functions is not as clear-cut in the Lower Mountains as it is in the Upper Mountains. The centres in the Lower Mountains tend to complement one another, rather than function according to a strict size hierarchy:

- * Springwood dominates the western half of the area; it tends to function as a Lower Blue Mountains 'capital' with strong provision of food, clothing, household and personal service lines.



E4.

- * Blaxland's strengths are in food and household goods lines - this centre also has a significant amount of office space.
- * Glenbrook's neighbourhood centre role is strengthened by a higher than average function in clothing sales.
- * The South Blaxland centre is loosely knit and tends towards highway-oriented personal service functions rather than towards normal weekly shopping trade.
- * East Blaxland serves neighbourhood needs, mainly in food and small household goods.
- * Given the small size of some of the centres, and the fact that redevelopment is planned for some Springwood sites, vacancy rates, although at first glance high, are in all cases reasonable.



2. SHOPPER CHARACTERISTICS

Shopper characteristics were investigated through in-centre interviews carried out in the major commercial centres. The survey form which was used is shown on the following two pages. Interviews in all shopping centres were carried out on a Friday, and extra interviews were taken on Thursday and Saturday morning for Katoomba and Springwood.

2.1 Shopper Origins

Map E2 shows the origins of all the shoppers interviewed in each centre. The map gives a visual impression of the trading areas of influence of the centres.

2.1.1 Upper Blue Mountains

Katoomba's influence extends over all of the Upper Blue Mountains, but not over the Lower Mountains.

Blackheath's influence extends as far as Lawson and Wentworth Falls, and is much greater than other centres of comparative size.

The other Upper Mountains centres have local influence only.

It is possible to delineate the trade areas of all the small centres fairly specifically, but the extended influence of Katoomba is much more extensive and difficult to calculate.

Lower Blue Mountains

Springwood draws strongly from its immediate surrounding area, Winmalee and Faulconbridge. It draws only weakly from areas to the east of Valley Heights.

Springwood competes, but not strongly, with the centres in the eastern portion of the Lower Blue Mountains area.

Glenbrook draws almost exclusively from the eastern portion of the study area, with the majority of shoppers originating from the Glenbrook area itself. A significant number of shoppers cross the highway from South Blaxland and Mt. Riverview to shop at the Centre.

Blaxland's influence extends over the whole of the settled eastern portion of the Lower Blue Mountains with the exception of the area immediately surrounding Glenbrook. Warrimoo sets the western boundary of the trade area.

Blaxland and Glenbrook compete in areas in Mt. Riverview, South Blaxland and Blaxland.



Katoomba's influence does not extend into the Lower Blue Mountains.

Comments on Shopper Patterns in General

The smaller the centre, the more localised is the trade area likely to be.

Neither the Great Western Highway nor the railway appear to form a significant barrier or boundary to shopper travel patterns.

2.2 Shopping Trip Purposes

Table E2 illustrates some characteristics of shopping behaviour by Blue Mountains residents in general as well as the particular roles played by the commercial centres.

2.2.1 General Shopping Behaviour

Food shopping is a basic trip purpose and is the most common incentive to shop.

Shopping for small household goods is another trip purpose of high frequency to all centres.

Personal service trips tend to be made to all centres, but at two levels, first for commonly provided services to all centres and for more specialised services to the larger centres.

Trips for clothing and for large household items are not made so frequently, and tend to be made to the larger centres.

2.2.2 Differences Between Centres

Katoomba and Springwood are destinations for all types of trip purposes.

Blackheath is a destination for a wide range of trip purposes, excluding large household items.

Wentworth Falls and Leura are primarily food trip destinations.

Market Measures, Pty Ltd.
6 Heeley Street,
PADDINGTON.
333028.

SYDNEY SHOPPING CENTRE SURVEY.

Good morning/afternoon, my name isfrom Market Measures. I would like to ask you a few question about your shopping trip here today.

Q.1.	What are the main type of goods that you have been shopping for at the _____ centre today?	FOOD	1	1
		SMALL HOUSEHOLD GOODS	2	2
		LARGE HOUSEHOLD GOODS	3	3
Q.1.(a)	What other types of goods do you generally purchase at this centre?	CLOTHING	4	4
		PERSONAL SERVICES	5	5
		PROFESSIONAL SERVICES	6	6
		BANKING	7	7
		OTHER (SPECIFY) _____	8	8

Q.2.	How did you travel here?	CAR DRIVER	1	to
		CAR PASSENGER	2	
		TRAIN	3	Q.2.(a)
		BUS	4	to
		TAXI	5	Q.3.
		WALKED	6	
		MOTOR BIKE	7	
		OTHER (SPECIFY) _____	8	

Q.2.(a)	Did you experience any difficulty in parking	YES.....	1
		NO.....	2

Q.3.	How long did it take you to get here today?	0 -5 minutes	1
		6 - 10 minutes	2
		11 - 15 minutes	3
		16 - 20 minutes	4
		21 - 25 minutes	5
		26 - 30 minutes	6
		OVER 30 minutes	7

Q.4.	About how often do you come to this shopping centre?	FIRST TIME	1
		MORE THAN ONCE A WEEK	2
		ONCE A WEEK	3
		ABOUT ONE IN 2 WEEKS.	4
		ABOUT ONCE A MONTH	5
		ABOUT ONCE IN 2 MONTHS	6
		ABOUT ONCE IN 6 MONTHS	7
		LESS FREQUENTLY	8

Q.5.	How much do you usually spend, per week at this centre?	(Write In) \$ _____
------	---	---------------------

Q.6.(a)	Have you come here from work or on your way to work?	YES.....(GO TO Q.7)	1
		NO.....(GO TO Q.(6b))	2
Q.6.(b)	Have you come here from home?	YES.....(GO TO Q.8)	1
		NO.....(GO TO Q.6(c))	2

Q.6.(c) Which suburb or locality have you com from just now? WRITE IN. _____

Q. 7 We would like to plot on a map approximately where you work. Can you give me the following details. (ENTER IN GRID BELOW)

Q.8. We would like to plot on a map approximately where you live. Can you give me the following details. (ENTER IN GRID BELOW)

DETAILS	Q.7. GRID	Q.8. GRID
(a) Postcode	2	2
(b) Suburb/Locality		
(c) Street		
(d) Nearest street that connects with or crosses that street		
IF YOU DON'T KNOW ANY OF THE ABOVE, OBTAIN ANY ONE OF THE FOLLOWING:		
(e) Name of another street close to where you work/live		
(f) A church (name)		
(g) A park (name)		
(h) A school (name)		
(i) Name of your firm (Q.7. only)		

Q.9 (a) Where else do you regularly shop? Anywhere else?
 (b) For each place, How often do you go there? How do you travel there? What do you mainly buy there?

CENTRE	HOW OFTEN (use Q.4. Codes)	Mode OF TRAVEL (use Q.2. Codes)	WHAT PURCHASED (Int. circle Code) FOOD H/HOLD CLOTH PER
1.			1 2 3 4
2.			1 2 3 4
3.			1 2 3 4

Thank you,. Now to make sure we have obtained a reliable sample of shoppers, would you mind telling me:

Q.10. Your age? 15- 20 years1
 21 - 30 years2
 31 - 45 years3
 46 - 60 years4
 OVER 60 years5

Q.11. And how many persons are there in your household? 1 - 2 persons.....1
 3 - 4 persons2
 5 - 6 persons3
 7 - 8 persons4
 MORE THAN 8 PERSONS.....5
 NOT IN H/HOLD SITUATION.....6

INTERVIEWER: OBSERVE SEX MALE1 TIME OF INTERVIEW:
 FEMALE.....2 Thurs. 9-12am 1 Fri. 9-12 am 4
 12-5pm 2 12-5 pm 5
 5-9pm 3 9-12am 6

INTERVIEWER'S STATEMENT: I hereby certify that this is a true and accurate record of this interview, and that I have made a thorough check of all responses to questions asked so as to comply with the Survey Briefing and Instructions.

NAME.....SIGNATURE.....DATE.....

TABLE E2 : SELECTED BLUE MOUNTAINS CENTRES : TRIP PURPOSES REPORTED BY SURVEY RESPONDENTS

TRIP PURPOSE

Centre	Food	Small Household Goods	Large Household Goods	Clothing	Personal Services	Professional Services	Banking	Other	In-Centre Interviews, April-May, 1974.	Source:
Katoomba	85.4	55.7	32.9	59.8	47.0	55.3	60.7	4.1		
Blackheath	82.4	45.6	-	36.8	52.9	50.0	52.9	17.6		
Leura	71.2	7.7	3.9	15.4	9.9	1.9	9.9	19.2		
Lawson	98.1	79.3	-	9.4	11.3	35.8	58.5	-		
Wentworth Falls	97.9	14.6	16.7	2.5	16.7	72.9	41.7	6.3		
Springwood	92.3	54.8	10.3	52.9	52.3	53.5	69.0	9.7		
Blaxland	90.9	36.4	1.8	16.4	41.8	36.4	49.1	20.0		
Glenbrook	87.3	21.1	-	29.5	74.6	77.4	16.9	7.0		



**TABLE E3 : SELECTED BLUE MOUNTAINS CENTRES
ALTERNATIVE REGULAR SHOPPING LOCATIONS
OF RESPONDENTS**

Centre	Alternative Locations	Number	%	Total No of Responses
Katoomba	Penrith	79	36.1	219
	Sydney	34	15.5	
	Other	87	39.9	
Blackheath	Katoomba	45	66.2	68
	Lithgow	19	27.9	
	Sydney	21	30.8	
	Penrith	25	36.8	
	Other	40	44.1	
Leura	Katoomba	40	76.9	52
	Penrith	18	34.6	
	Other	15	28.6	
Lawson	Katoomba	44	83.0	53
	Penrith	20	37.7	
	Sydney	18	34.0	
	Springwood	14	26.4	
	Hazelbrook	6	11.3	
Wentworth Falls	Katoomba	53	86.8	61
	Penrith	27	44.2	
	Sydney	15	24.5	
	Lawson	10	16.3	
Springwood	Penrith	123	79.4	155
	Sydney	49	31.6	
	Parramatta	21	13.6	
	Other	57	36.8	
Blaxland	Penrith	51	90.9	55
	Sydney	30	54.6	
	Springwood	22	40.0	
	Parramatta	12	21.8	
	Mt. Druitt	11	20.0	
Glenbrook	Penrith	66	93.0	71
	Blaxland	30	42.3	
	Mt. Druitt	16	22.5	
	Sydney	11	15.5	
	Blacktown	9	12.7	
	Parramatta	8	11.3	

Source: In-Centre Interviews, April-May, 1974



TABLE E4 : BLUE MOUNTAINS SHOPPER SURVEY
TRIP PURPOSES TO ALTERNATE CENTRES

Total Number of Respondents Nominating Trip Purpose				
Alternative Centre	Food	Household	Clothing	Pers. Service
Katoomba	78	100	117	78
Penrith	104	141	224	135
Sydney	14	30	92	62
Springwood	9	4	5	5

Source: In-Centre Interviews, April-May, 1974



TABLE E5.: SELECTED BLUE MOUNTAINS CENTRES
FREQUENCY OF TRIPS BY RESPONDENTS

Centre	Frequency of Visit					No of Respondents
	First Time %	More than Once a Week %	Once a Week %	Fortnightly %	Less Frequently %	
Katoomba	4.1	72.2	12.8	1.8	9.1	219
Blackheath	4.4	69.0	5.9	7.4	13.3	68
Leura	9.6	65.4	19.2	-	5.8	52
Lawson	1.8	62.4	30.2	3.8	1.8	53
W. Falls	1.6	68.8	19.7	3.3	6.5	61
Springwood	2.6	67.6	23.9	3.2	2.7	155
Blaxland	3.6	58.2	25.5	3.6	12.6	55
Glenbrook	1.4	73.2	12.7	5.6	5.6	71

Source: In-Centre Interviews, April-May, 1974.

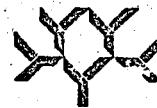


TABLE E6 : SELECTED BLUE MOUNTAINS CENTRES
MODE OF TRANSPORT OF THOSE INTERVIEWED
TO THE CENTRES

Centre	Car Driver %	Passenger %	Walked %	Bus %	Train %	Other* %	No of Respondents
Katoomba	46.5	10.1	19.6	16.9	2.3	4.6	219
Blackheath	41.2	13.2	32.4	4.4	2.9	5.9	68
Leura	55.8	1.9	25.0	11.6	1.9	3.8	52
Lawson	35.9	13.2	37.8	11.3	-	1.8	53
Wentworth Falls	41.0	4.9	34.4	14.8	-	5.0	61
Springwood	45.2	9.6	19.4	21.3	0.6	3.9	155
Blaxland	60.0	10.9	18.2	1.8	3.6	5.5	55
Glenbrook	57.7	4.3	33.8	2.8	-	1.4	71

Source: In-Centre Interviews, April-May, 1974

* Includes Taxi Passengers and Motorbikes



**TABLE E7 : SELECTED BLUE MOUNTAINS CENTRES
RESPONDENTS' EXPERIENCE IN PARKING
ON DAY OF INTERVIEW**

Question: "Did you experience any difficulty in parking?"

Centre	Response			No of Respondents
	Yes %	No %	Not Stated %	
Katoomba	23.4	66.1	10.5	124
Blackheath	2.7	73.0	24.3	37
Leura	63.3	36.7	-	30
Lawson	19.2	80.8	-	26
Wentworth Falls	0.0	37.7	62.3	61
Springwood	22.4	62.4	15.2	85
Blaxland	12.7	50.9	36.4	55
Glenbrook	18.3	42.2	39.4	71

Source: In-Centre Interviews, April-May, 1974



2.3 Alternative Shopping Trips

* See Table E3.

Katoomba, Penrith and Sydney dominate as alternative regular shopping locations of Blue Mountains residents. Katoomba is dominant in the Upper Mountains, but has little influence in the Lower Mountains. Penrith is by far the most important centre outside the Mountains. The centre with most importance after Penrith is Sydney, and Parramatta is important with Blaxland and Glenbrook shoppers.

The dominance of the three centres discussed so far is almost complete, in that other centres rated a 10% response only very rarely. Springwood plays a major role as an alternative shopping centre for all areas in the Lower Blue Mountains, and replaces the influence of Katoomba in this district.

* See Table E4.

Some indication of the roles that the alternative centres play is given by the analysis of trip purpose. Katoomba and Springwood would appear to function as real alternatives to the local centres, enhanced by some attractions to shop for clothing and household goods. By contrast, Penrith and Sydney fulfil an entirely different role. They are much less attractive as food retailing centres, and owe their drawing power to stocks of large household goods, a wide range of personal services, and in particular to their important function as clothing retail centres. Both Penrith and Sydney can provide the variety of clothing shops which attracts customers in large numbers, and it may be that the clothing stores are instrumental in drawing Blue Mountains shoppers from their local centres.

2.4 Frequency of Shopping Trips

Table E5 shows that all of the Blue Mountains centres enjoy a high level of frequency of visit, being visited at least once a week by most shoppers. This pattern is to be expected in such a grouping of centres performing essentially neighbourhood roles.

2.5 Transport to the Shopping Centres

* Table E6 shows that the modes of travel to the shopping centres, in order of importance, are: Car, Walk, Bus, Train. The importance of the car is brought out by the fact that over half the shoppers interviewed travelled as either car drivers or car passengers. About a quarter of the shoppers walked to centres. This proportion is in line with normal shopper habits and shows the importance of planning for easy access to centres by as many as possible.



E8.

The role played by buses in getting people to the centres should be noted. In the case of Springwood and Katoomba, buses transport an important fraction of the total custom. Other centres do not rely on buses so heavily, but at the same time, the average of 10% of custom could be very significant for the prospects of a centre.

By contrast, trains play only a small part in bringing people to the shopping centres, although some centres may gain from the wives who take their commuter husbands to the station by car.

* See Table E7.

Even allowing for a "grouch response" of some 10%, there does appear to be difficulty in parking, at least at busy times, in most of the centres. The Table indicates that Blackheath and Wentworth Falls have adequate parking, but that Katoomba, Lawson, Springwood and especially Leura, Blaxland and Glenbrook have parking problems. Parking problems are so common around shopping centres at present that it is unlikely that minor problems deter shoppers to any great extent, but the problems indicated at Leura, Glenbrook and Blaxland would appear to need urgent attention.



3. PROVISION OF OFFICE FACILITIES

Although the larger centres in the Blue Mountains contain most of the available office space, all have at least some office space. In the smaller centres this space is mainly used by real estate agents, banks, post offices and medical practices. Table E8 shows the distribution of office space throughout the City of Blue Mountains.

TABLE E8 BLUE MOUNTAINS COMMERCIAL CENTRES
- COMMERCIAL OFFICE SPACE, APRIL, 1974

Centre	Government and Public Authorities	Community Services	Finance and Insurance	Business and Professional Offices	Medical and Dental	Vacant	TOTAL
(A) UPPER BLUE MOUNTAINS							
Katoomba	2,065 (2)	205 (4)	1,461 (10)	1,575 (25)	684 (11)	47 (1)	6,034
Blackheath	51	-	238 (2)	238 (4)	47	-	572
Leura	-	-	37 (1)	200 (4)	-	-	237
Lawson	-	-	14 (1)	93 (2)	-	-	107
Wentworth Falls	-	-	47 (2)	233 (6)	56 (1)	-	335
Hazelbrook	-	-	28 (1)	131 (3)	-	-	158
Sub-Total Upper Blue Mountains	2,116	205	1,823	2,468	786	47	7,443
(B) LOWER BLUE MOUNTAINS							
Springwood	242 (1)	-	716 (4)	442 (9)	93 (1)	84 (1)	1,576
Blaxland	214 (2)	-	163 (4)	558 (8)	93 (1)	-	1,028
Glenbrook	-	-	-	74 (1)	121 (2)	-	195
East Blaxland	-	-	-	42 (1)	93 (1)	-	135
South Blaxland	-	-	-	88 (2)	-	-	88
Faulconbridge	-	-	-	130 (4)	-	-	130
Sub-Total Lower Blue Mountains	456	-	879	1,334	400	84	3,152
TOTAL BLUE MOUNTAINS	2,116	205	2,702	3,802	1,186	130	10,140

All measures are in square metres

Source: USC Field Survey, April 1974

This table shows the major role of Katoomba as the administrative and service centre of the Upper Blue Mountains, containing about 80% of all office space in the area. The major government input is mainly due to the 1,953 square metre Council offices.



E10.

Springwood does not have a similar dominant influence in the Lower Mountains, as Blaxland also has a significant amount of space.

The present provision of office-space is not in line with population growth trends. Only about 30% of space is situated in the Lower Mountains, where over half the people now live and where the rate of growth is highest, whereas the other 70% of space is in the slowly-growing Upper Mountains area.

The current provision of office-space related to population in the Upper Mountains is 0.326 square metres of net rentable area per head. In the Lower Mountains the ratio is 0.130 square metres per head. It is notable that at this stage there are no new office buildings in any of the Blue Mountains centres.



4. RETAIL STRUCTURE

In the relatively unplanned metropolitan areas in Australia, there is no definite observable shopping centre hierarchy but rather a continuum of centre size range. However, there does appear to be evidence of a shopping centre hierarchy in terms of function in most areas. Recent group discussions conducted to probe shopper perceptions in Sydney and Melbourne suggested that housewives do differentiate between three main types of shopping trip:

- * Specialty comparison purchasing (eg. fashion clothing, furniture)
- * Main weekly food shopping
- * Other local convenience purchasing.

Surveys, in-home and in-centre, confirm that actual shopping patterns tend to follow shopper perceptions of a centre's role. Similarly, in the survey work carried out for this Blue Mountains study, frequency of trip purposes by shoppers reinforce the assumptions of shopper perceptions and patterns.

The hierarchy of centres, in terms of function, has three major elements.

4.1 Neighbourhood Centres

These small shop groups are differentiated from higher order centres in that they do not generally provide sufficient range or depth of merchandise to fully cater for the major weekly or fortnightly household shopping trip. These centres do not include a department store, variety store, large discount store or major supermarket. Neighbourhood centres normally provide less than 1,860 square metres of rentable shopping space, have less than 20 stores and their merchandise mix is highly biased toward food lines. In the neighbourhood centres, household goods are generally limited to chemist, newsagent and domestic hardware and personal services are generally limited to hairdressing, dry cleaning and medical services. Specialist clothing outlets are normally rarely represented although a drapery store may be included.

4.2 Town Centres

These are designed to serve a series of neighbourhoods and provide facilities needed for the major weekly shopping trip. They should be located and designed to serve 25,000-30,000 people and include the following shop types:

- * Major supermarket (1,400-1,860 sq. metres)
- * A full range of food stores
- * Domestic hardware
- * Chemist (2)
- * Full range of personal services



- * Newsagent
- * Women's clothing
- * Girls' and boys' clothing
- * Shore store
- * Men's clothing store
- * Other specialty stores or a variety store of discount store - Mini K or small Target (2,800-4,650 square metres)

Rentable area could be in the order of 9,300-11,000 square metres
One such town centre may be of a major discount store type with some ancillary shops.

4.3 District or Regional Centres

The aim of providing a district or regional centre is to offer residents a comprehensive range of specialty comparison merchandise and, therefore, this centre should incorporate as many elements as possible. District centres range in size from 46,000-93,000 sq. metres and usually serve populations of from 100,000 up. A district centre would normally have at least a major supermarket (1,860-2,800 sq. metres department store (11,000-15,000 sq. metres), a household goods discount store (3,700 sq. metres) and a broad range of other specialty stores and service establishments. At present, there is no centre large enough to fulfil all of the district centre functions in the Blue Mountains.



5. PROVISION OF FUTURE COMMERCIAL SPACE

In terms of planning strategy, several important factors should be kept in mind:

- * The City of Blue Mountains is geographically dispersed, and the separate orientations of upper and lower areas must be recognised. The upper area, while being linked to the Sydney Region for services of a highly specialised nature, is self-contained in regard to many of the more common requirements of the people. The Lower Blue Mountains differ in that they form an integral part of the Sydney Region and to a great extent, the Lower Mountains future is linked to trends in Sydney.
- * The physical layout of the centres is linear in form, and this will dictate the choice of commercial centre location and size to a high degree. Although choice is limited, the linear form of development has the advantage that it facilitates efficient public transport systems.
- * The Blue Mountains area cannot look to any highly populated surrounding areas for extra trading opportunity because the city extends outwards in peninsula form from the Sydney Region. Therefore, the level of commercial service provided will rely on the resident population, although the proposed development of Orange/Bathurst may lift trading performance.

These three factors present both constraints and opportunities in regard to commercial development, and with these in mind, it is possible now to estimate the likely requirements for commercial space for the selected optional strategies.

There are two basic factors upon which predictions of the size of future commercial centres should be based. They are:

- * The size of the future population
- * The proportion of total goods and services required which the population obtains from various centres

The most recent large-scale study of retail activities in Australia was that of Retailing in the Perth Metropolitan Region, carried out in August 1973 by M.R. Johnstone and Associates. That report included a soundly based discussion of general retail floor space requirements, and has been used as a guideline for the estimates in the Blue Mountains.



The standards adopted were:

- * District centre retail: 0.465 sq. metres of net rentable space per capita
- * Town centre retail: 0.326 sq. metres of net rentable space per capita
- * Neighbourhood centre retail: 0.233-0.280 sq. metres of net rentable space per capita

Estimates of total retail space requirements which correspond with likely shopper patterns have been made for the alternative strategies under study. The estimates have been adjusted to allow for reasonable levels of escape expenditure where necessary, to centres outside the study area.

Office space requirements were estimated by study of population/office space ratios in developing areas surrounding Sydney. The standards were:

- * District centre office: .223 sq. metres of net rentable space per capita
- * Town centre office: .195 sq. metres of net rentable space per capita
- * Neighbourhood centre office: .028 sq. metres of net rentable space per capita

The resulting figures were then adjusted where necessary to allow for the effects of variation in centre size in line with retail predictions.

The estimates of commercial centre requirements for alternative strategies are shown in Table E9.

5.1 Estimates of Future Employment in Commercial Centres

Table E10 shows estimates of employment in the commercial centres under alternative futures. The estimates were derived from a study of existing worker/floor space ratios in the Blue Mountains and from past studies in which the consultants have been involved in such estimates. The overall worker/floor space ratios adopted were:

- * 1:23.3 square metres of net rentable retail area
- * 1:16.7 square metres of net rentable office area

TABLE E9

EVALUATION OF ALTERNATIVES - COMMERCIAL CENTRE DEVELOPMENT

PART A : UPPER BLUE MOUNTAINS

NOTE: All References to areas are in square metres of net rentable area

	ALTERNATIVE FUTURE				
	1	2	3	4	5
Population	22,000	31,000	67,400	103,600	143,100
Description of Retail Development	Development to remain essentially at present level, with Katoomba functioning as a town centre, 14,800 sq. m.	No district centre development. Expansion of existing centres to cope with growth. Katoomba to continue as a dominant town centre, about 14,800 sq. m.	No district centre, but one very large (28,000 sq. m.) town centre to assist in overcoming isolation. Junior department store would be possible. One other town centre, 9,300 sq. m. About 6 new neighbourhood centres required.	District centre 48,000 sq. m. involving one full-line department store (11,000 sq. m.) 3 town centres one about 18,600 sq. m. the others approx. 7,400-9,300 sq. m. About 15 new neighbourhood centres required.	District centre 65,000 sq. m. involving major department store about 18,600 sq. m., 4 town centres one at 18,600 sq. m. three at 9,300 sq. m. About 24 new neighbourhood centres required
Description of Office Development	Katoomba to continue its role as a town centre, office space remaining at 6,000 sq. m. No change in other centres.	Extensive rehabilitation and some redevelopment of Katoomba office space resulting in increased office employment (through higher space efficiency) although no change in the amount of space provided. Minor expansion in Blackheath but little elsewhere.	18,600 sq. m. in large town centre, 1,860-2,800 sq. m. in the smaller town centre. Each neighbourhood centre averaging 190 sq. m. Considerable loss of office activities anticipated due to lack of higher order district centre functions.	28,000 sq. m. in district centre. One town centre at 12,000 sq. m. and two at about 1,860 sq. m. Average neighbourhood 190 sq. m.	District centre with 40,000 sq. m. Town Centres: one to have 12,000 sq. m. three at 1,860 sq. m. Average neighbourhood 186 sq. m.

PART B : LOWER BLUE MOUNTAINS

	ALTERNATIVE FUTURE					
	1	2	3	4A	4B	5
Population	25,000	34,000	45,000	69,500 Option I*	69,500 Option II*	131,700
Description of Retail Development	Essentially maintain existing situation: No district centre and high escape to Penrith. Some town centre functions performed by Springwood.	District centre role performed by Penrith. Springwood as town centre, approx. 6,500 sq. m., but considerable escape to Penrith. Expansion of existing centres and development of those already planned.	District centre role performed by Penrith. One strong town centre, say 9,300 sq. m. developed. Expansion of existing neighbourhood centres would cope with added demand.	* This option involves utilisation of Penrith for district centre needs, and avoids a highly competitive situation. District centre role performed by Penrith. Two town centres, 13,000 and 9,300 sq. m., 2-4 new neighbourhood centres required.	* This option involves development of district centre facilities in the lower mountains, and aims at retaining the maximum amount of potential expenditure. District centre at 37,000 sq. m. involving department store, 9,300 sq. m. One town centre, 9,300 sq. m., 2-4 new neighbourhood centres required.	District centre, 55,000 sq. m. including department store of about 14,000 sq. m. Three town centres, one at 14,000 sq. m. others around 9,300 sq. m. 10-14 new neighbourhood centres required.
Description of Office Development	Present situation to remain unchanged, except for completion of buildings under construction.	Springwood to increase office space to 6,500-7,400 sq. m. in line with its development as a town centre.	Town centre to contain 7,400 sq. m. No significant expansion of office space in neighbourhood centres.	Major town centre to contain 11,100 sq. m. Lesser town centre to contain 1,860 sq. m. Neighbourhood centres to average 186 sq. m.	District centre to contain 18,600 sq. m. Town centre to contain 1,860 sq. m. Neighbourhood centres to average 186 sq. m.	District centre to contain 37,000 sq. m. Large town centre to contain 1,860 sq. m. Other town centres at 1,860 sq. m. Neighbourhood centres to average 186 sq. m.



The most obvious difference in strategies from a commercial employment point of view is that the alternative futures 4 and 5 would employ the major proportion of retail workers in the population locally, whereas alternative futures 1, 2 and 3 would not. Most office employment is oriented to metropolitan needs and, as a result none of the strategies would cater locally for high proportions of the office employment requirements normally to be expected in population levels of the various alternatives.

TABLE E10

BLUE MOUNTAINS CENTRES - RETAIL AND OFFICE EMPLOYMENT STRATEGY ANALYSIS

	ALTERNATIVE FUTURE				
	1	2	3	4	5
<u>Upper Mountains</u>					
Population	22,000	31,000	67,400	103,600	143,100
Local Employment:					
Retail	930*	1,000	1,600	4,550	6,300
Office	450	480	900	2,750	3,200
Total	1,380	1,480	2,500	7,300	9,500
<u>Lower Mountains</u>					
Population	25,000	34,000	45,000	69,500	131,700
Local Employment:					
Retail	410	820	1,050	1800/2700**	5,800
Office	196	450	650	900/1400	3,500
Total	600	1,270	1,510	2700/4100	9,300

Source: Estimates by Urban Systems Corporation.

Note * Persons employed.

Note ** Under Alternative 4 two options are proposed for the Lower Blue Mountains. See TABLE E9.

5.2 Survey of Blue Mountains Commercial Establishments

As part of the research for this report, a questionnaire survey was distributed to proprietors of commercial establishments in the shopping centres of the Blue Mountains. The information regarding statistics and the performance of the various centres which was provided by those who replied was of value in the overall assessment of commercial centres. Unfortunately, a majority of proprietors chose not to respond to the survey, and as a result



the statistical data could not be produced as a comprehensive result and in some cases publication would have destroyed confidentiality by identifying particular businesses.

The second section of the survey invited proprietors' comments on how to improve their centre, and on other issues of planning relevance. These comments are published verbatim in this section. The consultants wish to record their sincere thanks to the proprietors who helped in this survey, many of whom went to considerable trouble to provide helpful comment.

The comments of proprietors are included as APPENDIX E1 to this section.

5.3 Development of Future Commercial Centres

- 5.3.1 The location of future planned commercial centres will depend on the location of residential areas and the pattern of transport routes. Neighbourhood centres should be sited very close to the communities that they serve, so that the distance for frequent shopping trips is minimised. Town and district centres must be strategically located to capture the trade of their surrounding areas, so that they can operate successfully within the system made up of competing centres.
- 5.3.2 The principle of intervening opportunity will be important in any attempt to capture trade at present flowing out of the Blue Mountains to Penrith. People establish journey patterns to work, leisure, educational facilities and shops. These journey patterns become established because the distance to the facilities is perceived to be shorter than to elsewhere, no matter what the real case may be. The perception of trip-distance by shoppers is the important factor, and if a shopping centre is located strategically so that it intervenes along the established trip pattern, it has a good chance of capturing the trade which previously escaped. Examples of strategic locations would be at transport termini or on sites which shoppers would have to pass by to get to the outer centre. The intervening centre must be designed so that in the shopper's perception, it provides a viable alternative, even though in fact, the range of goods may not be as wide as in the outside centre.
- 5.3.3 Excessive ribbon development should be avoided in the design of future commercial centres. Until fairly recent times, light flows of road traffic allowed business to gain advantages by fronting main roads and to make use of their public footpaths, but such development today results in a conflict between cars and pedestrians. Ribbon development generates traffic direct onto main roads, preventing access control and causing traffic congestion. It also makes it difficult to provide well-placed



parking and servicing facilities and hinders the adequate planning of centres. Ribbon development also usually results in unsightly streetscape. Modern developments can gain advantages by being planned to integrate with off-street parking in a nodular rather than a strip development, so concentrating the traffic problem to a limited area and lessening the chance of deterioration and blight to which strip centres are so vulnerable at all points. The Blue Mountains is fortunate in having only very limited areas of ribbon development now, and future development along highways and main roads should be most carefully controlled.

- 5.3.4 Where town centres are promoted, commercial facilities should be concentrated to provide a high level of service. Dispersal of facilities over a greater number of centres should be avoided. The reason is that centres serving a large population can provide higher levels of service, and they can rely on greater trading stability. A significant level of office development can be promoted in a large centre, whereas the facilities would not be viable if development was spread over a number of centres. Activities in a large centre trade off and support each other and so provide the opportunity for social facilities when they were not there previously. The increased employment helps the retail trade, and chances are increased of a community identity developing around the centre.
- 5.3.5 Community facilities should be related to the shopping centres. Primary schools, baby health centres and other community facilities have formed an integral part of commercial centres and it is sound policy to allow this to continue. The playground and oval are a natural supplement to the school and can add life to the commercial centre at weekends.

The growth of the Blue Mountains will probably be due mainly to the migration into the area of both young families and old people, and for both these groups the shopping centre can be made to help in the development of social contacts. The first social contacts of many young parents will be through the school, baby health centre and kindergarten, and these contacts will be made by the location of the shops near these facilities. Similarly, some assistance could be given to help old people overcome problems of isolation by locating old people's clubs and facilities in an active commercial centre. The need for careful location of neighbourhood centres is underlined by the fact that approximately 20% of shoppers still walk to these centres.

- 5.3.6 Hotels fulfil a role as social and entertainment facilities, and they should be located within or close to commercial centres for the most part, so that they add to their variety.



The factors which influence the overall viability of hotel development are much the same as for other retail facilities, in that they are dependent upon a trade area population. Basically in response to competition from clubs, hotels are tending to increase in size in order to provide a wide range of services. They are also experiencing competition from liquor stores. The potential of an area to support a hotel is determined by the Licensing Court and the Licensing Reduction Board, and in general, the number of people needed to support a hotel has tended to increase in recent years. The potential for hotels to create parking and traffic generation problems means that it is necessary to ensure that adequate car parks and access facilities are provided.

- 5.3.7 Service stations, once almost exclusively main road oriented, are now commonly located adjacent to commercial centres, and the trading potential from such locations has been found sufficient. A significant proportion of total trade usually escapes from service stations near shopping centres, but in normal circumstances, the trade area population of a neighbourhood centre could support a service station at the centre. The petrol companies have required sites of increasing size in recent times, in order to provide a wider range of services at their stations. A service station site now requires at least 1,400 sq. metres, and about 1,900 sq. metres if car wash or other ancillary facilities are planned. A number of service stations are already located along the Great Western Highway, and these will continue to serve the needs of through traffic and of some locals as long as the present route is used. With changing marketing techniques, some service stations may expand in size, and the total number along the highway may well diminish.



KATOOMBA

1. More incentive is needed by local Business men to shop local. A campaign backed by Council funds is needed to replace older buildings and shops so a New Shopping Plaza Complex can be built. Shop proprietors would then move into the new shops and offices vacating other old buildings that could also be replaced with new buildings. The business and community as a whole would benefit from this type of project.
2. Council's proposed Parking Area between Katoomba and Parke Streets is a move in the right direction, the car playing such an important part of our everyday life. Because of the weather in the Upper Mountains covered Shopping Malls will be the ultimate in shopping facilities. We are delighted to see that Council has entrusted private enterprise to draw the strategy plan for the City. This right decision was long overdue we would think, by almost ten years.
3. More off street parking.
4. Improve public service facilities.
5. A department store would lift business. The proposed Community Centre should not be in the main shopping area. More active effort should be made to bring light industry to one or two main Upper Mountain industrial areas. A better quality airport for light planes should be established, either by Government funds to upgrade the Medlow Bath (Private) airstrip or develop a location at Wentworth Falls if nothing closer to Katoomba can be secured. The Nellies Glen Road into Megalong Valley should be permanently reopened. However, local rates must not be allowed to go higher. State or Central Government funds must be secured for such projects. N.B. Presuming that the inevitable demand for residential land in the Sydney area continues, planning must embrace the release and development of considerably more residential land in Blue Mountains. It is better to plan this properly now than live in a make-believe world of nature and have it forced on us at short notice in 20/30 years time.
6. Some older premises require replacing or extensive renovation - better rear access to commercial premises required - flexibility of making Katoomba Street a shopping mall and closed to traffic should be seriously considered.
7. By curtailing parking limit and strictly enforcing same. Too many vehicles standing in main street for full days in some cases. Double parking to enable elderly people to alight is quite common - areas should be allocated for this purpose. There is far too much procrastination and dilly-dallying by B. M. C. C. in dealing with



matters affecting the rate payers generally. Also, there are too many inconsistencies in its decisions.

8. Pulled down and start again.
9. Introduce Arcade Centres and improve foot paths etc. Plant garden areas in main street to add additional beauty for both visitors and residents. Be more selective in appointing Committees to take charge of local developments.
10. No Comment.
11. Larger Premises.
12. One way street system.
13. More public parking at Katoomba and Springwood.
14. Regarding the area library is in, I consider that Waratah Street would be much improved with its own parking area. I would like to suggest that the Council acquire the vacant block above Hart's Dry Cleaners for same. This street is very congested and a parking area would be most useful. I consider our local Council should pay more attention to streets and footpaths. There are even holes in Katoomba's street footpaths. This street (Waratah) is urgently in need of attention. I consider it time that the Council attend to more elementary matters and forget all its fancy ideas of development.
15. Lower rents. Lower power rates. Longer parking time for clients.
16. "Parking restrictions" because people from Katoomba Street leave their cars in Waratah Street all day so restricting potential customers from going to these shops and businesses. If Council could purchase land next to my premises and take it into existing park on corner Lurline and Waratah Streets, because I feel this area will, in time, be densely populated due to proposed flats and unit type development.
17. Keep it clean! Smarten it!
18. Restricted parking in Waratah Street. Better street cleaning.
19. More parking areas, more loading zones. Footpaths cleaned, better class restaurants.
20. More shopping facilities for retailer.
21. All shops to be open for business in November to February, Xmas and holidays all the time. We get visitors up here during these periods and our SHOPS are SHUT.



22. Some of the shops are in need of a face lift. My own properties are in this category and I have plans for rejuvenating the shop fronts and painting the exteriors, next year. Perhaps a diplomatic approach could be made to landlords to interest them in sprucing up their properties. Could the local council promote some incentive scheme that might influence property owners in the business area, to brighten up their premises and thereby, brighten up the town as a whole. Chamber of Commerce could be helpful. The footpaths are badly in need of resurfacing after the installation of new telephone cables. Their uneven surface is a source of danger to pedestrians, especially the elderly. The cleaning of the footpaths is also a matter of concern for shop-owners. Unleashed dogs are a continual menace, despoiling the footpaths and resulting in filth being trafficked into the shops. More active supervision of this nuisance and the occasional sluicing of the footpaths by the street cleaner, should be implemented by the local council. The only time the footpath outside my shop is hosed is when I do it myself and as a rate-payer, I feel I should not be a handmaiden to itinerate packs of dogs.
23. Keep commercial vehicles out of main street - particularly SHOP OWNERS cars. Council should insist owners of shop awnings should be maintained against water leaking onto pedestrians. Footpath surface should be maintained in reasonable flat surface at all times.
24. Katoomba Street to be one way - down from Station. Katoomba Street to be a pedestrian Mall. Both above possible if proposed parking area between Katoomba and Parke Streets be completed at early date.
25. Katoomba Street replanned to become a modern landscaped plaza - no vehicular traffic or buses only. Bus routes altered and covered ways to be provided from convenient bus stops through to Katoomba Street. Footpaths in Katoomba Street and Lurline Street to be freshly black-topped. More car parks to be provided, specially in Katoomba Station area. Community Centre and separate conference hall to be provided. Entertainment, at night, for 18-21 years who are not allowed to visit clubs and hotels. Overhead bridge at Railway crossing or fly-over crossing and under-passes.
26. Yes - better parking facilities top end of Katoomba Street.
27. Footpaths in main shopping centre and to main tourist attractions need vast improvement. Shortage of parking space.

/cont'd



28. Room for more customer parking adjacent.
29. Drastic shortage of parking space at top end of town.
30. I believe that Katoomba Street should be one way traffic down and one way traffic up Parke Street - with two way traffic in Lurline Street. This gives the 3 alternates within 600 yards. This indirectly would not affect this firm but would eliminate a lot of hold ups caused by Railway Gates.
31. More parking area for shoppers and a loading zone needed badly, to enable one to unload and load goods.



BLACKHEATH

1. Since litter-bugging can't be controlled during the evenings, the council should hose the footpaths down before trading begins every morning. Something more should be done to eliminate the number of stray dogs that continually foul the footpaths. A pedestrian crossing should be created from the railway crossing to the shopping area to obviate foot traffic having to negotiate two other crossings. Why do the public seats around town all have to be sited in the open instead of under cover? What assurance can be given to people who plant flowering trees to beautify the area that they won't be hacked down by the Council whilst IN FULL FLOWER as happened in the centre of town last year.
2. Due to the uncertainty concerning the future development of Blackheath, one can hardly make plans for the future but only carry on business on a day-to-day basis; namely the proposed road widening in the shopping centre on the Great Western Highway, Blackheath, which has apparently been proposed since the 15. 9. 50 and with the Blue Mountains City Council's present Interim Town Planning Scheme, which does not look like being Gazetted for some considerable time.
3. Additional parking space. Clear indication of future zoning.
4. More parking area should be provided between Great Western Highway and Wentworth Street, behind Ampol Garage and Gardeners Inn Hotel, which would serve the business centre and the Community Hall. The Shopping Centre should be built in its first stage between Leap Road and Gardeners Crescent, Great Western Highway, Wentworth Street, facing east. It is in my view, in future planning, that Council be flexible, to give any future developers the opportunity to incorporate their own ideas.
5. By not facing the southward western fronts as the climatic conditions of this area makes it uncomfortable for shoppers. But by not facing the Southward Western fronts the businesses would lose the stimulus trade from the Highway and affect some shops badly.
6. Need more variety of shops, in a better laid out area off the highway.
7. In favour of shop off-highway.
8. Traffic noise a major problem. Remedy unknown. Building improvements desirable but not possible due to uncertain future road widening or deviation. Office open $\frac{1}{2}$ day each day. Each Ranger rostered on duty at office once every six day period. Only one (occasionally two) on duty in office at any time.



9. The important thing is for us not to outgrow our essential services. Most housewives go to Katoomba to do their shopping as food is supposed to be cheaper there. The local shops find it difficult to compete. Therefore, the present shop buildings more than adequately cater for the district. I understand that the local catchment area will only support a population of 5,000 and the Sewerage works will only support 6,000 people! Therefore, building in this area should NOT be encouraged. (Any other comments?) Yes, herewith is a submission made by me last year. I would be grateful if you would acknowledge receipt of this and let me know the results of your investigations when you have made them. Particularly I would like to know if you have permission of the Councils in the Bathurst Orange area to take more of their water supply. I am including the front page of the local newspaper this week. Are you the "specific firm" referred to. In which case will you undertake to make an honest investigation of this whole water and sewerage problem.
10. Being near Railway, centre cannot be improved much, main shopping centre on other side of railway line, not much opportunity to attract local shoppers with window display. Commercial growth could be stimulated by encouragement of other local industries, thereby providing job employment for young people leaving school. Stop exodus of young people to Sydney for work. Blue Mountains people must realise tourism is on the wane.



LEURA

1. By utilising the present unoccupied frontage in the main shopping centre, by establishing more shops and/or services.
2. Clean up the streets and empty shops - especially the streets' garbage bins which are used by shop-keepers more than the public, these public bins are full of household type rubbish, attracting dogs etc. Children on bikes ride on the footpath and menace old people. I would like to see some enforcement of the By-Laws in this area too.
3. Better presented shops.
4. We desperately need more car parking area, and a supermarket.
5. Public toilet for the Leura shopping centre. By hastening the car park. By the Council erecting on vacant land at Callen or elsewhere a good eating place for visitors and the children etc., with fairly low cost foods. General brightening up of the area.
6. Building small plaza. Public toilet block very much needed in Leura.
7. Leura seems to lend itself to a specialty area because of its pleasant lay-out, its relatively "high-brow" orientation and already existing specialty shops such as antiques, handicrafts, arts, etc. Keep Leura from commercialism and instead encourage and develop possibilities for creative development. Creative orientation where people can come to look at and perhaps buy a "thing of beauty".
8. Improve car parking facilities. Increase number of specialty shops. Introduce medium size chain supermarket. Renovation of shops (especially shop fronts). Introduce clean "take-away-food" outlet.



LAWSON

1. By the gradual adoption of the latest town planning scheme - without waiting for the DMR's plan of acquisition for the purpose of widening the highway. Also, it would help considerably if the BMCC improved the land it has resumed for parking purposes and placed directional signs at both ends of the shopping centre pointing to parking lots. Improve surface of roads leading to parking lots.
2. This centre could be improved by the addition of a car park (public) behind the shops. With improvements to the present shops by the addition of a restaurant and a TAB agency. With the promotion of our camping area, to be changed to a caravan park. By the installing of public toilets at the proposed car park at the rear of the present shops. The only other comment I have is that the above suggestions excluding the recommended shops will not go ahead because the Blue Mountains City Council will not spend in the Lawson area money to improve the business of trade. Building in the business area should be 3 to 1 ratio.
3. Decent car parking. Providing public convenience.
4. Parking area should be constructed at the rear of the shops without delay and pressure should be put on the Department of Main Roads to resume the front portion of the shops to ensure re-construction of the entire shopping centre. This survey will be worthwhile if the results are collated and implemented.
5. Widening of the highway to permit redevelopment into a modern and uniform shopping centre with office space above. Even more essential is the establishing of a car park. Most other centres have car parks and this attracts people away from Lawson. My own car was written off three weeks ago parked on the highway. This park is planned but nothing commenced. A major benefit would be squash courts and take-away food centre preferably drive-in type "Kentucky Fried" or similar.



WENTWORTH FALLS

1. Improved car parking facilities. Loading and delivery access at rear of shops, and improvement of the bloody mess at present existing at rear. How about cleaning up that junk shop mess at the corner?
2. Properly constructed car park. Tar-seal rear lanes behind shops at present. Constantly in use by shop owners and heavy delivery trucks. Increase the garbage and road cleaning service to keep street cleaner. Signs on highway welcoming visitors and indication shops and local tourist spots. The Council has done much to improve the lake at Wentworth Falls, but who knows it's there, certainly no passing motorist looking for a spot to have lunch.
3. Better parking facilities. Cleaning up shops and modernising. Put an administrator into the Council to run it properly.
4. Future expansion may not be substantial in view of population limitation. Expansion should however, be along Station Street, and not the Great Western Highway. Land adjacent to existing Wentworth Falls shopping centre to west should be zoned commercial so as to provide for any future expansion.
5. Remove and relocate cenotaph, which (a) is a traffic hazard, (b) "hides" the shops from the highway. Improve off-street parking for commuters. Erect new and improved type of highway signs eg., "Welcome to Wentworth Falls" etc., "Trout lake and picnic area - $\frac{1}{2}$ mile" etc. Shopkeepers and property owners should be encouraged to maintain appearance of street frontages. Several rather poor examples exist in premier positions, this probably leading many highway passers to conclude the remaining shops are likewise. A full range of consumer goods is not available due to insufficient number of shops, hence people tend to travel to Katoomba. More shops and advertising by the proprietor's would improve this position.



HAZELBROOK

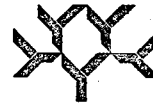
1. Chain store grocery.
2. By opening a supermarket (grocery) ample space available adjoining car park.



SPRINGWOOD

1. On the improve now - getting bigger. Road could be wider.
2. By rezoning some of the adjoining residential land (east and south) into commercial - thereby increasing in size what at present is a very narrow strip of commercial land. This would also provide more parking - which is badly needed.
3. Car park taken down to street level and developed parking underneath shops on top. Police station moved to site near ambulance station. School of Arts site developed as arcade through to Springwood Avenue.
4. More parking facilities. Large modern shopping complex. Springwood is the hub of the Lower Blue Mountains and the better the shopping facilities, the more people will shop here as lower down is too close to Penrith so we must entice the people to shop here.
5. Better parking facilities. More restaurants - take-away foods, lunches etc. Renovation of older buildings.
6. Improved business parking. Improved Federal and State Government services. Civic centre and services for increased population. A completely planned shopping and commercial centre.
7. Lull in house purchasing due to lack of finance has caused business to remain static. Under normal circumstances, I would estimate business from local people would have doubled.
8. More centrally situated up to state post office - Multi storey car park.
9. Parking should be vastly increased in order to reduce all-day street parking. By the establishment of a modern shopping complex in the close vicinity with adequate access and parking. By the development of Springwood Avenue as commercial. By the provision of access to the rear of existing shops, for on-site parking for staff and/or customers by the removal of Post Office and Police Station to new sites and conversion of their existing sites to parking with toilet facilities.
10. The only complaints from customers are lack of parking space and bad roads.

cont'd/...



11. More parking between the shops and the railway line should be afforded. Land has been available for years. Create a system of one way traffic within the shopping centre of Springwood. Create a Lower Mountains Council to separate the Upper and Lower communities.
12. By making the whole of the shopping centre from Raymond Road to the Western subway a pedestrian plaza and by giving vehicle access to the shops by the proposed (and surveyed) lane at southern rear of business premises and widening and sealing the whole of Springwood Avenue to provide a through vehicle road from the eastern to western end of the town.
13. Better parking facilities.
14. The Spring wood Chamber of Commerce has been asked to prepare a plan covering this question. The business area of Springwood at present is only using approximately 25% of available land zoned Business. The area lends itself to tremendous expansion and a very modern shopping centre, including the existing shops can be designed.
15. Better parking facilities and a large store such as K-Mart, Woolworths or Coles - Big W.
16. Lanes behind/between shops. Arcade development. Multi-level parking. Springwood services the Blue Mountains up to Blackheath and down to Blaxland and it is geographically a focus of the development on the lower Blue Mountains.



FAULCONBRIDGE

1. There should be more shops on this side (North) of the highway. Traffic hazards are caused by drivers making "U" turns. This side of the highway has off-street parking provided and access from Coomassie Avenue. What about the commercial property owners. How will their future plans and comments be obtained if they do not also run the shop?



BLAXLAND

1. The area bounded by Great Western Highway, Station Street, Hope and View Streets is largely undeveloped or has buildings of little consequence as far as demolition is concerned. From what I understand many of the property owners are prepared to agree to the construction of a small modern complex with parking. If Council could approve of such a development and refuse any other building applications, those not prepared to co-operate would be forced into conformity. Failing this co-operation, the land could be rezoned for Public Amenities. It is of suitable size and access to and from the area and could be planned to save interference with expressway. It is my belief that people not willing to co-operate in developing this area as a suitable shopping centre will not do so because they feel if a shopping centre is not established, they will still profit extensively because the area would be zoned high density. If this was not allowed, co-operation between property owners could possibly ensue. The other alternative is to seek similar but more gradual development of the existing area under a strict overall plan using the existing stable buildings as a basis on which to work. In any event, some parking, of either temporary or permanent nature should be formed. In principle, I cannot see any merit in moving the shopping site from near the rail.
2. Implementation of BMCC 'proposed' car park at rear of business premises between Hope Street and Station Street. Permitted uniform development between Station Street and View Street. Buffer zone between highway and pedestrian thoroughfare in front of existing shopping centre.
3. We subscribe to the views expressed by Blaxland Commercial Property Owners' Association. Until such time as finality is reached on (a) route of highway and (b) site for Blaxland Shopping Centre, the bank has shelved its plans to erect permanent premises. Present building is temporary and portable.
4. Improvements - More off-street parking facilities. Better pavements - more shelter from the weather. An improved bus service. More shops of the same and different types to increase the availability of goods and services and to introduce more competitive prices. Would like to see a regional shopping centre located away from the main Highway - with a private bus service from the railway station to the centre.

/cont'd



5. By merger with Penrith City Council as all residents and commercial enterprises from Warrimoo east identify more with Penrith than the Blue Mountains and the area are in effect becoming the middle to upper-middle class domicidal suburbs of the commercial/industrial centre of Penrith. Blaxland should certainly expand as a regional commercial centre because of its location right in the centre of the Lower Blue Mountains. The suggestion of transferring the Blaxland Shopping Centre to some other site is unsatisfactory. The only solution is to divert the highway or to accept Council development along the highway - but with access to the highway restricted.
6. Move car parking space and greater variety of shops.
7. By allowing the present centre to develop according to the need and providing good off-street parking for the shoppers. There is at present a large demand for shop and office space in Blaxland. Planning authorities should move much more swiftly. The present exceptionally long delays in approval are causing hardship to all concerned and the developer has lost all confidence in the area.
8. Divert the highway from in front of the shopping centre - if this is not possible, provide more customer car parking space at the rear of the shops. If the shop fronts could be given some uniformity so the shopping centre looks as one unit and not just a scattering of industrial units.
9. Penrith is a big problem for the business people here in Blaxland. That is my opinion.
10. This centre has remained static for some time, due largely, if not entirely, to the negative attitude of Council, and the SPA, resulting in vacant blocks of land in between shops, and the reluctance of property owners to develop, due to lack of any support from Council. Blaxland would undoubtedly grow into a vigorous progressive centre, if all land from Short Street to View Street, on both sides of Hope Street, was rezoned commercial, and owners encouraged to develop, instead of being obstructed.
11. By expanding this shopping area. Not building another one.



SOUTH BLAXLAND

1. It should be left zoned 'business' by the Council. It should be provided with a sealed road out front. It should be allowed to expand naturally. It should be sewered and storm watered. It should have made footpaths. It should stop lorry drivers from parking in the mud out front and creating a muddy mess. If Council and other appropriate authorities supplied some of the above basic services for the \$800.00 p.a. rates charged, the centre would progress and develop attractively and assist the business centre to provide a service the public has abundantly proved it requires.



GLENBROOK

1. More off-street parking. Two hour limit on street parking in commercial area. Higher density zoning on residential area adjacent to commercial area. Springwood should be the headquarters for the City Council. Reasons: (1) within the centre of city now, (2) has a large population already, (3) Lower Blue Mountains growing at faster pace than Katoomba.
2. Off street parking area. Council garbage collection. Grass on Council property mown regularly.
3. Many shops at Glenbrook encroach on each others' preserves, by selling the same or similar articles. Other types of businesses are needed to keep local people from going to Penrith - Blaxland etc.
4. The business centre could be improved by having an approved car park, also Council letting flats be built in area around shops and near station.
5. Could Council be more decisive.
6. Commuters park their cars on the streets and shopkeepers also park their cars on the streets. Shoppers therefore have to find available space to park. There is no car park available so if one was made available, it would be of tremendous advantage to the shoppers and shopkeeper alike. Possibly owing to the shortage of a car park it could be considered an advantage to install parking signs indicating the length of time you are allowed to park, e.g. 1 hour - 2 hours.
7. Time limit on parking (VIP). Limit parking to shoppers only. Some parking provided for sports area. Laneway to be formed so proprietor can provide parking.



TRANSPORTATION

1. ROADS AND TRAFFIC
 - 1.1 Road Inventory
 - 1.2 Traffic Volumes
 - 1.3 Seasonal Variation of Traffic Volumes on Great Western Highway
 - 1.4 Future Needs
2. RAILWAYS
 - 2.1 Railway Service
 - 2.2 Railway Patronage
 - 2.3 Future Needs
3. BUS SERVICE
4. AIR TRANSPORT
5. JOURNEY TO WORK
 - 5.1 Origin in City of Blue Mountains
 - 5.2 Destinations in City of Blue Mountains
6. TOURISTS
7. SUMMARY OF PROBLEMS, CONSTRAINTS AND CONFLICTS
8. IMPLICATIONS OF ALTERNATIVES



TRANSPORTATION

1. ROADS AND TRAFFIC (see Figure No. F1)

1.1 Road Inventory

There are two east-west routes through the City:

- * Great Western Highway from Penrith to Lithgow (S.H. 5) via Springwood, Katoomba, etc.
- * Bells Line of Road (M.R. 184 and M.R. 516) from Richmond to Lithgow via Bilpin and Bell.

A north-south route links these two at the western extremity of the City:

- * Darling Causeway (M.R. 184) from Bell to Mt. Victoria.

A third east-west route crosses the Lower Blue Mountains, joining the Great Western Highway at Springwood:

- * Hawkesbury Road (M.R. 570) from Richmond to Springwood.

Other roads classified by the DMR are:

- * Developmental Road (D.R. 1195) southerly from Blackheath to Cox's River, Megalong and Euroka (partially sealed).
- * Secondary Road (S.R. 2039) within Katoomba town, forming an alternative route to the Highway, by-passing one rail level crossing and one rail underpass.
- * S.R. 2044 within Katoomba town forming a route parallel to the Highway on the other side of the railway, west of the station.
- * Tourist Road (T.R. 4004) from the Great Western Highway just west of Mt. Victoria for 4.8 kilometres N.W. to Mt. York (partially sealed).
- * T.R. 4018 southerly for 0.8 kilometres to Sublime Point from Leura.
- * T.R. 4019 easterly for 4.8 kilometres to Evans Lookout from Blackheath (partially sealed).
- * T.R. 4029 southerly for 18 kilometres to Clear Hill from Katoomba along Narrow Neck Peninsular (unsealed).



- * T.R. 4052 for 3.2 kilometres within Springwood south of the railway towards Faulconbridge.

In addition, there are the following unclassified roads:

- * Mt. Wilson Road for about 32 kilometres from the Bell Road, 8 kilometres east of Bell to Mt. Wilson, rejoining the Bell Road west of Bilpin. The eastern end of this road is unsealed.
- * Kings Tableland Road southerly for 45 kilometres from the Highway near Wentworth Falls to the Warragamba Dam. Unsealed.
- * National Park road through the Lower Mountains between Glenbrook and Woodford, passing several picnic and camping areas. Mostly unsealed.
- * Several roads running along the ridges away from the Highway, such as:

Victoria Falls Road, Burrumoko Ridge Road, Hat Hill Road, Govetts Leap Road, Shipley Road, Grand Canyon Road, Mount Hay Road, Queens Road, Williams Ridge Road, Bedford Ridge Trail.

The Great Western Highway follows the main ridge, parallel to the railway (crossing it in ten places), passing through each of the mountain towns. It is mostly two-lane west of Linden with some climbing lanes, but has been widened to four lanes through much of the Lower Mountains. Gradients are reasonable and the ridge wide enough for a good alignment except in a section just west of Linden.

Bells line of road is a good alternative route for through traffic, having few interruptions to flow. The ridge is fairly narrow and steep in parts, especially west of Mt. Tomah, but is, nevertheless, a good fast road. Climbing lanes increase the capacity of this mostly two lane road. There is a steep gradient up to Kurrajong Heights from the east (outside City of Blue Mountains).

Darling Causeway is a good two lane, sealed road following a narrow but fairly level ridge.

Local and tourist roads on the central ridge are generally sealed and well maintained. There are no continuous sealed roads outside this central ridge which tourist traffic can use. The two unsealed roads through the National Park south of the highway are predominantly too rough for tourist traffic. The unsealed Mount Wilson road connection between Mt. Irvine and Bilpin passes through very steep country (partly outside City of Blue Mountains) and is difficult motoring for tourists.



1.2 Traffic Volumes

Department of Main Road's traffic counts were used to determine the following Annual Average Daily Traffic volumes for 1964, 1969 and 1972, and the growth rate of traffic at different locations.

	1972 AADT range	1969/72 growth p. a.	1964/69 growth p. a.
<u>Great Western Highway</u>			
Emu Plains to Springwood	8,240-12,280	11%	2%
Springwood	8,040- 8,990	9%	4%
Srpingwood to Wentworth Falls	6,590- 8,970	12%	5%
Wentworth Falls to Leura & Katoomba east of station	6,250- 8,070	5%	5%
Katoomba west of station	3,130- 6,530	3%	0
Blackheath	4,250- 5,850	8%	-1%
Mt. Victoria	3,190- 3,930	3%	-2%
West of Mt. Victoria	3,170	3%	9%
<u>Bells Line of Road</u>			
Bell to Mt. Tomah	2,800	8%	5%
West of Bell	2,900	6%	6%
<u>Hartley Vale Road</u>			
Bell to Mt. Victoria	640- 830	2%	6%
<u>Main Road 570</u>			
Springwood	4,540	12%	10%
Hawkesbury Lookout	1,230	7%	15%

Traffic passing right through the City along the highway appears to be currently (up to 1972) growing at about 3% p. a. Traffic in the lower and central mountains, east of Wentworth Falls, is growing very rapidly at up to 12% p. a.: this corresponds to a doubling every six years.

Traffic on Bells Line of Road is growing at 8% p. a., compared with the 3% p. a. on the highway, reflecting the attractiveness of this route to through traffic avoiding the ribbon development along the highway.



1.3 Seasonal Variation of Traffic Volumes on Great Western Highway (4 kilometres east of Wentworth Falls railway station)

See Figure No. F2.

The weekly volume of traffic at this point on the Highway ranged in 1972 between approximately 30,000 and 88,000 vehicles.

The lower figure occurring in mid-winter would represent the regular local and commercial traffic, with little tourist or recreational traffic. Volumes in excess of this figure indicate the volume of seasonal tourist and recreational traffic this road carries at other times of the year.

1.4 Future Needs

East-West Artery

The future development of Bathurst-Orange will determine the future needs for east-west roads through the Blue Mountains. The Bathurst-Orange Development Study by Rankine & Hill/W.D. Scott for NURDA in May 1973 recommend that the proposed new city of 300,000 people would require the Great Western Highway to be upgraded to four lanes through the mountains, and would also require a new four lane freeway to be built following the line of the existing Bells line of road. An alternative route for such a freeway would be along the Grose Valley, tunnelling under the Darling Causeway to Hartley Vale. Despite its feasibility, this scheme would destroy a natural wilderness area and would meet much opposition.

If the proposed growth of Bathurst-Orange does not eventuate, then the freeway would not be necessary, but the highway would still need to be upgraded to four lanes through the Blue Mountains. The current volumes of traffic already justify a four lane facility between Katoomba and the Nepean River. The Department of Main Roads have plans to extend the Western Freeway from the Nepean to Blaxland via Mitchell's Pass.

Extensive development in the Blue Mountains would render the highway inadequate for through traffic and would necessitate the upgrading of Bells line of road.

Other Main Roads and Local Roads

The extent and type of development in the City will determine the need for additional local road facilities. The Hawkesbury Road is an important outlet from the Blue Mountains to the northern Nepean area. Further development in the Lower Mountains could justify new roads down the escarpment.



Tourist Roads

Tourist traffic is limited to the main roads, to a few cliff drives, and to ridges leading to lookouts. There are no continuous sealed roads through the valleys. Any future plans to provide such roads through the National Parks and wilderness areas must be compatible with policies for conservation and preservation. Additional recreational roads could possibly be unobtrusively provided by extending the system of cliff drives along the central ridge.



2. RAILWAYS

2.1 Railway Service

The railway through the Blue Mountains is the main line to the west of NSW, being electrified as far as Lithgow. The service is operated by a mixture of single-deck inter-urban motor/trailer units and steam era carriages hauled by electric locomotives. Seats can be booked to Katoomba on the through expresses. Other stations are served by the express commuter trains and other stopping trains to Sydney.

Travel times from Katoomba and Springwood to Sydney range from 110 to 135 minutes, and 80 to 90 minutes respectively. Commuters from the Upper Mountains are served by 5 trains arriving in Sydney between 7.25 and 9.05 a.m. Commuters east of Valley Heights are served by one additional train during this period. All of these trains except one ("The Fish" from the Upper Mountains) stop at Penrith, Parramatta and Strathfield to set down passengers. Eastbound trains during the day are not regular in their frequency: headways at Katoomba vary between 20 minutes and 3 hours 40 minutes. Homebound commuters are served by 3 trains leaving Sydney between 4.45 and 6.00 p.m. During the daytime, the frequency of westbound trains to the Upper Mountains varies between 30 minutes and 3 hours 30 minutes.

2.2 Railway Patronage

Ticket sales at the railway stations between Glenbrook and Mt. Victoria, during the month of June 1973, give an indication of the distribution of rail travel. A high proportion of travellers purchase season tickets: approximately three times as many trips were made on these tickets compared with daily tickets.

Sales of season tickets during June 1973 resulted in the following approximate number of trips each day: 1,300 to Sydney Central and City Circle stations, 60 to Strathfield, 180 to Parramatta, 40 to Blacktown and 40 to Penrith. The origin stations of these trips were as follows: Springwood 24%, Blaxland 21%, Glenbrook 15%, Warrimoo 7%, Faulconbridge 6%, Hazelbrook 5%, Katoomba 5%. The other 10 stations each sold less than 5% of the season tickets. Linden and Medlow Bath, in particular, sold very few tickets, seasonal or daily. Sales of daily tickets were highest at Katoomba (24% of all sold in the Blue Mountains), but were also high at Springwood, Blaxland and Glenbrook.

The railway appears to be predominantly used in the Lower Mountains by commuters to metropolitan Sydney, but in the Upper Mountains a higher proportion of the trips are not commuting and are not to the City of Sydney.



2.3 Future Needs

The gradients and topography of the Blue Mountains prevent train speeds being greatly increased. Consequently, the attraction of the Upper Mountains as a dormitory for Sydney is reduced by the long travel times. However, sufficient commuters already endure the travel time from the Lower Mountains to indicate a growing pressure for residential dormitory expansion in the Blue Mountains.

The Bureau of Transport Economics in their "Review of public transport investment proposals for Australian capital cities", dated August 1973, considered the feasibility of widening the Glenbrook tunnel in order to permit the use of new double-decker carriages. They concluded that the option of widening the tunnel, assembling, running, and maintaining 14 new double-deck cars would be cheaper than solely assembling, running and maintaining 24 single deck cars. Also the cost of the former option would be discounted within twenty years against the third option of running and maintaining the existing carriages.

The extent of development in the Blue Mountains will have implications on the need for additional train capacity to Sydney and other employment centres, and the need for commuter parking at mountain stations. The adequacy of the existing goods sidings would be exceeded by any extensive industrial expansion. The existing sidings at Springwood, Katoomba and Mt. Victoria do not directly serve the industrial estate at Lawson or the coal mine at Bell.



3. BUS SERVICE

Scheduled bus services within the City are operated by four private bus companies. The routes of each company have very little overlap, and so some inter-centre journeys by bus involve changing vehicles at least once. Thus, passengers travelling any distance would often find train travel more convenient than bus travel, despite the irregular frequency of the trains (see section F.2.1). Passengers cannot travel by bus at all between Woodford and Faulconbridge. Buses do not operate after 6.30 p.m., except for special buses to and from the theatre.

The services operated by the private bus companies primarily operate on a local basis to connect residential areas to the shopping centres and stations. The need for the companies to operate an efficient, economically viable time-table precludes the opportunity to offer a fully integrated, frequent service (including evenings) to serve the needs of the whole community, especially the old and the young. Areas such as the Blue Mountains towns can only support a frequent, comprehensive, cheap bus service if it is heavily subsidised. Areas of larger population, with higher residential densities can achieve such a service at low subsidy.

The bus companies and their routes are as follows:

- * A. Bricknell Pty Ltd :
Mt. Victoria to Katoomba via the highway
Govetts Leap to Katoomba via Blackheath
Hat Hill Road to Katoomba via Blackheath
- * Katoomba Leura Bus Service :
North Katoomba to Katoomba
Leura Golf Course and Gordon Falls to Katoomba
Echo Point and Loftus Street to Katoomba
Leura Falls to Katoomba
- * Katoomba-Woodford Bus Service :
Katoomba to Woodford via the highway
Scenic railway (Katoomba) to Wentworth Falls via
Katoomba Street and the highway
- * Pearce Omnibus Pty Ltd :
Faulconbridge (Bellevue Road) to Penrith via the highway
with some services deviating via Springwood North,
Mt. Riverview and Lapstone.



4. AIR TRANSPORT

There is only one aerodrome in use. It has been established as a private venture on Crown Land on Point Pilcher Road to the east of Medlow Bath, and is licensed for light planes and small twin engine planes carrying 6 to 8 passengers, but not for commercial aircraft.

There is a disused un-licensed aerodrome at Blackheath.



5. JOURNEY TO WORK

The 1966 and 1971 census collected data on work addresses and home addressess, allowing a journey to work matrix to be built.

5.1 Origin in City of Blue Mountains

Workers who lived in the City of Blue Mountains gave their work addresses as follows:

	<u>1966</u>	<u>1971</u>
City of Sydney and South Sydney	1,640	2,040
Parramatta	310	420
Blacktown	200	190
Penrith	1,290	1,720
Other metropolitan areas	830	1,220
City of Blue Mountains)		5,800
Wollondilly and south)		130
Lithgow, Colo and Blaxiand Shire)	5,710	330
Brisbane Waters)		20
TOTAL	<u>9,980</u>	<u>11,870</u>

The number of workers living in the City of Blue Mountains increased by 1,890, or 19%, between 1966 and 1971.

Seventy percent of these new resident workers were employed outside the City of Blue Mountains, compared with the average of 50% of all workers being employed outside the City. Only 3% of workers travelled westwards to Lithgow, Colo or Blaxland Shire.

Detailed analysis of the 1971 data indicated a significant difference in commuting patterns between residents of the Lower Mountains (east of Linden) and residents of the Upper Mountains (Linden and west). This is summarised as follows:

<u>Destination</u>	<u>Origin:</u>	<u>Upper</u>	<u>Lower</u>	<u>Total</u>
City of Sydney and South Sydney		480	1,560	2,040
Parramatta		100	320	420
Blacktown		60	130	190
Penrith		210	1,510	1,720
Other metropolitan LGA's		320	900	1,220
City of Blue Mountains, Upper		4,010	200	4,210
City of Blue Mountains, Lower		120	1,470	1,590
Wollondilly and south		10	120	130
Lithgow, Colo, Blacland Shire		260	70	330
Brisbane Waters		20	-	20
TOTAL		<u>5,590</u>	<u>6,280</u>	<u>11,870</u>



It can be seen that only 26 % of Lower Mountains workers work within the City of Blue Mountains. A further 24 % work at Penrith, but the remaining 50% travel long distances to the City of Sydney, Blacktown and elsewhere. The workforce of the Upper Mountains find 74% of their jobs in the City of Blue Mountains. The remaining 26% travel very long distances to work.

An indication of the mode used for journeys to work outside the City of Blue Mountains is given by the following approximation of rail trips made from Blue Mountains stations, based on ticket sales in June, 1973:

<u>Destination</u>	<u>Origin:</u>	<u>Upper</u>	<u>Lower</u>	<u>Total</u>
City of Sydney		420	1, 080	1, 500
Parramatta		60	160	220
Blacktown		10	50	60
Penrith		40	90	130

Comparison of this and the previous table illustrates the high usage of rail for trips to the City of Sydney. An additional number of commuters would park and ride at stations such as Penrith. The use of rail for journeys to work in Blacktown and Penrith is, by contrast, low.

5.2 Destinations in City of Blue Mountains

The home addresses of workers with jobs in the City of Blue Mountains in 1971 were given as follows:

<u>Origin</u>	<u>Destination:</u>	<u>Upper</u>	<u>Lower</u>	<u>Total</u>
City of Blue Mountains, Upper		4, 010	120	4, 130
City of Blue Mountains, Lower		200	1, 470	1, 670
Penrith		20	120	140
Other metropolitan areas		50	40	90
Wollondilly and south		20	30	50
Colo and Brisbane Waters		70	10	80
TOTAL		4, 370	1, 790	6, 160

Lithgow and Blaxland Shire are outside the study area of the 1971 journey to work census survey, and so there are an unknown additional number of jobs in the Blue Mountains taken by people from these areas.



6. TOURISTS

The report by the NSW Department of Tourism in 1969 on tourist travel in the Blue Mountains included the following findings:

- * Interviewed people gave their mode of travel to the area as - car (88.4%), train (8.4%), bus/coach (2.3%)
- * Source of visitors was - Sydney (69.4%), rest of NSW (16.1%), interstate (11.7%), overseas (2.6%)
- * Destination of visitors was - survey area itself (86.5%), part of tour (4.7%), in transit to other areas (8.6% total)
- * Route of approach to area was - via St. Marys/Penrith (66.1%), via Windsor/Richmond/Springwood (8.9%), via rail (8.4%), other (15%).

The survey conducted at Easter 1974 as part of this study, indicated the following problems encountered by tourists in the Blue Mountains:

- * Bad roads, pot holes, bad edges and shoulders
- * Hawkesbury Road bridge over the Nepean at Yarramundi not high enough to avoid flooding
- * North Richmond road bridge not high enough to avoid flooding
- * Lack of direction/sign posts, mileage posts, advanced warning posts, alternative routes
- * A lot of traffic
- * Narrow roads
- * Need more slow lanes for passing
- * Too many semi-trailer and caravans on road.



7. SUMMARY OF PROBLEMS, CONSTRAINTS AND CONFLICTS

7.1 The preceding technical analysis has indicated that regardless of which development alternative is adopted, the following general points must be considered:

- * The topography of the Mountains has restricted transportation routes to two east-west ridges. The highway and the railway were built along the broad central ridge, leading to the development of a string of communities. The second east-west route follows a narrower, steeper ridge and has very little development along it, passing through the Blue Mountains National Park. Any attempt to significantly upgrade the major transportation routes to carry more through and local traffic will involve either resumption of developed urban land, extensive bridging and earthworks, or intrusion on parkland.
- * There is a general conflict between the regional importance of unspoilt wilderness and the need to build roads for large numbers of people to see these areas. Unlike other National Parks, the Blue Mountains National Park does not offer tourists the opportunity to drive through and around it. There is an emotional conflict between conservationists deploring destructive and visually harmful road buildings (such as along the Narrow Neck peninsular), and the majority of tourists who simply want to drive through a beautiful area.
- * Residents of the Blue Mountains tend to commute very long distances to work. The Lower Mountains area has a jobs-to-workforce ratio of 1 to 4, and is characterised by mass commuting to the City of Sydney, Penrith, and other metropolitan areas. The Upper Mountains area is much more self-sufficient in job opportunities (centred on Katoomba), but the linear form of development along the ridge leads to long journeys even within the Mountains, and a significant number of workers commute from the Upper Mountains to the City of Sydney and other metropolitan areas.

The phenomenon of mass commuting is not entirely due to the provision of a good rail service to the City of Sydney. More commuters go to "other metropolitan areas" than to the City of Sydney, and the majority of these former commuters travel by car.

7.2 A more detailed summary of problems, constraints and conflicts to be considered is as follows:

- * Topographical and National Park constraints limit future east-west communications between Sydney and Central/West NSW to the main central ridge and to Bells ridge.
- * The Great Western Highway is handicapped by ribbon development, by passing through town centres, and by crossing the railway in ten places.



- * Traffic volumes on the Great Western Highway justify its upgrading to four lanes east of Katoomba.
- * Topographical constraints and existing development make any re-alignment of the highway difficult and costly.
- * Rapid, extensive growth of Bathurst-Orange would require the highway to be upgraded to four lanes through the Mountains, and Bells line of road to be upgraded to freeway standard.
- * Bells line of road follows a ridge which, in places, is steep and narrow, making upgrading expensive.
- * Bells line of road is occasionally cut at Richmond by flooding.
- * The Hawkesbury Road is the sole outlet from the Blue Mountains towns to the north-east, but is occasionally cut by flooding at Yarramundi.
- * There is no sealed road from the Blue Mountains to the south-east, other than via the highway and Emu Plains.
- * Tourists are well provided with roads to the lookouts, but there are very few circuitous tours they can make through the parks and wilderness areas.
- * The railway provides a good service to a large number of commuters to the City of Sydney.
- * Train speeds are restricted within the Mountains by steep grades and sharp bends.
- * Off-peak trains are irregular and infrequent.
- * The width of the Glenbrook Tunnel prevents double-deck carriages being used to the Blue Mountains.
- * The operation of buses by non-subsidised private companies prevents the provision of a good public service.
- * Bus routes are not fully integrated due to each company's maintenance of its own interests.
- * Only 26% of workers living in the Lower Blue Mountains work locally. A further 24% work in Penrith. The rest travel long distances to the City of Sydney and other metropolitan centres.
- * 26% of Upper Blue Mountains workers travel long distances to Sydney and other centres outside the City of Blue Mountains. Many of those who work within the City of Blue Mountains travel long distances due to the linear form of development.



F15.

- * Other than to the City of Sydney, the majority of journeys to work are made by car.



8. IMPLICATIONS OF ALTERNATIVES

- 8.1 The following is a brief outline of capital works required for the transportation system under each of the five development alternatives. They are discussed further in section 8.2. In addition to capital works, there are costs of maintaining the system which rise as the system grows in size.

Arterial Roads (assuming little growth of Bathurst-Orange)

		Alternative				
		1	2	3	4	5
i)	Western Freeway completed to Blaxland	+	+	+	+	+
ii)	Highway upgraded to 4 lanes east of Katoomba, with deviations as shown on planning scheme	+	+	+	+	+
iii)	Highway upgraded to 4 lanes east of Mt. Victoria			+	+	+
iv)	Bells Road upgraded to 4 lanes with new bridge at North Richmond				+	+
v)	New bridge on Hawkesbury Road at Yarramundi			+	+	+

Arterial Roads (assuming rapid growth of Bathurst-Orange)

i)	Western Freeway completed to Blaxland	+	+	+	+	+
ii)	Highway upgraded to 4 lanes throughout City of Blue Mountains, as shown on planning scheme	+	+	+	+	+
iii)	New freeway along Bells Line of road	+	+	+	+	+
iv)	New bridge on Hawkesbury Road at Yarramundi			+	+	+

Local Roads

i)	Upgrade roads in town centres			+	+	+
ii)	Upgrade industrial traffic routes			+	+	+
iii)	New residential roads and neighbourhood feeder roads		+	+	+	+
iv)	New inter-district through road parallel to highway between mountain towns				+	+
v)	New inter-district through roads to Nepean plain				+	+

Tourist Roads

The provision of roads for tourism and recreation is subject to plans for conservation of the cliffs and valleys, and to policies of the National Parks Association. The five development alternatives do not have direct implications on the provision of tourist roads, other than on the need for recreational facilities for any increase in local population. See section 7.1.



Railways

	Alternative				
	1	2	3	4	5
i) Widening of Glenbrook tunnel		+	+	+	+
ii) New rolling stock		+	+	+	+
iii) Increased services		+	+	+	+
iv) Increased goods sidings				+	+
v) Streamlined rail freighting				+	+
vi) Track quadruplication, new signalling					+

Buses

i) Subsidy from Council or Government to improve services	+	+	+	+	+
ii) Loan or subsidy to buy new buses		+	+	+	+
iii) Services to new residential areas, schools, etc.		+	+	+	+

Parking

i) New parking stations in town centres		+	+	+	+
ii) Commuter parking stations at railway stations		+	+	+	+

8.2 More detailed descriptions of the transportation works implicit in each alternative are as follows:

Alternative No. 1 (assuming little growth of Bathurst-Orange)

Upper Mountains population	22,500
" " resident workforce	7,400
" " local jobs	4,600-5,000
" " commuters	2,400-2,800

(assuming all local jobs taken by resident workforce)

Lower Mountains population	24,800
" " resident workforce	8,900
" " local jobs	2,200-2,600
" " commuters	6,300-6,700

Alternative No. 1 comprises little population expansion. Transportation implications consist only of maintaining the existing system and of rectifying existing deficiencies.

* Extend Western Freeway from Emu Plains to Blaxland.
Funded by Department of Main Roads.

* Widen Great Western Highway to four lanes between Katoomba and Blaxland, with a deviation in Katoomba and another between Woodford and Linden, as shown on the exhibited planning scheme.
Funded by Department of Main Roads



- * Improve local bus service by subsidising the existing operating companies to provide more frequent, integrated and off-peak buses.
Funded by B. M. C. C., State or Commonwealth Government.

Alternative No. 2

Upper Mountains population	31,300
" " resident workforce	10,600
" " local jobs	6,000-6,700
" " commuters	3,900-4,600
Lower Mountains population	33,600
" " resident workforce	12,400
" " local jobs	3,400-3,600
" " commuters	8,800-9,000

This alternative represents a population approximately 35% greater than in Alternative No. 1, and involves approximately 45% more workers commuting outside the City. In addition to the capital works outlined under Alternative No. 1, the following works would be necessary to upgrade the transportation system.

- * Kerb, gutter and seal new residential roads and neighbourhood feeder roads to all the developed and serviced subdivisions.
Funded by B. M. C. C.
- * Widen Glenbrook railway tunnel, introduce new double-deck rolling stock, and increase the commuter services to metropolitan Sydney.
Funded by State or Commonwealth Government.
- * Subsidise, finance or appropriate the private bus companies in order to increase the number of vehicles and extent of the service.
Funded by B. M. C. C., State or Commonwealth Government, bus operators.
- * Construct parking stations at town centres.
Funded by B. M. C. C. or private enterprise.
- * Construct commuter parking stations or parking lots at railway stations, preferably on land leased at low cost from the Public Transport Commission.
Funded by B. M. C. C. or P. T. C.

Alternative No. 3

Upper Mountains population	67,400
" " resident workforce	24,600
" " local jobs	11,300-13,400
" " commuters	11,200-13,300



Lower Mountains population	45,000
" " resident workforce	18,000
" " local jobs	5,100
" " commuters	12,900

This alternative represents a population approximately 140% greater than in Alternative No. 1. The number of workers commuting from the Upper Mountains would be approximately 370% higher, and the number from the Lower Mountains would be approximately 100% higher than in Alternative No. 1.

Large numbers of office-worker commuters could be adequately carried to the City of Sydney and Parramatta by increasing the number and capacity of trains from the Blue Mountains. However, large numbers of non-office worker commuters to Penrith, Blacktown and other metropolitan areas would put a heavy burden on the highway. Section 5.1 indicates the current use of the motor car for work journeys to these areas.

The extent of commuting from the Upper Mountains, in particular, implicit in this alternative, is quite significant considering the distances involved 58 kilometres to Penrith, 111 kilometres to City of Sydney from Katoomba).

- * Widen Great Western Highway to four lanes between Katoomba and Mt. Victoria, with re-alignments as shown on the exhibited planning scheme.
Funded by the Department of Main Roads.
- * Construct a new road bridge on the Hawkesbury Road over the Nepean River at Yarramundi.
Funded by the Department of Main Roads.
- * Upgrade roads in town centres to accommodate traffic generated by increased population and commercial activity.
Funded by B. M. C. C.
- * Upgrade roads in town centres to accommodate traffic generated by increased population and commercial activity.
Funded by B. M. C. C.
- * Upgrade roads to industrial areas, especially new estates such as at Lawson.
Funded by B. M. C. C.
- * Construct residential roads and neighbourhood feeder roads to additional approved subdivisions.
Funded by B. M. C. C. developers.
- * Introduce additional rolling stock and commuter train services.
Funded by State or Commonwealth Government.



- * Increase bus services to new subdivisions, new shopping centres and community facilities. Subsidise, if necessary, to provide good service.
Funded by B. M. C. C., State or Commonwealth Government and bus operators.
- * Construct additional town centre parking stations.
Funded by B. M. C. C. or private enterprise.
- * Construct additional commuter parking stations.
Funded by B. M. C. C. or Public Transport Commission.

Alternative No. 4

Upper Mountains	population	103,600
"	" resident workforce	39,400
"	" local jobs	21,600
"	" commuters	17,800
	(including some to Lower Mountains)	
Lower Mountains	population	69,500
"	" resident workforce	27,800
"	" local jobs	7,500-8,900
"	" commuters	18,900-20,300
	(more if local jobs taken by Upper Mountains residents)	

This alternative represents a population approximately 270% greater than in Alternative No. 1. The number of workers commuting from the Upper Mountains would be approximately 590% higher than the number in Alternative No. 1, and the number from the Lower Mountains would be approximately 200% higher.

The implications of a large increase in the number of commuters is described on the previous page. It can be seen that the commuting implications of this alternative would be quite dramatic.

- * Widen Bells line of road to four lanes, with a new bridge over the Nepean at Richmond, to act as the main east-west through artery, by-passing the extensive development along the Great Western Highway.
Funded by the Department of Main Roads.
- * Construct new and upgrade existing roads in the town centres, to the industrial estates, and in the new residential areas.
Funded by B. M. C. C. and developers.
- * Construct a new inter-district through road parallel to the highway to carry local traffic between and through towns without using the highway.
Funded by B. M. C. C. and State Government.



- * Construct one or more new inter-district through roads to the Nepean plain from the Lower Mountains, reducing the dependence on the few roads already descending the escarpment.
Funded by B. M. C. C.
- * Introduce additional rolling stock and commuter train services.
Funded by State or Commonwealth Government.
- * Further increase bus services to new subdivisions, new shopping centres and community facilities. Subsidise, if necessary, to provide good service.
Funded by B. M. C. C., State or Commonwealth Government and bus operators
- * Construct additional town centre parking stations.
Funded by B. M. C. C. or private enterprise.
- * Construct additional commuter parking stations.
Funded by B. M. C. C. or P. T. C.
- * Increase the rail siding and freight handling facilities at centres offering industrial land, such as Mt. Victoria, Blackheath, Katoomba, Lawson and Glenbrook.
Funded by P. T. C.

Alternative No. 5

Upper Mountains population	143,100
" " resident workforce	57,200
" " local jobs	29,000
" " commuters	28,200
(including some to Lower Mountains)	
Lower Mountains population	131,700
" " resident workforce	60,600
" " local jobs	21,000
" " commuters	39,600
(more if local jobs taken by Upper Mountains residents)	

This alternative represents a population approximately 480% greater than in Alternative No. 1. The number of workers commuting from the Upper Mountains would be approximately 1000% higher than the number in Alternative No. 1, and the number from the Lower Mountains would be approximately 500% higher.

The number of jobs in the Lower Mountains would be sufficiently high under this alternative to employ a significant number of commuters from the Upper Mountains. This would, however, increase the potential number of commuters from the Lower Mountains to metropolitan Sydney to over 40,000.



The large number of people having to commute from the Upper Mountains would take the following form:

- * Assuming 80% of 28,000 people by train, 20% by car would require approximately 15 a.m. peak hour trains, plus road capacity for 3,000 cars (2 lanes if spread over one hour).
- * Assuming 50% of 28,000 people by train, 50% by car would require approximately 10 a.m. peak hour trains, plus road capacity for 7,500 cars (5 lanes if spread over one hour).

If an additional 40,000 people were also commuting from the Lower Mountains, then the combined requirement for transportation facilities would be quite staggering. The total minimum number of commuters from the City of Blue Mountains would be approximately 67,000. If 20 trains per hour were each to carry 1,500 passengers, then only 30,000 commuters could be carried by rail in the peak hour. The remaining 37,000 commuters would either travel by train outside peak hours, or would travel by car. Even with an average car occupancy as high as 2 passengers, 37,000 commuters would require 12 lanes of roadway if all travelled in the same hour.

The linear form of development through the Blue Mountains is not conducive to car travel by commuters. Large scale commuting as implied by this alternative would require substantial investment on new railway rolling stock, signalling and track quadruplication.



PUBLIC UTILITIES

1. GENERAL

- 1.1 While it is probably true to say that there are no insuperable difficulties in providing services for the maximum population of 275,000 being considered, costs could make water supply uneconomical and a lower figure may have to be accepted as the maximum practicable population at the present time. Future technological advances could of course, radically change the position.
- 1.2 Rock excavation tends to increase the price of sewerage but the main problems centre around the disposal of effluent without causing pollution. The limiting factor is likely to be the availability of water.
- 1.3 No land should be developed for urban purposes unless water supply and sewerage are available. Phasing of development should be related to the availability of these services. They can impose direct constraints on the pattern and extent of urban development.

2. WATER SUPPLY

- 2.1 The operation of the existing water supply installation is illustrated diagrammatically at Figure G1 and described in Appendix I to this report. The main source of supply is the Fish River dam. There are other smaller sources tied into the system.
- 2.2 The system is very flexible. There is a gravity supply from the Fish River dam to Katoomba and Leura and all centres easterly to Lapstone and Mt. Riverview. In the event of interruption to supply, the Blackheath and Katoomba dams can be drawn on to supply the whole area. From Linden down, the Woodford Creek dam is available.
- 2.3 At the present time, augmentation of supply can be affected by boosting or increasing main sizes from the Fish River dam. There will be increasing competition for water from this source in future years and the quantity available to the Blue Mountains could be strictly limited.*

* Other possible sources are the Wollomgambe River, Upper Cox River, Nepean River and Wentworth Creek in the Grose Valley.



- 2.4 Officers of the Public Works Department have intimated that no complete study has been made of sources in the general area nor of the amounts required for other projected developments from such sources. They consider it would take probably 1 to 2 years to investigate the possibilities.
- 2.5 The water requirements of a population of 275,000 persons would be of the order of 55 to 70 million gallons per day. The present demand is around 9 million gallons per day which will increase to about 22 million gallons in the year 2000.
- 2.6 It can be said that ample water is available for alternatives 1-3. Political decisions may be required as to the quantity of water that can be made available to implement future 4 or 5.
- 2.7 It is not unreasonable to assume that technological advances in recycling or desalinisation of water by the year 2000 will provide the solution to the problem of water supply and that it should not be accepted as a limiting factor at this stage.
- 2.8 The immediate problems confronting the Council with regard to water supply are set out in Reports by the City Engineer to the Council. Copies of these reports are at Appendix G. 1.
- 2.9 The capital costs of extending water supply for the population of each future are of the order of:

Future No. 1	\$ --
No. 2	\$0.3m
No. 3	\$3.1m
No. 4	\$7.25m
No. 5	\$15m

3. SEWERAGE

- 3.1 The Blue Mountains City area is served by a number of separate sewerage schemes, as indicated on map at Figure G3. Extensions of the schemes are proceeding and Sinclair & Knight, Consulting Engineers, have been commissioned to investigate the needs of the Lower Blue Mountains sub-region. Their report will be available about June 15, 1974.
- 3.2 There are fairly large areas serviced by the pan system or septic tanks. The number of households now using the pan system is estimated as under:

Mt. Victoria	26
Blackheath	35
Medlow Bath	21
South Katoomba	17



North Katoomba	26
Yosemite Park	28
Leura	70
Wentworth Falls	157
Bullaburra	20
Lawson	60
Hazelbrook	61
Woodford	85
Linden	6
Faulconbridge	41
Springwood	111
Valley Heights	61
Warrimoo	161
Blaxland	236
Mt. Riverview	78
Glenbrook	296
Lapstone	12
<hr/>	
TOTAL	1, 508
<hr/>	

It is estimated that there are some 4, 000-5, 000 septic tanks in use but accurate figures are not available.

- 3.3 No further land should be developed for urban purposes until it can be sewerred.
- 3.4 Nightsoil is disposed of by burying at the Blaxland sanitary depot. It would seem that there will be no problem with the disposal of nightsoil especially if the Council insists that no land be developed unless water and sewerage are available.
- 3.5 Sewerage effluent can have a severe impact on the environment and in some cases, tertiary treatment will be necessary. This problem will be considered also under the heading of environment.
- 3.6 The capital cost of providing sewerage for each future population is estimated to be of the order of:

Future No. 1	\$ --
No. 2	\$ --
No. 3	\$21.5 m
No. 4	\$43.3 m
No. 5	\$84.0 m

4. ELECTRIC POWER

The Council's Electricity Department takes its supplies from the Electricity Commission of New South Wales at 5 existing 11KV supply points at Blackheath, Katoomba, Lawson, Blaxland and Springwood. The Commission's main supply centre for the Blue Mountains is at Lawson. No difficulties can be foreseen in the supply of electric power but there could be problems concerning major easements for transmission lines because of their effect on the environment.



5. GAS

- 5.1 Coal gas used to be supplied by the Australian Gaslight Company from its works at Katoomba to Katoomba and Leura. The Company has changed over to the individual bottled L. P. gas system at the consumer's residence and coal gas production ceased in 1968. The Company is extending its L. P. service to other parts of the Blue Mountains City area.
- 5.2 Natural gas will probably be available within the foreseeable future from the Moomba-Sydney pipe line which is planned to traverse the Blue Mountains City area.

6. TELEPHONES

The greater part of the Blue Mountains City area is catered for by automatic exchanges incorporated in the Subscriber Trunk Dialling System (STD). No difficulties are foreseen in regard to this facility.

7. SOLID WASTE DISPOSAL

- 7.1 At the present time there are four garbage disposal areas where the sanitary land fill method is used. They are at Blackheath, Katoomba, Lawson and Blaxland. The depots at Blackheath and Lawson accept only "hard" material. All these depots are public rubbish tips.
- 7.2 There is a small pollution problem from leachate at Blaxland but this can be controlled. The situation is likely to become worse if greater amounts of garbage are to be handled as population increases.
- 7.3 Areas suitable for the landfill method of disposal are becoming increasingly difficult to find, and there could be damage to the environment with a population of more than 100,000.
- 7.4 Alternative methods of disposal will undoubtedly be required within a space of 15-20 years. Pulverisation appears attractive and could be economic for futures 4 and 5.

8. CONCLUSIONS AND IMPLICATIONS

Future 1

Existing water and sewerage works would not be used to full advantage.

Future 2

Only minor additions to public utility services would be required.



Future 3

Water and sewerage have been designed for a population of 100,000. Additional works costing about \$25m will be necessary. All other services will require augmentation.

Future 4

Economically exploitable water sources will barely cope with this population but there would be no great difficulties associated with other services. The cost of water supply and sewerage would be of the order of \$50m. Disposal of wastes will require special consideration.

Future 5

Economically exploitable water sources are unlikely to be available. It will be necessary to assume that technological advances, possibly in the recycling of water will provide an economical supply. Sewerage is dependent on an adequate water supply. There should be no problems with other services. Capital cost of water supply and sewerage works could be as high as \$100m depending on the water sources used. Disposal of wastes will require large installations to cope with a population of 275,000.

Generally, the provision of public utility services will not present insuperable problems.



TECHNICAL ANALYSIS 'G'

PUBLIC UTILITIES

APPENDIX G. 1

**Reports on Water Supply
by the City Engineer**



Item 1. REPORT BY CITY ENGINEER

4/9/73

65/592/207. WATER REQUIREMENTS -
CITY OF THE BLUE MOUNTAINS

To supplement existing supply requirements
to the YEAR 2000

An interim report under Item 5 by the City Engineer dated 15/5/73 was submitted to Council to acquaint it of the urgent action required to supplement the supply system, having regard to the excessive consumption in the summer of 1972-73. This report also established certain design criteria which it is now proposed to adopt in the proposals to be set out in this report. The design criteria adopted for the Lower Mountains for maximum day consumption was 260 gallons per head per day, whereas for the Central and Upper Mountains, 160 gallons per head per day was adopted.

INTRODUCTION

It will be realised that the source of supply and water distribution system for the Blue Mountains City area is somewhat unique, having in mind the excessive heads that are involved between each supply and service reservoir and the scattered development on either side of the main Highway between Mount Victoria and Lapstone.

It is intended to establish the main source of supply for the area east of Linden from the Fish River Dam at Oberon and to supplement this from the Council's Linden Dam at Woodford Creek.

In accordance with Council's resolution at the meeting of 15/5/73 a letter was drafted to the Department of Public Works dated 15/6/73 giving Council's requirements for water supply to the area east of Linden up to the year 2000. These figures are summarised hereunder:-

1973 -	Maximum Day to Day Demand	-	4.5 m. galls. per day
1980 -	" " " "	-	7 m. " " "
1990 -	" " " "	-	11 m. " " "
2000 -	" " " "	-	16 m. " " "

Consequently, in the light of these requirements, the designs of all future reservoirs, water mains and pumping stations will need to be large enough to supply water from the Council's Leura reservoirs through to the end of the distribution system at Lapstone.



It is proposed to only design the mains capacities to cope with maximum day requirements and not maximum hour requirements and to treat the reticulation for the local towns from the service reservoirs on the basis of maximum hour demand.

Investigations show, in the main, that the existing 15" and 12" mains, which connect the Fish River supply to the Lower Mountains could be utilised for each individual reservoir reticulation system as the new amplification proposals come into effect from time to time.

EXPLANATION OF THE OPERATION OF THE WATER SUPPLY SYSTEM

The current diagrammatic layout of the water system will serve to indicate to Council briefly the method of operating the scheme. The manipulation of the water supply could be explained in four stages:-

(a) Fish River Supply

Currently Council is able to draw approximately 2.5 million gallons per day from the Oberon Dam at the Fish River, which will be amplified within the next 12 months to approximately 4 million gallons per day by the installation of a new booster station in the Fish River line in the vicinity of Narrow Neck Road.

The water from Oberon is utilised to feed the Central and Lower Mountains from the concrete storage reservoirs at Leura and to supplement the Council's Cascade Creek Dams by by-passing these reservoirs and using Oberon head to boost the supply from the Blaxland Road, Wentworth Falls reservoir.

By this means it is possible to keep the water levels of the dams sufficiently high during the winter periods to cope with any unexpected demands in the Upper Mountains area during the summer months.

(b) Lake Medlow - Greaves Creek System

These two dams are basically used to supply the Blackheath, Mount Victoria, Medlow Bath areas with the ability to pump direct from Greaves Creek to supplement the Top and Middle Dams at Cascade Creek when surplus water is available.

The recovery of the Lake Medlow and Greaves Creek Dams is very good and this report will deal with making every possible use of this water.



(c) Cascade Creek Dams

Capacity of these three dams is considered to be sufficient until the year 2000 to take care of the Katoomba/Leura area until the year 2000, having in mind that their storage can be supplemented during the winter months if required, from the Fish River Scheme.

During the summer of last year, the Katoomba/Leura area was utilising 2.5 million gallons per day from these dams and over 1.5 million gallons per day to the Central and Lower Mountains to supplement the Fish River Supply.

(d) Woodford Creek Dam, Linden

The capacity of this dam is 188 million gallons and it has been necessary to boost direct to Linden Reservoir from the Glossop Road storage reservoir during periods of peak summer demand.

As the quality of this water is somewhat turbid, it has been mixed with the Fish River Supply at Linden before distributing to the Lower Mountains and it is envisaged that this water may need to be used for 3-4 months of the year as the demand increases in the future.

Water samples have been submitted to the MWS&D Board who are giving Council advice on the type of water treatment that would be applicable to bring it up to a reasonable standard for domestic consumption. It is foreshadowed that a new water treatment plant in the vicinity of the Glossop Road reservoir will need to be constructed during 1974-75 to improve the quality of the source of supply.

**WATER AUGMENTATION PROPOSALS RECOMMENDED BY THE
CITY ENGINEER IN FEBRUARY 1960**

All the recommended works for Stage (1) and Stage (2) as set out in the City Engineer's report have been carried out, with the following exceptions:-

1. The interconnection of Zones 1 and 2 by a combined gravitation and reticulation main between Medlow Bath and Shell Corner and a supplementary booster with a 2 million gallon reservoir at Medlow Bath.



2. The installation of two 20,000 gph boosters from the Mount Hay head service reservoir to points on the Leura system.

(Note: There are no current proposals to install these boosters).

3. Gravitation main between Blaxland Reservoir and Layton Avenue.

(Note: This is now part of the 12" amplification between Blaxland and Glenbrook that is now in progress).

PROPOSED AMPLIFICATIONS OF THE FISH SUPPLY SYSTEM BETWEEN LEURA AND LAPSTONE.

SECTION (1) FROM 5 m. gall. LEURA SERVICE RESERVOIRS TO 2 m. gall. BODINGTON RESERVOIR, WENTWORTH FALLS.

Existing main consists of 21,500' of 15" c.i.c.l. main
Present capacity - 4.5 m. to 5 m. gals. per day.

Suggested Staging of Amplification:

By 1980 - duplicate with 8,000' of 24"	- 8,000'
By 1990 - a further 8,000' of 24"	- 8,000'
Before the year 2000 - complete with 5,500' of 24" main	- 5,000'
	<u>21,500'</u>

SECTION (2) BODINGTON RESERVOIR TO BULLABURRA

Existing main - 11,600' at 12"
Present capacity of approximately 4.5 m.
gals. per day

Suggested Staging of Amplification:

By 1980 - 6,000' at 18"	- 6,000'
By 1990 - a further 5,600' at 18"	- 5,600'
	<u>11,600'</u>

SECTION (3) BULLABURRA TO WOODFORD

Existing main - 21,000' at 12"
Present capacity of main - 3.2 m. gals. per day

Suggested Staging of Amplification:

By 1980 - 13,000' - 20" c.i.c.l.	13,000'
By 1990 - Final stage of 8,000', 20" c.i.c.l	<u>8,000'</u>
	<u>21,000'</u>



SECTION (4) WOODFORD RESERVOIR TO LINDEN

Existing main - 18,600' of 12"

Present capacity of main - 3.2 m. gals. per day

Suggested Staging of Amplification:

By 1980 - 14,000' of 20"	14,000'
By 1985 - Final stage - 4,600' of 20"	- 4,600'
	<u>18,600'</u>

It is anticipated that a new 2 million gallon reservoir will be required at Woodford in 1977-78, and as an alternative, a booster station could be installed at the same time and thus delay for a period of 10 years, a portion of the amplification, programmed above.

SECTION (5) LINDEN TO FAULCONBRIDGE

Length of existing 12" main - 11,400
Present capacity of main, including
duplication of 1,700' of 12" steel is
- 4.5 m. gals. per day

By 1980 - Lay 8,000' of 20" main -	8,000'
By 1990 - Final stage of 3,400' of 20"	
which will suffice to the year	
2000	- 3,400'
	<u>11,400'</u>

SECTION (6) FAULCONBRIDGE TO HAWKESBURY ROAD

Length of existing 15" main - 11,400'
Length of existing 12" main - 6,100'
Present capacity of main - 4 m. gals. per day

By 1980 - Parallel the existing 12"	
main with 6,100' of 20"	- 6,100'
By 1985 - Final stage 11,400' of 20"	
c.i.c.l.	- 11,400'
	<u>17,500'</u>

SECTION (7) HAWKESBURY ROAD TO MOUNT RIVERVIEW

Total length of existing 10"-12" mains - 27,000'
Present capacity - 1.7 m. gals. per day

It is intended to split the supply requirements from Hawkesbury Road by two routes:-

- (a) as above - Hawkesbury Road to Mount Riverview
- (b) Hawkesbury Road to Warrimoo.



The maximum day requirements anticipated for each of three mains by the year 2000 will be approximately 3.5 million gallons per day, and it is anticipated that the supply for Hawkesbury Road/Mount Riverview section will be adequate until the year 1985.

Suggested Amplification:

As the amplification of the 10" steel main over very rugged country between Paterson Road and Mount Riverview would be costly, it is felt that the installation of a booster station at the Hawkesbury Road reservoir would be sufficient to cope with supply in peak periods until the year 2000.

An additional reservoir would be required by 1985 at Mt. Riverview to provide sufficient storage. A plan has been issued to rezone the high level areas around the reservoir, to give the residents an improved pressure before next summer.

SECTION (8) HAWKESBURY ROAD - WARRIMOO

Length of existing 10" main between Hawkesbury Road and Valley Heights	- 5,300'
Length of existing 8" main between Valley Heights and Warrimoo	- 12,600'
Capacity of existing mains	- 1.25 m. g. d.

Suggested Staging of Amplification:

By 1974 -	Lay 3,000' of 12" main between Macquarie Road and Greens Parade, Valley Heights - (1972/73/74 Loan Programme)
By 1980 -	Lay 4,000' of 12" main from Greens Parade, Valley Heights to the Subway
By 1990 -	Lay 5,900' of 12" main from the Subway along Waratah Road to Warrimoo Reservoir.

SECTION (9) WARRIMOO TO BLAXLAND

Length of existing 8" main	- 8,500'
Present capacity of existing 8" main	- 1 m. gals. per day

Suggested Staging of Amplification:

By 1974 -	Lay 8,500' of 12" main from Warrimoo to Bridge Road (1973/74 Loan Programme)
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SECTION (10) BLAXLAND TO GLENBROOK

Existing main from Bridge Road Reservoir
to Great Western Highway and King Street - 13,000'

Present capacity of 6" main - 0.45 m.g.d.

Suggested Staging of Amplification

By the summer

of 1973 -

Lay 11,500' of 12" main from Bridge
Road to Glenbrook Road and King Street
(70% of this work has been laid)

By 1976 -

Replace fibro mains in the low pressure
area of Glenbrook so that portion of this
can be re-zoned to Mount Riverview
head (1973-74 Loan Programme)

New 8" outlet main from Bridge Road
Reservoir to Great Western Highway by
the summer of 1973-74.

SECTION (11) FROM MOUNT RIVERVIEW RESERVOIR TO BLAXLAND AND GLENBROOK

This main comprises 6,700' of 12" and 10" main and 17,500' of 9",
which at present feeds right through to Emu Road, Glenbrook Reservoir.

It is proposed, within the next 3 years, to utilise the additional
storage available at Warrimoo Reservoir and feed Emu Road via
the new 12" mains to King Street, Glenbrook and connect to the
present 9" main at this point through to Emu Road.

This will then enable Mount Riverview Reservoir to be used entirely
to supply the maximum hour demand to the local Mount Riverview
area through to parts of Glenbrook. This will reduce the loading on
Mount Riverview Reservoir and its outlet main.

This will require the following amplification proposal:

By 1985 -

4,200' of 12" from Cherrywood Avenue to
Old Bathurst Road.

AMPLIFICATION OF UPPER MOUNTAINS AND KATOOMBA DAMS SYSTEM

MOUNT VICTORIA

The existing Mount Victoria system is served by gravity with an 8"
fibro main from the Bridges Road Reservoir, Blackheath to the
township.



High level areas above the township are served from an elevated reservoir of 100,000 gallon capacity which is served from a booster from the 8" main near the Great Western Highway. The recovery value of this booster is limited and it is proposed to install a higher capacity booster by 1980 and lay 1,700' of 8" outlet main from the elevated reservoir to the Highway.

Some sections of Mount Victoria are on very low pressure and it is now proposed to link all properties in Mount Victoria, comprising some 400 persons, to the elevated reservoir head.

Suggested Amplification Staging:

By 1990 - Construct an additional 150,000 gallon steel reservoir 60' high to serve the high level areas round the existing reservoir.

BLACKHEATH

The two service reservoirs at Bridges Road and Inconstant Street, Blackheath are fed by rising mains from Greaves Creek and Lake Medlow. The 5 million gallon reservoir at Shipley is balanced from these reservoirs which are at the same top water level.

Suggested Amplification Staging:

- (a) By 1980 - Interconnect to Greaves Creek and Lake Medlow rising main along Evans Lookout Road by laying 5,000' of 12" steel main to make full use of the higher capacity pump from Greaves Creek.
- (b) By 1990 - Lay 1,600' of 6" main as an interconnecting link between Bundarra Street and Shipley Road via Minyago Street.

(Note: This will allow full use of the Shipley Reservoir to feed into the township in any emergency, as the three Blackheath reservoirs are balanced at the same top water levels).

MEDLOW BATH

Medlow Bath is at present supplied from Blackheath along the Highway by means of a 6" fibro main.

Suggested Amplification - Stage 1

By 1980 - Construct a new one million gallon reservoir in Delmonte Avenue, Medlow Bath to act as a



reserve supply to Medlow Bath, because a long length of old 6" fibro main connects Medlow Bath and Blackheath at present.

Proposed top water level of this reservoir would be 3,580' which is only 17' lower than the Blackheath Reservoirs.

KATOOMBA/LEURA SYSTEM

The existing Shell Corner Reservoir and the Fitzgerald Street Reservoir are fed from the combined 15" and 8" rising main from Cascade Creek Dam. During periods of heavy summer demands, the present pumps work up to 22 hours a day to maintain supply to the Katoomba area.

In November, 1968, the City Engineer submitted a report on the augmentation of the Narrow Neck Road area, Katoomba, recommending amplification of the existing 4" main, which is totally inadequate for the area in periods of heavy demand, and the future supply to this rapidly developing area.

Provision has been made for Stage 1 in the 1973-74 Loan Programme for an 8" main from Farnell's Road to Cliff Drive. It is proposed to amplify further in the following stages before 1980:-

Stage II

8" main extended from Cliff Drive to Acacia Street and Oak Street - 2,350' and 6" extended from this point for 500' to Cedar Street

Final Stage

10" main from Farnell's Road to Shell Corner for 2,000' to be carried out concurrently with the new Shell Corner Reservoir.

Suggested Amplification Staging:

- | | |
|-----------|--|
| By 1980 - | Lay 8,000' of 10" rising main from the vicinity of the new Public Works Department booster at Narrow Neck to Shell Corner to serve the existing, and a future, 2 million gallon Reservoir. |
| By 1990 - | Replace existing ram pump at Lower Cascade Creek with a new 250 h. p. multi-stage pump and lay 6,600' of 12" steel rising main to Shell Corner. |



FITZGERALD STREET RESERVOIR

The present 2 million gallon reservoir at Fitzgerald Street has not been fully utilised, according to the original design by Blair and Stuckey, and it is now proposed to take the following steps to bring this into further use by 1974, to relieve the load on the Shell Corner Reservoirs:-

- (a) Provide a new automatic valve on the inlet side of the Reservoir from the Cascade Creek rising main;
- (b) Cut a new 12" outlet to connect to the existing 8" main to Leura;
- (c) Close the 8" valve on the Great Western Highway near Orient Street and thus feed both Leura Service Reservoirs from Fitzgerald Street and lay an 8" main under the railway line to Govett Street, Katoomba.

By 1975 the following further improvements are suggested:-

- A. Re-zone portion of North Katoomba to Fitzgerald Street head and lay approximately 2,000' of 6" ringing main to reduce the existing dead ends.
- B. An 8" main from the Great Western Highway adjacent to Queens Road across the railway along Govett Street for 2,300' to the 6" main in Lovel Street to feed the lower level areas of South Katoomba from Fitzgerald Street.
- C. 1,600' of 8" main from the Mall, Leura, to make a direct feed from Fitzgerald Street to Megalong Street Reservoir and allow the Churchill Street Reservoir to feed direct to the Mall, Leura.

This action will postpone the necessity of an additional 2 million gallon reservoir at Shell Corner until approximately 1977-78.

RESERVOIR REQUIREMENTS

Some reference has already been made in this report for the necessity of additional storage. This is now being dealt with under a separate heading so that the order or priorities for reservoir construction can be assessed. It is in mind to construct additional reservoirs in the following locations:-

- 1. Medlow Bath - 1 million gallons
- 2. Shell Corner - 2 million gallons



3.	Bullaburra	-	2	million	gallons
4.	Woodford	-	2	"	"
5.	Linden	-	2	"	"
6.	Blaxland	-	2	"	"
7.	Mount Riverview-	2	"	"	"
8.	Mount Victoria-	150,000	gallons.		

The priority of construction can be assessed by the following comments:-

1. The Fish River supply is at present fed by a 2 million gallon reservoir at Bodington, Linden, Faulconbridge and Springwood, leaving a weak link should any major break occur on the line at Bullaburra and Woodford.

Any malfunction in the automatic valve in the existing $\frac{1}{2}$ million gallon reservoir at Bullaburra has, on occasions, rapidly emptied the Bullaburra Reservoir leaving the reservoirs easterly and the Bullaburra-Lawson reticulation system somewhat depleted.

Similarly, Woodford Reservoir has a capacity of only 270,000 gallons and it is normally fed direct from Bullaburra, by-passing Lawson, which is used as a service reservoir.

2. The present 2 million gallon reservoir at Linden is now used to take supply from the Woodford Creek Dam/Glossop Road system and present amplification proposals are in hand for September-October 1973 to lay about 4,100' of 8" c.i. main between Glossop Road and Linden Reservoir to replace an old fibro main, so that the full boosted pressure from the existing booster near the Glossop Road Reservoir can be utilised to give a total of 1.5 million gallons per day into Linden Reservoir.
3. The Bridge Road Blaxland Reservoir has a capacity of only 225,000 gallons and is virtually a break pressure tank between Warrimoo and Glenbrook. Initially it was intended to feed south Glenbrook area from Warrimoo Reservoir, which would involve excessive replacement of fibro pipes in this area and operating on unnecessary higher heads, resulting in higher water consumption per capita.

For these reasons it is considered that a new reservoir at Blaxland would be more practicable.

MOUNT RIVERVIEW

Investigations in this report indicate that an additional 2 million gallon reservoir will be required at Mount Riverview by 1985. The question as to whether the reservoir shall be located on the present site alongside



the existing reservoir is still being checked and a further report will be submitted to Council in about 12 months time.

Indications show that it will be cheaper to construct it immediately adjacent to the existing one at the same top water level which would also considerably reduce the cost of pipe work etc. As its construction can be postponed until 1985, Council would be able to utilise this land for recreation purposes until that time.

SUGGESTED PRIORITIES FOR RESERVOIR CONSTRUCTION

1.	Blaxland	-	1976
2.	Bullaburra	-	1976
3.	Linden	-	1977
4.	Woodford	-	1977
5.	Shell Corner	-	1978
6.	Medlow Bath	-	1980
7.	Mount Riverview	-	1985
8.	Mount Victoria	-	1990

WATER FILTRATION AND TREATMENT PLANT

The present quality of the water from the Council's dams in the Upper Mountains area is regarded as satisfactory and no water treatment for at least 20 years is foreshadowed. However, the Council should have regard to its borrowing programme for 1974-75 to construct a suitable treatment plant for Woodford Creek Dam near the Glossop Road Reservoir site at an estimated cost of \$200,000.

PLANS, ETC.

A diagrammatic layout of the existing water supply is attached for the information of the Council and the City Engineer will produce a series of large coloured maps to indicate to the Council at the meeting the actual route of the proposed water mains referred to in this report.

COST AND WORKS PROGRAMMES

In order to acquaint Council of its anticipated commitments to the year 1980, a detailed Cost and Works Programme has been prepared as an attachment. For the construction work envisaged beyond 1980, a Works Programme only has been scheduled to summarise the balance of the requirements set out in the body of this report.

SOURCE OF FINANCE AND FINANCIAL ASSISTANCE

In programming the proposed expenditure to 1980, consideration has been given to Council's commitments to the year 1976-77, in its



contributions to the Blaxland-Glenbrook and Valley Heights Sewerage Schemes.

Tentative enquiries have been made to the Department of Public Works as to Council's eligibility for subsidy on its water augmentation proposals, as set out in the Department's booklet - "Construction of Country Town Water Supply and Sewerage Schemes" - July, 1967.

These enquiries have shown that the Department is favourable although it could be 7 or 8 years before subsidy becomes available. Should approved subsidies or grants become available earlier than stated above, it could be possible to bring forward the proposed scheduling, as tabulated.

RECOMMENDATIONS:

It is recommended:-

1. That Council adopt in principle, the tentative programme, as listed in the attached schedule, to include in its Water Supply Estimates, up to 1980.
2. That Council refer these schedules to the Department of Public Works, so that the Water Supply amplification proposals can be included as a Scheme eligible for Government Subsidy.

SECTION AMPLIFICATION	CURRENT Work Est. Cost	1973-74 Work Est. Cost	1974-75 Work Est. Cost	1975-76 Work Est. Cost	1976-77 Work Est. Cost	1977-78 Work Est. Cost	1978-79 Work Est. Cost	1979-80 Work Est. Cost
LEURA to BODINGTON							6,000' of 24" main \$300,000	2,000' of 24" main \$100,000
BODINGTON TO BULLABURRA							3,000' of 18" main \$105,000	3,000' of 18" main \$105,000
BULLABURRA TO WOODFORD						5,000' of 20" main \$175,000		8,000' of 20" main \$300,000
WOODFORD TO LINDEN	4,100' of 8" main \$29,000		Fil- tration Plant \$200,000			3,000' of 20" main \$105,000	6,000' of 20" main \$210,000	5,000' of 20" main \$175,000
LINDEN TO FAULCONBRIDGE	1,700' of 12" \$ 20,000 main complete			3,000' of 20" main \$105,000	3,000' of 20" main \$105,000		2,000' of 20" main \$ 70,000	
FAULCONBRIDGE TO HAWKESBURY ROAD				3,000' of 20" main \$105,000		3,100' of 20" main \$109,000		
HAWKESBURY ROAD TO WARRIMOO		2,000' of 12" main \$ 25,000	1,000' of 12" main \$ 13,000	4,000' of 12" main \$ 56,000		5,900' of 12" main \$ 83,000		
WARRIMOO TO BLAXLAND		8,500' of 12" main \$107,000						
BLAXLAND TO GLENBROOK	8,500' 75% of 12" completed main \$ 91,000	3,000' of 12" main \$ 38,000						
MT. RIVERVIEW TO BLAXLAND AND GLENBROOK								4,200' of 12" main \$ 59,000
Sub-Totals -	\$140,000	\$170,000	\$213,000	\$266,000	\$105,000	\$472,000	\$685,000	\$739,000

SECTION AMPLIFICATION	CURRENT Work Est. Cost	1973-74 Work Est. Cost	1974-75 Work Est. Cost	1975-76 Work Est. Cost	1976-77 Work Est. Cost	1977-78 Work Est. Cost	1978-79 Work Est. Cost	1979-80 Work Est. Cost
MT. VICTORIA ZONE					1,800' of 8" main \$ 18,000			
BLACKHEATH ZONE					Install 20 H. P. Booster \$ 2,000		1,600' of 6" main \$ 11,000	5,000' of 12" R. main \$ 70,000
KATOOMBA/ LEURA ZONE		4,000' of 8" main \$ 34,000	3,900' of 8" main \$22,000 2,000' of 6" main \$12,000	2,400' of 8" main \$22,000 500' of 6" main \$ 3,000		2,000' of 10" main \$22,000	8,000' of 10" R. main \$80,000	
<u>SERVICE RESERVOIRS</u>								
BLAXLAND					2 mill. gallon \$150,000			
BULLABURRA					2 mill. gallon \$150,000			
LINDEN					2 mill. gallon \$150,000			
WOODFORD						2 mill. gallon \$150,000		
SHELL CORNER						2 mill. gallon \$150,000		
MEDLOW BATH								1 mill. gallon \$ 85,000
MT. RIVERVIEW MT. VICTORIA								
TOTALS	\$140,000	\$204,000	\$260,000	\$291,000	\$575,000	\$794,000	\$776,000	\$894,000

WORKS PROGRAMME - 1980 to Year 2000

		1985	1990	1995	2000
SECTION (1) -	Leura Service Reservoirs to Bodington Reservoir Wentworth Falls		8,000' of 24"	5,500' of 24"	
SECTION (2) -	Bodington Reservoir to Bullaburra		5,600' of 18"		
SECTION (3) -	Bullaburra to Woodford		8,000' of 20"		
SECTION (4) -	Woodford Reservoir to Linden	4,600' of 20"			
SECTION (5) -	Linden to Falconbridge	3,400' of 20"			
SECTION (6) -	Falconbridge to Hawkesbury Road	11,400' of 20"			
SECTION (7) -	Hawkesbury Road to Mount Riverview	(i) Booster Station at Hawkesbury Road (ii) New Mt. Riverview Reservoir			
SECTION (8) -	Hawkesbury Road to Warrimoo	-	-	-	
SECTION (9) -	Warrimoo to Blaxland	-	-	-	
SECTION (10) -	Blaxland to Glenbrook	-	-	-	
SECTION (11) -	Mt. Riverview Reservoir to Blaxland and Glenbrook	-	-	-	
	Mt. Victoria		150,000 Gall. Reservoir		
	Medlow Bath		13,500' of 8" c.i.c.l. main between Shell Corner and Medlow Bath		
	Katoomba		(i) Install Booster Station at Shell Corner (ii) Install 250 H. P. Pump at Cascade Creek (iii) Lay 5,600' of 12" steel main to Narrow Neck.		



ITEM 5. REPORT BY CITY ENGINEER

15/5/73

65/502/207. INTERIM REPORT ON FUTURE WATER SUPPLY REQUIREMENTS AND PROPOSED DESIGN CRITERIA FOR BLUE MOUNTAINS CITY AREA.

PREAMBLE

The purpose of this report is to indicate an action sequence that is proposed in the current year and to establish design criteria and to indicate suitable staging of the work, which is already progressing. The heavy demand, during the 1972-73 summer, provided very useful information which has been used to evaluate the ever-increasing maximum day and maximum hour requirements.

HISTORY

Blair and Stuckey acted as consultants to the Council up to 1953 and considerable amplification was carried out for the next ten and significant major amplification was carried out in 1963 to coincide with the Fish River Scheme. The design figures adopted at the time were considered to be sufficient until the end of 1975, based on the normal domestic consumption limits of that time. The water supply from the Fish River Scheme can supply a maximum of 2.5 million gallons per day to the Central and Lower Mountains, and the Linden Dam water supply is available to supplement this by approximately 1.5 million gallons per day to the Lower Mountains east of Linden.

A request was made to the Department of Public Works by letter in November, 1972, to install a booster on the line to give a maximum of 4 M.G.D., being an increase of 1.5 M.G. per day from the Fish River supply. During the recent hot, dry spell of 1972-73, it was necessary to feed up to 1.5 M.G.D. from the Council's Cascade Creek Dams to the Central and Lower Mountains to supplement the supply. The level of these dams was dropping at the rate of 5.5 million gallons per day, due to the demand for water, which would have reduced the dams to danger level in approximately 50 days, if the unprecedented hot weather had continued and restrictions had not been applied.

A full report on augmentation proposals will be submitted to Council towards the end of June, 1973.

DESIGN CRITERIA

The heavy water consumption during the 1972-73 summer period provided valuable information on the maximum day and maximum hour consumptions which will be used, together with other design figures, supplied by the Sydney Water Board, to implement the amplification programme envisaged over the next 5 to 8 years. Council's approval, in principle, in principle, is sought to the following design standards which will be used in various "staging" of works to be sufficient for the year 2000.



(A) POPULATION .

The Sydney statistical regional report by the State Planning Authority shows the following forecast of population for the year 2000:-

Wards 3 and 4	65,000
Wards 1 and 2	35,000

(B) CONSUMPTION FIGURES

(i) Actual Consumption - Summer, 1972-73

	Maximum Day	Maximum Hour
(a) Katoomba-Leura area	160 gallons per head per day	300 gallons per head per day
(b) Lower Mountains area	260 gallons per head per day	495 gallons per head per day
(ii) Sydney Water Board design figures 1975	190 gallons per head per day	360 gallons per head per day
(iii) Sydney Water Board design figures, year 2000	240 gallons per head per day	460 gallons per head per day

It will be seen from the above figures that the maximum hourly consumption for the Lower Mountains is already greater than that anticipated in the year 2000 in the Sydney Metropolitan area, and the consumption in the Katoomba-Leura area compares favourably with the design figures being used by the Metropolitan Water Sewerage and Drainage Board for 1975.

The high consumption in the Lower Mountains can be attributed to the following factors:-

1. High water pressure normally available for garden watering
2. Lower density development experienced in this area results in a higher consumption per capita.
3. Larger blocks of land, hence more garden area.
4. Residents appear more garden conscious to promote new lawns.



5. Heavy watering of parks and ovals in rapidly developing areas.

It will be realised that the average person will use more water when a higher pressure is available and it may be necessary to insert orifice plates in the meters in areas of high pressure to make more water available to other users in time of peak demand. These orifice plates can be adjusted to give a maximum flow to consumers.

This is standard practice by the Metropolitan Water Sewerage and Drainage Board and will most likely need to be put into effect in the Council's area. As necessary amplification progresses, the position will be accentuated, as higher water pressure is available in the peak demand periods. This will automatically increase the maximum hour demand per person. Also the increasing use of mechanical apparatus for washing and dishwashing has increased the demand.

The Metropolitan Water, Sewerage and Drainage Board also states in its design standards that 50' minimum residual head be available for domestic use in peak hour demand. This figure could provide useful standards for Council's future designs in areas where the public have been accustomed to high pressures and make complaints when these fall, in times of heavy demand. It is also necessary to alert the Council of the water storage requirements to meet the development, which is envisaged by the year 2000.

The following is a summary of anticipated requirements by the year 2000:-

LOWER MOUNTAINS

Maximum day demand	- 65,000 x 250	= 16.3 M.G.D.
Average summer daily demand	- 16.3 x 0.64	= 10.5 M.G.D.

UPPER MOUNTAINS

Maximum day demand	- 35,000 x 190	= 6.6 M.G.D.
Average daily summer demand	- 6.6 x 0.64	= 4.3 M.G.D.

It will therefore be concluded that the Fish River supply will need to be substantially increased to meet the requirements of the Lower Mountains, in major staging, every ten years.

The Katoomba Dams will need to be used to meet the requirements of the Katoomba-Leura area and some of the Central Mountains. In the meantime, it will be necessary to conserve water during the periods of heavy summer demand and at the same time to provide sufficient amplification of mains and reservoirs to give a reasonable domestic supply in peak periods. This aspect will be further commented upon when the comprehensive report is furnished to Council.



IMMEDIATE NEEDS

Some amplification is already in hand to satisfy the requirements of the Blaxland/Glenbrook area and to provide additional water to the Faulconbridge Reservoir on peak days. Fibro replacement is also being accelerated so that a better pressure is available in the higher areas in times of heavy demand.

Fibro replacement in the Explorers Road area, Glenbrook will be co-ordinated with the proposed 12" amplification from Warrimoo to Blaxland, which will eventually place these high level areas on Warrimoo head. The proposed amplification, to be completed before the summer of 1973, will overcome most of the difficulties experienced during the 1972-73 summer.

RESERVOIR REQUIREMENTS

There is no immediate need for additional reservoirs. A 2 million gallon reservoir will need to be constructed in 1974/1975 at Shell Corner to provide adequate local storage for the Katooma area, which relies on pumping from the Cascade Creek Dams.

FIRE FIGHTING

The amplification proposed should be able to assist in providing water for fire fighting, although the supply cannot be expected to cope with long, continuous periods of bush fires. Council may need to adopt restrictive measures in times of extreme fire danger to conserve the water for emergency use.

RECOMMENDATIONS:

It is recommended:-

1. That Council adopt the following design figures to meet immediate and future requirements:

	Max. Day	Max. Hour
Upper Mountains	190 Galls/Head/Day	360 Galls/Head/Day
Lower Mountains	250 Galls/Head/Day	490 Galls/Head/Day

2. That the minimum satisfactory residual head available for domestic requirements be 50 feet, during periods of maximum hour demand.



3. That Council further press its request to the Department of Public Works to install a booster at the base of Narrow Neck to provide an additional 1.5 million gallons a day from the Fish River Scheme, and thus relieve the demand from Council's Katoomba Dams.
4. That Council recognise the need for restrictive measures during periods of abnormal demand, and/or periods of extreme bushfire danger.