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INQUIRY INTO CHILDREN, YOUNG PEOPLE AND THE BUILT ENVIRONMENT - FOLLOW-UP INQUIRY

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Child-friendly Environments

NSW DEPARTMENT OF URBAN AFFAIRS AND PLANNING
IN COLLABORATION WITH THE NSW PLAY ALLIANCE

Department of
Urban Affairs and Planning

Child-friendly Environments

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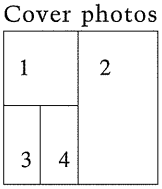
Department of
Urban Affairs and Planning

First edition by Suzanne de Monchaux, 1981
Second edition by Sandra Van de Water
Revised and edited by Diane Robinson
Coordinator: Susan Sky

Cover photos



1. Darling Harbour, Sydney. Photo: Linda Corkery.
2. Children painting totems along the Green Corridor between Wyalong and West Wyalong, NSW. Photo: Bland Shire Council.
3. Eating area in Penrith Plaza, Sydney. Photo: Sandra Van de Water.
4. Wattle Grove Housing Development, Holsworthy, Sydney. Photo: Wattle Grove Development.

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Foreword

Craig Knowles

Minister for Urban Affairs and Planning and

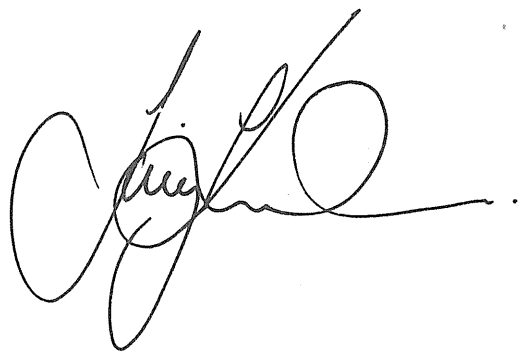
Minister for Housing

Children have special needs which the urban environment needs to satisfy. It is therefore important for governments and other agencies which shape our urban environment to ensure the needs of children are given attention. This is the aim of *Child-friendly Environments*.

As children often perceive the environment differently to adults, their requirements can be inadvertently overlooked. *Child-friendly Environments* presents valuable research on how children perceive their environment, and ideas on how to better meet their needs. It also contains best practice examples of child-friendly environments which are interesting to read about and should stimulate ideas for improvements in land use planning.

The Department of Urban Affairs and Planning and the New South Wales Play Alliance collaborated in producing this publication to update the 1981 publication, *Planning with Children in Mind*. With the increasing demands on our environment, the revision of this publication is timely.

I commend *Child-friendly Environments* to you.



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Preface

The NSW Department of Urban Affairs and Planning and the NSW Play Alliance collaborated to produce this publication. It revises the NSW Department of Planning 1981 document, *Planning with Children in Mind* written by Suzanne de Monchaux.

Child-friendly Environments illustrates how children aged between five and twelve perceive and use their environment, and explains why their environmental needs are not always met. To learn effectively and develop into mature human beings, children must interact positively with the environment. Play, social interaction, contact with nature, independent mobility and involvement with the local community are all essential for their development. As a result, children must be able to use most environments designed for adults. Environments designed specifically for children, such as playgrounds and schools, meet only some of their requirements.

The need for child-friendly planning is as great as when *Planning with Children in Mind* was first released in 1981. Unless we pay special attention to providing child-friendly places, the range of children's experience will be reduced. This is due to increasing urbanisation, the establishment of public places in locations which favour car-driving adults, and parents' increasing fears for their children's safety.

The relevance of this publication has been confirmed by recent Australian studies including Cunningham et al's research on play ranges in Lismore, NSW (1996) and Tranter et al's research on the reduced independent mobility of primary school children (1993). With commitment and imagination, and by

consulting with the community including children, child-friendly environments and communities are achievable. The will to create such environments must come from the community and politicians, as well as planners, designers and policy makers. Even minor changes will establish a trend for others to follow, and benefit all children in NSW.

Sue Holliday
Director-General
Department of Urban Affairs and Planning

Sandra Van de Water
New South Wales Play Alliance

Executive Summary

This publication is concerned with defining and meeting the environmental needs of children aged between five and twelve, in towns and cities.

To discover how children interact with the urban environment, we consulted several groups of children in New South Wales. The consultations revealed a great deal about why children's environmental needs are often not met.

DEVELOPMENT AND PLAY

Children perceive their surroundings as part of their total experience rather than in an episodic way. They pay special attention to natural objects such as trees and animals and to textures, colours and shapes.

Children feel affinity with places adults often overlook, being attracted to places over which they can assert territorial claims.

Urbanisation and higher density housing often allow children little control of their home environment. As a result, natural areas and abandoned sites are important as they contain objects with which children make their own play environment (for example, trees can be climbed on, hidden under and used for various games). These areas also allow children to take risks and challenge their surroundings without being restrained by adults, and offer privacy and solitude.

Our consultations with children showed that when they are absorbed in their activities, children may take risks without thinking of their physical wellbeing. At the same time, they can be bored and frustrated by environments which consider their safety but are too neat and organised.

GROWTH AND LEARNING

Planning literature suggests that child-friendly environments will promote children's social and emotional development, and allow them to develop creative and mental skills. If the urban environment becomes a learning opportunity for children, they can gain in observational skills and in motivation, realising they play a part in shaping their surroundings.

RESTRICTIONS

Until they are about 16 years of age, children are still developing physically. They have sight and hearing difficulties and can only concentrate on one thing at once. In the urban environment, surrounded by a complex variety of sounds and sights, they often get confused and lost.

In addition, children are small. They are unable to see over and around parked cars or street furniture. Objects such as bus stops or hedges can conceal them from traffic. They do not always understand traffic signs or terminology. As a result, their potential to be involved in accidents is increased.

Difficulties children experience in the environment are increased by physical disability.

The culture and class of the parents influence how much access children have to the outside world, what sort of behaviour is permissible and the sort of toys they play with. The gender of the child is also important — often boys are allowed more freedom than girls.

URBAN AREAS

Many Australian families live in suburbs or inner city areas. Although low density suburbs can be child-friendly, as houses have gardens and there are natural areas nearby, children's development is threatened by car dependency, which restricts their mobility and their independence. In high density suburbs and inner city areas, children can get around on public transport and have access to facilities such as museums and parks. However, as many of these children live in high density housing where no play spaces are provided, they play on the street and are at risk from traffic.

Children are also endangered when they are riding their bicycles. Car drivers are generally unsympathetic to children riding bicycles on the roads, and pedestrians dislike bike-riding on footpaths. Children therefore become confused about where they can safely ride their bicycles.

Children find shopping centres and other public places exciting yet frightening. They are exciting because they contain different sights, textures and activities. They are frightening because they are large and children, who cannot understand the directional signs, get lost easily. Many objects are too high or too big for children to use, and if they use articles as play items, they are scolded and restrained.

PLAY AREAS

Evidence suggests that although play areas in childcare centres are generally adequate, those in schools and parks do not always meet children's needs. Play areas in schools are often sterile and stark while those in parks can be badly maintained or even dangerous, and boring after their novelty has worn off. The equipment in some of them is too small or cramped for older children.

Children like both traditional playgrounds containing fixed equipment such as swings, and adventure playgrounds which contain more manipulable equipment.

SIGNIFICANCE FOR PLANNERS

The urban environment as a whole needs to be designed for children, since they cannot be restricted to playgrounds or childcare centres which are designed specifically for them.

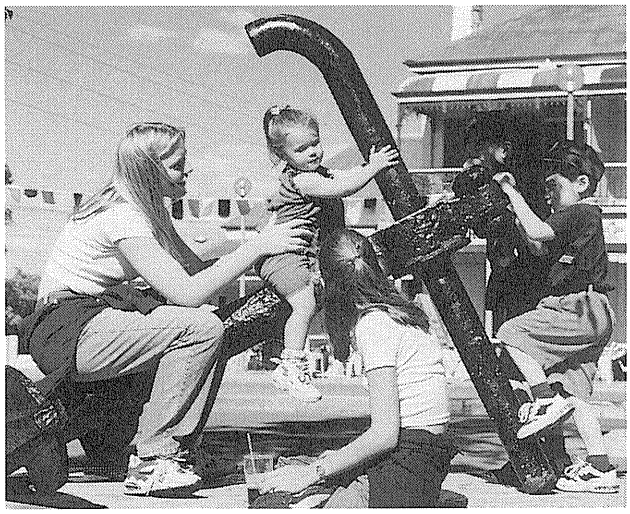
Descriptions of children's journeys to school revealed that children observe their surroundings in a detailed and imaginative way, and make choices based on the variety of stimuli they offer. For example, a route to

school will be chosen not because it is the most efficient way of getting to school but because it offers the most attractive sights, sounds, smells and activities.

Environments designed for children need to reflect their enjoyment of different textures, sizes, shapes and colours, and contain items they can interact with. Natural features are particularly effective, such as trees children can climb, plants they can touch and smell, water features they can manipulate and wildlife they can observe. Incorporating such features into the urban environment would make cities more attractive for adults as well as children, while also serving an ecological purpose.

Giant articles children can climb over and places such as tunnels where they can hide, would allow them to enjoy their small scale.

Heavily scented vegetation and distinctive ground surfaces; ramps, non-slip surfaces, wide doorways and pathways; and bright and colourful signs which contain clear visual pictures and are placed at a level at which children can see them, would help all children, including those who are physically disabled, orient themselves in and access public places, and reduce accidents.



Children's small size can make it difficult for them to operate in an environment designed for adults, but also means objects adults take for granted become interesting play items. Photo: Sandra Van de Water.

In suburbs, a network of pathways and cycleways linking parks, natural areas and schools would increase children's mobility. By increasing public transport and making it cheap and safe, children would be more able to access other urban environments.

Parents' fears for their children's safety in inner city areas would be reduced if play spaces were constructed away from highways, and, for ease of supervision, near to homes and well-used public pathways. As inner city children often play in the streets, streets should contain areas where children can congregate, street furniture they can play with which does not hide them from cars, and signs to help them find their way round.

There should also be a network of paths avoiding busy roads which would allow children to cycle to schools, shops and entertainment centres, and teach them traffic safety regulations.

Initiatives such as speed bumps, street mazes and closures, traffic calming, and appropriate street furniture and traffic signs would slow cars down and make them more aware of children.

MEETING CHILDREN'S NEEDS

Children are so much a part of the environment that they can be invisible until they commit a crime or are involved in an accident. Policy makers will then control their behaviour even more rather than deal with the reason the action or accident occurred. Parents often support this policy, believing that if their children have too much access to the environment, they will be at risk from traffic threats or dangerous adults.

Children are also aware of the dangers of the urban environment and are frightened about going to certain places on their own.

Some adults do not consider children important enough to provide facilities for. Others, who wish to understand children's environmental needs, sometimes rely on inaccurate memories of their own childhood, thus providing inappropriate facilities.

There are no legal bases or guidelines to help planners when considering children. Neither are council administrative processes set up to meet children's needs. Commercial interests and daily planning processes take precedence over any provision for children.

Community support for meeting children's needs in planning policy is minimal, since the needs of most children change as they mature.

Children's environmental needs could be met if the community, including planners and policy makers, learnt about their requirements through research.

When negotiating with developers, planners could point out that child-friendly public areas would also be more beneficial for adults, who wil find it easier to frequent establishments which cater for their children.

Guidelines specifying child-friendly features which could be incorporated into planning policy would help meet children's needs. Such guidelines would not have to be expensive or difficult to implement. At the same time, planners could ensure developments designed for adults underwent any minor modifications to make them more child-friendly.

Consultation with the community, especially children, is important when planning new or maintaining existing developments. It gives insight into how children engage with the environment, and inspires planners and designers to think of innovative ideas for developments.

On the basis of equity, and with political and community support, the urban environment can be designed to meet the needs of children and also benefit adults.

Introduction

Sometimes I go to my friend's place and we walk together. We've got two roads to cross. I like to look out for all the nice houses that I might buy when I grow up. I like big ones and white ones. It's a toss up as to whether I go front gate or back gate. The road's more deserted by the back gate but you meet your friends going that way (9-year-old boy).

AIM

Child-friendly Environments aims to identify children's environmental needs, and discuss how these needs could be met in planning policy.

DEFINITIONS

The term **environment** in this and subsequent chapters refers to the urban environment in that children live and operate. The term **needs** refers to factors that allow children to effectively engage with the environment. The term **we** includes the people involved in the first and second editions of this publication.

CONTENT

Child-friendly Environments:

- illustrates how children observe and interact with their environment
- illustrates why this environment is often not designed to meet children's needs
- suggests ways in which these needs could be met
- advises local planners and policy makers how to consider children's needs when they assess a development application, prepare a plan, approve a traffic scheme or rezone an urban area
- suggests how planners and policy makers can adapt their proposals to meet children's needs
- suggests how designers can design environments in a more child-friendly manner
- encourages planners and policy makers to consult the community, including children, when planning new or maintaining existing developments.

Child-friendly Environments is also a guide for the community to whom planners and policy makers are accountable. We hope that, after finishing this publication, readers will be inspired to create:

> a good city... in which children can grow and develop to the extent of their powers, where they can build their confidence and become actively engaged with the world, yet be autonomous and capable of managing their own affairs (Lynch in Michelson et al 1979a, p. 115).

Such a city would provoke the sort of enthusiastic comment given by a ten-year-old boy we consulted:

> Sometimes I go to my friend's place and we walk together. We've got two roads to cross. I like to look out for all the nice houses that I might buy when I grow up. I like big ones and white ones. It's a toss up as to whether I go front gate or back gate. The road's more deserted by the back gate but you meet your friends going that way (9-year-old boy).

SCOPE

Child-friendly Environments deals largely with the perceptions and needs of children between the ages of five and twelve. At the age of twelve, dependence on parents and other adults starts to decrease, and maturity of development in relation to the environment (for example, understanding road signs) begins to match adult levels.

The publication is about children who live in towns and cities. However, many of the principles and guidelines also apply to children who live in rural environments, adults who are small, or anyone who is affected by physical limitations of sight, hearing, comprehension or physical competence.

As a result of lack of time and resources, not all environmental issues relating to children have been covered. Some issues are so vast in their scope they have only been touched on briefly and deserve to be the subjects of separate studies. For a discussion of study limits, consult Appendix 2.

RESEARCH

Research for this publication came from various written works which are cited throughout the publication and listed in the bibliography. We reviewed findings which related to children's behavioural and experiential activities (such as play processes and perception) and their environment (such as housing, traffic or shopping areas).

CONSULTATION

An important tool for effective planning and development is consultation with the community, especially children. Much of the research we studied used consultation with children as a basis (for example, Lynch 1977; Hart 1979; Cunningham et al 1996). Following their example, the author of the first edition of this publication (Suzanne de Monchaux) held 24 discussion groups with primary school children in New South Wales in 1980. These consultations gave a great deal of insight into children's environmental needs and form the basis of *Child-friendly Environments*.

Surveys of planners and policy makers in local councils were also conducted in both 1981 and 1996. These provided valuable information about planning policy in relation to children. The 1996 surveys also provided material for the 'Examples of Best Practice' sections at the end of subsequent chapters.

LAYOUT

Each chapter in *Child-friendly Environments*:

- includes recent research and photographs
- contains a section called 'Significance for Planners' which suggests ways in which planners, designers and policy makers can design more child-friendly environments.

Most chapters also conclude with a section, 'Examples of Best Practice', which describes child-friendly environments in Australia.

Local Consultation

My mum takes me to school in the car or I walk. I cross the street then up to the park then I catch freddy bugs in the trees. They're black. Sometimes when I'm walking with my friends, I sometimes go the long way, see, there's a park down that road. There's three ways I can walk. Up the top and then the down way or just straight there (9-year-old girl).

INTRODUCTION

This chapter outlines some of the results obtained from consulting with children in New South Wales about their environmental needs in 1980.

CONSULTATION

We consulted with 24 groups of children in New South Wales primary schools, each made up of eight to ten children. Children were aged between seven and twelve. As far as possible, we ensured various ethnic and social groups, and children from inner and outer city and country town areas, were represented.

Our approach was informal, but structured, allowing children to identify their interests and concerns. Discussion in the groups developed in a free and open way. Most children were happy to tell us when, and how, and with what thought of consequence, they engaged with their various environments.

The results of these consultations will be explored in more detail in the following chapters, with appropriate quotes from the children.

JOURNEYS TO SCHOOL

The following extracts of children talking about their journeys to school are given here to introduce the reader to the environmental experience of children:

> Mum brings us. If we're running a bit late mum just takes us to the first road and we have a nice little talk while we go to school. One time I saw this lady with a bed on wheels and she was pushing it along (7-year-old boy).

My mum just takes me in the car on the way to work (8-year-old girl).

I walk out the door and go up the street, then I turn and go in this paddock kind of thing, and then I walk along the park, and then I cross the road and I go in the school gate. When I go home, I sometimes go a different way. I go the long way except when I've got a heavy bag (8-year-old girl).

First I go down to my friends. I always walk with them. We take a short cut and go round to Karen's place where there's a sort of little track and go and look for frogs, and then we get to school and play. It takes longer going home because we don't have to run if we are going to be late (8-year-old girl).

Sometimes I ride, sometimes I walk. I like riding best because I get to school quicker. It's dangerous sometimes. There's nothing much to see on the way. There's a house with three cats and they just sit there, and they look like three statues looking at you out the window: just sitting there everyday. You can see them there everyday (9-year-old girl).

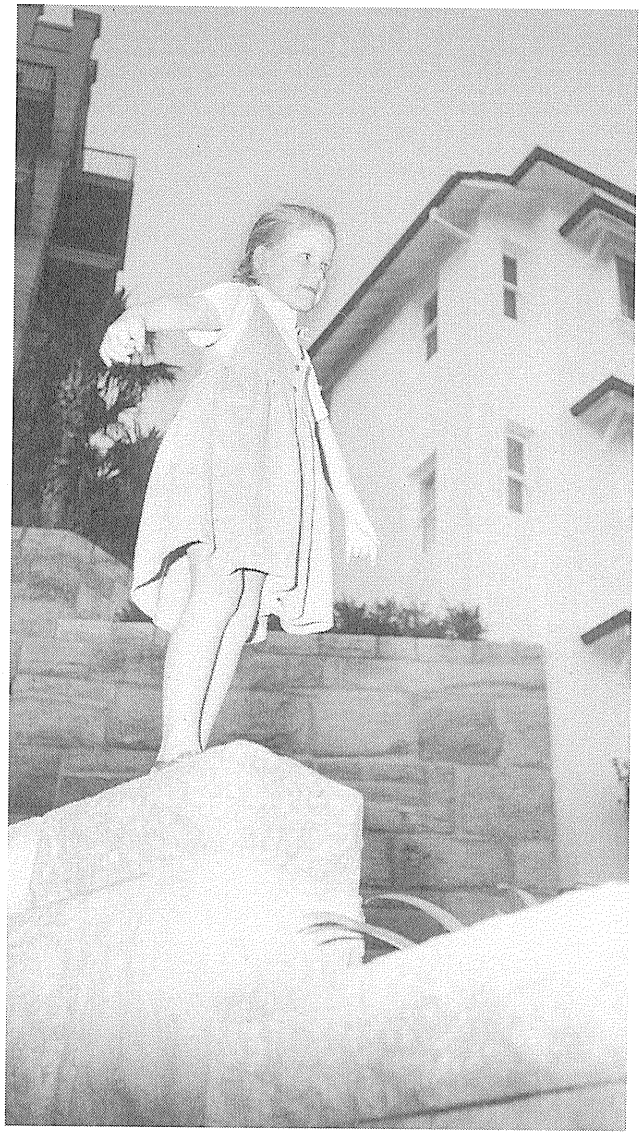
Before I start, early, I go up the shops and play the space invaders, then when I've run out of money I start to walk to school, and sometimes I get lost but I do get to school. I go down a different road because I think I can get that way, and I come to a dead end. I look out for cars and trucks so I don't get run over. You can see possums and wombats sometimes (9-year-old boy).

I go out the gate and my cat keeps on following me so I put it back. I see if my friend is ready and she never is, so I go up the road, and about the middle there's these steps that lead up to the shops, and I go up, and about the middle of the steps there's this bush track and I sometimes go home there; and I walk up to the rest of the shops, and I wait for the cars to go past, and I cross the road. Sometimes I see my friends at the shops and then I cross the road and I'm at school (9-year-old boy).

On the way to school, I just grab my bag and I walk down stairs. I cross the road and then walk through the car park and then I have to cross another one, and it says on the sign 'turn left at any time', you know, and you've got to look all the time and sometimes they don't put their blinkers on until its too late, and you're crossing, and you get across, and then you've got to wait, and then I catch the bus to school (9-year-old girl).

My mum takes me to school in the car or I walk. I cross the street then up to the park then I catch freddy bugs in the trees. They're black. Sometimes when I'm walking with my friends, I sometimes go the long way, see, there's a park down that road. There's three ways I can walk. Up the top and then the down way or just straight there (9-year-old girl).

Actually there's a lot of different ways. I like going the back gate way, there's a way that goes straight up because you can go up this bridge and you can go under two tunnels on your way to school. I like to play in them. You run and jump and go all cross ways. When you say you can't, like we have this competition with your friends, you've got to walk all the way from the side to the other end. Once me and Russell and Darrell — it wasn't those two big tunnels but we went through down the creek. We were following the back and we went actually through private property because we didn't see the sign, and we went through this big tunnel you go up. It's dark and you have to crawl right up, and this lady came up and said: 'There's two kids down there', so we rushed back and Darrell said: 'Come on, the lady will spot us', but she didn't catch us (9-year-old boy).



Children love taking risks for the thrills they offer — here, control is willingly relinquished in favour of excitement. Photo: Veceslav Stanuga.

> I say goodbye to my mum and I walk out the door and I turn left ... Sometimes I lift my hand up and down like that, and the trucks pull their horns. Mostly I come pretty straight here, but sometimes I go through the petrol station and play with the air pumps. I push the button and the air pump goes like that — he lets me, I know him. I see him everyday (10-year-old boy).
>
> Before I leave, I play with the cats and dogs and I like to look at the gardens. I usually go to pick up my friends, and I like the gardens with rockeries, and I saw one with stairs with water going down it and it was really pretty. I go the short way in the morning and I go the long way coming home. I go different ways so I can see different things on the way (10-year-old boy).
>
> I just get on my bike and ride there (11-year-old boy).

SIGNIFICANCE FOR PLANNERS

The descriptions of the journey to school raise several issues about children's experience of the environment. These are that:

- routes taken to school are chosen for the variety of sights, sounds and activities they offer, not as a way of getting from one place to another
- natural objects, such as animals, plants, insects, birds and trees influence these choices
- children choose these routes sometimes against the instructions of their parents
- the environment is noticed in fine and imaginative detail, though children vary in terms of the environmental detail they report
- children who walk to school see and appreciate more of that environment than those who bicycle, and certainly more than those taken by car
- most of the children who walk to school are aware of and fearful of traffic.

The next chapter discusses in more detail how children observe and interact with the urban environment.

Perception

There were these big steps like they were made for giants, and you had to take a lot of steps to get up to them, and you could dance on them and pretend they were a stage or something, and when you looked at them and the sun is shining, they're like diamonds (10-year-old girl).

INTRODUCTION

Children observe the environment in a different way to adults. This chapter gives a 'child's eye' view of how they perceive their surroundings.

THROUGH A CHILD'S EYES

Children view the environment as part of their total experience rather than seeing it in an episodic or compartmentalised fashion. Everything is connected: relationships with family, friends and animals; sights, sounds, learning and games; choices such as which way to go; and discoveries such as objects of interest:

> I walk out the door and get on my bike and then I go up the shop to buy lunch and then I go back to my dad's shop to give him the change. Then I go to school and on my way I catch flies and put them in a box. I go on the main roads because it's the only way. Sometimes if there is a lot of traffic, I go on to the footpath and go under the tunnel, and I always like it if there's a train coming up the top. I like the noise (11-year-old boy).

Many researchers have noticed the detailed descriptions children give of their surroundings, and their frequent references to animals, vegetation, natural phenomena and human activities. Lynch (Michelson et al 1979a, pp. 103–105) writes that his students' recollections of their childhood environments contain accounts of:

- ground surfaces such as grass, asphalt pavements, sand or rock
- space, including cavernous places such as train stations; open spaces such as beaches and prairies; and hidden places such as closed-in space under bushes

- the climate, such as feelings of being hot or cold
- living things such as trees, cats and dogs
- natural features such as hills and oceans
- human activities such as milk deliveries.

The following quotes from our discussions with children confirm these findings:

> ... when I walk up to school, you can see these birds, they're like parrots, and I watch them for a while. When the birds sometimes come down and pull my hair for its nest ... (7-year-old girl).

> I walk out the house, and as I'm walking up the street I always look at my next door neighbour's dog, because each day the dog has a different hairstyle. He is a poodle. Then I cross the road. It's not a very busy road but I have to watch out for the cars and things. Then I pick up my friend and we walk up the road. We walk on the grass edge because it's soft and sometimes we find things. Before we catch the bus, there's a cleaner that always works at McDonald's and I always see if he's there and he is. He isn't really interesting, I just wonder about him being there everyday doing the same thing; and on the way to school on the bus I always look for expensive sports cars or any sort of car like a Rolls Royce or anything. You don't see too many. Then I come to school and sometimes I play cricket (10-year-old boy).

> There were these big steps like they were made for giants, and you had to take a lot of steps to get up to them, and you could dance on them and pretend they were a stage or something, and when you looked at them and the sun is shining, they're like diamonds (10-year-old girl).

Children are attracted to places they feel some affinity with, like, as we have seen above, tunnels, steps and places containing animals.

As a result, they often refer to these places by their visual qualities rather than by their correct place names, for example 'the old rock steps' or 'the green green grass'.

Adults often disregard such places. Conversely, children do not pay much attention to objects which are considered conventionally beautiful or well-designed.

Ward (1977, pp. 27–28) mentions tests conducted in the coastal town of Harwich in England. Both children and adults were asked to draw maps of the port. None of the children drew the large lighthouse, which adults saw as a significant feature. Instead, they drew kiosks and hoardings which the adults overlooked. These were the places they could interact with.

SIGNIFICANCE FOR PLANNERS

As children's sensory experience of their surroundings changes over time to adult patterns, adults often forget how significant certain environmental qualities are for children. As a result, when children are catered for in planning policy by well-meaning adults, facilities may not meet their needs and may be unattractive to them.

Environments designed for children need to reflect their enjoyment of different textures, sizes, sounds and colours. Varied ground surfaces such as grass, sand, patterned paving and brickwork will help children orient themselves in an unfamiliar environment while adding to their tactile and visual enjoyment. Plants which have strong colours, interesting textures or fragrances are also attractive for children, as are places containing animals and birds.

The next chapter discusses play as an important feature of children's interaction with the environment.

EXAMPLE OF BEST PRACTICE
PARK CYCLE TRACK, WILLOUGHBY PARK, SYDNEY

The cycle track in Willoughby Park is located beside the centre and playground. It is situated amongst trees and picnic tables, away from traffic, and is designed as a safe place for children to play and ride their bikes while learning road sense.

Sections of the track have imaginative street signs and crossings. Signs with pictures of animals on them, such as a possum or a frog, have the same animal inlaid in the ground surface, made of mosaic tiles. Children from holiday play centres designed the brightly coloured tiles.

The road tiles and animal-theme signs in Willoughby Park, Sydney, are designed to teach children road safety. Because children are allowed to touch the tiles, they are more likely to remember what they learn. The animal theme is also memorable and popular. Photos: Sandra Van de Water.

Play

The cane just grew there and it was fun. You'd never get bored. There was different places of high grass and low grass. You could hide. It was great fun (12-year-old girl).

INTRODUCTION

Except when restrained by adults, children are almost perpetually active, searching for things to do. They relate to and enjoy places where they can play sport; explore; find and make objects; or change things.

These activities are often referred to as play, a term used for everything children do that is not related to a learning or achievement goal set by parents or teachers.

Although play can be dismissed as being trivial, planning literature shows that it is a complex and important activity allowing children to learn and grow.

WHAT IS PLAY?

The International Play Association, which actively promotes the child's right to play as identified in Article 31 of the United Nations Convention of the Rights of the Child, defines play as follows:

> Play is:
>
> - a variety of activities which the child finds satisfying, creative and spontaneous; and chooses freely
> - communication and expression, combining thought and action
> - a device which helps children develop physically, mentally, emotionally and socially
> - a way of learning to live, not a mere passing of time — it is an essential part of every child's development.

Following on from this, Walsh (1991, p. 10) says children need opportunities to:

- **modify, change and mould** materials within the play environment

- **challenge their environment** — engage with things that will stir their interest and are new and exciting
- **control their environment** — their play can be hampered if adults impose too many objectives or constraints on what they do.

NATURAL AREAS AND ABANDONED SITES

Researchers have commented on how much children value natural areas and abandoned sites. When Hart (1979, pp. 165–166) asked children in Invale in the United States of America to identify their favourite places, ballfields (grassy areas) came top of the list closely followed by rivers, lakes, cubbyhouses, woods, fields and hills. In a study of the recreational use of the Wolli Creek Valley in South Western Sydney, Hawke (1988) found that children aged between eight and twelve used this area more than any other population group. Children we consulted enthusiastically described natural areas and abandoned sites near their homes:

> I like the parts near the gully where you can explore. There's all sorts of animals and tunnels and holes up the top and things. There's snakes and lizards (11-year-old boy).

These areas allow children to modify, challenge and control their environment.

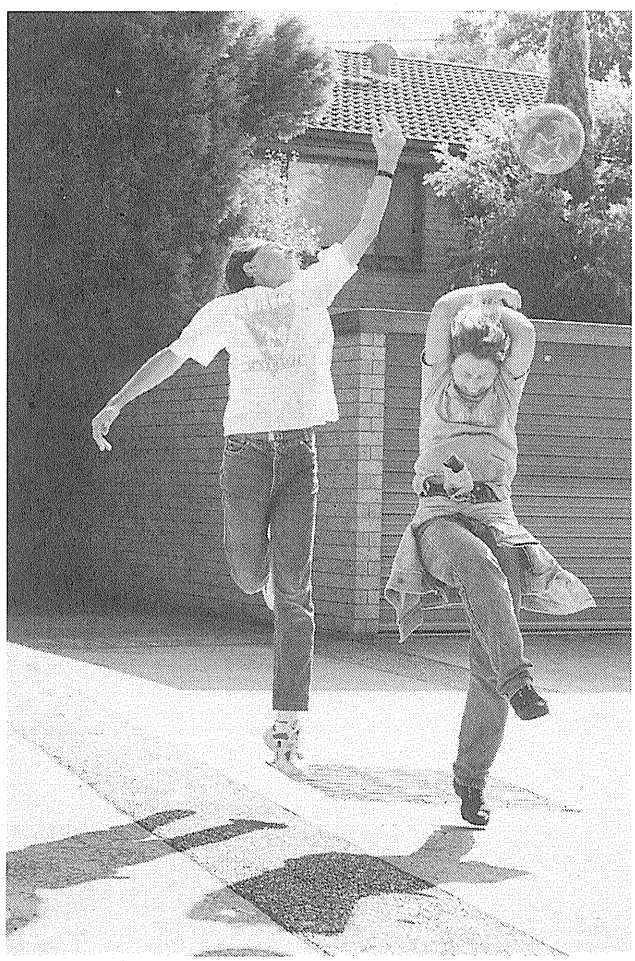
MODIFYING OR CHANGING THE ENVIRONMENT

Manipulating Objects

Coupled with detailed observation of environmental textures, shapes and spaces is the need children have to touch their surroundings. Children we talked to said how much they enjoyed, for example, picking up pebbles and rolling on grass:

> I like to touch things and know what it's made out of (9-year-old boy).

Natural areas contain features which can be used as toys and as items to be manipulated. These features include water and trees. Walsh (1991, p. 56) says of water that: 'No other play material can assume so many different shapes or be used in so many different ways.'



Objects they can manipulate, touch and interact with are favourite play items for children. Photo: Veceslav Stanuga.

Our consultations revealed how much children enjoy swimming in rivers, splashing in pools and playing in or near water:

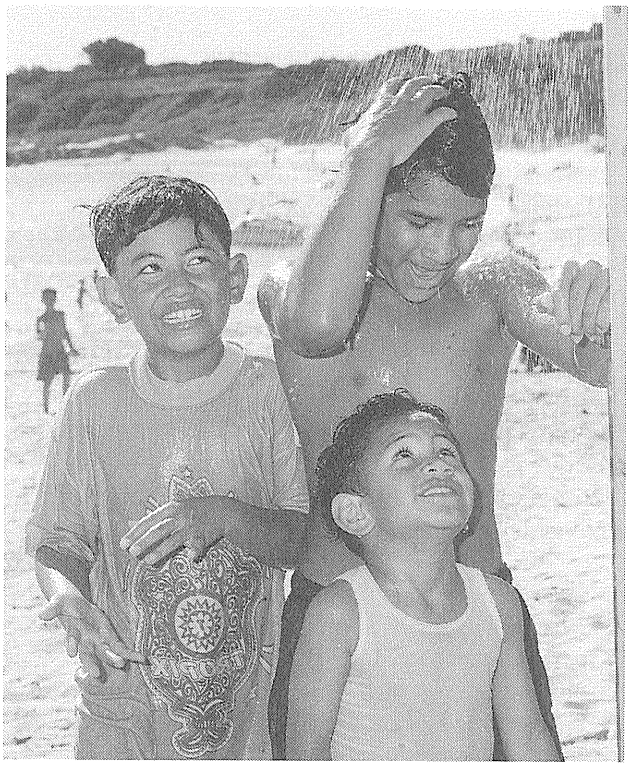
> You get these big cardboard boxes up on the railway banks and slide down the grass and dirt, and they're in their cossies, and they get into the boxes and slide into this water, like a creek, at the bottom and stop (11-year-old boy).

Children also value trees. Hart (1979, pp. 203–204) notes how children become fond of various trees, for their climbing opportunities, fruit and shade. They also enjoy making tree houses and playing in the dirt at the foot of the trunks, and like the insects and birds the trees contain. In our consultations, a ten-year-old boy said:

> There's lots of trees on Forest Road in the houses, and I look for cicadas and I catch them and let them go. Some are brown and some are green and there's a really black one.

Children relish the materials found in building and demolition sites and city dumps. Such areas contain many different shapes, sounds and smells which, as Cunningham et al (1994a, p. 82) explain, match children's need for a variety of stimuli, a need which few artificial environments can imitate. Children we consulted expressed their delight in the different objects they found in such places and the activities they could undertake there:

> In the dump you could make cubbies and explore. We found lots of interesting things digging, like a smashed car, a sneaker, some seat belts and a bed spring (8-year-old girl).



Beach showers are popular with children, who love water. Walsh (1991, p. 56) comments that water 'provides endless hours of fascination, pleasure and satisfying creative play for young children...'. Photo: Veceslav Stanuga.

> When they moved out of an old house near us, there was a huge pile of rubbish, and we went into the house and had a look, and we found lots of things like some wheels (10-year-old boy).

Privacy

Children enjoy places where they can hide, either with other children, or alone, and gain privacy and solitude. We have seen in the previous chapter how much children enjoy tunnels and other concealed areas. They are also fond of natural areas under bushes or in long grass, and in caves:

> There're two caves down at the park and they're real caves and you can go in them, and there are some rocks and you can climb right up, and there's this steel ring sticking out so you can climb up. Not many people know about it (10-year-old boy).

> The cane just grew there and it was fun. You'd never get bored. There was different places of high grass and low grass. You could hide. It was great fun (12-year-old girl).

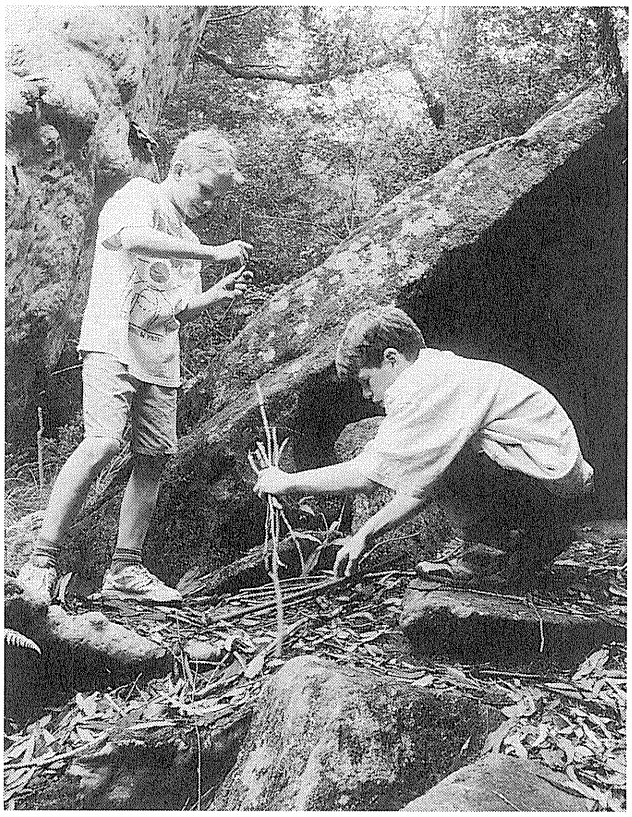
Cubbyhouses, which children can create themselves, and in which they can have their own fantasy lands and secret places, are also popular. Natural areas and abandoned sites provide many materials such as old branches and furniture with which cubbyhouses can be built.

Cunningham et al (1994b, p. 88) explain that:

> The cubby, like a home, is not just a physical structure. It is an environment of solidarity, of clubs, of secrets shared and also of solitude. Its most distinguishing characteristic is that is it an adult-free environment. That children need places where adults forbid them to go is one of the paradoxes facing the urban planner and designer.

CHALLENGING THE ENVIRONMENT

Cunningham et al (1996, pp. 79–80) believe that engagement with natural areas is important for children's development because it teaches them



Natural areas are secret places, free from adult interference — here, children can mould their environment. Photo: Veceslav Stanuga.

social skills, allows them to take risks and enables them to change their surroundings:

> ... these [natural areas] provide both solitude and social opportunities for play. They are the places where children explore, interact with vegetation and wildlife, and build huts or cubbies... Children are naturally attracted to them, not just to admire them, though they do that as well, but to manipulate the environment and test themselves against it.

Natural areas and abandoned sites provide good opportunities for children to take risks. In these areas, adult rules can be broken to gain thrills and excitement. Children we consulted said:

> There's this short cut, the creek way, but we're not allowed to go that way because sometimes you get robbed and that, but we still go (9-year-old girl).

> It's not really very safe in the gullies. It's real bushy and anything could happen to you there because there's a highway with a tunnel underneath it, and they go under there and wait around (10-year-old boy).

However, absorbed in their activities, children will often respond to environments for the opportunities they offer without always considering the risks they are taking. Dangers which seem obvious to adults are not always obvious to children:

> Near us there's this building and we kept on climbing on the roof, and you're not allowed on, but you have to hold on to the bricks because there's nothing to hold on to (9-year-old girl).

> In the park, there is this big sewer. You know it's real rusty, and when you want to go bike riding people have a notice saying you can't ride in there (10-year-old boy).

CONTROLLING THE ENVIRONMENT

As Yi-Fu Tuan says (Altman et al 1978, p. 29): 'nature has few "do" and "don't" signs posted by adults. It is a relatively unstructured environment in which children's carefree vigour can be allowed full play'.

Natural areas and abandoned sites provide children with the feeling of control. When they build their own cubbyhouses, explore and manipulate the environment, they feel that they are in charge of their world and are not subject to adult rules and conventions. Lynch (Michelson et al 1979a, p. 104) mentions that in his students' recollections of their childhoods:

> wastelands appeared again and again. There was talk about a back alley, the roof of a garage, a vacant lot, the woods, (where children lived near that kind of country), the river valley, the sewers they could crawl through — all places where they were not supposed to be ... [these places were] subject to no overt control. Children could dig, break things, change things.

This statement is supported by our own consultations with children:

> We go down the storm pipes near the BP, and go bushwalking down there following the water (10-year-old boy).

SIGNIFICANCE FOR PLANNERS

Children love the abandoned qualities of natural areas and abandoned sites. For example, they enjoy finding rusty objects and hiding under bushes. It would therefore add to their enjoyment and opportunities for play if such areas were developed for them.

One problem is that design principles are generally opposed to untidy and abandoned features. Planning policies cannot advocate dirt, danger and disorder.

Such areas are also often at risk from commercial development, and are transformed into offices or housing.

Children we consulted were often angry and disappointed when their favourite play spaces were destroyed:

> We had a real good bush but they pulled it down because there was too much spiders and junk. You could hide in it. Sometimes you could find money. The council just pulled it all down with bulldozers (8-year-old boy).

> ... and they came along and wrecked it all down and decided they were going to ... well, they were going to do something but they just left it like that... (11-year-old boy).

They were also annoyed when planners and designers turned these areas into sterile play spaces:

> It was a perfect place for children when it was a dump, now everyone's making it into a sissy little playground (9-year-old girl).

> They always make things so safe, you know, never anything interesting (11-year-old girl).

Imaginatively designed places developed to have the qualities of natural areas and abandoned sites would benefit children in the increasingly ordered and controlled environment of the city. Lynch (1977, p. 56) suggests that:

> underused or abandoned rights of way, abandoned sites and other 'leftover' spaces can be made safe and utilized for children's recreation. Such areas would serve as a necessary supplement to the traditional parks and playgrounds, which do not allow for creative play.

Such areas would have to be landscaped to make them safe for children and more attractive to councils. This need not be expensive. Children themselves could be involved in tree planting and weed clearing, which would give them ownership of the area, and such involvement would also allow planners to consult with the children to check their needs were being met. Planners would have to ensure such areas were not too manicured or neat, losing the qualities which children find attractive. At the same time, objects would need to be sturdy enough for children to interact with, and designed to consider their safety.

Water is one feature which children love and which could be incorporated in the shape of fountains or pools. Policy makers sometimes dislike water because, as Ward (1977, p. 95) states: 'to provide water play for children is administratively messy. It presents a health hazard ... it needs supervision. It is expensive to provide and maintain'. With foresight and imagination, however, water play can be provided for children in the urban environment without compromising their safety.

Children will enjoy articles such as carefully designed machinery or statues they can clamber over; trees they can climb; and tunnels, bushes and long grass they can hide under and in. 'Freedom to make one's own play environment

is important to children' (Hart 1979, p. 422) as it allows them to mould, change, challenge and control the world in which they operate.

The next chapter discusses how child-friendly environments contribute to their emotional and social development, acquisition of learning skills and development of independence.

EXAMPLES OF BEST PRACTICE

BICENTENNIAL PARK, BATHURST, NEW SOUTH WALES

Located on the banks of the Macquarie River in Bathurst, Bicentennial Park has several different recreational settings. There are river foreshores, formal playgrounds, riverbank cycleways and areas of bushland to give a variety of play spaces and activities.

The park also includes a large sculpture by Stephen Hart of four people conversing. The design of the sculpture was modified so children could interact with it. Parts of the sculpture were made more hardy so that when children climbed onto or over it, it would not be damaged and the children would not be injured.

WILGA RESERVE, NORTH RYDE, SYDNEY

Wilga Reserve lies within a residential and industrial area containing 54 ethnic groups and hundreds of children.

The aim of redesigning and redeveloping Wilga Reserve was to give the area's residents and workers a sense of ownership of the reserve. The community, including children, worked with planners, landscapers, architects and engineers on the design. Ryde Council constructed access pathways and cleaned up the creek.

Child-friendly features of the design include extra-wide pathways to allow for pedestrians, cyclists, skateboarders and rollerbladers, and the creek which children are able to access for swimming, splashing and playing. The emphasis is on outdoor play in a natural environment.

The council will next establish a Community Consultative Committee to communicate with the local community and manage the work of volunteers involved in maintaining, planting and landscaping the reserve.

More details of the project can be obtained from the video *Your Backyard Our Backyard* available from Ryde Library — phone: (02) 9952 8340.

WALSH PARK, EASTWOOD, SYDNEY

Developed by Ryde Council, the cycle path at this park loops around gums and weeping willow trees on both sides of a creek, and crosses a decorative wooden bridge. On one side, the path has a mini-pedestrian crossing and traffic signs.

This learner route for young cyclists in Walsh Park, Sydney, teaches children the meaning of road signs. Photo: Sandra Van de Water.

Influences

We play in those new houses before the people move in. It's lots of fun. That's what me and Eric do. We hide in the cupboards and we play with all that timber that's been left over and make sand bombs with the sand. You can get into the garage and there's this hole into the house and you can go under there ... we found one window you could get in and play, so after that we put this real skinny bit of wood in so it's always open and you can get in (10-year-old boy).

INTRODUCTION

This chapter describes how the urban environment affects children's behaviour, development and wellbeing, as discussed in planning literature.

Researchers have focused on three major issues. These are:

- how the environment affects children's **emotional and social development**
- how the environment affects children's **ability to learn and develop**
- how the amount of **control** children are given over the environment affects their development.

EMOTIONAL AND SOCIAL DEVELOPMENT

Spatial Density

A study by Campbell et al (1983) demonstrates how the amount of space children are given access to affects their behaviour. In this study, when play space in a childcare centre was halved, children's play became more aggressive and less cooperative. The children were more irritable and teachers more controlling.

Kritchevsky et al (1977) conclude from their research into childcare centres that:

> the higher the quality of space in a centre, the more likely were teachers to be sensitive and friendly in their manner towards children, to encourage children in their self-chosen activities and to teach consideration for the rights and feelings of self and others.

Studies on lack of privacy and overcrowding in the home environment indicate that 'children from crowded homes were rated by their classmates as more aggressive than children

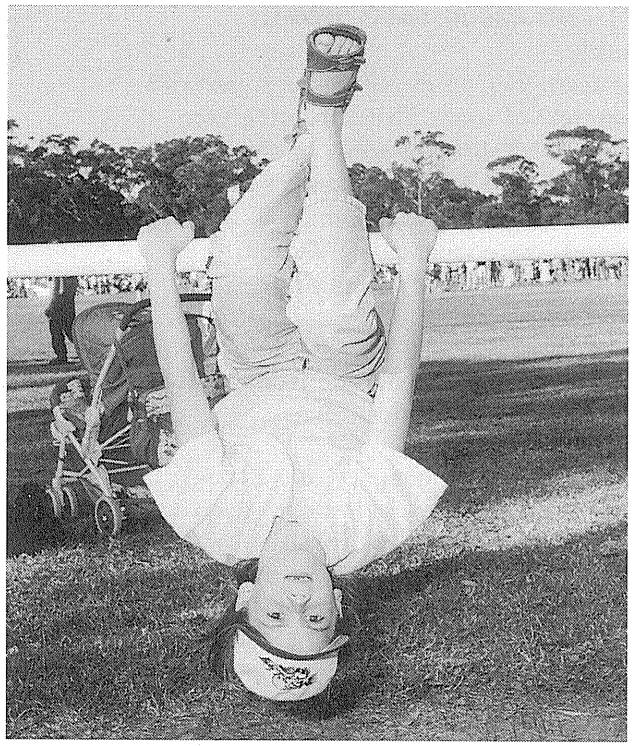
from less crowded homes' (Parke in Altman et al 1978, p. 70).

Child-friendly Environments

Walsh (1990, p. 11) believes that flexible environments containing manipulable objects encourage children to socialise. They also encourage children to develop intellectually and creatively. If children are given an environment they can manipulate and enjoy, they will learn 'how to interact with other adults and children and acquire social skills such as sharing, taking turns, holding back, protecting, co-operating and even empathising'.

Hart (1979, p. 217) suggests that opportunities for children to build and construct dams, toys and cubbyhouses should be provided in the urban environment, as such play develops creativity, self-realisation and extension of manipulative skills:

> The dramatic play in these environments allows for girls and boys alike, the opportunity to act out real-life situations, express personal needs, explore solutions and even to experiment in the reversal of roles.



Upside down! Everyday objects are great play items for children. Photo: Veceslav Stanuga.

Lack of variety in early play experiences, on the other hand, 'is likely to inhibit later development of original or innovative thinking' (Cunningham et al 1994a, p. 82).

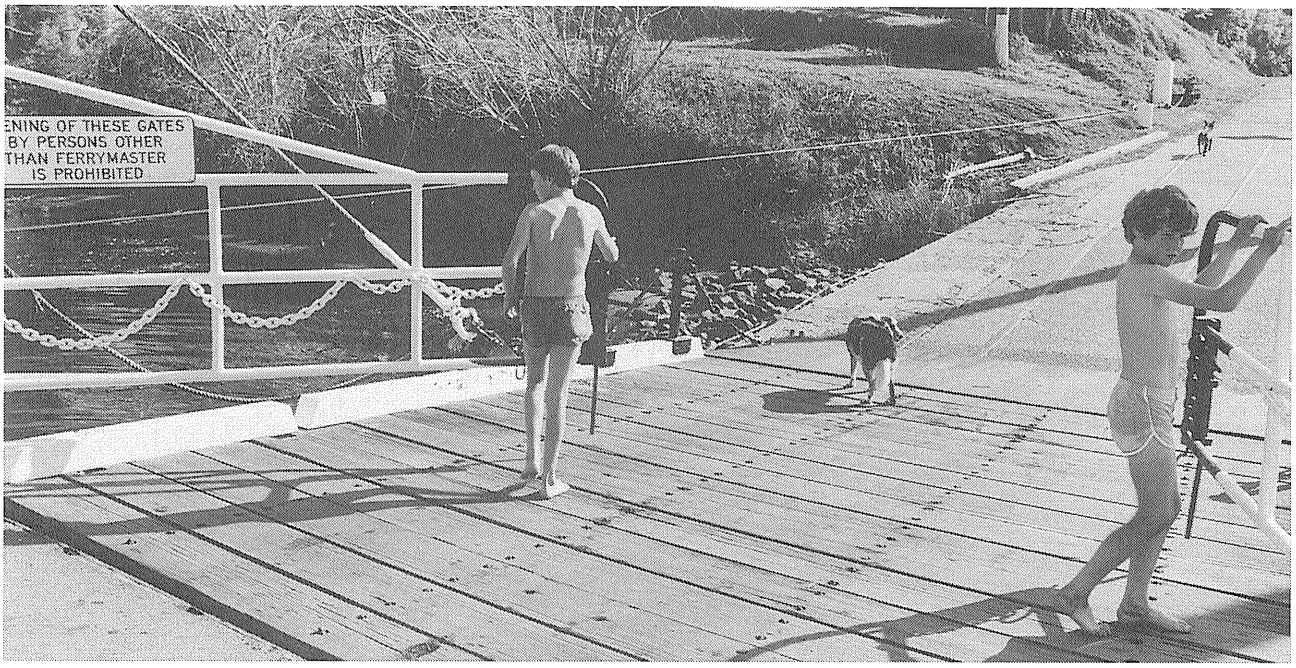
The following quote from a nine-year-old girl we consulted illustrates how the urban environment can stimulate the imagination:

> I go down the lane and along the street and wait, and when some more kids come up we get on the bus with them. We haven't got much of a shelter. It's just a sort of veranda thing with nowhere to sit, and when it's wet and if it's the morning after it's been raining, where we put our cases is all muddy. Going up there's a lot of pretty houses, like there's this special one with a little fountain, and everyday I keep watching it and I say to myself: 'Oh I wish I had a home like that', and I play a kind of a little game with myself about it.

Evidence indicates that children are cured more quickly and readjust better after care in hospitals which are cosy and comfortably furnished, so that the atmosphere reminds them of a home rather than an institution (Lindheim et al 1972). *See the section on Westmead Hospital on p. 50 for more information on this issue.*

Some researchers believe that vandalism and antisocial behaviour are the result of poor, non-responsive environments (Ward 1977; Hart 1979). Ward says that much of society 'accepts no responsibility for inducting them [children] into the community, and ... does not even recognise the need to find a place for them in its social life' (p. 105). If children were more involved in and had more control over their urban environment, vandalism would decrease.

However, vandalism is difficult to define, especially since much of children's play is naturally destructive. Our own discussions with children reveal that while some deliberately try to deface the environment, others simply use the resources around them to make up challenging games. During our



Children disobey instructions in order to test and gain some control of an environment which is generally not designed for their use. Photo: Lindy Kerr.

consultations with children, one ten-year-old boy said that:

> We play in those new houses before the people move in. It's lots of fun. That's what me and Eric do. We hide in the cupboards and we play with all that timber that's been left over and make sand bombs with the sand. You can get into the garage and there's this hole into the house and you can go under there ... we found one window you could get in and play, so after that we put this real skinny bit of wood in so it's always open and you can get in.

An overused, badly maintained playground is more the result of poor management than apparent vandalism; graffiti has become an art form in some cities and:

> much delinquency is simply behaviour defined as such by adults, and some degree of delinquent behaviour is only activity deemed inappropriate on adult turf which occurs there only in the absence of more fully developed alternative turfs. The provision on behavioural opportunities for young people through appropriate physical settings is therefore more than a matter of amenity (Michelson and Roberts in Michelson et al 1979b, p. 421).

At times, however, children do deliberately deface the environment. In our consultations with children, they reported this behaviour objectively rather than as a personal confession, knowing adults consider it wrong:

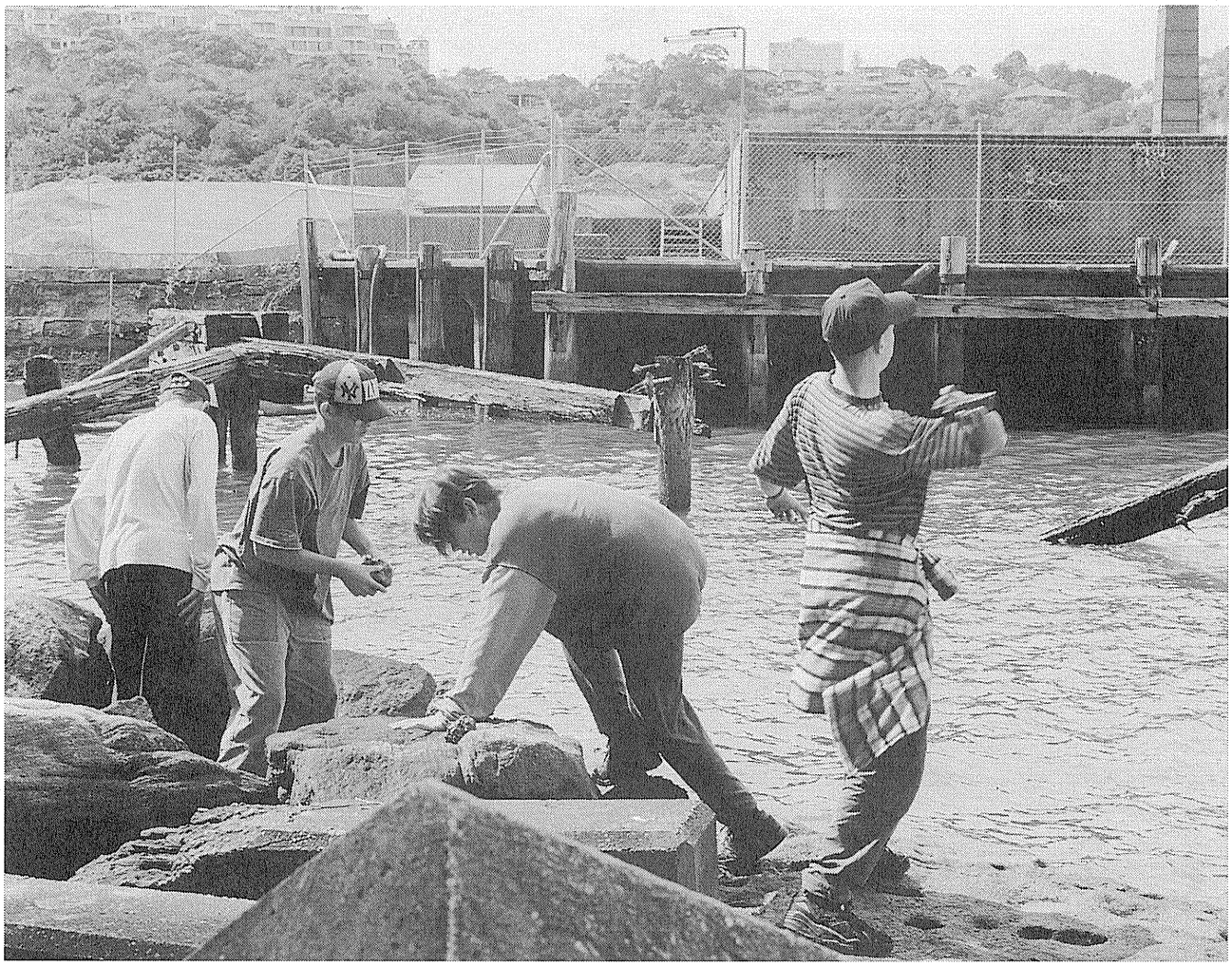
> We saw these boys once throwing bottles at the windows of this building. A man started shouting at them but they didn't stop, and then they ran away (9-year-old boy).

> Some kids ride on the seats and write dirty words, or someone loves someone, and things like that (11-year-old boy).

> In the bus shelter near where I catch the bus they lit a fire under the seat, and it burnt some of the rubbish, tickets and that, but they put it out afterwards (11-year-old girl).

ABILITY TO LEARN AND DEVELOP

The view of the environment as a source and means of learning is to some extent embodied in the Department of School Education



Hunters, pirates, gangsters — abandoned sites allow children to play different roles and to explore. Photo: Veceslav Stanuga.

Curriculum (1975) for primary schools in New South Wales, which states: 'Learning is a process of change in patterns of thinking, valuing, feeling and acting resulting from an interaction between the child and his [her] environment'.

In chapter 17 of *The Child in the City, The City as Resource,* Ward (1977, pp. 176–185) claims that the city is as important to children's learning as the school, in terms of the complexity of encounters, community experience, negotiations, transportation and explorations it can offer.

He describes various projects in the United Kingdom and the United States of America where schools used the city as a learning tool. As well as visiting museums and art galleries to learn about history, anthropology, science and art, children were taken to workplaces to learn about careers (for example, one group of children were taken to a garage to watch a mechanic at work).

Other children were taken on a tour of various buildings. The teacher explained how they were constructed, and asked the children what they would change if they had the choice.

Teachers involved in these projects claimed that children's observational and motivational skills were improved, while one headmaster said that: 'the most important thing [about children having access to the city] is their realisation that they can actively play a part in shaping their surroundings' (p. 185).

Hart (1979, p. 343) suggests that one effect of limited environmental experience could be poor performance in school:

> If children have such a poor conception of the relationship of their own environment to the world beyond it, they may also be less likely to show interest in the kind of distant places discussed in social studies, history and reading in general.

CONTROL OF THE ENVIRONMENT

We are living in a world of increasing urbanisation and higher density housing. Children cannot always easily access the urban environment due to risks from traffic. Many children have little or no privacy or space for themselves in their homes — they share rooms with siblings, and have no backyard or play area which they can control. In our consultations with children, some expressed their discontent with high-rise living:

> You don't get much privacy [in units]. You've got to get on with all the other people (9-year-old boy).

> In a unit, you can't go out and play like there's not enough to do what you want. You know you can't sort of shout at night or anything (10-year-old boy).

As a result, as we saw in the last chapter, children establish territories outside their homes, often in neglected or bushland areas.

Another way in which children gain control of their environment is by deliberately, if secretly, rebelling against adult authority. A twelve-year-old boy we consulted said:

> The good things are the things you're not supposed to do. They're more fun behind people's backs.

Frightening situations enhance children's enjoyment of the environment when they have some control over them, or have knowingly entered into them for the excitement they offered. A ten-year-old girl we consulted explained:

> Children are sometimes scared of getting stuck in them [lifts], and on the escalator they've got signs about children under five and that, but they still like to go on them.

SIGNIFICANCE FOR PLANNERS

The benefits and disadvantages of urban environments presented in this chapter have not been systematically measured, and no statistics have been compiled on them. None of the research we conducted enabled us to identify **measurable** benefits that children gain from child-friendly planning and design, or **measurable** risks that occur if children are not considered. The difficulty in accurately describing activities such as vandalism also present problems.

Planners and designers who wish to promote child-friendly environments will therefore find it difficult to provide evidence which is not ancedotal to support their ideas.

However, public places are becoming more child-friendly and being created as learning opportunities for children. By studying these, and by looking at the examples of best practice given in this publication, planners will be able to argue convincingly that environments designed for children will contribute to their development.

The next chapter describes ways in which children's perceptual limitations and small scale inhibit their interaction with an environment designed for adults. Children with physical disabilities have special difficulties.

EXAMPLES OF BEST PRACTICE
DARLING HARBOUR, SYDNEY

The many colours, textures and activities of Darling Harbour appeal to children.
Photo: Linda Corkery

Darling Harbour is a pedestrian precinct with shops and restaurants by a small port.

The walkways are made of textured stonework, and lined with grassy areas which children can play games and roll on, and waterways crossed by stepping stones. There is a fountain surrounded by shallow spiral-shaped steps which children can run on and touch. These steps consist of cobbled and smooth stone.

Other facilities for children include a fairground, a playground and an aquarium. Some of the shops have children's areas — for example, in a gem shop, children can go into a room, the floor of which is covered with different stones and pebbles, and choose their own 'gems', which are put in a bag for them to buy. Many eating places have outdoor facilities so children can run around while their carers eat and drink.

SYDNEY AIRPORT

The presence of children has been considered in the recent redevelopment of the international and domestic terminals at Sydney Airport. There is play equipment in both terminals, and telescopes in the observation areas have steps for children.

In the economy class transit lounge in the international terminal, a separate facility has been built for children in transit and for unaccompanied minors. This initiative by Qantas Airways includes low-level toilets and basins, a soft drink machine at child level, whiteboards for scribbling, cheerful colours and tiles, stars on the ceiling and three computer terminals with different games.

REGIONAL PARKS, WARRINGAH COUNCIL, SYDNEY

Warringah Council is developing four regional parks. Responding to community criticism of unimaginative playgrounds in existing parks, the council is creating a different play experience at each location. The community are involved in the planning and design process at all stages, as the council:

- discusses initial principles and ideas with community discussion groups
- holds a site meeting with community representatives to explain the hypothetical design
- reconvenes the discussion groups to ask them to agree to the design
- modifies plans using suggestions from the groups.

Two of the regional parks are:

James Meehan Reserve, Dee Why Beach

Much used by the local community, this park was redeveloped in 1995. A consultant worked with a public artist and the community to provide separate play areas including a 'billabong' sand play area, a pirate ship, a tricycle track and picnic shelters for carers.

Berry Reserve, Narrabeen

A consultant involved children from local infants' and primary schools, gaining inspiration from drawings done by the children. The paving and a serpentine masonry wall on two sides of the playspace contains mosaic artworks. Pathways link the park to Narrabeen Lagoon and the beachside suburb of Dee Why.

Physical Restrictions

There's this drink thing in the park. If I have to press it down by myself, I can't drink the water (7-year-old boy).

INTRODUCTION

Children find it difficult to orient themselves in an urban environment designed for adults. Limitations of perception, their small scale and physical disability inhibit their interaction with their surroundings.

DEVELOPMENT

Children are physically and mentally more limited than adults when they engage with the environment. Their perception of visual stimuli, space and sound varies with age and level of maturity. They cannot begin to distinguish left from right until they are at least four. Sandels (1968, p. 68) says that in studies conducted in Sweden:

> not all of the 8-year-olds could even say which was their right and left on their own body, and it was only the 9-year-olds who were 100% correct in this respect.

Children have difficulties in changing their focus from distant to near, and vice versa. This does not begin to improve until the age of eight and does not mature until around the age of sixteen. Their peripheral vision, that is, catching movements out of the corner of the eye, is also undeveloped until they are about 16. Other children will have bad eyesight, which increases their visual difficulties (Sandels 1968, pp. 72–78).

Until they mature, children are also unable to distinguish one sound from another clearly, give meaning to sounds, or determine the direction or nearness of sounds. Children with bad hearing find it even more difficult to identify sounds (Sandels 1968, pp. 81–85).

As we discussed in the chapter on Perception, children observe their environment minutely in the attempt to learn as much as they can

about it. As a result, they can often only grasp one thing at a time (Sandels, 1968, p. 78). They will become so absorbed with a game or a sight, or with their own feelings of joy or sorrow, they will block out everything else around them (Sandels, 1968, p. 45).

Children therefore find it difficult to respond to complex stimuli, such as the conflicting sights and sounds of shopping centres or traffic situations. They can get lost easily, become confused and disoriented, and panic. One eight-year-old boy we consulted said that on a busy road:

> I always look right and left and that but sometimes I just have to dash across because something's coming.

Signs which might help children to interpret and navigate their way around places are generally not provided, and they do not always understand traffic signs (Sandels 1968, pp. 89–101). The Sandels study demonstrates that many children aged between four and seven thought a pedestrian crossing sign meant that it was forbidden to cross or walk down the middle of the road (p. 93). They also thought that a children's crossing sign meant that children had to run across the road as fast as they could so cars would not knock them down (p. 95).

Many children did get the meaning of the above signs right, often because they had been instructed by adults. However, most of the children could not work out the meanings of signs which contained shapes rather than pictures of people.

Sandels (1968) says that in studies using people from a range of age groups, both adults and children most easily understood and identified signs with simple, lifelike pictures of people and easily recognised objects, and forgot the meanings of or mixed up the meanings of abstract signs (p. 100).

The same study also found that children did not always understand traffic terminology. When children aged between six and ten were asked if they comprehended several terms, not even the ten-year-olds could understand 'communication', 'traffic island' or 'keep to the left' (Sandels, 1968, p.105).

SCALE

Children are generally much smaller than adults. This affects their relationship with an environment designed in general to accommodate the average adult.

Children realise that they are too small for many facilities the environment contains. In our consultations with them, they complained of shop counters too high for their transactions; and telephones, water fountains, bus cords and buttons they could not reach:

> There's this drink thing in the park. If I have to press it down by myself, I can't drink the water (7-year-old boy).

> Sometimes you can't reach them [phones], and on the new phones there's a 10 cent slot and a 20 cent slot, and it's too high up to see which (10-year-old girl).

Children's scale does not only make it difficult for them to use public facilities, it also increases their risk of having road accidents. On roads, they cannot see around garbage cans and street furniture, and have to tilt or crane their heads to look at traffic signs. When crossing roads, they cannot look over or round parked cars to see oncoming traffic. Car drivers do not always see them.

Scale can also be an advantage. Sometimes children's smallness makes them see the world as a magical place. Entrepreneurs, who are aware of the attractions of large objects for adults as well as children, build giant objects to attract visitors to their enterprises, for example, the Big Merino in Goulburn, New South Wales.

Yi-Fu Tuan, (Altman et al 1978, p. 20) noting how children everywhere enjoy tree climbing, says:

> To the young child ... the tree offers the excitement, the vastly expanded horizon, and the status of height. On top of a branch [s]he is

> no longer a dwarf among giants; he is a giant him[her]self and commands a world.

The same writer noted how children love to make or get into small places: 'Small corners and shelters are scaled to their size. In them the children feel in control and can allow their imaginations to fly' (p. 21).

PHYSICAL DISABILITY

Difficulties children experience in the environment are increased by physical disability. As the Sandels study notes, perceptual development is even harder for disabled children than for children with average levels of sight and hearing.

Facilities are often not provided for any children in public places, so it is difficult if not impossible for disabled children to access them. As a result, they are often deprived of environments which would increase their learning and developmental opportunities.

When facilities are provided for disabled children, they often allow them to mix only with other disabled people, and separate them from children with average abilities. This results in disabled children being physically and socially isolated.

To prevent an 'us and them' mentality developing between able-bodied and physically disabled children, planners should ensure all children can access the urban environment. Photo: Lindy Kerr.

SIGNIFICANCE FOR PLANNERS

Environments designed with children in mind should consider their limitations of perception, and provide opportunities to enable new perceptions and abilities to be tested as they develop. For example, children are not as likely to get lost or have accidents if bright and colourful signs are provided for them. These should be placed on levels which are comfortable for children, and contain clear visual pictures of people involved in activities, or objects children relate to such as animals.

Any attention to the environment which improves facilities for children will benefit disabled children, who have some of the abilities and all the needs of the able-bodied. For example, heavily scented vegetation and distinctive ground surfaces will help all children, especially those who are disabled, orient themselves in confusing environments.

The following facilities will also improve access for children to public places, especially those who are disabled:

- ramps or other non-stair accessways
- non-slip surfaces, hand rails and other fixed walking aids
- wide doorways and pathways for wheelchairs.

The provision of large objects children can climb on, and small places where they can feel safe and hide, will allow children to enjoy their small scale and have some control over their environment.

Because children are small, the transport environment should be designed to ensure they are visible. Planners and designers need to be aware that street furniture such as traffic lights, bus stops and street crossings conceal children from oncoming traffic.

The next chapter comments on how the views of parents and other adults affect children's interaction with the environment.

EXAMPLES OF BEST PRACTICE

BLOOMFIELD STREET PROJECT, CLEVELAND, QUEENSLAND

The collaboration between landscape architects, arts people and the community, including children, resulted in a new and innovative look for Cleveland's main street, Bloomfield Street.

Primary school children (aged 8–11) were consulted on the design of a playground containing sculptural play elements. Four sculptors ran clay model workshops with the children to determine their specific play needs and design ideas. The resulting sculptures of caves, ladders and boats enabled the sculptors to design forms reflecting the children's preferences. Lines of poetry composed by a local 9-year-old girl and children's drawings were incorporated into the roof of one of the caves.

The playground is located near coffee shops to allow parents to supervise their children while relaxing. It has received an Australia Council Award and is expected to become a model for playgrounds of the future.

Other facilities for children on Bloomfield Street include:

- a town map made from terracotta with childlike textural drawings children can touch
- poetry sculpted into sandstone seat tops
- child-friendly street facilities
- provision for disabled children, including:
  - braille paving strips to indicate approaching traffic
  - crossings at footpath level
  - a drinking fountain with access for handicapped people
  - street furniture with tactile elements.

LIBRARY, GORDON, SYDNEY

In Gordon, a northern Sydney suburb, Ku-ring-gai Municipal Council is redeveloping a rear courtyard by the children's section of the library as a garden for children or 'the child in the adult'. This garden will contain sculpture and artworks relating to Australian children's books, a poetry reading corner and fragrant flowering plants to be touched and picked. Surprise, mystery and discovery are elements of the design.

Children helped design the popular sculptural playground in Bloomfield Street, Queensland. Photo: John Mongard Landscape Architects.

Social Restrictions

Your mum won't let you. They think it's not safe or you'll get your finger caught or something, but we're careful enough not to do that (7-year-old girl).

INTRODUCTION

Children are influenced by the attitudes of their parents, and believe what their parents tell them about the environment. In our consultations with children, they regurgitated their parents' views:

> You can hang out of the train door and you fall out. My mum saw a person killed by falling out (8-year-old boy).
>
> Units are only if you can't afford a proper house, aren't they? (10-year-old boy).
>
> You can always sell a single home better than a unit (11-year-old boy).

CULTURE AND SOCIAL CLASS

Restrictions

Culture and social class dictate the restrictions placed upon children. In some areas, children are encouraged to mix only with children from their own racial background, and are not permitted to go far from home unaccompanied. In other areas, children from certain racial backgrounds may be discriminated against, isolated from other children and forced to stay at home. Ziegler (Michelson et al 1979b, p. 346) says that in cities, children are more likely to culturally mix than in suburbs, and be more exposed to the different experiences, values and habits cultural diversity offers.

Parents also influence children's behaviour, such as how much noise a child is allowed to make. In some cultures, shouting, for example, is seen as being inappropriate and children are discouraged from indulging in loud, noisy behaviour. In some high density housing developments, children will be

restricted from making a noise within their homes because sound carries through walls and disturbs the neighbours.

Parents will also restrict children from engaging with the environment through fears for their safety. One seven-year-old girl we consulted complained that:

> Your mum won't let you. They think it's not safe or you'll get your finger caught or something, but we're careful enough not to do that.

Access

Parents provide money, transport and material possessions which affect children's interaction with the environment. Children with more money will generally have more freedom to access the environment; for example, those with bikes will often be able to explore more freely than those reliant on public transport or car-driving adults.

Hart (1979, pp. 69–70), in his study of Invale, a town in the United States of America, found that children whose parents were both in full-time work had greater freedom to access the environment than children who had one parent at home. He also found that access to the environment depended on the activities available at various times of year:

> [in the winter] the skiing and skating places are a few miles outside of town. Consequently, children of the poorer families are denied this opportunity except when taken by the Elementary School. In addition, there is something of a 'rat race' in the annual purchase of the latest skiing equipment and clothes which also deters the poorer families or those parents who are opposed in principle to such lavish expenditures on a sport... In the other seasons, the ball field, the streets, rivers and lakes are equally accessible to all of the families independent of income (p. 86).

Play

Parents control the sort of play their children are allowed to engage in. Hart (1979, p. 346) notes in his study that the children of manual workers were given toys such as tools and fishing rods with which to manipulate the environment, and were encouraged to explore their surroundings. Children of non-manual workers were given games or motorised vehicles they could play with inside the home, restricting their resourcefulness.

Play is also affected by where children live. Parents of inner city children, because of traffic dangers and the costs of public transport, can restrict their children to playing in areas near the home. Many children play on the streets, since there are no parks or play spaces nearby.

GENDER

Studies show that boys are normally allowed to access and manipulate the environment more than girls. Ward (1977, p. 152) claims that:

> Certainly, whenever we discuss the part the city environment plays in the lives of children, we are really talking about boys. As a stereotype the child in the city is a boy. Girls are far less visible.

Moore (1986, pp. 207–208) found that girls were restricted by their parents from exploring the environment, and comments:

> Parental perceptions of danger from strangers, danger in rough land or bushland, or in water bodies, old industrial sites or even parks, will impose tighter limits on play range. These appear to apply with more force to girls.

Hart (1979, pp. 63–85) observes that behaviour associated with any direct engagement with the environment, such as getting dirty and swimming in rivers, is more acceptable for boys than girls. Regarding preferred out-of-school activities, girls are encouraged to perform activities which keep them in the home, such as help around the house and care for younger siblings. Boys are encouraged to perform activities which allow them to interact with the environment, such as run errands or deliver newspapers. Hart describes these activities as a rehearsal for adult roles and claims they reinforce sexually stereotyped behaviour which is no longer relevant. Encouraging girls to learn about homemaking, for example, is inappropriate in modern society, when many women are involved in full-time work outside the home.

Children of all ages, cultures and genders will play together happily when they have the space and the resources for games. Photo: Veceslav Stanuga.

Hart also claims that because girls are restrained from exploring and manipulating the environment:

> not only is a possible area of competence and adventure denied them, but the attendant restrictions could be expected to undermine their self-confidence in these areas ... tend to diminish girls' spatial abilities and ... do not support the development of skill in using the environment for attaining one's goals (p. 346).

Ward (1977, p. 29) reports tests conducted by Erik Erikson indicating that when boys and girls were allowed to build whatever they wanted out of wooden blocks: 'boys produce streets, walls and facades with movement outside the buildings. Girls produce furniture arrangements with people in a static situation inside buildings'. He says that this difference can be explained by 'the different assumptions made in the upbringing of boys and girls'.

More recent studies found that when children were allowed to choose their preferred environment, there was very little gender difference between them:

> The children sought to use bushy, scrubby areas and parks with formal play equipment where possible, but much of their play took place in home backyards and streets. Girls and boys sought essentially the same experience, though girls were generally less free to play away from home (Cunningham et al 1996, p. 79).

Our consultations with children showed that boys and girls, when given equal access to the environment, enjoy the same adventures and play experiences.

Recent studies also show that children of different ages and genders play together more frequently in natural areas than in the sterile, confined areas of schools and municipal playgrounds (Cunningham et al, 1996, p. 10) — this fact is supported by evidence suggesting that aggression is reduced in wild and unmanicured places (Opie and Opie, 1969).

SIGNIFICANCE FOR PLANNERS

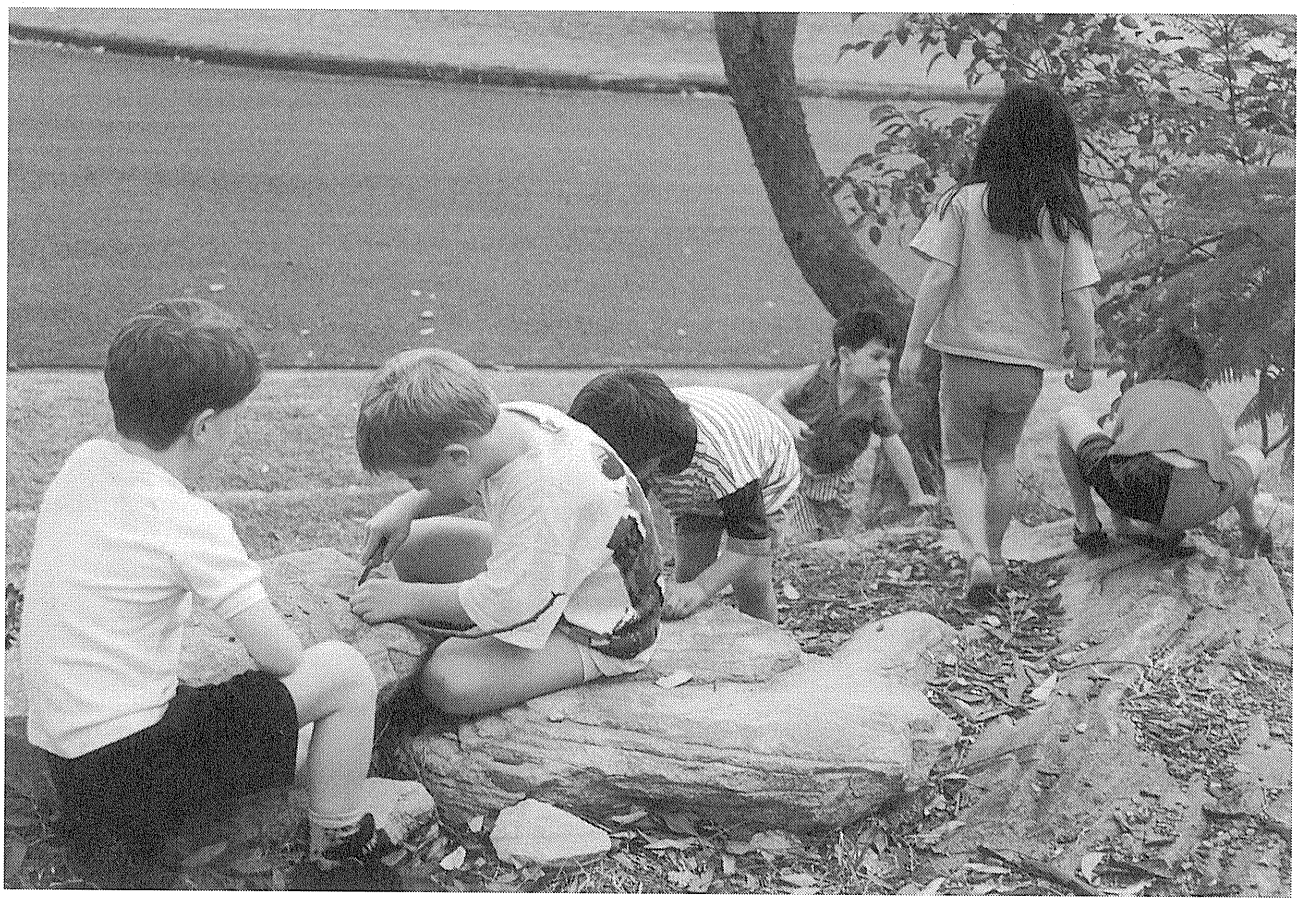
Planners and designers should consult the community before developing a play space to ensure facilities are consistent with local values and practices. For example, it would be inappropriate to provide play facilities allowing children to make a mess and get dirty in an area where most parents would not allow their children to play with mud or soil their clothes.

Various children can also be excluded from facilities if they:

- cannot get to them on public transport
- must cross busy roads to access them
- need expensive equipment
- require a high level of parental supervision
- are physically disabled
- want to access facilities which are far from their homes, so parents fears for their safety.

When facilities are provided in the hope of modifying or changing local behaviour patterns,

for example, in the interests of social welfare, strategies can fail without help from other



Boys and girls play together happily in natural areas. Photo: Sandra Van de Water.

sources such as educational programs or the local community. For example, if planners and policy makers tried to integrate children from different social and cultural groups in an area by providing a particular facility, these strategies could fail without community support.

If, on the other hand, the community was involved in the planning process, such a strategy could work. See the 'Examples of Best Practice' section which follows.

Planners and policy makers should seek to create and encourage environments for children where a variation of behaviour is possible and acceptable for both genders. Girls and boys appreciate natural play settings for cubbyhouse building, social play and solitude but these areas are often less accessible to girls. Planners could help solve this problem by, for example, providing naturalistic settings within 200 metres of homes, or designing streets near homes with appropriate play spaces.

A recreation area dominated by provision for activities traditionally pursued by boys (for example, a play space dominated by a pitch for football and cricket) presents problems. Although some girls enjoy these activities, others will feel excluded. Some boys, too, would prefer to perform other activities. The provision of playgrounds containing a variety of equipment for climbing and hiding, and natural features like rocks and trees, will allow all children to develop individual abilities.

The next chapter discusses how residential areas could be designed to promote children's development and increase their play opportunities, and give them more access to their neighbourhoods.

EXAMPLES OF BEST PRACTICE
DANDENONG COMMUNITY PLAYGROUND, DANDENONG, VICTORIA

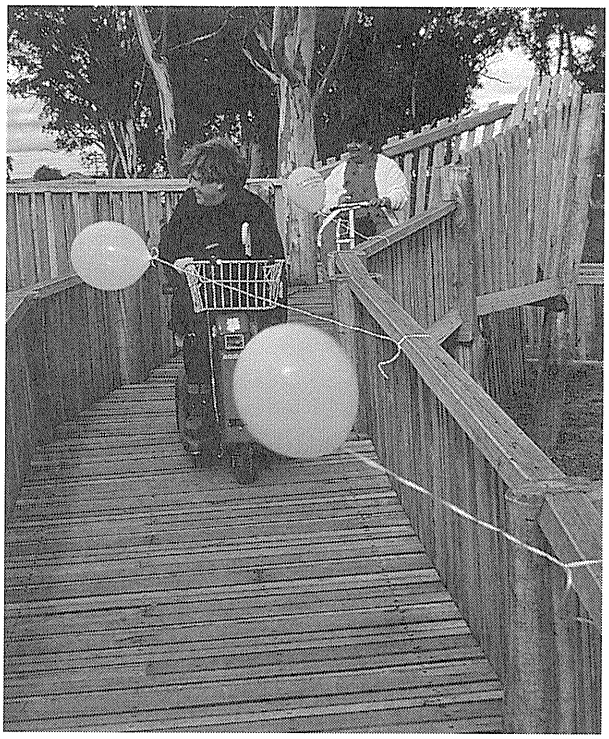
Children from local schools and on school holiday programs were involved in the consultation process for this regional playground at Hemmings Park, one kilometre from the centre of Dandenong. The needs of disabled children and their parents were also included.

One consultant said:

> The large variety of nationalities present in Dandenong provided the consultants with the opportunity to explore play as experienced in other parts of the world. The rich imagery from the children and their families became the basis for the subsequent design of the playground.

The playground is located in a stand of eucalypts. Peak-roofed cubbies made of timber, accessed by ramps which are suitable for wheelchairs, form a village-like grouping. Located on one side of the cubbies is a maze reminiscent of stockyards, which refers to the history of Dandenong as a stock market for sheep and cattle sales since the mid-1800s.

Safety requirements and disabled access are main features of the design. Ramps and pathways connect different parts of the playground and a wheelchair accessible sandpit is centrally located.



The timber ramps and elevated boardwalks of Dandenong Community Playground allow children to ride their bikes, walk, run and play.
Photo: Taylor and Cullity Landscape Architects.

Urban Areas

... there's no yards or anything, or if you do play it's just asphalt, cement and cars and if there's grass, you're not allowed to play on it (11-year-old girl).

INTRODUCTION

The home environment is important for children, since they spend so much of their time in or around it. This chapter looks at residential areas and their surroundings, and discusses how they could be better designed.

LOW DENSITY SUBURBS

Some Australian families live in houses with backyards in low density suburbs. Cunningham et al (1994a, p. 83) quote studies that demonstrate children's liking for these areas, which often contain nearby bushland or other natural environments. Children we consulted who lived in such suburbs made the following comments:

> If you have a big yard you can do a lot of things in it and sometimes your friends can come around, and if you've a pool or something ... (9-year-old boy).

> There's nothing to do round our place. I go and look for my friend and we go down to the creek. When we get back late, I get into trouble but sometimes there's frogs you can watch jumping (9-year-old boy).

> Our place goes down to the water, and you can go down and throw stones and things in there and fish (10-year-old girl).

> In homes like ours, there's always a yard and when your mum wants to know where you are, you can always be there (10-year-old girl).

The advantages of such a lifestyle for children are its:

- freedom from pollution
- relative security and safety

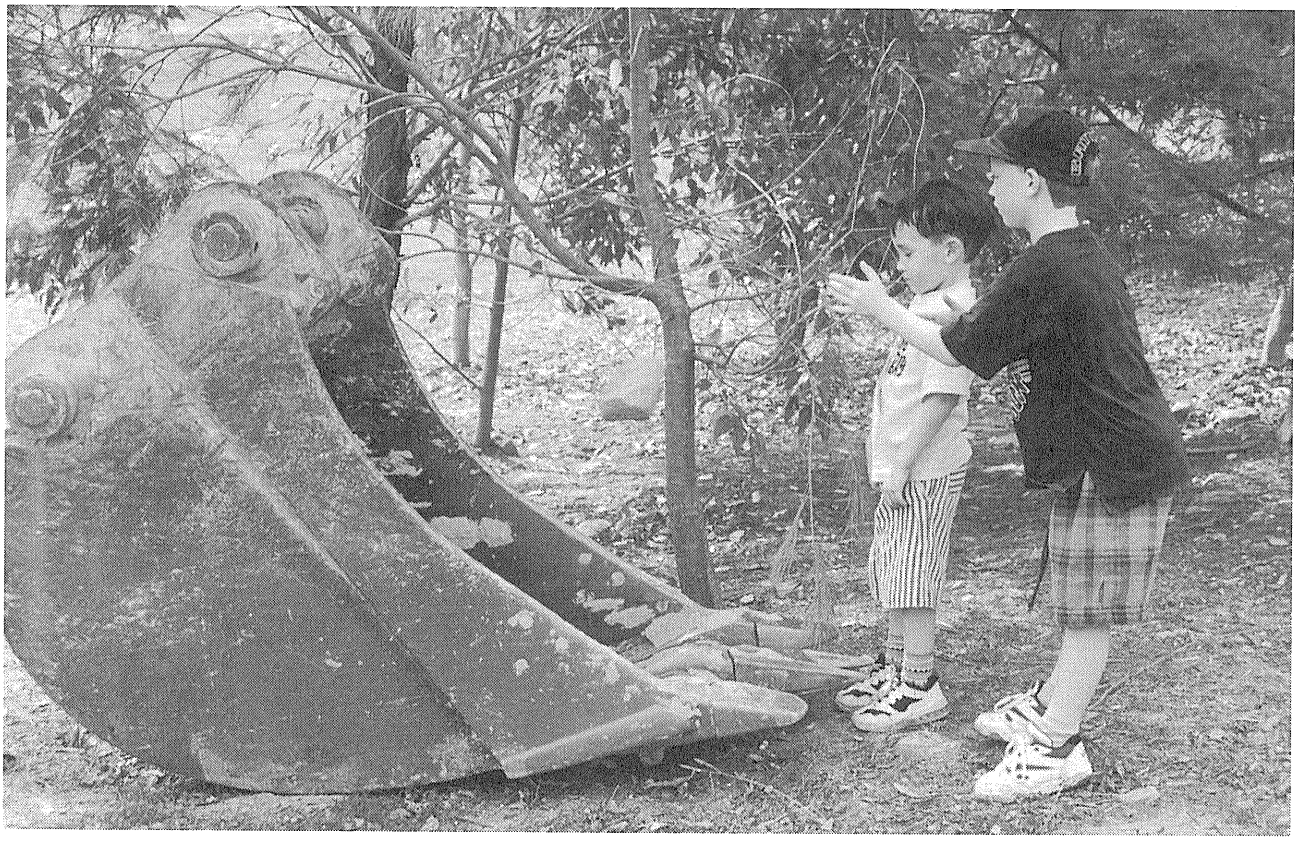
- houses with gardens in which they can play
- access to natural areas and open space
- separation from commercial and industrial development
- more relaxed pace.

In the 1990s, however, many of these suburbs are becoming less child-friendly due to increased car dependency. Cunningham et al (1996, p. 11) say:

> The effect of the car has been profound. Its heavy demand for land, for both roads and parking, has changed urban form. The open land between and around towns and suburbs has been developed. The so-called 'quarter acre block' has more or less remained, though somewhat shrunken, but its community context has been attenuated.

Discussing the relative advantages of low density suburbs and inner city areas (or high density suburbs) for children, Hart (1979, p. 339) says that low density suburbs:

> offer better visual and auditory access between parent and child, and reduced perceived dangers of traffic, crime and socially bad influences (suburban settings are more socially homogenous). As a result, young children are given more spatial freedom in suburban settings. However, because of the very same reasons that the environment is considered safe, the children do not learn to negotiate different kinds of environments well, nor do they learn to deal with environmental hazards; one could say that they have limited opportunities for developing their environmental competence. Their spatial range is not gradually expanded through their own exploration in consultation with parent(s). Instead, it is provided by adults through a safer environment. This is just one way in which suburban children are denied



Bushland areas near homes are ideal play areas. These boys are not sure whether the object they have found is a rusty piece of machinery or a monster, and throw a rock into the yawning mouth to find out. Photo: Sandra Van de Water.

> opportunities to develop as resourceful, eventually competent individuals. Others involve the over provision of highly prescriptive toys and play equipment in contrast to the 'loose parts' environments and equipment of rural and many city children; a greater dependence upon the motor car of adults for getting from place to place; and a daily schedule which is defined much more by adults.

Cunningham et al (1994a, p. 84) point out that:

> By working only from adult perspectives and imperatives — fast roads; big motor-oriented shopping centres; widely separated large sporting field complexes, again motor orientated; places of employment; — we create the barriers which imprison children in rather homogenous environments without complex playspaces for them, and which require a parent with a motor car to cross.

Cunningham et al (1994b, pp. 99–100) state that the frequency of buses and trains to suburbs has decreased, that they are often considered unsafe and that the costs of using them are relatively high for children. The lack of public transport means children are even more dependent on cars.

HIGH DENSITY SUBURBS AND INNER CITY AREAS

Inner city areas and high density suburbs, on the other hand, allow children to engage with different kinds of environments such as abandoned sites, museums, parks and local shops. Children are exposed to more cultural diversity and different experiences. They have more freedom to access the environment as they can use public transport or walk rather than rely on adults to be driven from place to place. The disadvantages are greater dangers from traffic and less space within their home environment in which to play.

Many children in inner city areas and high density suburbs live in units. Children we consulted had both good and bad things to say about the units they were living in:

> Finding people there that you know [in units]. When you're lonely and stuff. There's always somebody around. You never feel lonely (8-year-old girl).

> You can get up high in [flats]. We were on the 11th floor, and you could see the ocean and people going out on the beach (9-year-old girl).

> If you live in a flat and the door's open and you have a baby, the baby might crawl down the stairs — you have to keep all the doors shut (9-year-old boy).

> A lot of people don't like flats next to their house because people above can see what you've done, or when your shades are open they can just peer in (9-year-old girl).

> You're not allowed to have pets, like, in units. We did but when the rent man came along we used to hide the dog. You're only allowed to have birds. You're not allowed to have cats and dogs, and you can't hardly ever ride your bike because of all the cars coming in and out, and there's the driveway where you smash into the cars. I did and got concussion, but then we moved (10-year-old girl).

> ... there's no yards or anything, or if you do play it's just asphalt, cement and cars and if there's grass, you're not allowed to play on it (11-year-old girl).

> Sometimes they put their clothes lines in the [play area] space, and it's hopeless trying to play amongst a lot of clothes lines (12-year-old boy).

STREETS

As much housing in high density suburbs or inner city areas does not provide safe or appropriate areas for children, they play in streets or parks. Streets are the preferred play spaces (Cunningham et al 1994a p. 79). Constantly changing encounters on the streets with people, objects, sights and sounds match children's need for variety and excitement.

Children play with street furniture, using, for example, zebra crossings for hopscotch or safety bollards for leapfrogging. Children we consulted eagerly described playing on the street:

> There's these poles in the street, they're supposed to stop traffic and things, but we jump over them and swing on the chains if we can (9-year-old girl).
>
> We go on the road and have a piece of chalk and make a sort of tennis court (10-year-old girl).
>
> I like going to the car park to roller skate. At the weekend like there's no-one's car there and you can go all round without stopping, but you can't go after school — they don't let you, so I just go in the street (10-year-old girl).

Parents allow children to play in the streets as they can keep supervise them from the house. Lynch (1977, p. 109) found that:

> young children play in the streets because they provide the only near-to-home public space large enough for the energetic games ... although this use of space is not regarded as very bad or wrong by parents, they are not particularly happy about it.

RESTRICTIONS ON MOBILITY

Unfortunately, streets which have (or are near to other roads which have) a high volume of traffic restrict children's mobility. Data from England (Hillman et al 1990; Hillman 1993) and research conducted in Australian and New Zealand cities (Tranter 1994) conclude that personal mobility amongst children and teenagers is lower than in the past when there was greater freedom to walk or cycle. The irony is that the car as an instrument of greater mobility for the already mobile can further reduce the mobility of the less mobile.

Tranter et al (1996, p. 84) describe a vicious circle where children are becoming more dependent on cars to get to school and other activities. Higher numbers of cars on the roads make roads less safe, so parents feel they have to drive their children everywhere.

The same researchers also explain that 'there is a link between traffic and fears of assault and molestation in residential streets' (p. 84). As traffic levels increase, there are fewer pedestrians. This is due to the fact that walking in streets with high traffic levels is unpleasant, and also because many local shops and services have relocated to large complexes which must be accessed by car. As a result, children on the streets are more of a target for dangerous adults.

Accessibility is valuable for children for both educational and equity reasons. As Ward (1977, p. 121) says: 'it would be ironic if attempts to foster freedom and independence inside the school were matched by an increasingly inappropriate outside environment'.

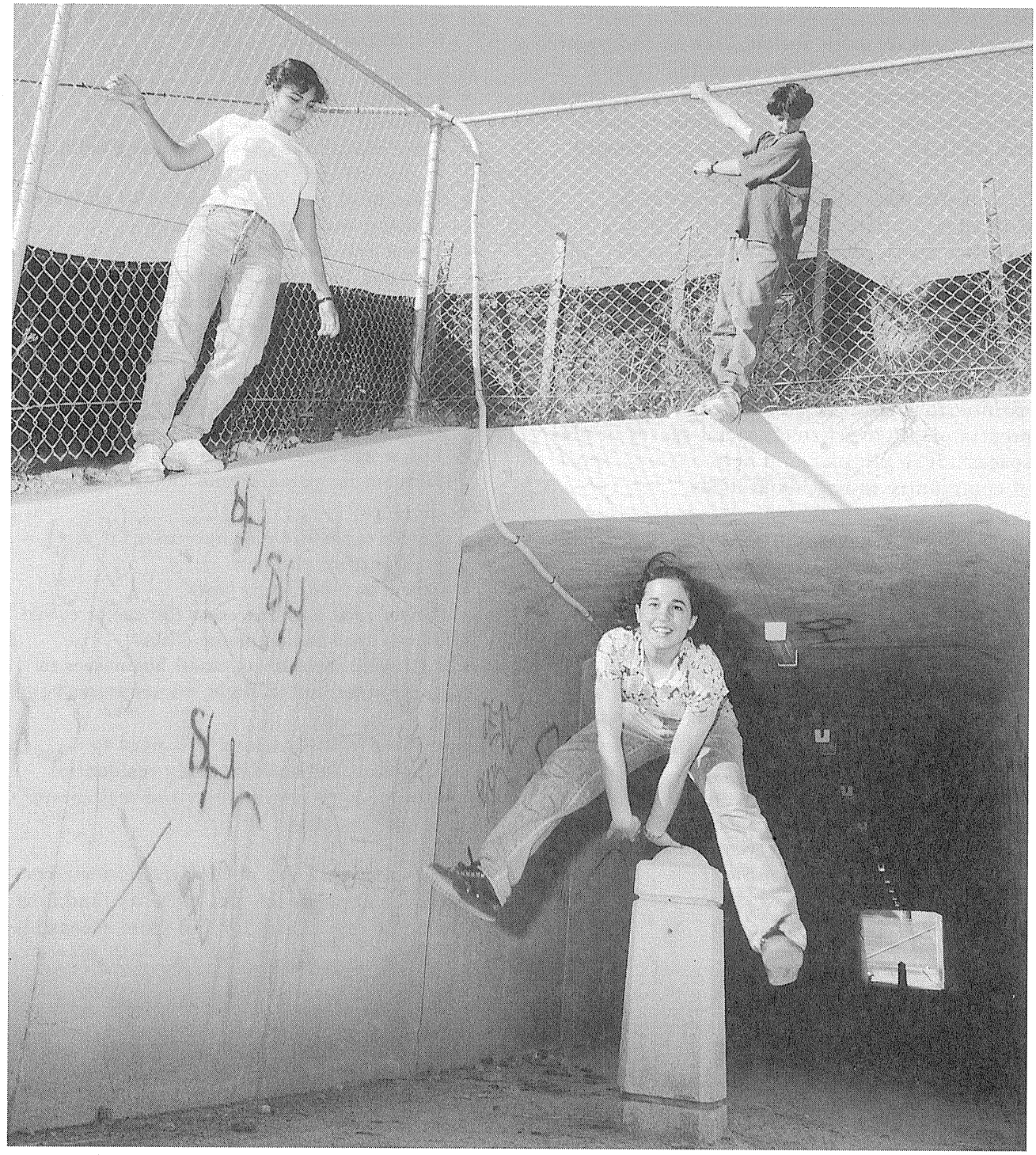
SIGNIFICANCE FOR PLANNERS

Residential areas, whether in suburbs or inner city areas, should be designed so that children have areas where they can play without being endangered by traffic, or restricted by a lack of public transport or parental concerns for their safety. Corkery (1987, pp 21–79) advises tenant groups on the development of appropriate play spaces in housing estates, and points out that such areas would also benefit adults, as they would provide focal meeting points for busy parents (p. 31).

As residences themselves do not always contain appropriate play spaces for children, the area around the home must be considered. Suburban children would have more access to the environment if a network of pathways and cycleways located away from busy roads was linked with parks, bushland and activity centres such as shops, schools and sports centres. These pathways would also benefit adults who enjoy walking or cycling, and who do not own cars (Cunningham et al 1994a, p. 93).

If play spaces in inner city areas were constructed within 200 metres of homes, away from busy highways and by frequently used public pathways, children could be supervised without their freedom being infringed (Cunningham et al 1994a, pp. 91–92).

Play spaces should contain natural features, water, and access to wildlife to allow children privacy, solitude, hiding places and the opportunity to observe birds and animals (Cunningham et al 1996, p. 15). (The same



Derelict sites allow children to challenge the environment as well as have fun. Photo: Veceslav Stanuga.

researchers, on p. 23, point out that preserving these areas is also important for protecting native wildlife habitats and ecological diversity.)

On the streets, colourful, visible signs or textured floors would enable children to get around without getting lost. If articles of street furniture, such as bollards or bus shelters, were

designed for them to play with, and areas of streets were set aside for children to congregate, the streets would be more accessible to and more welcoming for children. Short cuts, alleys and pathways, which allow children to move around freely and play, should be encouraged.

Such initiatives would not necessarily be expensive. Cunningham et al (1996, p. 15) mention that streets could be redesigned gradually as their normal maintenance programs came up. Natural play spaces need little maintenance, unlike grassed areas which have to be mowed, weeded and watered. 'Households will often volunteer some maintenance effort if they feel they have some proprietorship over street, social spaces or play spaces'. Such efforts could help restore a sense of community to neighbourhoods.

Accessibility would be increased even more if public transport was available and cheap. A United Kingdom government report (Department of the Environment, United Kingdom 1973) reads as follows:

> **Advantages of a child-friendly transport system that emphasises walking, biking and using public transport**
>
> Environmental
> - Substantially reduced pollution levels (assuming that traffic-calming and public transport are effective enough to reduce the total level of car usage)
> - Substantially reduced energy usage on private transport
> - Reduced traffic noise, particularly in residential areas

> Social
> - Increased independent mobility for children
> - Safer residential streets, allowing children to play on the street
> - More local play opportunities for children
> - A fitter, healthier community
> - Lower accident levels
> - Stronger local neighbourhood-based community, and hence more support for local children by neighbours who knew them
> - In the long-term, better local services, allowing people to walk or cycle, rather than drive
> - Lower car dependency, hence more freedom for parents from chauffeuring

> Economic
> - Lower economic resource costs for parents transporting children
> - Lower road accident costs
> - Lower road building costs (for major roads)
> - Lower road maintenance costs
> - Increased viability of small businesses in local areas (for example, corner stores).

Planners and policy makers will need to reconcile plans for child-friendly residential development with commercial and real estate investment interests.

The next chapter looks at how traffic restricts children's independence and mobility, and how roads can be made safer for and more accessible to children.

EXAMPLES OF BEST PRACTICE

BAYLIS STREET, WAGGA WAGGA, NEW SOUTH WALES

School groups and youth workers participated in planning workshops to change street furniture and implement traffic calming techniques on Baylis Street.

MUSTON PARK, WILLOUGHBY, SYDNEY

When Muston Park, Willoughby, Sydney was developed, planners consulted children from the local school.

BUFFALO CREEK RESERVE, HUNTERS HILL, SYDNEY

Two cycleways at this popular park cater for a range of age groups. For young children, a small loop track complete with traffic signs is situated near the playground. For older children on bicycles or roller blades, there is a one-kilometre cycleway around the perimeter of the reserve. The cycleway is located off the road near a mangrove boardwalk and bushwalks.

EXAMPLES OF BEST PRACTICE
WATTLE GROVE HOUSING DEVELOPMENT, HOLSWORTHY, SYDNEY

Wattle Grove Estate is a commercial housing development which has a child- and family-friendly environment. Unlike previous estates where infrastructure may take years to develop, open space and community facilities are implemented soon after land is released for development.

The developers are responsible for implementing, improving and maintaining the open space and community facilities, while the council approves the concept, design and agreed standards.

Throughout Wattle Grove Estate, there is a range of allotment sizes and housing costs, creating a mix of household types and diverse socioeconomic groups.

Residents are encouraged to become involved with planning issues and become members of planning focus discussion groups.

The estate provides recreational and childminding facilities, shops, schools and transport. An artificial lake attracts wildlife and is a focal point for the community.

Child-friendly aspects of the estate include:

- the open space, trees and walking tracks which create recreational opportunities and a friendly neighbourhood for children
- recreational facilities, such as:
  - sixteen parks, some with play equipment, others with mature trees and landscaping
  - sporting facilities — a swimming pool, tennis courts, basketball and netball courts
- eight kilometres of dual purpose cycleways/ footpaths which link the artificial lake, sporting facilities, the school and public transport, so children can walk or ride bikes to these places; this fosters independence and increases mobility

The developed open spaces in Wattle Grove provide excellent opportunities for play and community events. Photo: Linda Corkery

- speed control devices, which are used on roads to reinforce speed limits, rather than traffic signs
- the streets and roads, which are designed to maximise safety, with most houses located in quiet cul-de-sacs with a speed limit of 40 kph
- a short pathway linking the cul-de-sacs to adjoining open space, providing children with an off-road access route to other parts of the suburb
- childcare facilities, including:
  - a 60-place childcare/community centre
  - a relocated and refurbished centre for before and after school care
  - upgraded facilities for a preschool and occasional care centre in Holsworthy.

Feedback from resident discussion groups supports the housing estate's claim to be a friendly, safe community which is ideal for children. For example, eighty percent of purchasers believe the cul-de-sacs increase safety and reduce crime, encourage children's play and ease supervision problems.

To improve Star Lane, a popular meeting place for young people in West Wyalong, children painted a mural on the wall. Photo: Bland Shire Council.

EXAMPLES OF BEST PRACTICE — TOWN HEART PROJECT, WEST WYALONG, NEW SOUTH WALES

The 'Town Heart' project in West Wyalong is a long-term concept for revitalising the town. Different sites near Main Street — the town's centre of activities — including cross streets, lanes, footpaths and vacant allotments, are being progressively redeveloped to provide informal meeting places and recreational opportunities.

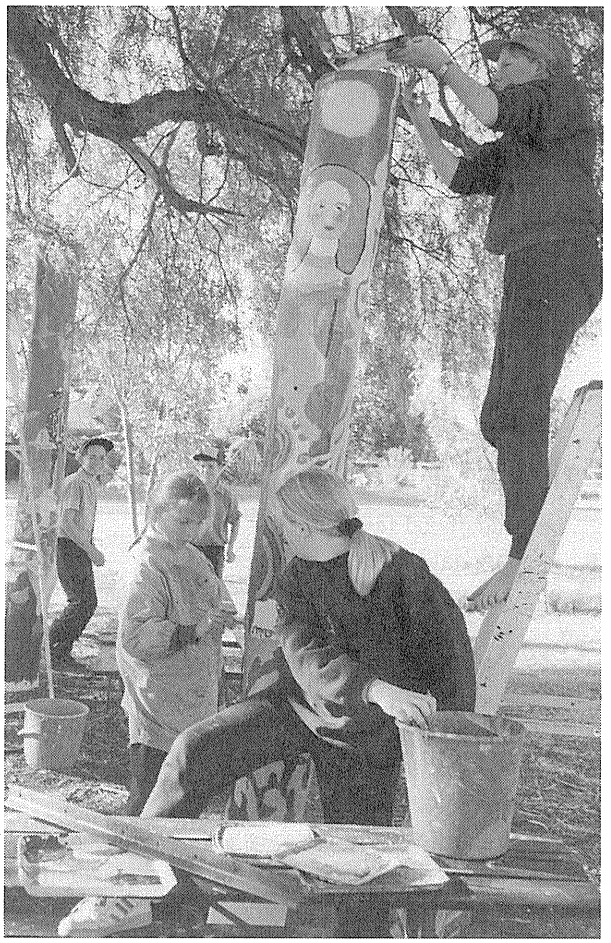
The 'Town Heart' project also involves:

- street tree planting
- upgrading Main Street, including replacing old verandas, providing new street furniture and initiating traffic-calming
- a town map integrated with sculptures and murals on vacant land
- developing side streets with landscaping, paving, seating and public artworks.

GREEN CORRIDOR, WEST WYALONG–WYALONG, NEW SOUTH WALES

Children at the local high school were involved in the consultation for and planning of the Green Corridor, a 4.4 km cycleway/walking track linking the towns of Wyalong and West Wyalong. Previously, the only link between the two towns was the busy Newell Highway.

The corridor contains parks and open space, providing a place for all members of the community to meet. Some of the areas contain play equipment and public art. There are totem poles at one location, individually painted by children at local schools. The aim of allowing children to paint the poles was to give them a sense of identity and ownership of the public space.



By painting totems along the Green Corridor, children are contributing to the environment in which they live. Photo: Bland Shire Council.

Traffic

There's no place to ride your bikes in case you get run over. You want to be near home, and you have to go right up the road and cross a busy road to go where you can ride them (8-year-old boy).

INTRODUCTION

The previous chapter explained why children are often driven to places in cars, rather than getting to them on their own. This chapter describes why traffic further restricts children's relationship with the environment.

CHILDREN'S LIMITATIONS

As observed in the chapter on Physical Limitations, children cannot fully comprehend traffic situations, due to their perceptual difficulties, and the fact they are small.

Accidents are not always limited by adult company. For example, parents may cross roads believing their child is behind them when they have stopped to pick up a stone, or they may lead their child across the street without teaching them traffic safety rules so that the child can subsequently cross the road only in their company (Sandels 1968, p. 53).

ADULT INSTRUCTIONS

Children become confused in traffic situations when instructions given to them by parents conflict with reality. For example, they may be told never to run across a road, yet the timing of the green pedestrian crossing sign means they have to run across the road before the light changes to red. They may also hear stories from parents or other children about, or themselves see, horrific accidents. They are therefore frightened and dismayed in traffic situations. Children we consulted made the following comments:

> We don't play on the streets because you can get run over, and there's some big trucks that don't care about little children (7-year-old boy).

On a road in Coogee, Sydney, large signs and changes in the road surface let drivers know the road is used by children.
Photo: Sandra Van de Water.

> ... walk all the way down the little road at the back of the school. It's the long way round but I don't have to cross the road if I go that way (10-year-old boy).
>
> Sometimes when you press the button to cross, you're only halfway across and cars start to come away from you (11-year-old girl).

One study estimated that on the basis of past trends, a child in Britain had a 1-in-20 chance of being involved as a pedestrian in a traffic accident before the age of 15 (Sandels 1974).

CAR DRIVERS

Not all drivers drive safely or sensibly. In modern society, cars are a symbol of status and authority, and as a result, some drivers are arrogant and assume they can break rules.

There is an assumption that 'the car driver has a natural right to take his [her] vehicle anywhere in the city' (Ward 1977, p. 118).

Some drivers, for example, will only observe traffic regulations if there is a danger of being caught infringing them. A study by Witherby et al (1994) showed that school signs requesting 40 kph had very little effect on driver behaviour. In order to slow drivers down, speed control devices as well as traffic signs had to be implemented.

In one analysis of accidents involving children, Guttinger (1977) reports that:

> only eight of the drivers who had seen the children beside the road or when approaching the pedestrian crossing slowed down and only three stated that they had kept an eye on the children. The majority said that they did not reflect on the behaviour of the children or believed that the children would remain beside the road and give the driver the right of way ... nineteen drivers passed other cars which had already stopped at the pedestrian crossing to allow the children to cross the road.

Traffic accidents involving children might be virtually eliminated if, as pedestrians, they were separated from traffic, and there are times when this segregation would be beneficial. At the same time: 'unfamiliarity with transport and its hazards can be as lethal as constant exposure to them' (Ward 1977, p. 125).

USE OF BICYCLES

Three quarters of the children we consulted owned or had access to a bicycle, increasing their accessibility to urban environments. However:

> Bicycles are regarded with ambiguity by the public. They are toys and they are also transportation. Legally, bicycles are classified as vehicles subject to traffic laws, and cyclists are expected to use the streets. Nonetheless, they leave riders in a fragile position regarding faster traffic, and riders often have no other qualifications or experience with vehicles in traffic (Michelson and Roberts in Michelson et al 1979b, p. 437).

Children are given bicycles as gifts, which suggests they are items they can play with. At the same time, they are given unclear directions where they can use them. They are told not to ride bicycles on the road because it is dangerous, yet if they ride on the footpath they are told they should be on the road.

Children we consulted made the following comments:

> When I'm riding my bike in the street, this man in a car shouts 'get out of my way' (7-year-old girl).
>
> There's no place to ride your bikes in case you get run over. You want to be near home, and you have to go right up the road and cross a busy road to go where you can ride them (8-year-old boy).
>
> Every morning kids are riding their bikes to school and cars push them off the road when they're turning the corner (9-year-old boy).
>
> When you're riding bikes a lot of people say: 'Keep on the footpath' or 'Keep off the road' (11-year-old boy).

The children appreciated any space where they could take their bicycles away from traffic and play safely with them.

SIGNIFICANCE FOR PLANNERS

Several initiatives can be taken to make streets safer for children. In residential areas, speed restrictions may not be enough to slow drivers down. There should also be 'speed bumps, street closings and traffic mazes' (Michelson and Roberts in Michelson et al 1979b, p. 437). Planners should also consider the location and availability of controlled crossings, and the frequency of pedestrian crossing light changes. Street furniture, such as hedges and fences, which can hide children from traffic, should be avoided.

Several overseas studies have confirmed the success of traffic-calming initiatives in reducing road accidents involving children (Engel and Thomson 1992; Faure and de Neuville 1992; Whitelegg 1988). Traffic calming involves various initiatives to reduce and slow down traffic:

> Techniques include changes to road surface, paved streets, speed tables, neckdowns (where short sections of streets are narrowed), speed humps, changes in direction, street planting and chicanes ... [In] many situations, traffic calming has produced many complex interactive effects, leading to a sense that children have been able to 'recapture' the street, and more importantly, that they have been able to do this in safety. Traffic calming may also help to foster a change in such societal attitudes, by creating a street environment which is safe enough for children to play in, and by helping to question the view that streets are for the sole use of cars (Tranter et al 1996, p. 89).

According to the same researchers (pp. 89–90):

- in many precincts of Dutch and German cities, streets use traffic-calming and cars must give way to pedestrians
- in Leicester, Britain, the 'Children's Today Street Play' project involved children, residents, engineers and planners in a project to reclaim the streets for children (Green 1992).

The Commonwealth Department of Housing and Regional Development (1995) in *AMCORD: A National Resource Document for Residential Development*, recommends that:

- traffic-calming plans should be implemented to identify networks for pedestrians and cyclists
- neighbourhood pedestrian routes and cycleways should be designated on plans in new areas
- direct paths to local activity centres and schools should be encouraged, using streets where there is not much traffic, public footpaths and parkland
- footpaths should be located to separate pedestrians from parked or moving vehicles
- the safe crossing of streets when there are speeds exceeding 50 kph or high traffic

volumes, should be encouraged by using pedestrian refuges and slowing down traffic
- the shared use of pathways by cyclists and pedestrians should be encouraged, but there should be separate paths when large numbers of cyclists are envisaged
- adequate bicycle parking should be provided at local community centres and public transport stations.

AMCORD also recommends that in inner city areas, planners should provide facilities for children to ride their bikes in local streets which have low traffic levels. Once they are confident, the children can ride on streets and roads with a higher volume of traffic. Within suburbs, practice routes for beginners and young cyclists should be constructed on the street or on off-road paths.

Clearly planners and designers cannot assume total responsibility for traffic accident prevention. The community must ensure, for example, that training and education programs are provided to help prevent bike and pedestrian accidents.

By controlling the risks to personal safety which threaten children, and by recognising their reliance on walking and cycling, traffic systems should allow children safe, confident and independent access to the city.

The next chapter discusses how public places could be designed to meet children's needs.

EXAMPLES OF BEST PRACTICE

CYCLE TRAINING TRACK, WAGGA WAGGA, NEW SOUTH WALES

A cycle training track teaches primary school children safety and road rules for riding cycles. It consists of a road section with various surface types, so children learn about the attributes and risks of each. The track is operated by Police Citizens Youth Club (PCYC) and all primary schools in Wagga participate in the training. The track is also used by children on weekends and after school. The facility was jointly funded by PCYC, the council and the local service centre.

BIKEWAY PLAN, BATHURST, NEW SOUTH WALES

The council has devised a bikeway plan and open space plan, in consultation with children aged 10–15 years. The plan will include both on- and off-road routes, and a recreational cycle loop on both sides of the river bank linked by a new bridge. The council anticipates that the cycleways will benefit not only local children, but also children visiting Bathurst.

BICENTENNIAL PARK, WILLOUGHBY, SYDNEY

Willoughby Council is planning a cycleway/pedestrian corridor, linking paths around Bicentennial Park with the adjoining suburbs. Eventually the corridor will extend to the next suburb, Northbridge, with an underpass below Flatrock Drive, a main road running between Northbridge and Willoughby. As there are few crossing facilities on the road, it currently impedes children and adults from walking between the suburbs. Willoughby Council recognises that bush areas cut off by roads are accessed by local children through stormwater channels. To make these channels safer for children, the council plans to upgrade access points near them.

Public Places

In the shops there's these steel round things with lots of dresses on coat hangers, and you hide in between and inside them. It's real good in there. If they come up to you, you just walk out the other side, and just look at some other clothes so they don't know it's you (9-year-old girl).

INTRODUCTION

Children are frequent visitors to shopping centres and other public places, yet these places are rarely designed for them. Patricia Mackay of the Canadian Council on Children and Youth says (in Michelson et al 1979a, p. 20):

> Think about a supermarket or a bus station or any one of the places that children normally go. There is absolutely no provision for them. It is as if they do not exist... anyone used to taking children to any public place will look in vain for bathroom facilities that are the right size.

This chapter explores ways in which such areas could meet children's environmental needs.

SHOPPING CENTRES

A visit to a shopping centre is one of the first social encounters children will experience outside the home. They find these places exciting, full of interesting sights and activities. An eleven-year-old boy we consulted said:

> I like the automatic doors. You can stand where people don't see you and it's a surprise to them when the door opens before they get there.

Very few shopping centres provide facilities for children. In 1996, the following complexes were visited in Sydney: Parramatta Westfield, Penrith Plaza, Castle Towers in Castle Hill, Macquarie Centre in Ryde, and Chatswood Chase and the Westfield in Chatswood. Most of these did not cater for children apart from providing toilets, coin rides and wire climbing cages for young children. There was a casual care childminding centre at Parramatta Westfield.

Restrictions

Occasionally trips to shopping centres involve children, for example, when parents are buying them a birthday gift or hobby item. Generally, though, they are expected to trail after their parents and not distract them by making demands. Bored and looking for something to do, children will convert objects provided for practical purposes into play items. These objects include trolleys, lifts, escalators, ramps, rails, ledges and turnstiles. A nine-year-old girl we consulted said:

> In the shops there's these steel round things with lots of dresses on coat hangers, and you hide in between and inside them. It's real good in there. If they come up to you, you just walk out the other side, and just look at some other clothes so they don't know it's you.

Much of the time, however, children are constrained by adults from playing, amusing themselves and touching things, and are expected to be docile and quiet. They resent this treatment, finding it unjust and hostile:

> When we go to the shops, I'm not allowed in because they think you'll do something and I have to wait outside and they say: 'Sit down quietly, don't touch anything and don't talk to strangers' (8-year-old boy).

> They get bossy. They think you'll knock everything and break it. They say: 'Don't touch that, you'll break it' (9-year-old girl).

Inappropriate Objects and Facilities

At other times, children find they are too small for facilities provided in shopping centres:

> I'm scared of them [escalators], I might fall down on the real big ones. I always hold on with two hands (8-year-old girl).

> [In shops] you try to put your foot on the edge and jump up (11-year-old girl).

Other problems are:

- turnstiles that hit the head rather than the waist
- steps which are too many or too steep
- displays and handrails which are too high
- ambiguity between private and public places
- confusion between exits and entries.

In large centres, children often become tired of walking. Parents find it difficult to carry them, especially if their arms are full of packages. Centres rarely provide enough resting places where children can sit down and adults reorganise bags. Bathroom facilities are usually infrequent, located away from main areas and rarely contain child-sized toilets.

Shopping centres are often located away from housing centres and public transport, meaning that children are driven there by adults. Neither children or adults are happy with this arrangement, preferring shops they can walk or cycle to (Hart 1979, p. 169; Cunningham et al 1996, p. 87). Currently, shopping centres are surrounded by a sea of parking facilities, meaning adults loaded with purchases must lead their children through difficult and sometimes dangerous traffic situations to get to their cars.

Sensory Stimulation

For children, shopping centres have the atmosphere of circuses, with their shapes, textures, smells and activities, and contrast markedly with the more subdued environment of the home. The variety of stimuli is exciting but can also become confusing. Unable to understand written or abstract signs (such as arrows) which direct adults where to go, children can easily become disorientated, lost and frightened.

Facing page: Spot the child! Shopping centre displays provide great opportunities to have fun. Photo: Sandra Van de Water.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Children's Areas

Places which children have ownership of, other than the toy shop, are rarely provided. Opportunities for entertainment are seldom available except on festival occasions such as Christmas-time when puppet shows, for example, may be provided.

Parents who shop with their children have nowhere to leave them where they may be entertained. They generally need to amuse their children by buying them ice-creams, and paying for them to go on mechanical rocking horses or cars. Such activities are time-consuming, and, when paid for on a regular basis, can be expensive for parents.

OTHER PUBLIC FACILITIES

Public spaces and buildings visited by children usually fall into two categories:

- cultural facilities such as libraries, museums, cinemas and zoos — visits to these places are usually memorable events with a holiday flavour
- public places such as airport terminals and hospitals — visits to these places are equally memorable but not always pleasurable.

All public places provide potential learning opportunities for children. By visiting them, children learn to understand and negotiate unfamiliar environments beyond the home.

Currently, many of these places are overwhelming for adults as well as children. They are large, crowded and impersonal, and it is easy to get disorientated and lost.

However, cultural facilities such as museums, galleries, libraries, zoos and botanical gardens are becoming more accessible to children. Other places such as universities provide, albeit unwittingly, good play spaces. One eight-year-old girl we consulted said:

> There was this place like at a university or something with all stairs and concrete, and me and Emma went there, and there were these long benches with no-one sitting on them. You could roll balls along and it was a lot of fun. There was grass around and we could roll over and over on it. In the toilet, there was this soap thing you could punch down to get the soap.

SIGNIFICANCE FOR PLANNERS

There is almost nothing in the literature of public facility design which refers to the presence, let alone the needs, of children. Most public areas are governed by commercial and economic interests which are not always aware of children's needs.

Planners and policy makers could make the following points when negotiating with developers:

- child-friendly public areas would not necessarily increase profits, but they would be more beneficial for the community
- innovative design to make public areas more negotiable for children would also make them more attractive for adults, who would find it easier to shop if they did not have to amuse their children
- adults are more likely to frequent places which cater for their children.

Meeting children's needs would mean dealing with the abilities and limitations of all children, including those dependent on a pram or stroller and children with disabilities.

Some suggestions for child-friendly public facilities include:

- child-friendly objects such as low hand rails and turnstiles, steps and door handles; low shop counters children can see over, and articles strong enough to allow children to play with them without subverting their design function
- child-sized bathroom facilities, kiosks, seating and water fountains
- textured flooring and visual signs to help children find their way round

- attractive artworks, colourful displays and gardens
- structures for climbing
- a place where children can play and parents are assured they are safe.

Any facilities designed for children will have to take into account local values and parental attitudes. For example, some parents would not want to leave their children in an unsupervised play area, or with groups of older children, for fear they may be bullied.

The next chapter discusses how play areas in schools, childcare centres and parks could better meet children's needs.

EXAMPLES OF BEST PRACTICE SHOPPING AREAS IN SYDNEY

The Macquarie Centre in Ryde has an area with animal figures for children to climb on, while carers take advantage of provided seating. Penrith Plaza has a colourful seating area for children in an eatery section.

The following outdoor areas are located near shopping centres and are places where children can play:

- Parramatta Mall — there are historic buildings, trees with seats, grassy areas, fountains and a small amphitheatre children use for their own performances
- Cronulla Mall — children can clamber on equipment with a nautical theme next to coffee shops where their parents can relax
- Lane Cove Plaza — outdoor cafes and plane trees create a social environment, allowing children to play and meet friends.

The North Sydney Noodle Markets, which are held weekly in a park near a library, allow adults to eat at various food stalls while their children play in the park and enjoy the entertainment which is provided for them.

Children enjoy the eating area in Penrith Plaza, Sydney, which contains large and brightly coloured trees and flowers for them to observe and touch. Photo: Sandra Van de Water.

EXAMPLES OF BEST PRACTICE

SYDNEY MUSEUMS

The Powerhouse Museum in Sydney has different areas called 'KIDS' (Kids Interactive Designed Spaces) catering for children of all ages.

In Sydney's West, the children's museum 'Kidseum' in Walpole Street, Merrylands contains a wide variety of activities for children aged 3–10. These include a vast climbing maze, a bubble machine, a sensory room and children's computer games. Children can make board rubbings of dinosaurs and shape plastic piping into different objects. In the park outside, there is an adventure playground. A kiosk provides snacks for children and their carers.

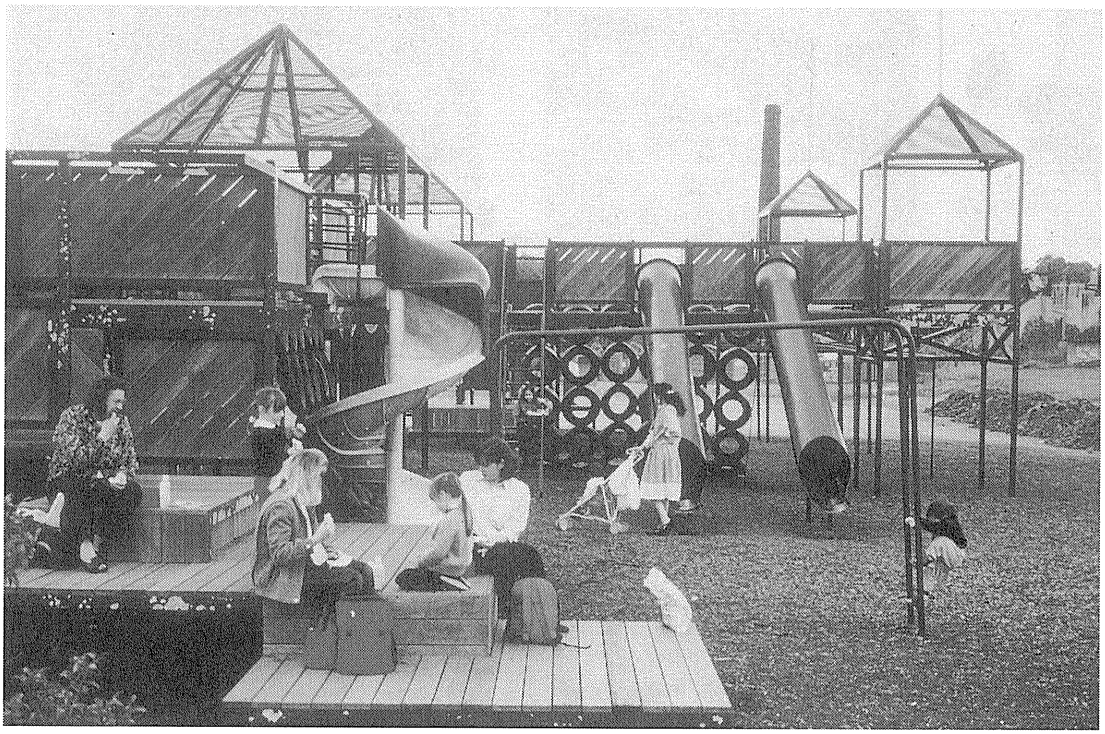
THE CHILDREN'S HOSPITAL, WESTMEAD, SYDNEY

The aim of the new children's hospital was to develop a health care facility combining state-of-the-art equipment with a childcare centre 'high touch' quality. The hospital's CEO, Dr John Yu, initiated a cultural plan for the hospital that would identify these qualities while providing services for patients and their families, and acknowledging the requirements and contributions of staff. The cultural plan was developed in conjunction with the planning of the facility's architecture and outdoor environments.

Some of the features of the new hospital are:

- relaxing courtyard gardens next to the intensive care ward
- a separate staff garden
- a mural in the adolescents' ward painted by Reg Mombasa (of Mambo Graphics)
- waiting area furniture of sculptured timber designed to double as climbing/play structures
- colourful fabrics specially designed for the bed linen and curtains.

While children and their families would only go to the hospital when they have to, and sometimes under dire circumstances, the hospital presents them with a welcoming and comforting facility.



The innovative play space outside the Kidseum in Merrylands, Sydney, provides seating for accompanying adults. Photo: Linda Corkery.

Play Areas

In the play park they really only make things to run and jump over, no real pitches or anything (9-year-old boy).

INTRODUCTION

Play areas for children are generally provided in childcare centres and schools, and public parks. This chapter explores why such facilities do not always meet children's needs.

Corkery (1987, p. 4) says that there are four main types of play which should be catered for in play spaces, to meet children's developmental, social and physical needs. These are as follows:

1. **Active/motor play**
   - supports development of gross motor skills requiring use of the whole body
   - behaviour is random and noisy
   - large open areas for running or play structures for specific activities — climbing, swinging, jumping, balancing
2. **Creative/cognitive play**
   - supports development of fine motor skills and mental skills which require concentrated activity use of fine or small muscles
   - involves individual projects in secluded spots that need protection from aspects of physical and social play
   - painting, crafts, building blocks, playing in sand or with water
3. **Social/dramatic play**
   - supports social/emotional and some physical skills
   - also involves use of whole body in 'acting out' of life situations or of fantasies, e.g. playing 'house' or 'space invaders'
4. **Quiet play**
   - supports emotional development
   - retreating individually or with a friend to observe others at play, to read, or rest
   - area for this needs to be separated from vigorous physical activity, such as a shady spot under a tree with some cushions or a hammock.

Many play spaces provide facilities for active play but not for creative, social or quiet play.

CHILDCARE CENTRES AND SCHOOLS

In modern society, free play time is constantly eroded as children spend more time in long day care centres and before and after school centres, and on after school activities and weekend sport.

To resolve this imbalance, schools and childcare centres should provide a varied environment to encourage the different types of play. This will help children fulfil their developmental and social needs. Improvements to play environments in early childhood centres in New South Wales are already being made, possibly because of accreditation.

This does not always apply to environments for children over five, who leave the preschool environment to be confronted by daunting play areas in schools. Large, open expanses of bitumen or grass punctuated by rows of seats and isolated play equipment do not encourage creative play, socialisation or gender mixing.

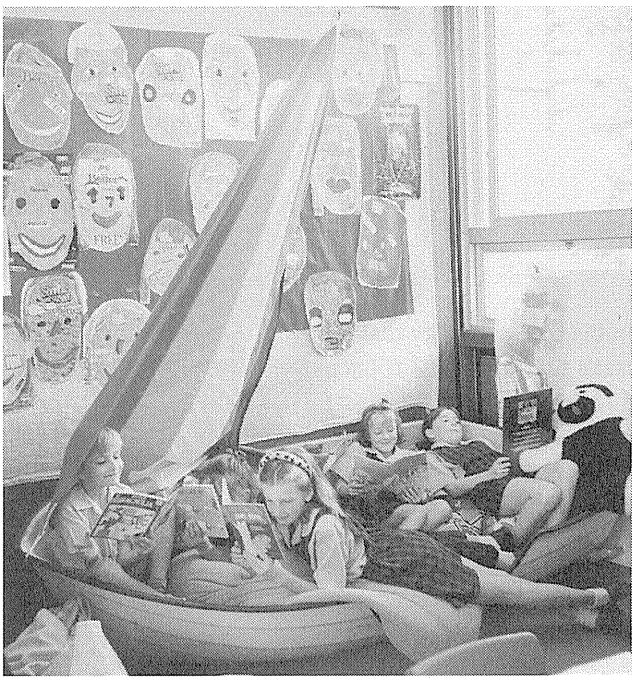
PLAYGROUNDS

Two types of playgrounds are normally discussed in planning literature. These are:

- traditional playgrounds with swings, slippery dips and climbing frames
- adventure or contemporary playgrounds with a wooden or plastic and rope construction, connected equipment and objects that can be manipulated or moulded.

Researchers have criticised playgrounds as they divide the world of the child even more from the adult world. They also point out that children play everywhere and generally prefer the home environment, streets, natural areas and abandoned sites to parks and playgrounds (Ward 1977, pp 86–87; Michelson et al 1979b, p. 456; Cunningham et al 1996, pp. 43–44; Tranter et al 1996, pp. 92–93).

Although children do play everywhere, this does not invalidate the value and function of playgrounds. Through our consultations with children, it was clear that they did seek and enjoy local playgrounds, but only as part of their interaction with the environment as a whole.



This quiet area for children at a school on the Central Coast, NSW, features a boat and sail, and shows that with imagination, child-friendly modifications to environments can be made at minimal cost. Photo: Pat and Peter Day.

Traditional Playgrounds

Some researchers (Michelson and Roberts in Michelson et al, 1979b, pp. 454–455) are uneasy about traditional playgrounds, as their limited functions inhibit the experimentation possible in more imaginative play areas. For example, there are few alternative activities suggested by a precisely-designed fire engine or swing whereas logs or plastic pipes can become any object or anywhere in the world. Others are concerned that traditional playgrounds develop children's active and motor skills at the expense of their creative and social skills (Corkery 1987, p. 5).

Traditional playgrounds are often constructed in parks, since they are generally safe, neat and relatively easy to maintain.

Adventure Playgrounds

When the original adventure playground opened in Emdrup near Copenhagen in 1943, the idea

behind it was that: 'playgrounds should be learning grounds' (Bengtsson 1974) and that:

> the child is learning while [s]he is playing, and if [s]he plays in an environment which is aesthetically stimulating [s]he is going to require this as [s]he grows older. [S]he is being conditioned, as if you condition [her] him to a boring, monotonous monochromatic environment, then [s]he accepts that (Kuhnert 1977).

The adventure playground movement promotes a style of playground which allows children to develop creative skills and self-confidence. The playground contains articles which children can manipulate, and objects formed and shaped in various ways to encourage creative decisions to be made.

Critics of adventure playgrounds, concerned by their informality, view these areas as a safety or security risk for children, or as a visual anomaly (Michelson and Roberts in Michelson et al 1979b, p. 456). It should be emphasised that adventure playgrounds in Australia are supervised playspaces and are subject to Australian Standards 2555–1982 — *Supervised Adventure Playgrounds, a Guide to Establishment and Administration.*

In Australia, bushland and parks with play equipment linked to vegetation and rough natural areas offer children greater choices of manipulable environments than in highly urbanised countries. Features such as water, trees, rock, sand and vegetation incorporated into play spaces provide opportunities for exploratory, imaginative and mixed gender play.

Children's Preferences

Our consultations with children revealed that they liked both types of playground, viewing neither as a better alternative. They appreciated playgrounds for being places they were allowed to visit, and in which they could meet friends and not be restrained by adults:

> I like to play in the park there, because you can shout and make a noise without anyone getting at you (9-year-old girl)

> If you're just a child with no brothers and sisters you can go and meet some friends there and things (9-year-old girl)

> At the playground there's other people there you know and you can meet them (10-year-old-girl).

The children liked having access to many different playgrounds, and soon became bored with the equipment if they were restricted to one or two playgrounds:

> I like...
> the slippery dips
> the verandas
> the rocket ships
> the wooden fort
> the rope walk
> the wooden box
> the swings (various children).

Several children stated that the local playground did not meet their needs, either because they felt too old or big for its facilities or because it did not cater for the interests of their age group. Some noted the absence of places where they could play ballgames:

> In the play park they really only make things to run and jump over, no real pitches or anything (9-year-old boy).

> You don't want to be with the teenagers but you don't want to be with the little ones either (9-year-old-girl).

> I'm only nine but I can stand right inside the fort (9-year-old boy).

> Adventure playgrounds are too small. You can't stand up in the middle (12-year-old girl).

These comments are borne out by a study in Lismore, New South Wales, in 1996:

> The children's complaint was that most equipment being installed was for smaller children and was commandeered by parents and adults for that group. They, the children aged between 9 and 12, felt that they had nothing specifically provided for them (Cunningham et al 1996, p. 45).

The authors add that the equipment was also not sturdy enough for adults, many of whom like (though they may not admit it) to play there as much as children.

SAFETY IN PLAYGROUNDS

Playgrounds are often viewed as safe areas away from the perils of the wider environment. They can, however, be dangerous.

Children we consulted reported maintenance problems in most playgrounds, including acts of vandalism, broken and dangerous equipment, worn landing patches and litter.

Factors which contribute to injuries in playgrounds include:

- equipment which is more than 2.5 metres high
- faulty equipment design
- little or no impact-absorbing undersurfacing or softfall material, such as wood chips or shredded rubber
- playground layout and the position of equipment
- inadequate equipment maintenance
- too few ongoing inspections.

A New Zealand study by the Dunedin Injury Prevention Unit (Evans and Chalmers 1991) showed that injuries from falls from playground equipment were reduced by impact-absorbing undersurfaces and restricting the height from which children could fall.

In an address to the 1995 Kidsafe Conference in Sydney, Dr Sandra Van de Water from the New South Wales Play Alliance emphasised the need for improved safety in playgrounds:

> No parent would allow their three-year-old child to play with blocks on a garage roof three metres high above a concrete driveway. Yet, how often does that parent take their child to a park where the slippery dip stands sentinel over an expanse of impacted earth unadorned by anything softer than a few 'bindi eyes'?

Injury statistics are usually compiled from attendances at Casualty Departments and do not take into account the popularity of various types of equipment. More accidents may occur on swings, for example, because more children use them rather than because swings are more dangerous than other items of equipment.

Adhering to safety standards will not create boring playspaces if sensory stimulation and various play experiences are incorporated in the design.

SIGNIFICANCE FOR PLANNERS

Many of the assumptions on play which are built into local plans and policies fail to reflect its real function and complexity. Children enjoy and frequently prefer creating play environments of their own. Therefore, any local decision on play provision would better serve the needs of children if it began with the question: 'How can we use available resources for the enjoyment of local children?' rather than 'What form of playground is best and where shall we put it?'

At the same time, there are no definite rules on which type of playground or play area to provide. Much will depend on the geography, social factors and resources of the local area.

Walsh (1990, pp. 21–24) discusses the factors needed to design quality play areas in early childhood centres. These include:

- space — enough space should be provided for equipment and open areas
- unity — indoor and outdoor areas should be planned as a whole so that activities can flow from one area to another
- organisation — separate areas should be provided for different types of play; for example, areas for quiet play can be identified by boundaries such as paths or low banks, or feature points such as trees or sandpits
- accessibility — access paths should be clearly defined with welcome entrances
- safety — attention must be paid to the height of the equipment and the surfaces below the equipment
- sensory stimulation — this should be provided by using colours; patterns of light; textures such as different ground surfaces;

natural elements such as water, sand, dirt, boulders and leaves; and plants including large trees to enable children to experience sensory contact, seasonal changes and wildlife
- supervision — teachers should be able to view children at all times without intruding on their play.

Play areas in schools could feature imaginatively-designed natural areas and grassy spaces for ballgames.

The above suggestions could be used for any playgrounds, not only those in childcare centres and schools.

Necessary objects in the environment such as paths and walls could be regarded as possible play or fantasy objects for children, and could be included in the design of public and commercial areas. Plans could contain:

- safe nooks and crannies that can become temporary cubbyhouses or hiding places
- steps and bollards to offer trials of strength and endurance
- spaces or objects to serve in fantasy as forts, space vehicles or jungle animals.

Planners can reduce injuries and potential litigation in playgrounds by installing impact-absorbing materials and complying with current safety standards on the height and position of equipment (Australian Standard 1924, Part 2 — *Playground Equipment for Parks, Schools and Domestic Use — Design and construction: safety aspects*)

In making decisions on play provision, the following general principles should be applied:

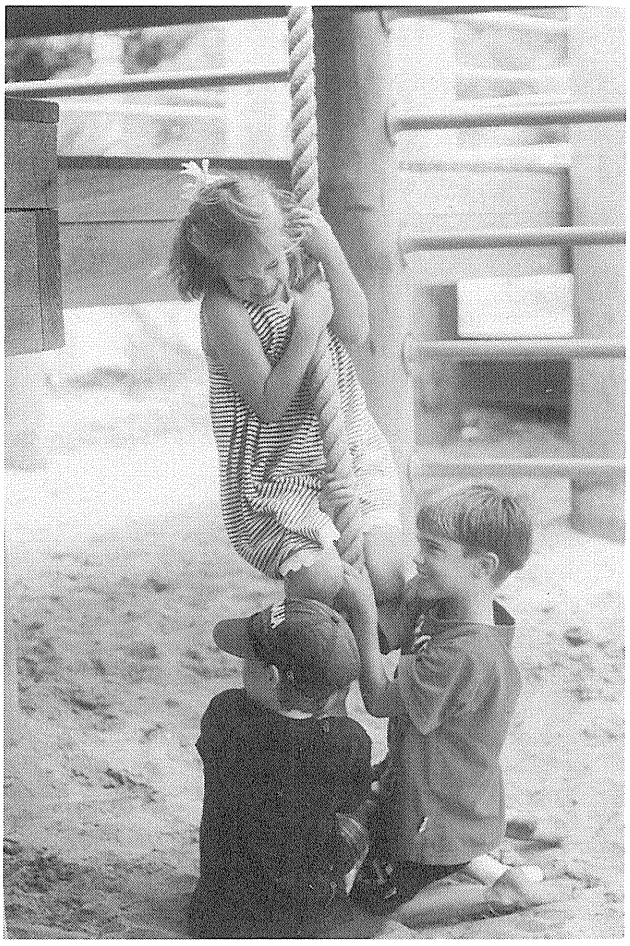
- **Children use the environment as a whole for play**
  The entire play area should be designed to allow children to scramble all over it.

- **Children enjoy and respond to variety and change in their play environment**
  No one type of play environment will cater for all children's needs — different play areas will need to be available.

- **Natural elements increase play opportunities**
  Careful planning of the natural environment will increase play opportunities, allow children to experience and have contact with nature, and provide shade and aesthetic appeal.

- **Everyday objects can serve multiple purposes**
  The necessary objects of the environment such as paths, water fountains, taps, low walls and bridges can double up in some way as play or fantasy objects for children.

- **Safety and security must be considered**
  Safety guidelines for designing and constructing playspaces apply to equipment



Children love all types of playgrounds. Photo: Sandra Van de Water.

and to the position of the playspace away from hazards and busy roads.

- **The needs of children with disabilities must be considered**
  Playspaces should be accessible for disabled children; modified for their use by providing, for example, beams with hand rails and swings with backs and sides; and enhanced by sensory experiences such as fragrant plants, water play and different textures.

- **Demographics and the needs of different age groups must be considered**
  Playgrounds should provide age-appropriate equipment, play areas and facilities for a range of children — demographic indicators and consultations with children and their families will help determine the needs of the local population.

The inclusion of public art such as sculptures or murals can contribute to the amenity of the playground, and provide an aesthetic and memorable dimension.

Additional information for planning a play area can be gained from:

- New South Wales Department of School Education (1980)
- Child Accident Prevention Foundation of Australia New South Wales (various reports)
- Corkery (1987)
- Walsh (1991)
- South Australian Department of Recreation and Sport (1992).

The next chapter discusses difficulties for planners and policy makers in meeting children's environmental needs.

EXAMPLES OF BEST PRACTICE
MELBOURNE PARKS AND WATERWAYS PROGRAM, MELBOURNE, VICTORIA

This program is a Victorian Government initiative for Greater Melbourne. It aims to develop more recreational opportunities and increase the use of facilities, whilst conserving cultural and environmental values. The program will eventually create a network of interconnected parks, trails, riverbanks and beaches. It began in June 1991, and involves several government agencies and community organisations.

There are over 30 parks in the program including Badger Weir Park which offers forest walks through fern gullies, across mountain streams and among Mount Ash trees; and Maroondah Reservoir Park with picnic areas and exotic gardens coupled with native bush. Children are catered for in school groups and on short-distance walking trails which have ramps for disabled access.

Services in the other parks include toilet facilities, walking tracks, shelters, barbecues and picnic areas, and signage. Safe children's play areas, some with fixed equipment, are provided, as are natural areas suitable for unstructured play.

Public awareness of the parks is increased by:

- glossy brochures of each park, listing facilities, map and photographs
- new park 'brand' images
- regular distribution of *Park News*
- the annual occurrence of Parks Week to celebrate and promote the parks
- publication of a book (The Age Newspaper 1996) which contains 390 pages of information on parks, waterways and trails.

Difficulties

... kids don't know how to organise things, and things turn out wrong like maybe they say: 'Oh my best friend is here so I'll let him do this' and the other children start arguing. I don't have anything good about adults like, but I think they should run it (group of children aged 9–10).

INTRODUCTION

The previous chapters illustrated that children's needs are not always met in the urban environment. This chapter explores the difficulties involved in meeting those needs.

SURVEYS OF PLANNERS AND POLICY MAKERS

The 1996 Survey

In January–February 1996, the New South Wales Play Alliance circulated a survey to all local government areas in New South Wales, inviting them to provide examples of child-friendly planning and design in the shape of innovative plans or completed projects. The Alliance asked that the examples contain details of public or private sector developments for children up to the age of 12, including commercial facilities, residential developments, streets and open space. Examples could include details of consultation with children.

Replies were received from 15 of the 177 local government representatives in New South Wales. Eight of these demonstrated evidence of planning for children's needs, and enclosed some excellent examples of their work. *These have been incorporated in the relevant chapters of this publication under the headings 'Examples of Best Practice'.*

The 1981 Survey

Interviews with planners and policy makers in 16 local government areas in the Sydney Metropolitan Area were conducted in 1981. The areas were comparable in terms of their demographic and social characteristics. Councillors, town planners, and a small number of recreational, social and community service officers, were interviewed.

The planners and policy makers who were interviewed were interested, responsive and helpful. Several said they had not thought about the special needs of children before.

The following issues emerged from these discussions and from our own research.

INVISIBILITY

Children are so much a part of the environment, that they can be invisible. As Cunningham et al state (1996, p. 4):

> ... it appears that children become 'invisible' as they pass through this middle stage of growth [ages 9–12] (Newson and Newson 1986). This may be partly because of their tentative searches for independence. Children of this age group are characteristically calm and poised despite their innate energy. They are normally less of a burden than children of earlier and later ages.

CONTROL

Children generally remain an unnoticed part of the environment until they deface property or are involved in a horrific accident. The reaction then is to put even more controls on their behaviour rather than seriously examine what happened and why:

> The solution to speeding traffic in neighbourhood streets ... is to try, in vain, to remove children from the street, not the offending motorist. Adventure playgrounds ... usually fail, first of all because adults don't like their junky appearance, and more importantly because of obsession with legal liability for injury to children using them (Cunningham et al 1994a, p. 91).

Environmental planning and design is often used to mould or direct children's behaviour rather than open up the environment to them. The values that are conveyed to children through this process are to avoid being a nuisance and keep out of trouble.

Children realise that adults control children's activities in the environment, often neglecting the needs of or restraining children in the process. Children we consulted made the following comments:

> How come adults are allowed to touch things and children aren't? At this place [an exhibition], they said adults were allowed to touch them but kids weren't because they might break them (8-year-old boy).

> Around the corner in this street we ride on our bikes, and there was this really huge bump and we always used to go over it fast, and when this lady ... she fell over and just because it was a lady they had to chop it all down (9-year-old boy).

Planning policy which advocates this kind of control has the support of many parents, who are concerned about allowing children freedom to access their environment in case they are encouraged to behave badly by older children, or at risk from traffic.

Children we consulted are aware of the dangers of an environment built for adults, which they often find confusing and frightening. Schorr states that in a study conducted in America in 1976, twenty-five percent of children were afraid to go outside (Michelson et al 1979a, p. 132). Children we consulted were often fearful of dealing with the urban environment on their own:

> I'm scared I'll get locked in by myself or something like that (9-year-old girl).

They felt dwarfed by the large scale of cities and buildings, and disorientated by the variety of sights and noises around them.

Children believed, however, that adults did have too tight a control over their playspaces and recreational interests. At the same time, they recognised the problems which could occur if children were given some charge or

control. One exchange between a group of children we consulted aged 9–10 went as follows:

> I'd like to see a real kids' town with cars and things.
>
> ... should have an adult to run it though because kids fight with kids and say it's my turn and that, but when you're with an adult [they] choose ...
>
> ... I don't think we should have that, because in our town now all the adults run everything and you never see any kids working in a store or something, or having a bit of fun or something special ...
>
> ... kids don't know how to organise things, and things turn out wrong like maybe they say: 'Oh my best friend is here so I'll let him do this' and the other children start arguing.

Shut out or locked up! Planning policy sometimes bars children from areas adults may access, or restricts them to areas they find sterile and boring. Photo: Philip Long.

> I don't have anything good about adults like, but I think they should run it.

CONSIDERING CHILDREN UNIMPORTANT

Some adults think of children as actors or players in the environment rather than as people who can control and change their surroundings. They have no political power or contribute in any way to the economy, therefore they are unimportant. Cunningham et al (1994a, p. 82) make a connection between industrialisation and social contempt for children, saying that adults feel guilty about play activities unrelated to economic productivity:

> Recreation is an adult pursuit to recharge the batteries for productive work: play is the idle activity of children who have not yet been found constructive activities to pursue. Adult contempt for the seeming aimlessness and idleness of children's play has led to a striking ignorance on the part of environmental decision makers of the importance of play and the sort of physical environment that can best facilitate it.

Patricia Mackay of the Canadian Council on Children and Youth, when commenting on the nonexistent facilities for children in many public places, writes:

> ...in public places, why should there not be low basins and bathroom facilities for children? Their absence sends a clear message that we do not think children are important. Children do not ask for special facilities and adults do not speak out on their behalf ... Suppose a child is hit by a car? I remember reading in an English publication a point that I think was well made: if a car hits a child, that is an accident, but if a child damages a car, that is vandalism. Here is another message about our feelings for youngsters (Michelson et al 1979a, pp. 20–21).

THE INFLUENCE OF MEMORY

Many adults are concerned about meeting children's environmental needs. However, in many cases, they are guided by common stereotypes, or their own personal experiences.

When they think about environments for children, they remember how they used or wanted to use their environments as children. These memories are not always accurate, having been influenced by observations of children's behaviour from an adult point of view. As a result, when areas of the city are built which are designed for children, such as playgrounds and schools, they often reflect adult directives rather than any understanding of children's behaviour or preferences.

For instance, some council representatives we surveyed agreed that the environment should be more sensitive to children, but were unsure how to achieve this beyond providing more playgrounds, safer streets or the occasional special event such as a fairground.

Lynch points out that although he has asked policy makers to remember their own childhoods when designing environments for children, the technique has not been successful:

> ... certain people have distorted past events. They have forgotten things or have pushed them out of their consciousness. They may have exaggerated. For instance, my memory of the bombings of the North Broadway cleaning shops, vivid as it seems to me, may in fact be false. It may be my parents who were horrified, and their talk over the supper table may have impressed it on my mind (Michelson et al 1979a, p. 106)

LACK OF POLITICAL POWER

There is no legal basis (beyond a generous interpretation of existing legislation) for attending more to children's environmental needs. Even the United Nations declaration on 'The Rights of the Child' (signed by the Federal Government and gazetted for inclusion in the human rights and equal opportunities legislation in January 1993) needs a broad interpretation to cover this area. It states:

> Article 31 — The Child's Right to Play — The child has the right to rest and leisure, to engage in play and recreational activities and to participate in cultural and artistic life. The State undertakes to provide appropriate and equal opportunities for the realisation of these rights.

Public areas rarely provide bike ranks, meaning children have to leave their bikes on the pathway outside. This makes it more more difficult for children and adults to enter shops and other entertainment areas, and inhibits pedestrians from using the pathways. Photo: Veceslav Stanuga.

Laws are being made to protect children's rights, especially in regard to abuse. However, there are still no laws insisting their environmental needs should be met.

COUNCIL AND COMMERCIAL INTERESTS

Some of the council officers we surveyed said they did not attend to children's needs in their daily planning processes whereas they did give attention to people with other special needs such as the aged or disabled. This was because

these groups exerted both political and community pressure, and gained a lot of support as a result of their visible disabilities. The average child, on the other hand, exerts no political pressure and has no apparent disability.

The only regulations councils associated specifically with children were accident prevention codes and those demanding specific open space ratios per dwelling suitable for play. There was no guarantee that the space would or could be used effectively for play, in terms of equipment, location or design.

In 1981, five out of the 16 councils surveyed had a children's service committee or junior council which could potentially advocate or review proposals on behalf of children. However, the junior councils were educational devices for older children, to familiarise them with the practices and procedures of local government. Children's service committees concentrated on services for children rather than on the design or provision of facilities. In some councils, children's issues were catered for by service agency representatives, suggesting that children were a social problem group rather than a consumer group.

Some planners who were surveyed did not know how to meet children's needs without compromising council and commercial interests. There were limited resources for planning and development and much competition for these resources from economic and commercial organisations. Some commercial concerns were sensitive to the needs of children but others, while not being intentionally neglectful, were not.

One suggested solution to this problem was to introduce guidelines which would ensure children's needs were met when new developments were planned. Many council representatives welcomed this idea, since it was a procedural approach to dealing with a difficult issue. At the same time they recognised the problems which would occur if these guidelines were introduced. It would be difficult for planners to justify new planning guidelines to councils and developers if they increased costs, particularly if there would be no associated increase in profits. It would also be difficult to enforce the guidelines in the face of commercial and financial pressures.

Planners were concerned about the effectiveness of guidelines when they conflicted with other council interests. Council staff were responsible for administering daily urgent issues, and would not have the time to monitor such guidelines. There would also be administrative problems when applying these new guidelines to existing developments.

Such guidelines would also be difficult to implement due to:

- the wide range of environments to which guidelines would need to apply

Children can become easily overwhelmed by the noises and ceaseless activity of cities. Photo: Veceslav Stanuga.

- the variety of children by age, experience, background and ability to which the guidelines would need to apply
- adult demands on environments which may not be compatible with children's demands.

Both planners and council representatives pointed out that they cannot be solely responsible for lobbying for children's environmental needs. The influence of the community and government agencies is equally important.

COMMUNITY INVOLVEMENT

The needs of children as discussed in this publication are not as simple or obvious to the general public as the needs of many other groups. In addition, as remarked earlier, some adults do not like children and would prefer them to be controlled rather than catered for.

Furthermore, the specific and visible difficulties which almost all children experience at some stage do not remain constant. A child aged seven who cannot reach a telephone slot or a shop counter soon becomes a child aged nine who can. Even parents' enthusiasm for change and their willingness to be involved in creating that change will vary according to the nature of the difficulties experienced by their children; and these change as those children mature.

While conditions will inevitably improve for children as they progress towards maturity, this is not the case for handicapped individuals for whom conditions will either remain the same over time or get worse.

The next chapter explores ways in which attention can be given to children's needs.

EXAMPLE OF BEST PRACTICE
BANGALOW, NEW SOUTH WALES

The following is from an article in the *Northern Star* newspaper of 28 October 1995 (reproduced with permission):

> The village of Bangalow has embarked on a program to make the town's environs more friendly to children. The child friendly village concept was partially inspired from reports from Sweden where greater attention is given to creating an environment for children. The child friendly village project's aim is to raise people's awareness of children's needs when they make decisions about the physical environment, so that the world is less of a hostile obstacle course for children to survive. An example of this concept, which, is becoming more visible in Australia, is the Ikea chain of stores which maintains a childcare centre at the front of the store.
>
> The child friendly village is conceived as a public health community development project. It aims to improve the environment for children through the use of existing community groups and networks. As part of this aim the project organisers approached the Bangalow Chamber of Commerce to support the project. As a result of this approach the Chamber of Commerce has offered unanimous in principle support for the project as an adjunct to their own efforts to promote the village.
>
> These developments led to further discussions with the Health Promotion Officer and the Mullumbinby-Byron Bay Health Care Manager.
>
> A project to be carried out in conjunction with business houses in the town will survey their premises for child friendly and hazardous features.
>
> This will be followed up with the provision of information to help rectify any problems.

An outcome of the program was 'Child-friendly Business Houses'. Responses ranged from removal of sharp and/or protruding objects at child height to provision of well-presented activity centres for children in business houses such as estate agencies and doctor's surgeries.

Recently the program has included working with council on traffic and pedestrian issues around Bangalow; the quality of water in Byron Creek that flows through Bangalow — safety issues; and the heritage value of the pool in Byron Creek.

Solutions

... yes, that way we could protect each other's cubbies. You knew you could make all the rules and that (group of children aged 11–12).

INTRODUCTION

In this chapter, we explore ways in which planners, policy makers and community members can meet children's environmental needs.

EDUCATION AND ACTION

Local planners and policy makers can ensure more attention is given to children's needs by:

- initiating local study and research, to understand how environments designed for children operate
- reading planning publications and attending seminars and workshops, to develop innovative approaches to planning policy
- seeking and representing community views
- using their knowledge of children's needs in discussions with developers
- requiring developers to apply relevant guidelines when constructing new or maintaining existing developments.

How effective planners can be will depend on local conditions such as available resources and opportunities, community support, or design skills. However, if they are aware of children's needs, they will be able to act when there are opportunities for innovative design.

The question of allowing children greater control of certain environments is not only the responsibility of local planners and policy makers, but also of people in the educational or sociopolitical fields.

GUIDELINES

As discussed in the previous chapter, council representatives and planners agreed that guidelines could be an effective tool for ensuring children's needs were met. Concerns

included how guidelines could be effective when they conflicted with commercial interests, were difficult to implement into daily planning policy and involved spending money.

Not all commercial developers are insensitive to the needs of children. Some have included children's needs in their design briefs. Many gymnasiums, for example, offer play areas for children, knowing they will increase their clientele by providing these facilities. Clients will be happier if these facilities meet their children's needs and keep them entertained.

Guidelines can be incorporated into daily planning policy. Costs need not be significant, especially when children's needs are included in the original design briefs. Some of the examples given under 'Examples of Best Practice' in the previous chapters were inexpensive developments. Corkery (1987) and Walsh (1991) give excellent advice on how to build and maintain inexpensive play spaces for children.

Suggested guidelines are given at the end of this chapter.

MEETING CHILDREN'S NEEDS

Policy makers and planners can work together on initial plans for environments developed for adults. They can suggest minor changes, which can benefit children without having any negative impact on adults. Such changes could involve little or no cost or extra time.

The following issues could be considered:

- will this proposal constrain children's engagement with this environment in any way? If so, can minor design modifications be made?
- if children engage with this environment for reasons other than its strict design purpose, will the environment's operation or maintenance be affected? If so, what could be done to ensure children's freedom to engage with this environment, for example, could objects be made from stronger materials?
- will children on their own be able to comprehend this environment? If not, can special signs or textured floors be introduced?
- does this proposal offer anything for children? If not, could objects be modified to allow for children's engagement with them?
- can the community, including children, be involved in consultations for this proposal?

For example, the development of a new park could include an area landscaped with long grass, trees and bushes where children could explore and hide. A group of children aged 11-12 we consulted revealed how much they enjoyed such an area:

> ... like the cane fields. We had really good cubbies there under a bush and no-one could see them...
>
> ... everyone said it was just the cane fields but it was like a jungle, a safe jungle...
>
> ... yes, that way we could protect each other's cubbies. You knew you could make all the rules and that.

INVOLVING CHILDREN

Councils who have involved the community, including children, when developing public areas, have obtained excellent results. Such projects have been outlined at the ends of previous chapters under the heading 'Examples of Best Practice'.

Children have been successfully involved in designing and planning their environments using various techniques. These have included: discussion groups; mapping; sketching; games; model making; and gathering, ordering and assembling the building materials for a project.

Lynch (1977), Hart (1979) and Cunningham et al (1996) give detailed descriptions of methods they used to consult with children.

The environment and children benefit when children are involved in planting projects. In Ashfield, Sydney, children helped plant native trees and shrubs to regenerate a denuded stretch of parkland. Photo: Michael Anderson.

Consultations with children also enhanced the material in this publication, and gave us much insight into their concerns and needs.

There are three main arguments presented in favour of greater consultation with children.

Children develop independence, imagination and manipulative skills through their involvement with the environment. Planners will be able, through consultation with them, to provide the best facilities for them to grow into mature adults.
This argument supports the idea that urban areas are educational environments, as presented in the chapter, Influences. As a child's encounter with the environment is a creative, learning experience, the planning process should also be a creative experience involving children.

Children are allowed few territorial claims in urban areas although they need to identify with and control particular places. Greater involvement of children in planning would produce a more child-friendly environment.
These arguments point out that the environment generally excludes children by design or effect. There are few places to which children have legitimate access. They are reliant on the tolerance of adults and adults' judgements of where children should be.

Greater involvement of children in planning would encourage the environment to be more open to them. It would also mean a greater recognition of their need to identify with and control certain territories.

As children are consumers, consultation with them is a necessary part of achieving a successful product.
This argument says that children should be consulted in environmental decisions affecting them, not only because of equity principles, but because good marketing practice requires research into the needs of potential consumers (in this case, children) to ensure facilities reflect their interests. Our own consultations persuaded us that children should be involved in design and planning processes and that all the above arguments were valid.

CONSULTING CHILDREN

When involving children in planning and design processes, the following points are important:

The techniques used with children should enable them to communicate without fear of displeasing adults.
Consultation with children needs to be conducted in a non-authoritarian, non-patronising manner. Adequate preparation is important, as is awareness of pressures adults can unwittingly place on children to perform according to certain hopes and expectations.

In our consultations with children, to overcome adult role expectations, we sat on the floor with them. This showed a conspiratorial rather than authoritarian attitude. It showed the

children that they were our equals and freed them from the need to please.

Children do not identify needs or solutions in the same way as adults.
According to Corkery (1987, p.14), children under the age of three cannot tell you their play needs. The best way to determine these is through observation, backed up with the knowledge of early childhood educators.

With older children, consultation will help planners develop a facility that children will use and value.

Children find it difficult to understand the technical and operational implications of most environments. It is also hard for them to articulate more subtle or complex options which the evidence shows they are likely to appreciate. When children are asked what they would like, they often give answers which are specific and tangible, and include commercial events. Children might say, for example, that they would like 'a bigger Luna Park' or 'a huge circus just for children'.

Answers to questionnaires and surveys often reflect current trends in play equipment or activities, for example, skateboarding, BMX bike riding. As a result, information should be obtained from children's descriptions of their behaviour, and from how and why they use the environment: 'It is better to ask a child what he or she does when playing rather than asking what they would like to do in a playspace' (Corkery 1987, p. 15).

If children do not explicitly mention or appear to notice certain issues, these issues must not be disregarded during consultation.
Children, like adults, often take things for granted and do not mention issues which are part of their everyday experience. This does not mean such issues are not important.

Unfortunately, it is easier to assume what the needs and interests of children are rather than research them or concede the right of children to present their views. Planners and policy makers will have to experiment with techniques to gain the best result from consulting with children.

The needs of all children must be considered.
The needs of all the children involved in the consultation process must be considered, not just the needs of the more vocal children.

EQUITY

In the chapter Influences, we explained that planners and designers who wish to promote child-friendly environments will have difficulties providing evidence to support their ideas which is not anecdotal. Even so, children's needs should not be ignored.

Local planning authorities are publicly accountable. Planning legislation is governed by democratic principles. The objective of maximising the good of the community is implicit in the legislation and consequent procedures, as well as in the associated responsibilities of planners and designers.

Children are a large minority population group who are vulnerable and dependent on the community. Children aged 5–12 years comprise almost 12 percent of the total population of New South Wales (Australian Bureau of Statistics, 1995).

On the basis of equity, their needs deserve equal attention to those of adults.

SUPPORT OF POLITICIANS

Equity may not be a strong enough reason to gain the necessary resources for children's needs. The support of government institutions could provide much support and guidance.

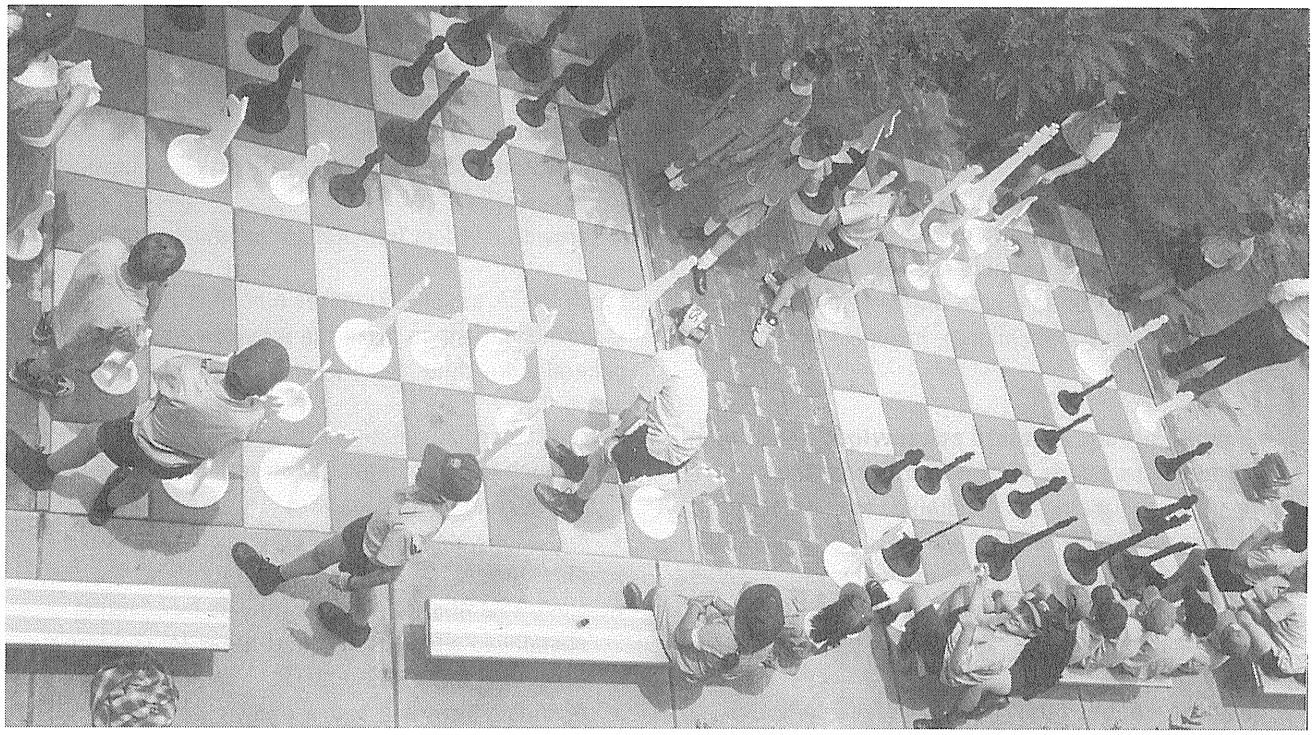
Government assistance would strengthen the mandate of planners to attend to children as a consumer group, and allow effective changes to be made which would benefit children. For example, Lynch (1977, p. 58) has pointed out how varying the opening hours of certain city facilities and providing public transport would increase children's accessibility to the city.

Planners and the community could inform politicians of children's needs, and encourage them to read some of the books mentioned in the bibliography of this publication. Although there are few effective lobby groups campaigning for children, the New South Wales Play Alliance, formed in 1993 by individuals and organisations concerned about reduced play opportunities, promotes the child's right to play and development of child- and family-friendly environments. They can be contacted on (02) 9212 3244.

CONCLUSION

The evidence presented in this publication suggests that an urban environment designed to meet children's needs will help all children grow into healthy, competent individuals. Many of the changes needed to achieve this aim are minor, such as planting more trees and bushes in parks. Others, such as promoting public transport and decreasing the amount of cars on the roads, would involve the support of government authorities and the community. Such an environment is worth working towards, however, since most child-friendly facilities make life easier for parents and are equally beneficial for adults.

Although change is unlikely to happen quickly, even small alterations to policies and developments will benefit the community.



Children at Oakhill Drive Primary School, Castle Hill, Sydney, were involved in the development of this outdoor chess playspace. Photo: Margaret Cavanagh.

EXAMPLES OF BEST PRACTICE SUGGESTED GUIDELINES

To ensure that all children are given equitable and appropriate access to the environment, guidelines should be based on the following principles:

The urban environment should be accessible for children within reasonable limits of safety and security.
Children should not, by design or instruction, be refused access to any urban area which is open to adults, unless there are genuine hazards — all urban areas should be planned as if at some time children will be there.

The urban environment should provide for the presence and needs of children.
The more likely children are to be present in a certain environment, the more child-friendly that environment should be; shopping centres, for example, need to cater more for children than industrial estates or office blocks.

Environmental design should cater for the abilities and limitations of the population.
Environmental design should not only cater for the 'average adult' but deal with the perceptions, abilities, sizes and interests of children, including disabled children

Planning practice should acknowledge the space and land use needs of children in planning.
The land use demands of children do not fit traditional land use categories or the meaning and purpose of many regulatory or control devices used in planning (such as zoning codes or setback requirements) — planners should adapt these to meet children's needs.

Children cannot confine themselves to areas nominated by adults specifically for them, so environmental design as a whole should attend to their needs.

Environments designed for adults can easily and cheaply be made child-friendly, with only minor modifications.

Material for the following sample guidelines for children's play spaces has been taken from Corkery (1987) and Walsh (1991):

- use functionally and aesthetically appropriate textured floor surfaces
- use different levels and shapes to allow for imaginative play
- set clear boundaries to define areas and protect children physically and from the weather, but avoid formal boundaries which fence children in
- allow a range of movement within the area to avoid boredom and lack of challenge
- provide contact with the natural world
- provide control and care, either formally (as in a playground leader) or informally (such as local observation)
- provide freedom from danger and heavy traffic.

Lynch (1977, pp. 56–57) makes a number of recommendations to make the urban environment in general more child-friendly by:

- reducing or eliminating traffic in local areas through installing lights or street bumps, street closing and control features
- widening paths and integrating them with playspaces
- complementing formal playgrounds by adapting abandoned sites and left over areas for children's use
- providing trees and natural landscapes which children can access.

Appendices

APPENDIX 1 — AGES AND STAGES

The following summary of the environmental abilities of children is paraphrased from *Children's Experience of Place* (Hart, 1979, pp.435–443).

THE FIRST YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
When awake and comfortable, babies spend their time looking and listening, even within the first two weeks. Touching and handling of objects cannot occur until the coordination of hand and eye at three to four months (Piaget, Millar). The movements leading to sitting, standing and crawling become the objects of games. As soon as crawling begins, will crawl most of the time; the same with walking (Millar). By seven months, children can sit; they are so well-adjusted in growth and posture that they can spend much time in active manipulation, and exploration of the physical world (Gesell). Clearly recognisable play now begins — the pleasure of producing results as in knocking toys against the cot to make a noise, and the 'pleasure of function' when it involves babies' own bodies, as in repeating a sound they have just learnt to make. 'Play' according to Piaget begins — doing something repeatedly when the skill is already within children's capacity and serves no purpose (Piaget). At ten months, creep on hands and knees (Gesell). At one year, stand momentarily alone; walk with one hand held (Gesell).	**Visual details** First exploration of world is visual (Fantz). Newborn babies can see and discriminate patterns as the basis for form perception. Can also focus on a moving object within the line of vision (Kidd and Rivoire, and Bower). Can visually follow an object by 16 weeks (Gesell); there is rapid development of perceptual discrimination, for example, by the age of six months show fear at a drop-off (Gibson). After seven to eight months, distinguish parent's face from others and cry in presence of strangers (Bowlby). By end of first year, can identify perceptual constancies (constancy — the tendency to see things as we know them to be rather than as they may be presented to our senses) (Weiner and Elkind). **Auditory details** The auditory mechanism is well-developed at birth. Children respond to auditory stimuli after the first few days of life. Localisation of sound direction is usually established during the second half of the first year. Some localisation of the distance away of the sound source occurs within the first year. Unable to abstract the essential qualities which characterise the identity of objects and to classify those which are similar but not identical within the first year (Vernon).	Gradual development of awareness of self and an object world separate from the self. Sense toys or parts of crib as relatively constant parts of environment at two to three months. (Decarie, Escalona and Schactel, 1960). Seemingly, not influenced by other children (Cratty). Attachment to adults at first unselective (smile at most adults). Between six and seven months, special attachment to parent becomes noticeable — crying or following when parent leaves room begins at this time. Crawling begins at about ten months; infants make excursions away from parent and if allowed may even go out of their sight, but return from time to time. Will explore more readily if parent is there — this difference especially marked with strangers or in strange place. By end of first year, express positive attitude only toward adults who have been familiar figures; to others often exhibit fear and withdrawal. Symbolic language begins, but use individual words to express entire phrases (Bowlby).

Continued . . .

THE FIRST YEAR OF LIFE (CONTINUED)

Physical Growth, Play and Spatial Activity (continued)	Place, Perception and Knowledge	Social and Emotional Development
	Identity Infants act in a series of separate spaces based on different personal needs and body parts, for example, postural space, auditory space, mouth-related space and visual perceptual space (Piaget). In the first months of life, children do not differentiate self from the environment. At three to seven months, there is considerable development in differentiating self from the environment: recognition that objects have permanence develops gradually. During eight to ten months, 'object permanence' is further developed: begin to search for objects that have been hidden from view but still think of them as having only a single position (Piaget and Decarie).	

THE SECOND YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Enjoy gross motor activity. By one and a half years, walk and seldom fall; run stiffly; like moving large toys; explore house. By two years of age, run without falling. Squat in play (Gesell). Any game which uses recently acquired skills, or involves changes of touch, sound and sight, for example, the contents of drawers and shelves, will amuse once babies can move around. Much play is imitative at this time (Millar). Make believe play (at its height between 18 months and seven years) begins with fragmentary, disjointed bits of pretence. These sequences of actions are symbolic allusions to some newly experienced object; they become assimilated into children's knowledge and form the basis of their thought even before they can speak (Piaget).	Capable of matching colours and forms. By age two, have a large passive vocabulary — can differentiate and identify a wide range of sounds e.g. parent's car, family pet. Display perceptual preferences — tastes, colours and sounds (Weiner & Elkins). The process of learning to classify objects in accordance with their appearance, behaviour and use is greatly facilitated by development of speech and language. Naming is useful in obtaining their wants, but though they can often name specific objects, they do not generalise on other similar objects or even on the same object in a different setting (Vernon). By end of 'sensory-motor period' (about the age of two) the child has developed from acting in a series of separate spaces to a single coordinated space within which all objects are interrelated. Can now move freely and confidently through a limited spatial terrain. But this is a space of action — children only gradually develop the ability to form mental images of the larger environment. Orientation to the environment is egocentric (Piaget).	Have difficulty tolerating separation from parent even for brief periods. Separation is the major source of anxiety in the first two years and prolonged separation may result in serious developmental abnormalities. A sense of trust or mistrust with the world during these first two years have lifelong effects on social orientation (Weiner & Elkind). Games still mainly restricted to children themselves. Still largely presocial (Sandstrom). Contact playmates physically, but social contacts are few and brief; play is solitary or parallel, i.e. independent from the play of others even when near them (Fischer and Fischer).

THE THIRD YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Walk erect; are sure and nimble. Run more smoothly, but usually walk rather than run. Can throw ball without losing balance. Enjoy motor activity, but less exclusively so. Can ride a kiddie-car with primitive propulsion. Run ahead or lag when walking on street. Area of free movement increases gradually; until three- to four-years-old this may be only a few yards adjoining the house or garden. Extent of play away from home is controlled in part by the physical environment (some environments are more dangerous) and by the social environment (some children live greater distances from friends whom they might visit) (Fischer and Fischer). By the age of three, can ride a tricycle (Gesell).	During the 'pre-operational period' as defined by Piaget (two- to seven-years-old), children begin to form mental representations of the environment, for example, can recall familiar routes, but cannot reverse these routes in thought. Beyond a small familiar home area, children cannot return to the home without help (Hart and Moore). Perceptual discrimination develops further. Visually, can learn to recognise and label letters and numbers. In many ways, more perceptually sensitive than older children or adults, for example, know all scratches and missing parts of toys and the geography of household furniture in minute detail. But, 'centre' perceptual attention, that is, tend to restrict attention to what immediately catches the eye and not attend to the less obvious aspects of perceptual configuration (Weiner and Elkind). During the 'intuitive period', as defined by Piaget (ages two to seven) children gradually develop a knowledge of the spatial properties of areas which they have experienced through their own locomotion. They have an 'action space', that is, even though they may not be able to draw a map or describe how to navigate an area, they may be able to find their way around within it. But this is a partial ability and their representation of their neighbourhood does not form a coordinated whole (Hart and Moore).	Almost any new situation may frighten two-year-olds. These fears are general reactions to somewhat undifferentiated situations. Even slight changes in a situation, such as starting up an electric fan, or entrance of a visitor, are scary (Bridges). Parallel play is prevalent. 'Associative play' (that is, when children engage in a game with others but each one is intent only on their part of it) may occur, but truly 'cooperative play', in which children join to make something, or play houses and shops, is rare for this age. In 'free play' a play group usually consists of three children at most, and the group does not last long (Millar).

THE FOURTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Spend much time 'going places' with tricycle or wagon, although these places are within a limited area close to the home (Fischer and Fischer). When children have a sandbox or sandpit, they spend much time making roads, bridges and tunnels, over which toy trucks and cars are run (Fischer and Fischer). Are occupied by sedentary play for longer periods. Crayons and finer manipulation of play materials are enjoyed (Gesell).	Become more aware of such relations as inside-outside, top-bottom, front-back, on top of, underneath. One reason for children's tendency to get into closets, tables or card boxes is the need to expand and solidify a growing sense of spatial relations (Weiner & Elkind). Still cannot perceive a unity at the same time as discriminating the separate parts of a situation. A crossroad for example overwhelms children of this age (Sandels).	Can better accept parent's temporary absence and play with other children. Many children show almost abrupt change — suggests some maturational threshold. Increasingly able to accept surrogate attachment, for example, schoolteacher; they must be familiar people, preferably known through parent. Still need to be aware of where parent is and confident that contact can be resumed with them at short notice. This continues as an important dynamic throughout childhood which is only gradually reduced in strength (Bowlby). At the age of three, children can use words as symbols, fit words to actions and actions to words; socially, like to make new friends (Sandstrom). Playmates become important for children. Cooperative play is now more possible due to improved communication, and ability to attend to more than one person at a time. A nursery school setting may become a particularly valuable supplement for play with peers, particularly if there are few children in the immediate neighbourhood. Two-thirds of play companions are of same sex (Millar, Cratty).

THE FIFTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Assertive and expansive, very active, covering more ground — dash on tricycle. Enjoy balancing activities. Prefer large blocks, make more complicated structures. Throw ball overhand (Gesell). Most are allowed to cross a quiet stretch to play but mostly stay in own or neighbour's yard until they begin school. Crossing streets which have been forbidden and going long distances from home without permission are severely punished (Fischer and Fischer).	During school years, perceptual organisation is more thoroughly developed. Move away from simple discrimination and figure-ground patterning to complex organisations which children impose on a visual figuration. Perception is also much more rapid than in pre-school years (Weiner & Elkind). Only half the children of this age master the concepts of left and right. This is important in understanding traffic rules, for example (Sandels).	Assertive and expansive, but emotionally as well as intellectually, will return to home base — do not get detached from their moorings. Constantly meet the environment in a harum-scarum manner (Gesell). Like to hold parent's hand when walking (Bowlby). Show less enjoyment in solitary or purely parallel types of play, and there is a preference for a group of two or three children. Share possessions brought from home (Gesell). When attending nursery school, during school hours, play with children of the same age, but after school or in vacation will tag behind schoolchildren 'who condescend to pay them some attention if they are not too busy' (Fischer and Fischer). Show more specific fears than two year olds. May avoid dogs or certain children, or refuse to climb the jungle gym. Only gross changes, especially those affecting their bodies, such as heavy falls, commonly arouse fear in them (Bridges). By age five, a play group may consist of four or five children but not yet well adapted socially (Millar). Two sexes play together more frequently but unisex groups are still dominant.

THE SIXTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Are poised and self-controlled; well-oriented to themselves. Gross motor activity is well-developed. At beginning of period, love tricycles and are fast and adept. Later, desire to discard tricycle for bicycle. Climb with sureness. Love to help around the house. At the age of five-and-a-half, restless at home, indoors or outdoors — not sure where they want to be (Gesell). Active, vigorous games preferred more from this age on. (Millar). Enjoy group projects — construction of houses, garages, and city planning. Like to finish what has been started. Dolls, tricycles, blocks and trains are enjoyed (Gesell).		Self-contained; on friendly and familiar terms with environment. Consolidate gains before making deeper excursions into unknown. Parent centre of universe, if it has a centre. Not pioneering — the familiar world is still new (Gesell). Clearly differentiated from earlier years. Now have more self-confidence and trust in others, and are socially more adaptive (Sandstrom). Play in groups of two to five with a new sociability. Enjoy group projects, for example, construction of houses, garages, city planning. Not frightened of objects but have fear of being deprived of parent (Gesell).

THE SEVENTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Active age — almost constant activity. Seem to be consciously balancing the body in space. Much boisterous play. Swing with more freedom. Over-extends in much motor behaviour (Gesell). A return to earlier interest in earth and water. Like digging fox holes, and tunnels with roofs of board. May begin to make a garden (Gesell). Sex differences in choice of play becoming more clear, but in gross motor and imaginative play, very similar; enjoy running games like tag and hide and seek; roller skating; swimming. Like ball play (Gesell). Pretend play enriches play life. Doll play at peak. Play house, wars, cops and robbers and games involving transportation, but may also show interest in games using blocks (Gesell).	At about seven-years-old, children develop a visual acuity of 20/20 (Kidd and Rivoire). At seven- to eight-years-old, children demand common rules in their play; these rules are indistinct and easy to change (Piaget). We may expect the same with children in traffic (Sandels). A seven- or eight-year-old child recognises that the same landscape may appear different to people in different positions.	In this period, children surrender much of their previous dependence on parents and home. Peer groups develop. These are informal play groups with few (if any) rules, little hierarchy, and a shifting membership (Weiner & Elkind). This is a transitional age prior to the 'gang-age'. At the age of six, socially brusque and conflict with peers is common (Sandstrom). Teacher strengthens sense of security in 'strange world beyond the home'. Gain confidence from protectiveness of a partially standardised environment. Because they are making discoveries, a few fixed points are important — have to acquire emotional attachment to school (Gesell). Aware of upper and lower regions and are afraid of cellars and attics. Afraid of dark, because it destroys all spatial relationships (Gesell). Animals are the most commonly mentioned fear of children. One-third of children under seven admit to fear of the dark. Very few report fears of the type which parents try to teach, such as traffic, germs, and kidnappers (Maurers). May fear high places and unfamiliar impressions, ghosts and creatures (Gesell).

THE EIGHTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Appear less brisk but have sudden spurts of high activity. More continuous in new performances, for example, climbing. Repeat performance to master skills. Have 'runs' on one type of activity and show extremes in outdoor play, either tearing about or hanging around. Acquire ball skills (Weiner and Elkind).	Children's representations of the physical environment become more coordinated with the onset of Piaget's period of 'concrete operations' (about 8-12 years); develop the ability to think of environments in a map-like manner and to orient using a coordinated system of reference (Hart and Moore).	Calm periods and longer periods of self-absorption (Gesell). At the age of seven, a certain tranquillity is achieved — a developing sense of ethical conduct — rules of the game (Sandstrom).

THE NINTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Eight-year-olds are graceful and often poised, with fluid movements of the body. Very much 'on the go' — run, jump, wrestle, are courageous and daring. Like doing many things and have some idea of a finished product but do not yet have the sustaining power of a nine-year- old; leave many things uncompleted (Gesell).	Due to children's inferior size, vision, hearing, intellect and ability to concentrate, we cannot expect traffic maturity equivalent to adults until 9-12 years. Traffic maturity sufficient for cycling appears at an even later age. (Sandels).	Expansive again but on higher level of maturity. Have an outgoing contact with the environment (Gesell). Very active in groups of friends but these groups keep together for only a short time. Not yet ready for complicated social rules and conventions (Gesell). Children aged 8–12 dislike playing on their own. This is the 'gang age'. Boys and girls may segregate. There may be some differences between certain boys and girls in the desire for active, vigorous games (Millar). Space fears at home (i.e. cellars and attics) now under control (Gesell).

THE TENTH YEAR OF LIFE

Physical Growth, Play and Spatial Activity	Place, Perception and Knowledge	Social and Emotional Development
Nine-year-olds work and play hard. Are more skilful in motor performance and are apt to overdo — e.g. ride bike too far or mow lawn till exhausted. Want to do endlessly what is enjoyed and spend much time in solitary activities. Try to improve skills more purposefully now, e.g. pore over maps and draw them. Have a great interest in competitive sports. Skating, swimming, sliding also enjoyed (Gesell).		Self motivation the chief characteristic — the capacity to use time and energy (Gesell). No fears but a great worrier (Gesell). At nine-years-old, are more stable and have better integrated social behaviour. Demand independence in the home, hence often called a 'difficult' age by parents. Sometimes friends mean more than parents, for example, Cubs and Brownies may be more appealing than family trips (Weiner and Elkind). Segregation of sexes may continue — attitude of contempt may develop between the two groups (Weiner and Elkind).

APPENDIX 2 — STUDY LIMITS

The study upon which this publication is based began in the International Year of the Child in 1979 — an event which the United Nations General Secretary described as:

> a call to all nations... to provide a framework for advocacy on behalf of children and for enhancing the awareness of the special needs of children on the part of decision makers and the public. (I.Y.C. NSW State Steering Committee, 1979).

A conference on the theme 'The Child in the City' was held in Bathurst in July 1979. A consensus emerged at the conference that the environment, and particularly the planned or built environment of the city, did not generally reflect a sensitivity to children's needs.

At the conclusion of the conference, a resolution was passed calling for a study to be conducted to establish:

> a set of principles on which planning criteria can be based. These criteria could act as a guide for planners from local, state and federal government and the private sector, community groups and advisory councils, to approve plans and policies as meeting the needs of children in both old and new development.

These principles or guidelines would be consistent with section 90 of the *Environmental Planning and Assessment Act 1979.*

Guidelines offer a clear reference. Little judgement or argument is required. A proposed development can be approved because it meets those guidelines and not approved if it does not. Periodic review can ensure they continue to be relevant. Unfortunately, there were no comparable guidelines that could be used as a basis or aid, and there was little systematic evidence on which the guidelines could be based. Much evidence is needed to formulate environmental guidelines for children.

Since guidelines have not been framed for these areas, this publication aims to inform planners and policy makers of children's environmental needs. It is not intended as a brief to architects and planners.

What We Have Not Covered

We have only generally identified the environmental needs of children in particular groups such as the **mentally and physically disabled.** This omission demonstrates the difficulties of drawing boundaries in this study as well as the importance of not categorising children too finely within it. Particular needs exist, but there is an immense overlap in the needs and interests of all children, and it is important that they can share an environment which reflects those needs and interests.

Similarly we have not dealt with the needs of children in particular environments such as **hospitals or similar institutions**. These issues relate to matters of medicine and health care beyond our responsibility, and are open to debate and attention within the relevant professions. Specific and extensive guidelines exist in this area reflecting various philosophies of care (NSW Anti-Discrimination Board 1980) but we could not cover them here.

We have not entered the debate of **school design**, nor of **education practice** in relation to the child's experience and use of the urban environment. Much material exists in these fields, and again it demonstrates the difficulty of drawing study boundaries.

We have not considered, except very briefly, the **immediate home environment** of children, the internal arrangement, size and use of rooms and spaces. These are important but we could not embark upon their discussion without more resources. Nor have we covered details of environmental design which affect children such as window latches, door handles, or electricity fittings. On this matter we draw to the reader's attention the important work of the Australian Standards Association which relate to the general population but often specifically refer to children.

We have not touched upon **pollution** in the urban environment though this is obviously critical to a child's health and wellbeing. Nor have we examined **housing density,** except to note its possible significance in behavioural terms, though much literature relates to this topic and is important for children's welfare (Hart 1979; Ward 1977; NSW Planning and Environment Commission 1976).

We have not discussed the **institutional, organisational and management systems** within which changes and innovations must occur if greater attention to children in the environment is to be given. This certainly is worthy of its own investigation.

We could not show what **costs** would be associated with better attention to children in the environment. No specific proposals to which costs might be easily attributed were being put forward. It seemed that costs for many of the provisions discussed in this publication would be negligible or low, particularly if they were made part of original plans and designs.

We have only superficially entered the **theoretical arena**, in terms, for example, of how the city appears designed to control rather than release the child, to affirm their class or culture, and to increase alienation and limit socialisation (Ward 1977; Michelson et al 1979a; Newson and Newson 1976). These are important sociological and psychological issues and imply considerable and long-term research resources far beyond those available to us.

Architectural matters have only been touched on as they emerged from discussions with children, especially in relation to public activities.

Having listed these omissions, it seems appropriate to recount the similarity of our position as a research team with that of a representative for the disabled child with whom we spoke.

Pressed to indicate ways in which the environment might be better designed to aid the child, she said her priority at this stage was to ensure **access** of the disabled child **to** the environment, whatever it was like. Only when she felt confident this was being achieved, would she feel able to advocate more refined requirements.

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