

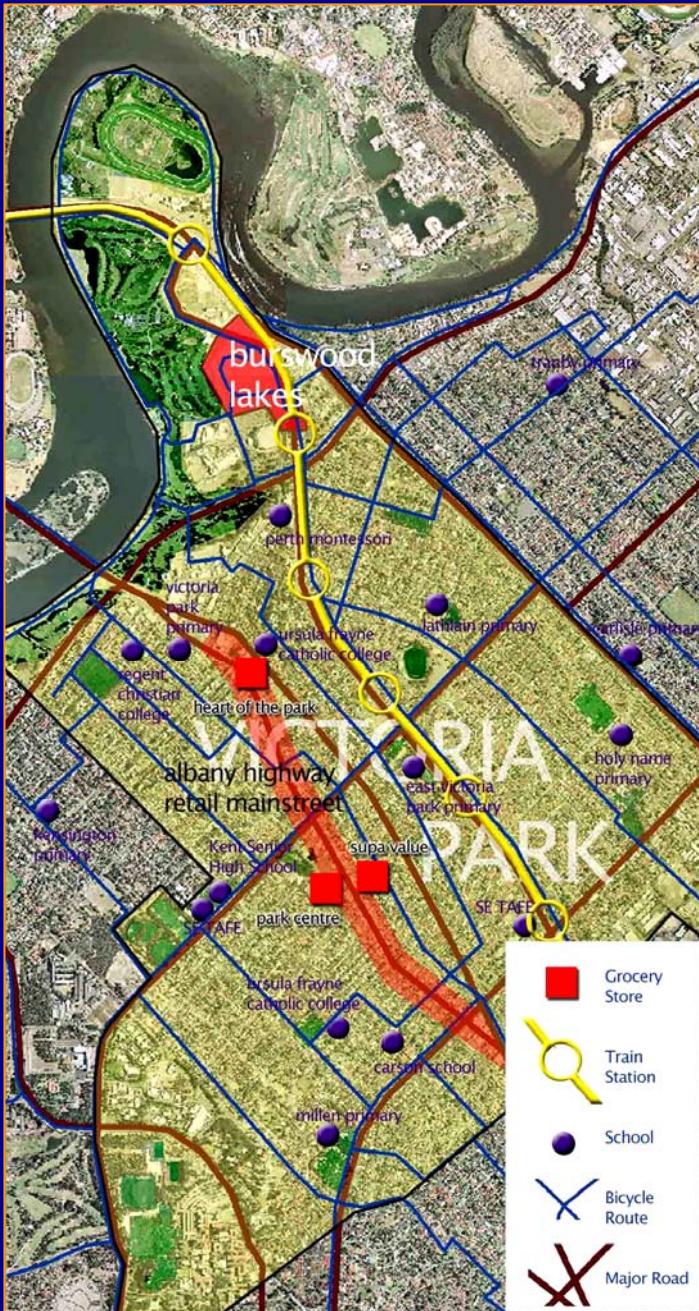
Working Paper 5: *Illustrated CPTED Guidelines*

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Burswood Lakes
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2003

Contents of this Presentation

- Introduction to CPTED principles and examples
- CPTED issues and guidelines related to housing contexts
- CPTED guidelines specifically related to Burswood Lakes

The Context of the Burswood Lakes Development







Part 1: CPTED

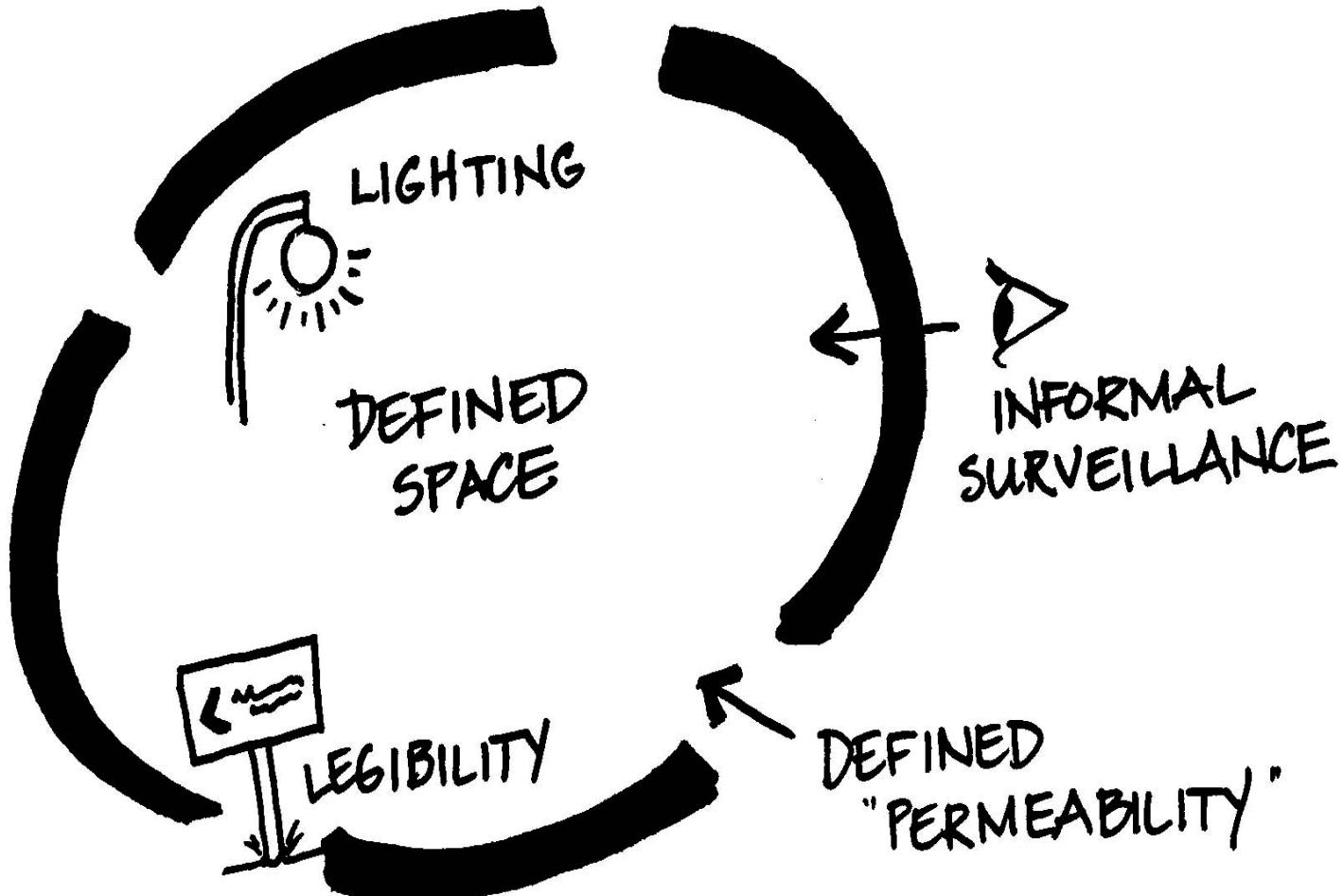
CPTED Questions about Public Spaces

- Who are the **legitimate users**? At different times?
- What are their "**territories**"?
- Who are the most **vulnerable users**?
- Their territories?
- Where are they **coming from? Going to?**
- Who are the potential **perpetrators**?
- Where are they **coming from? Going to?**
- **Why** are all of them in this space?
- From a CPTED perspective, how can the **vulnerable ones be protected from the dangerous ones**?

CPTED: What's in an acronym?

*Crime
Prevention
Through
Environmental
Design*

CPTED Elements



CPTED

- *tool that modifies the built environment to reduce opportunities for crime*
- *Traditional tactics:*
 - » *creating territoriality*
 - » *natural surveillance and "eyes on the street"*
 - » *controlling access into and out of buildings and neighbourhoods*

Caution

- *Minimum standards and guidelines must always be treated with caution*
- *Guidelines complemented by a full **Crime Risk Assessment (CRA)** of the site and its context*
- *CRA provides precise and site-specific information to aid in application of these more 'generic' guidelines*

- *No approach in isolation will be effective*
- *multifaceted approach necessary*
- *diversity of planning and design guidelines will not necessarily confer safety on a place or space*
- *design stage must also address management approaches*

- *Consider use, type of user, management of buildings and the spaces between them*
- *Socio-economic environment strongly influences crime levels*

What is CPTED?

Phil McCamley's Definition (NSW)

- Situational crime prevention strategy
- Focuses on design, planning and structure of cities and neighbourhoods.
- Aims to reduce opportunities for crime
- Employing design and place management principles
- Reduce likelihood of essential crime ingredients from intersecting in time and space.
- Widely recognised as an important crime prevention tool
- ...- But must suit the job and be used in the right way to be effective.

Defensible Space

Architect Oscar Newman analysed crime rates in 100 public housing estates in New York (1960s)

Claimed large apartment blocks, particularly high-rise, are crime-prone because substantial areas within and around them are

neither **private** (supervised by residents)
nor

truly public (constantly used and overlooked by passers-by)

4 major interrelated components of *Defensible Space*

1. Physical environment to create perceived zones of **territorial influence** ('territorial definition')
2. Physical design to provide **surveillance opportunities** for residents and their agents
3. Design to influence perception of a project's **uniqueness, isolation and stigma**
4. Influence of geographical juxtaposition with 'safe zones' on security of **adjacent areas**

Situational Crime Prevention

- How are *target choices* made?
- What can be done locally to reduce *specific criminal acts*
- Looks at interaction between potential offenders and *opportunities* to commit crime
- Specific problems have *unique characteristics* and need *unique solutions*

Situational Crime Prevention

1. INCREASING THE EFFORT

- ✓ target hardening
- ✓ deflecting offenders
- ✓ controlling facilitators

2. INCREASING THE RISKS

- ✓ entry/exit screening
- ✓ formal surveillance
- ✓ surveillance by employees
- ✓ natural surveillance

Situational Crime Prevention

3. REDUCING THE REWARDS

- ✓ target removal
- ✓ identifying property
- ✓ removing inducements
- ✓ rule setting

4. MINIMISING THE EXCUSES

- ✓ Clear hierarchy of open space
- ✓ No cross-cutting through residential blocks or sites
- ✓ Landscaping and signage that communicate privacy

CPTED Basics

- Territoriality
- Access control
- Surveillance
- Building design
- Legitimate Activities
- Management
and Maintenance
- Socio-cultural context

Territoriality

Territorial definition

- Clear demarcation of zones of "ownership" and influence
- Boundaries and fences
- Hierarchy of spaces
- Defined use of public spaces
- Landscaping
- *Running the gauntlet*
- Building design
- Through traffic managed sensitively

Two old dears on their own territory



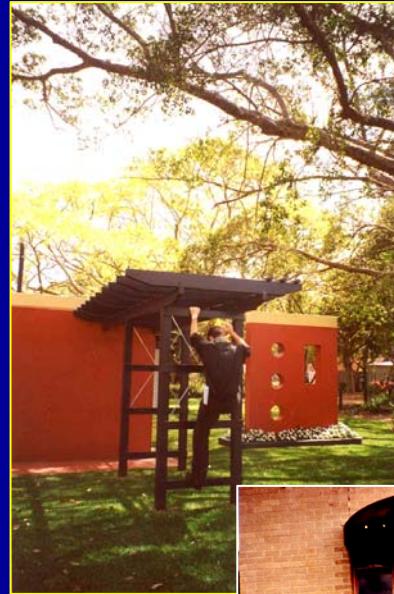
What does this mean for CPTED?

Effectiveness of Territoriality

- Impacts of territorial markers vary dramatically
- Burglars assess relative degree of territorial boundary permeability
- Prefer territory that appears 'open'
- Understand interplay of all factors likely to contribute to crime.

Access control

- The environment as a *communicating medium*: clear signals
- Movement predictors
- Safe routes
- Security systems
- Target hardening
- "Keep off" landscaping
- Walls and fences



Access Control and Target Hardening



Natural Surveillance

Natural surveillance



- Lighting
- Sightlines
- Emergency communication systems
- Legitimate activity (mix of uses)
- Night and day use (programming, animation)
- Building design (sightlines, entrapment spaces)
- *Capable guardians*

Surveillance



Limitations of "Eyes on the Street"

- Simply locating dwellings overlooking spaces will not necessarily contribute to their security
- . . unless other social, behavioural and design factors are considered

Levels of CPTED

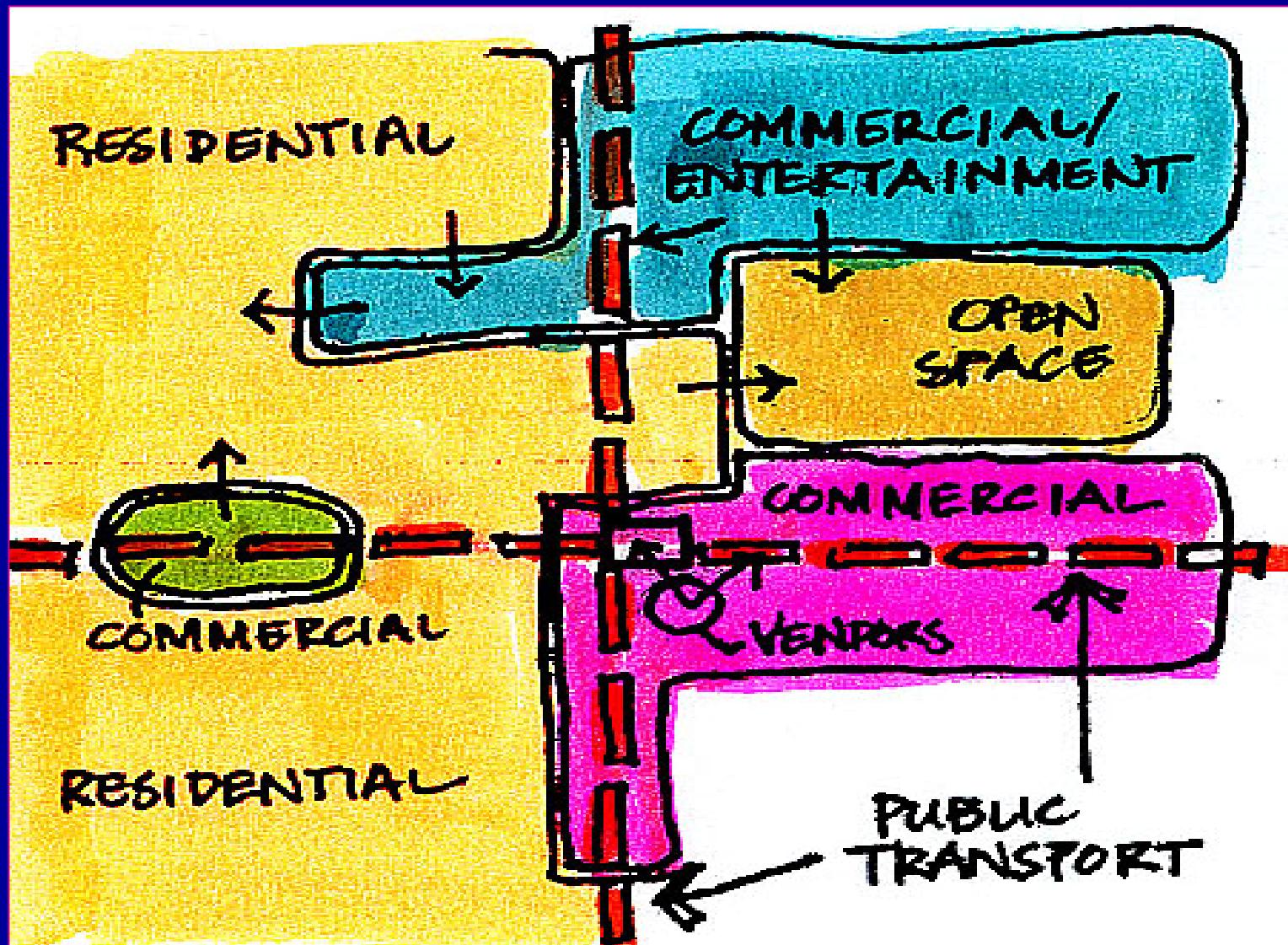
3 Levels of CPTED Planning

- ✓ Macro Level
- ✓ Meso Level
- ✓ Micro Level

Macro-level CPTED

- *urban planning:* new town centres and new waterfront areas.
- street layouts, land use diversity, and zoning.
 - encourage communities of interest
 - high social interaction
 - plenty of opportunities for natural surveillance.

Land-use mix



Light a dangerous space?

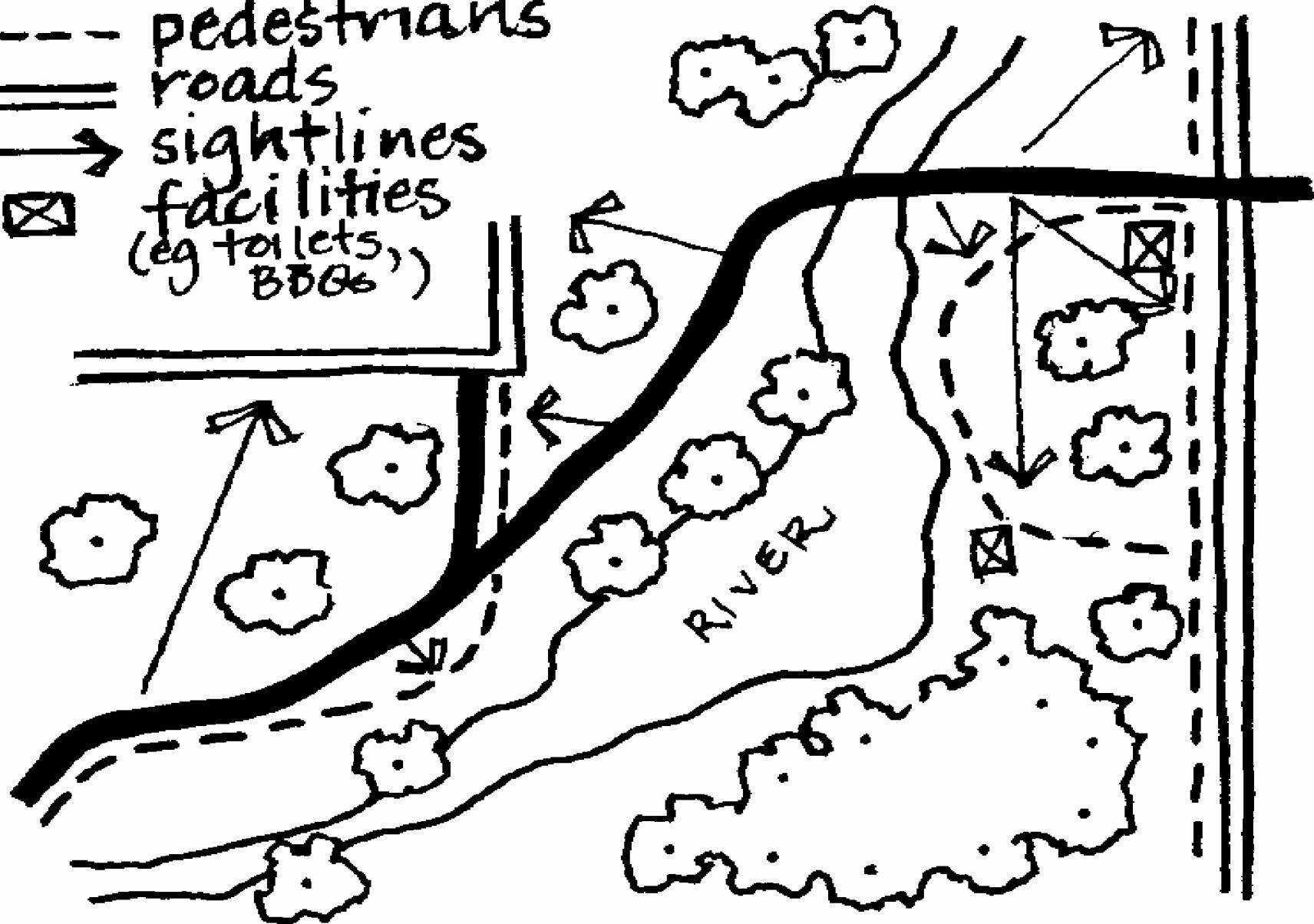




Meso-level CPTED

- *neighbourhood development*
 - shopping malls
 - pedestrian pathways
 - urban parks
- relates to *offender search zones*
 - awareness spaces
 - cognitive maps (where people travel and areas they are familiar with)
- Design factors:
 - travel paths to work, home, shop and play

- bike paths
- pedestrians
- ==== roads
- sightlines
- ✉ facilities
(eg toilets, BBGs)

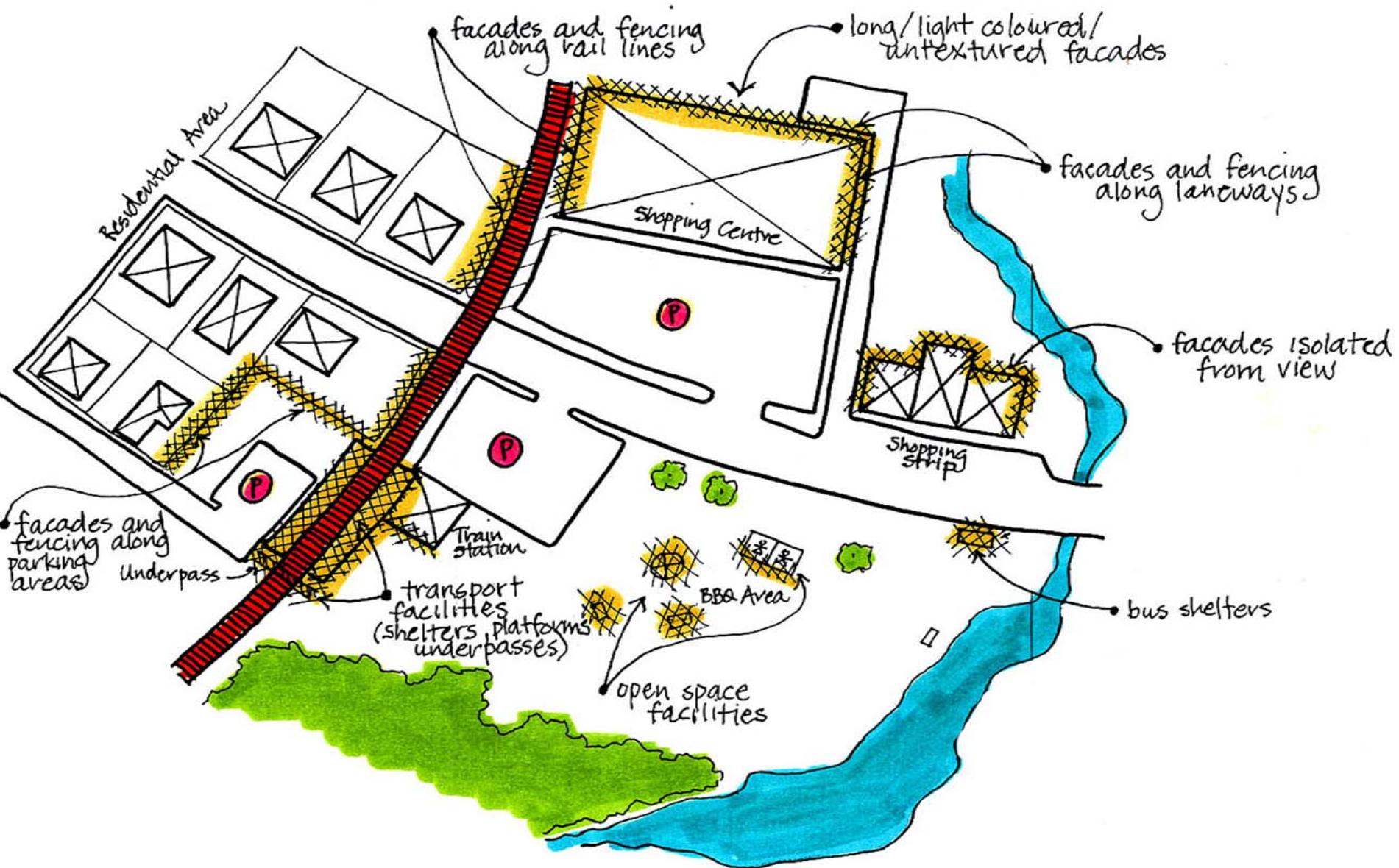


Meso-level CPTED

Micro-level CPTED

- Smallest CPTED level
- *target hardening*
 - building design
 - physical structures
 - symbolic signs in new neighborhoods
- *Tactics*: enhanced lighting, security locks, fences.
- micro concerns: signs of building occupancy and surveillance of local parking lots directly influence offender's risk of being caught.

Graffiti protection



Vulnerable users

- Who are the most vulnerable?
- Women
- People with a disability
- Older people
- Young people
- Non-locals, lost and bewildered people
- People under the influence

Vulnerable Elements

Vulnerable elements

- Associated with perception of being unsafe
- Attract or generate inappropriate, nuisance or criminal behaviour

1. *Features* (ATMs)
2. *Uses* (pubs)
3. *Areas* (public spaces)

8 Major CPTED strategies

1. Clear **border definition** of controlled space
2. Clearly marked **transitional zones**
3. Relocate gathering areas, with good natural surveillance and **access control**
4. **Safe activities** in unsafe locations, as 'magnets' for 'normal' users
5. **Unsafe activities** in safe locations (under increased control)

8 Major CPTED strategies

5. **Redesignate** use of space to provide natural barriers to avoid fear-producing conflict
6. Improve **scheduling** of space, with increased control
7. **Redesign** or revamp space to increase perception of natural surveillance
8. Overcome distance and isolation (improve **communications**)

Management and maintenance

- Clear responsibilities
- Vandal-resistant and graffiti-resistant materials
- "Green screens"
- Electronic monitoring
- The "regular crew"
- Local employees
- Rapid response: clean up and paint over (esp. graffiti)



Crime Risk Assessment

- *a crime analysis*
- *safety audits*
- *site design review*
- *interviews with nearby users and participatory design workshops*
- *Involvement of W.A. Police and local CPTED specialists recommended*

Crime Risk Evaluation Process, NSW

- qualitative and quantitative measures of physical and social environment
- to create a contextually adjustable approach to analysis and treatment of crime opportunity.

Two documents:

1. *Crime Risk Evaluation*

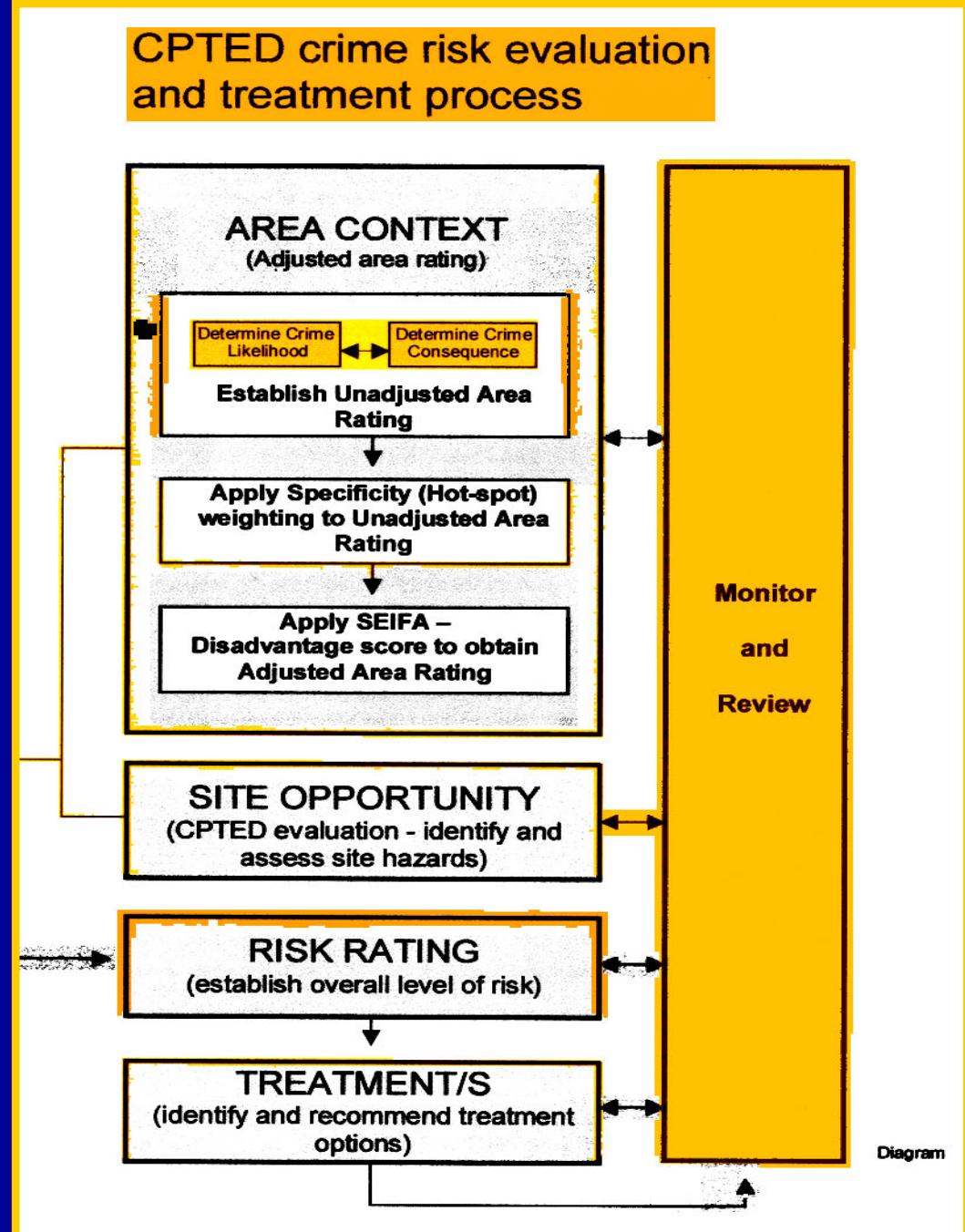
- an assessment instrument in four parts and seven sections
- establishes area context
- identifies situational crime opportunities
- establishes site or project risk and explores treatment options.

2. *A Companion to Crime Risk Evaluation*

- instructions on how to use and interpret the crime risk evaluation.
- Illustrated CPTED rationale

CPTED Crime Risk Evaluations

Phil McCamley



Diagram



P
E

4.1.3 Landscaping

1. Open sight lines.....
2. Non obstructive landscaping features...
(eg: berms, walls and grade changes)
3. Proximity of footpaths and bicycle routes ..
to capable guardians
4. Proximity of footpaths and bicycle routes ..
to dense vegetation/landscaping structure
5. Wide, unobstructed pathways.....
6. Street furniture located at likely ..
congregation points
(in parks and other public places)
7. Mature vegetation.....
(shade/aesthetic appeal)
8. Vegetation quantity.....
9. Applications of vegetation.....
(height, density and shape)
10. Entrapment sites (now/future).....
11. Greenscreens/wall planting.....
12. Maintenance of vegetation etc...

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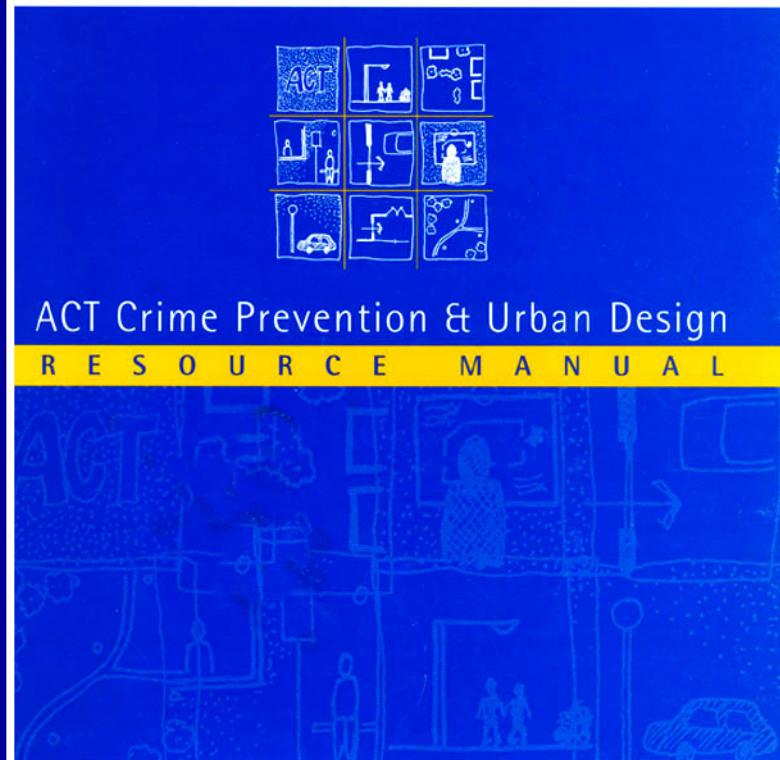
Add ticks in each column

McCamley's Crime Risk Evaluation Method

Categories

Surveillance	31
Access control	29
Lighting/technical supervision	18
Territorial reinforcement	13
Activity and space management	12
Landscaping	11
Environmental maintenance	11
Design/Definition of space	7
Total	132

The guidelines debate



Visibility

- Ensure that people waiting at bus stops and taxi ranks are clearly visible from the street and adjacent buildings, where possible.

Sightlines

- Remove or ameliorate any walls, landscaping, fences or other structures which block sightlines to bus stops.

Location

- Avoid locating bus stops and taxi ranks adjacent to vacant land, alleys, car parks and buildings set far back from the street or near possible entrapment spots.
- Provide short, safe routes to bus stops and taxi ranks from night-time venues such as cinemas, theatres, etc.
- Avoid locating interchanges at different levels from the main activity level which creates an isolated and potentially unsafe environment for bus users.

Natural surveillance

- Based on a local risk assessment, consider relocating bus stops from isolated locations to spots where natural surveillance is possible. Take care to ensure that the location of the bus stop does not cause footpath congestion.

Entrapment

- Design bus shelters to reduce the possibility of entrapment and to improve sightlines.

Construction and maintenance

- Construct shelters of graffiti-resistant and vandal-resistant materials.
- Ensure that bus stops are well maintained and free of rubbish and graffiti.

Signage

- Provide adequate signage so that it is easy to find bus stops.
- Provide signage which indicates a number to call for maintenance.
- Provide vandal-proof signage with up-to-date passenger information such as routes and times to avoid long waits.

Telephones

- Where possible, ensure that public telephones are located near bus stops or taxi ranks.

Young people's needs

- Provide public transport services to meet the needs of young people accessing venues at night.

RELATED TOPICS

- Lighting Chapter 3.2
- Natural surveillance and sightlines Chapter 3.3
- Spaces safe from entrapment Chapter 3.9
- Management and maintenance Chapter 3.9

4.11

PEDESTRIAN ROUTES, LANES AND ALLEYS

OBJECTIVES

- To maximise the safety of pedestrians, cyclists and business premises especially at night.
- To encourage legitimate activity in public open space.

The design and use of lanes, alleys and pedestrian routes have a significant impact on public safety, both real and perceived. Poorly lit lanes, alleys and secluded or heavily vegetated pedestrian paths can provide potential hiding places and spaces for non-legitimate uses. While in many cases laneways should be lit to the same level as streets, all decisions about lighting laneways must take into account the local context. It is important to consider the lighting of laneways in terms of the safety issues of the area and also the impact on adjacent dwellings. Depending on the circumstances, lights may need to be located away from windows or the design of adjacent dwellings may need to consider shades which screen the dwellings' windows from direct rays of street lights.

Risk assessment procedures could be used to address questions such as:

Reminder:

The prescription must follow the diagnosis.

Not the other way around.

Second-Generation CPTED

Second-generation CPTED and the Civitas Model

- Community participation
- Capacity building
- Local responsibility
- Integration with community safety initiatives
- Community development

CONFLICTS BETWEEN CRIME PREVENTION AND ECOLOGICAL SUSTAINABILITY

- "Scorched earth" approaches
- Sightlines
- Clean stems and no high shrubs
- Lighting up like a Christmas tree
- Habitat corridors
- Heat islands
- Water percolation



Volume 1, Issue 1

July 2002

THE CPTED JOURNAL



THE JOURNAL OF
THE INTERNATIONAL CRIME PREVENTION
THROUGH ENVIRONMENTAL DESIGN ASSOCIATION

- INSIDE**
- ✓ The Sustainability of CPTED
 - ✓ A look at "Community CPTED"
 - ✓ A Risk Assessment Model for CPTED
 - ✓ An advanced model for CPTED evaluation: Space Syntax Theory

Premier
Issue!!!

C P T E D

PERSPECTIVE

The International CPTED Association Newsletter

volume 5 - issue 2 ◆ august 2002

all eyes on calgary

cpted practitioners gather for the event of the year

The G8 meeting is long over and the Calgary stampede may have come and gone for another year, but the city is gearing up for an even more important event. From October 15 - 17, Calgary will play host to delegates from around the world at the CPTED-2002 conference.



Greg Saville, one of the ICA Founders, believes that returning to Calgary represents a watershed for both the ICA, and the CPTED movement. "From what I've seen over the past decade, the ICA has helped many different crime perspectives converge when it's most needed. We now have architects and planners speaking to police, security and residents. We have government justice workers talking to social workers. We have educators talking to prevention specialists. Calgary will launch an new era of collaborative community building for safer neighborhoods."

The Calgary conference builds on the success of the previous events, with speakers and delegates from a diverse range of backgrounds and professions all looking forward to the opportunity to share ideas and experiences. "We expect to be welcoming delegates from some twenty countries," said ICA Executive Director, Barry Davidson. "There are currently confirmed registrations from South Africa, Australia, parts of Asia, the

The keynote speakers for the conference are world-renowned CPTED planner, Dr. Wendy Sarkissian, and Mr Mark Stokes, highly respected researcher on the application of CCTV in crime prevention.

Dr. Sarkissian will be discussing the concept of 'Intergenerational CPTED' and the pro's and con's of current crime prevention strategies. While Mr Stokes will be presenting current research on the application of CCTV technology in the United Kingdom.

The conference boasts an impressive line-up of speakers from around the globe presenting on many unique and innovative topics. To complement the formal sessions there is an excellent social program that gives delegates and speakers some excellent networking opportunities.

In reflecting on the return to Calgary, current International Chair of the ICA, Jonathan Lusher said, "When we met in Calgary to start the ICA, the organization was about one-tenth its present size. The fact that it has grown a thousand percent merely shows that CPTED has gained tremendous credibility and interest. The ICA perfectly fits the need to organize thinking about CPTED and its practice. Welcome back to the place it all started!!"

- ◀ all eyes on Calgary 1
- ◀ CPTED on the water 2
- ◀ the CPTED journal 3
- ◀ crime prevention competency standards 4
- ◀ european CPTED seminar 5
- ◀ the secured station scheme 7
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- ◀ new partners for smart growth 9
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Regular Features

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- ◀ book worm 6
- ◀ meet the board 14



in this issue

Part 2: CPTED and Housing

CPTED and housing





Images of inner city Australian public housing, 1970s to 1980s



Worrying subsidized housing images from the UK, mid-1970s



South Australian public housing responses, 1970s to 1980s



From Post-occupancy Evaluations to Guidelines

HOUSING AS IF PEOPLE MATTERED



SITE DESIGN GUIDELINES FOR MEDIUM-DENSITY FAMILY HOUSING

CLARE COOPER MARCUS AND WENDY SARKISSIAN

Key factors
of good design
in higher density housing

AVOID A NEGATIVE IMAGE

- ✓ *Stigma*
- ✓ *Density and number of units*
- ✓ *Street names, maps, house numbers*
- ✓ *Wayfinding and orientation*
- ✓ *Emergency accesss*
- ✓ *Indistinguishable public and private housing*
- ✓ *Non-institutional materials*

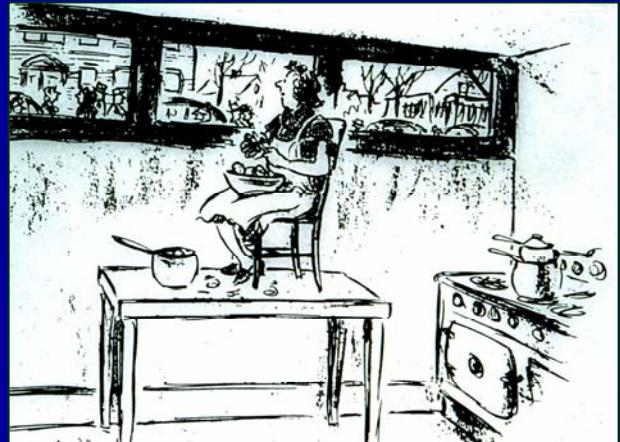




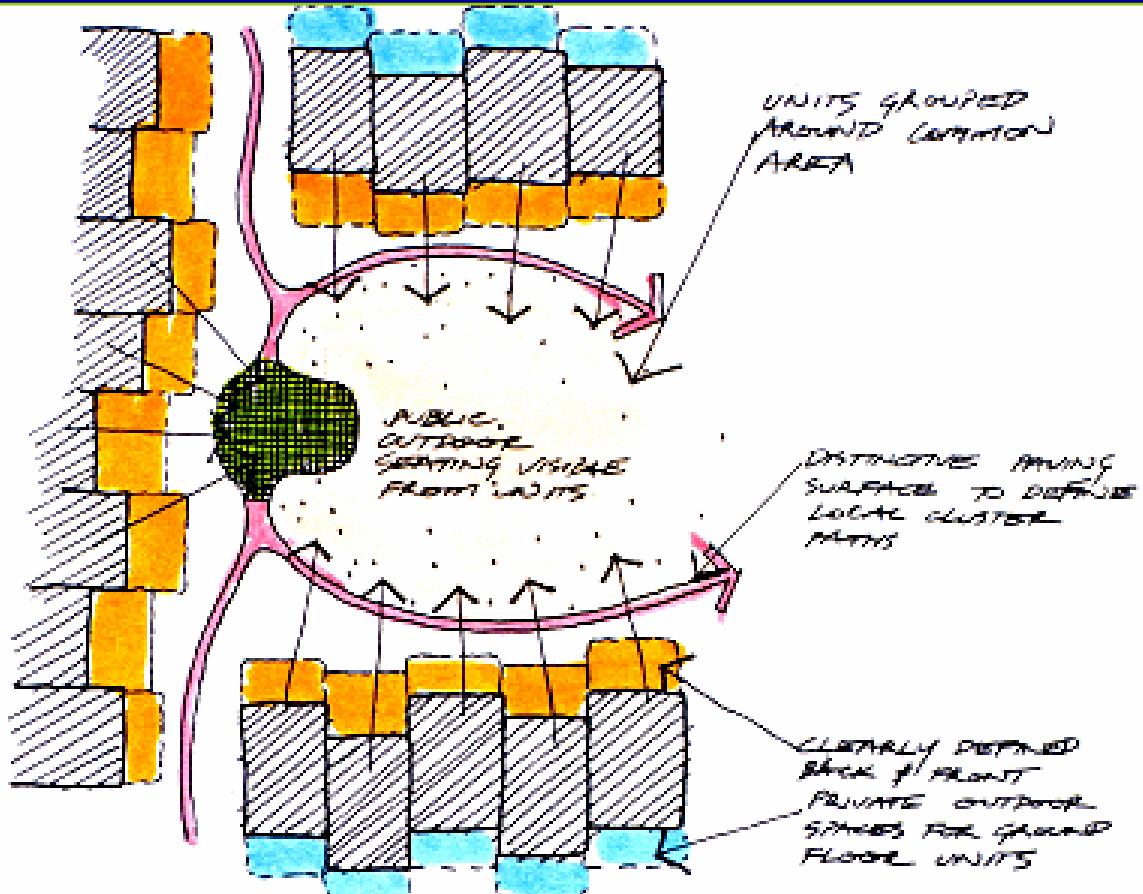


ENCOURAGE EYES ON THE STREET

- ✓ *Avoid back laneways*
- ✓ *Lighting and landscaping*
- ✓ *Sight lines from windows*
- ✓ *Landscape low*
- ✓ *See letterboxes and front door from windows*



Visibility of shared open space



VISIBILITY OF OPEN SPACE

What's happened
to shared open space?

The space hierarchy explained



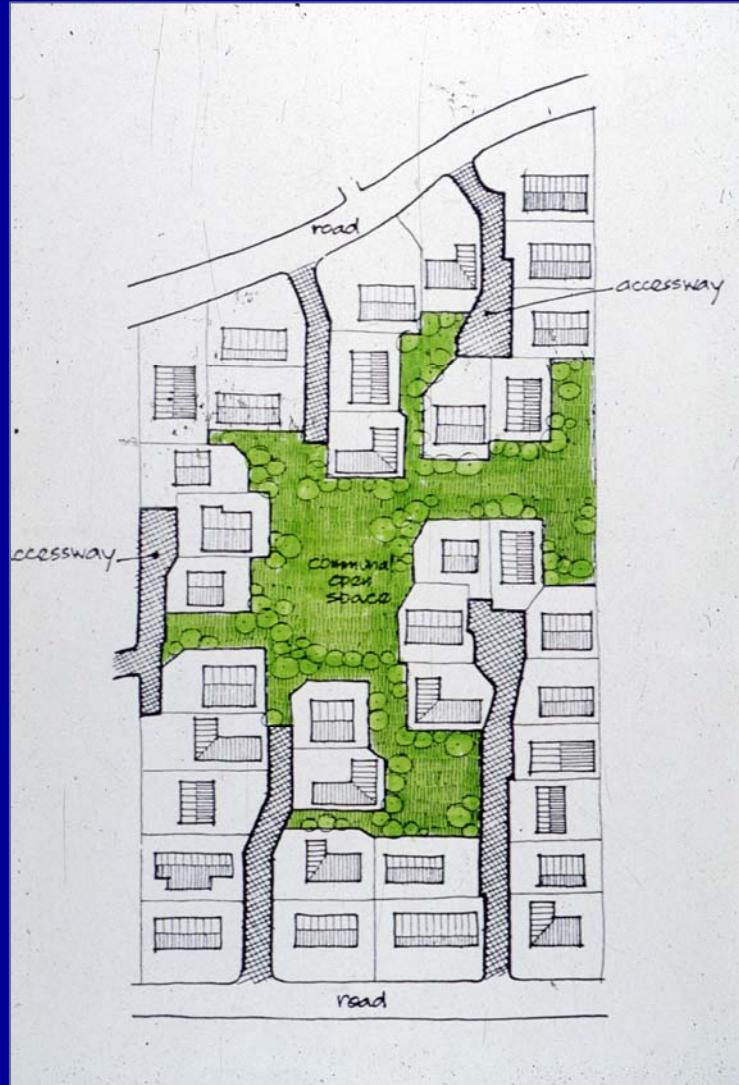
CREATE TERRITORY AND PERSONAL SPACE

- ✓ *Unit yard fences*
- ✓ *Avoid negative open space (common areas)*
- ✓ *Maximise private and semi private space*
- ✓ *Avoid ambiguous spaces*
- ✓ *Cluster around group territory*

-

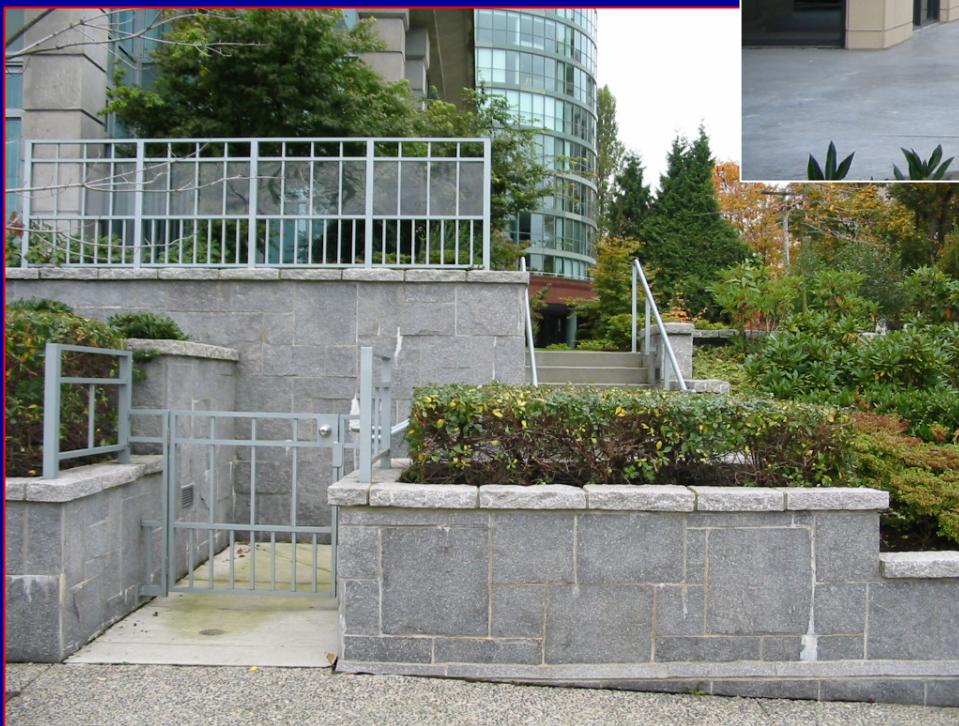


Classic problems of the 1960s and on...



Shared
access
is a problem
.. leads to
excuse-
making

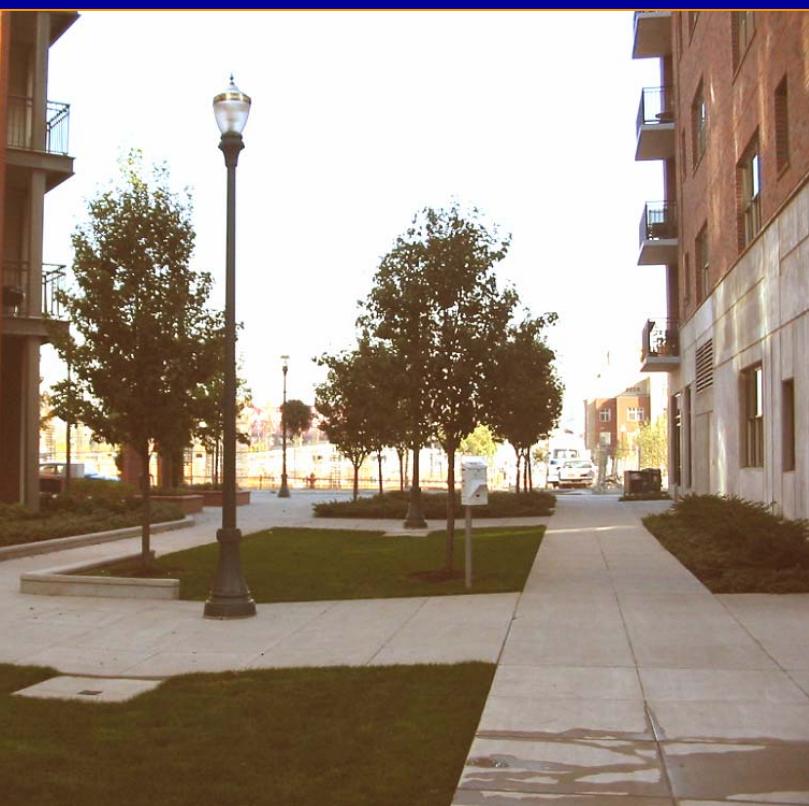




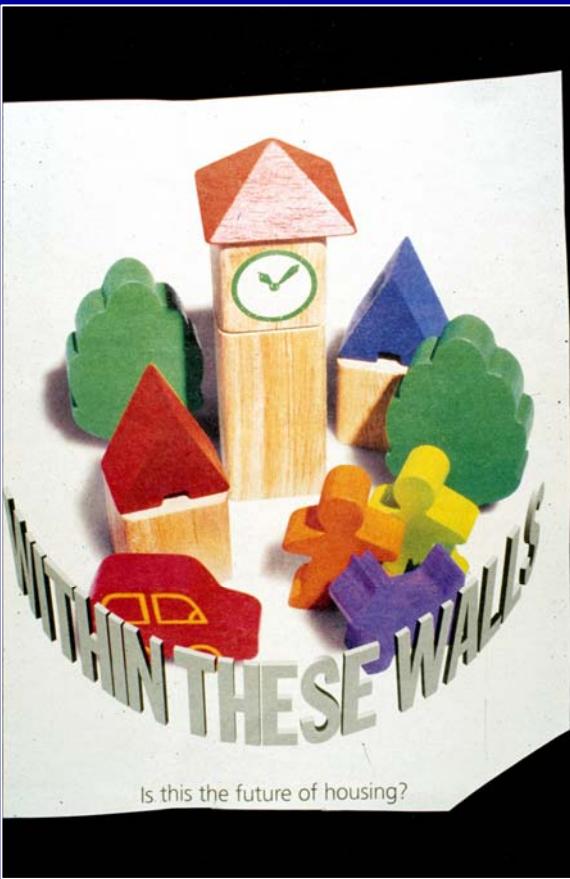




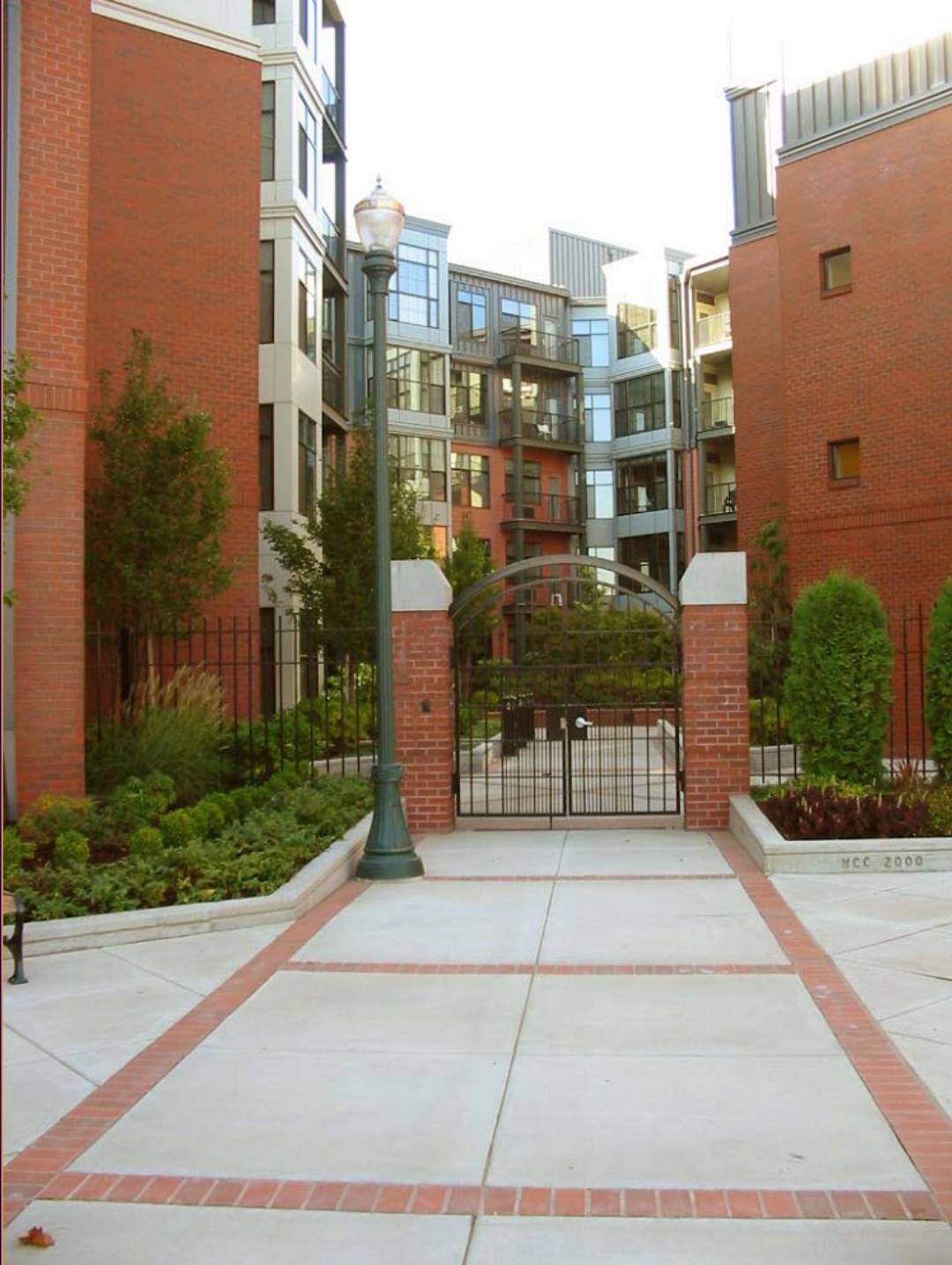
Landscaping
communicating
different "uses"







Gated communities







Confusing signage and entries
leads to excuse-making

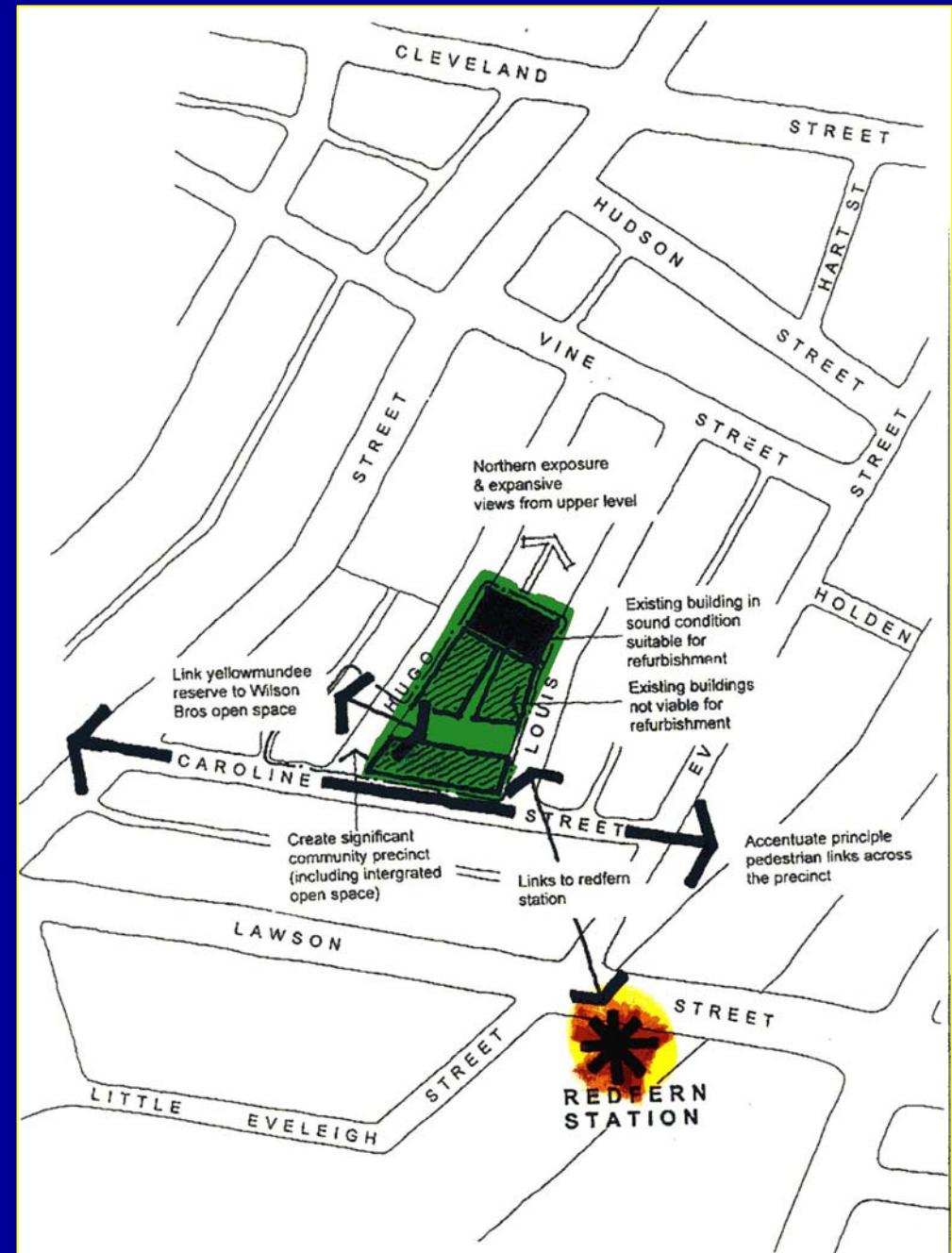
LOCATE NEAR LOCAL SERVICES AND FACILITIES

- ✓ *Public transport*
- ✓ *Not turn backs on neighbouring streets*
- ✓ *Incorporate local streets*
- ✓ *Appropriate community facilities nearby*





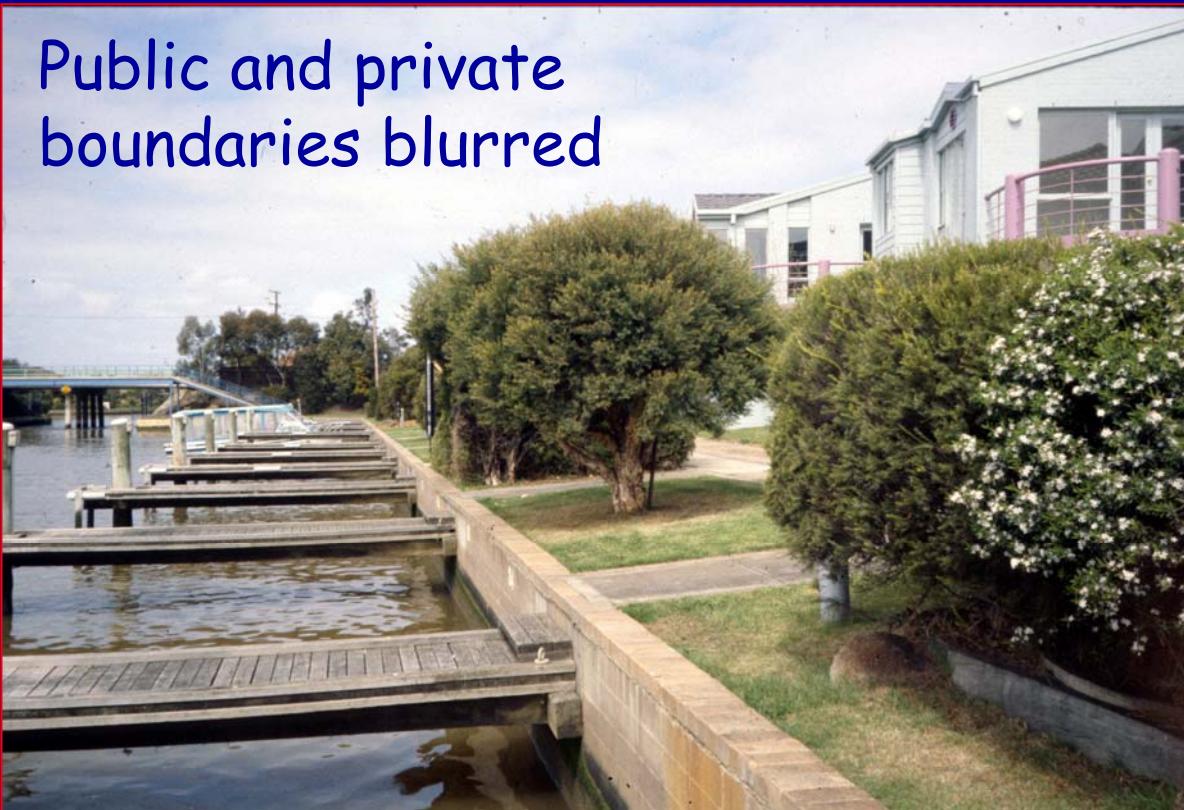
Proximity to services can also contribute to a local crime problem



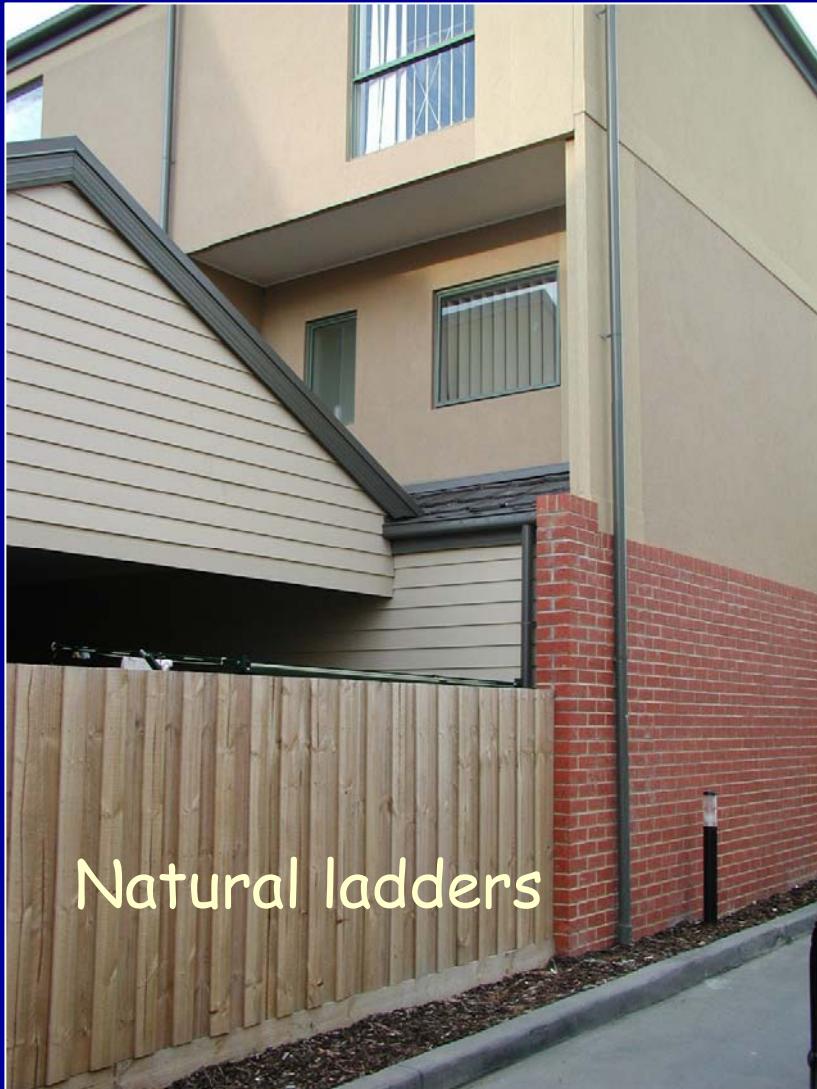
PREVENT EASY ACCESS

- ✓ *Avoid walkways and back lanes*
- ✓ *Enclose carports totally*
- ✓ *Avoid "natural ladders": drainpipes, etc.*
- ✓ *Provide buffers between units and open space*

Public and private
boundaries blurred



Prevent easy access



Natural ladders



Many CPTED access errors in design

Natural ladders

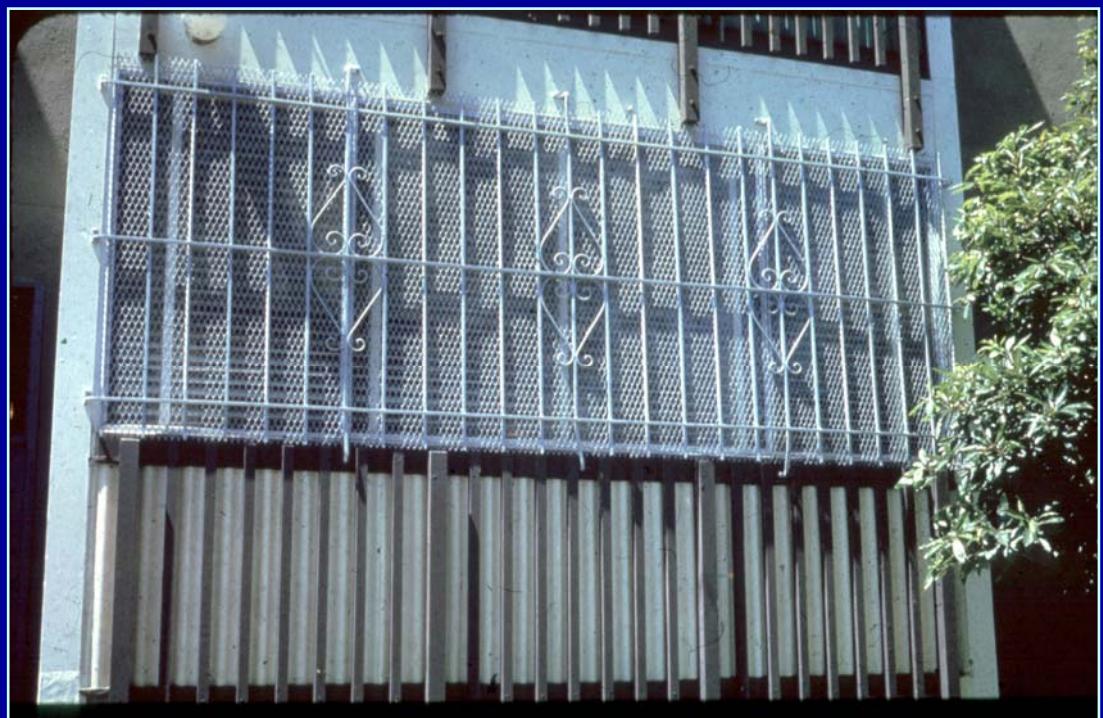




Vulnerable doors

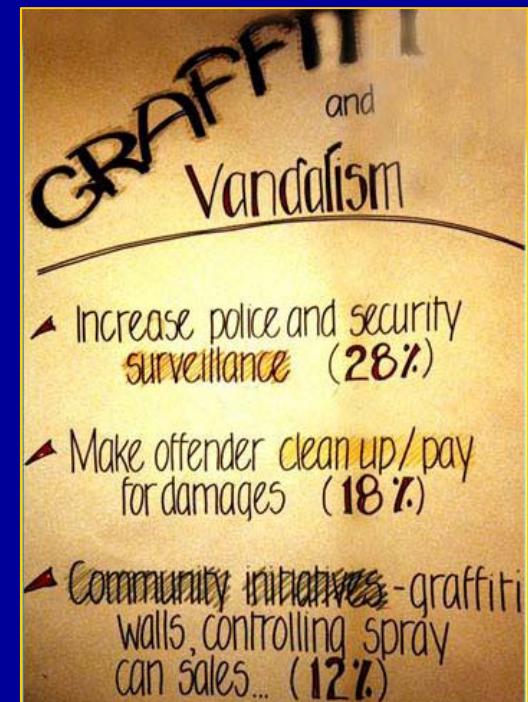
SECURE HARDWARE AND LOCKS

- ✓ *No sliding doors*
- ✓ *Solid core doors*
- ✓ *Sturdy locks*
- ✓ *Use electronic systems with care*
- ✓ *Sturdy windows*



VANDALISM REDUCTION

- ✓ Quick repairs: instant response
- ✓ Reduce opportunities: vandal proof materials
- ✓ 'Constructive' activities
- ✓ Encouraging residents to have a stake in the environment
- ✓ Tenant control of management





Part 3: Specific Guidelines for Burswood Lakes

As the design process progresses,
pay careful attention to:

- *Activity generators*
- *Territorial boundaries*
- *Natural surveillance and sightlines*
- *Movement predictors*
- *Concealment and entrapment spaces*
- *Access control*
- *Target hardening*
- *Fencing and buffers*
- *Landscaping*
- *Lighting*

Land Use Mix and Activity generators

Land use mix and activity generators

- *Avoid strict separation of land uses: could result in isolation of some buildings or spaces*
 - *Locate activity generators or seating around active edges or fringes of a space (with legitimate activity and people gathering for community activities)*
- . . . to create possibilities for natural surveillance of a space*

Pedestrian activity

- *Encourage pedestrian passage through or activity in areas at grade level to promote natural surveillance*
- *But ensure that outsiders do not intrude into shared spaces or private yards, gardens or patios*

Hierarchy of space

- *Design in a hierarchy of space using:*
 - *transitional cues*
 - *distinct paving*
 - *lawn strips*
 - *tactile surfaces*
 - *ramps and stairs*
 - *gardens, etc.*

Ownership

- Define ownership and intended use of a space through obvious design cues:
 - fences
 - paving
 - art
 - signs
 - good maintenance
 - landscaping

Ambiguous land uses

- *Avoid ambiguous land use*
- *Make sure whole design communicates clarity of purpose of any space*
- *This will avoid excuses when offenders are on private property or hiding with a view to committing robbery or assault*

Barriers

- *Use physical barriers (e.g. fences) and*
- *symbolic barriers (e.g. vegetation)*
- *to reduce ambiguity and excuses for inappropriate behaviour*

Clear entry/exits

- *Clarity of entry and exits into the site*

Pathways mirror roads

- *Walkways abut/align with vehicle routes (e.g. no pathways linking cul-de-sacs)*

Shortcuts

- Prevent *shortcuts or trespassing opportunities via:*
 - *gates*
 - *buffers*
 - *other visual cues*

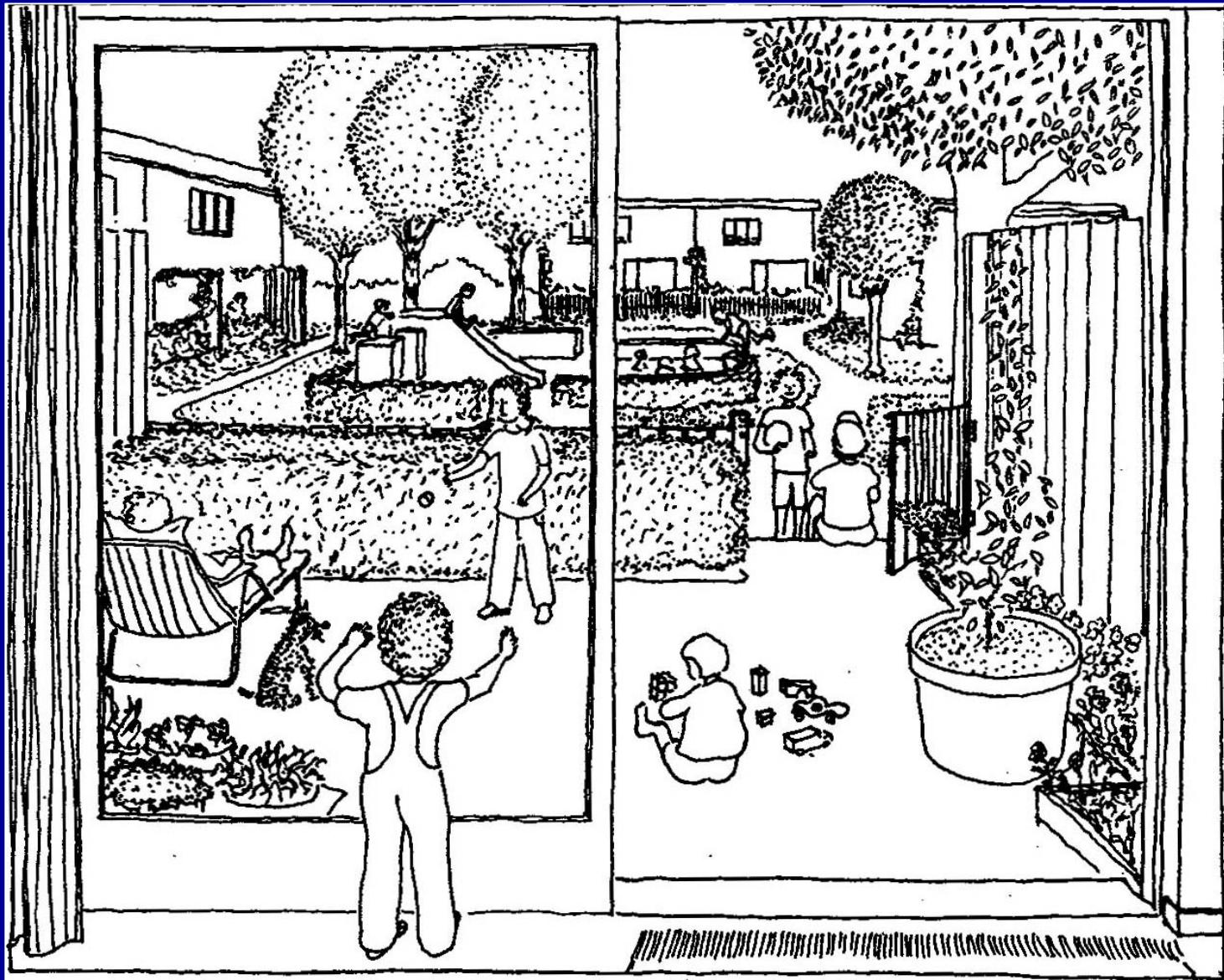
Screening

- *Take care when providing privacy screening (optically permeable rather than solid screens)*
. . . so that criminal activity can still be monitored from windows

Surveillance of vulnerable groups

- *Any spaces that may be used by vulnerable groups (such as young children and older people) and may attract inappropriate behaviour*
- *... in locations with the maximum opportunities for nature surveillance*

Surveillance of vulnerable groups



Community guardianship

- *Opportunities to support community guardianship of public space*
- *well used and cared-for public spaces encourage guardianship*

Night pedestrian activity

- *High levels of legitimate pedestrian activity at night to confer safety on public spaces*
- *Centralisation of night activities to enable supervision*

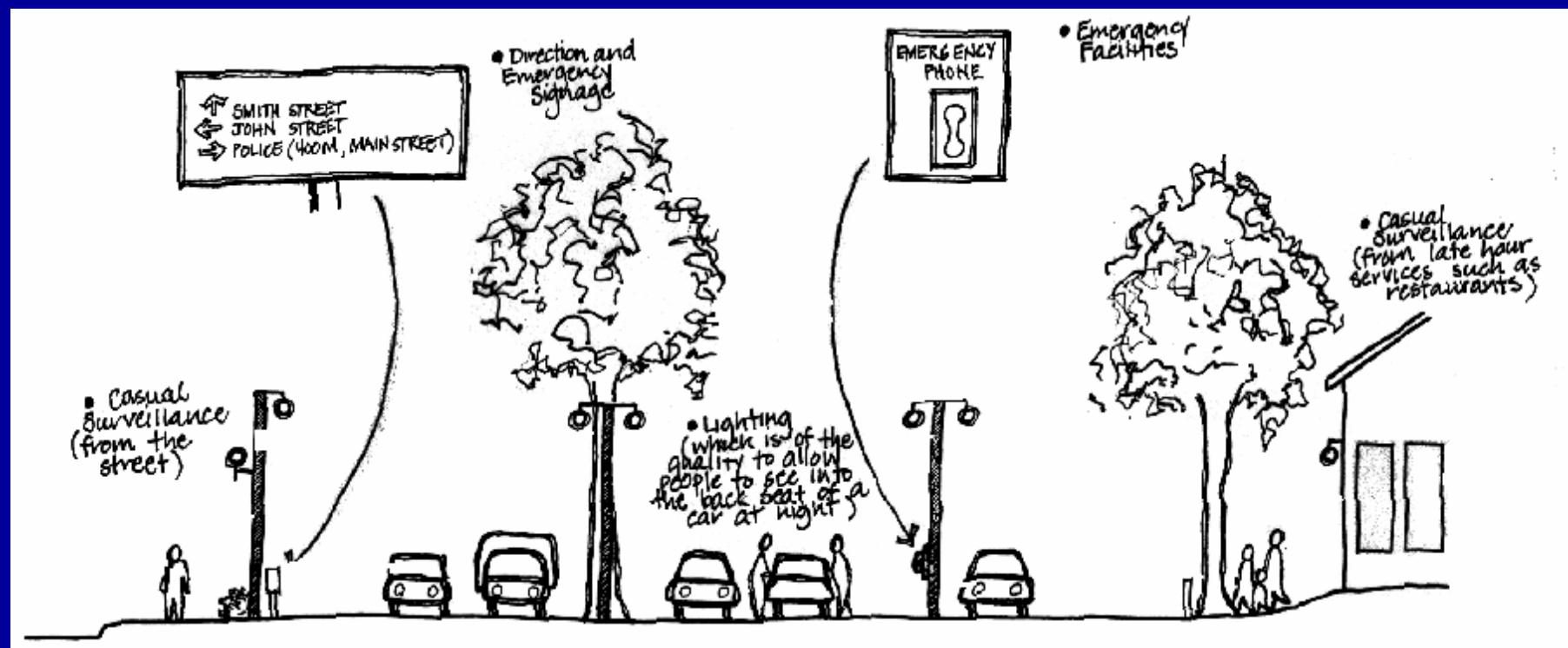
Natural ladders

- Design out 'natural ladders'
 - building features
 - trees
 - nearby structures
 - fencing
- that help a criminal to climb to balconies, rooftops, ledges and windows

Natural surveillance

- *Design concept directed primarily at keeping intruders under observation*
- *Place physical features, activities and people to maximise ability to see what is happening discourages crime*
- *Way of promoting control of territory*
- *Opportunity for people engaged in normal, legitimate behaviour to observe space around them*
- *Criminals usually do not want to be seen*

Strong CPTED design elements



Front entries

- *Design front entries of buildings so they do not create entrapment spots or places that attract intruders*
- *Design buildings with well designated/defined entries and access routes*
 . . . *as it is easy to justify trespassing in ambiguous areas*

Entrapment area at building entry



Entry sightlines

- *Clear sightlines from within building to the entry*
- *so that occupants can see outside before leaving the building*
- *Exterior lighting to facilitate good interior-to-exterior surveillance through windows*
 - *. . . as most risks such as assault are more likely at night*

Entry lighting

- *High levels of even illumination at entries so occupants can see out some distance from entry before leaving the building*
- *Lighting at entries does not create a blinding effect through glare and/or shadows*
- *...thus making it difficult for eyes to adjust to different light levels*

Landscaping

- *Low ground cover*
- *or high-canopied trees, clear-trunked to a height of 2 metres in areas*
- *where crime is likely to be a problem*

Common area entry

- *Orient entry of a common area in a building (lobbies, foyers, lifts, etc.) to provide natural surveillance*

Concealment opportunities

- *Reduce concealment opportunities to ensure people cannot hide and jump out on unsuspecting pedestrians*

Park guardianship

- *Locate parks within view of dwellings so capable guardians are able to respond to calls for help*

Back fence design

- *Treat back fencing with care so solid perimeter back fences do not provide opportunities for burglars to work undetected*
- *Particularly important for fencing that abuts the Golf Course*

Tunnels and overpasses

- *Avoid tunnels and overpasses*
- *They are commonly perceived as dangerous and associated with crime*

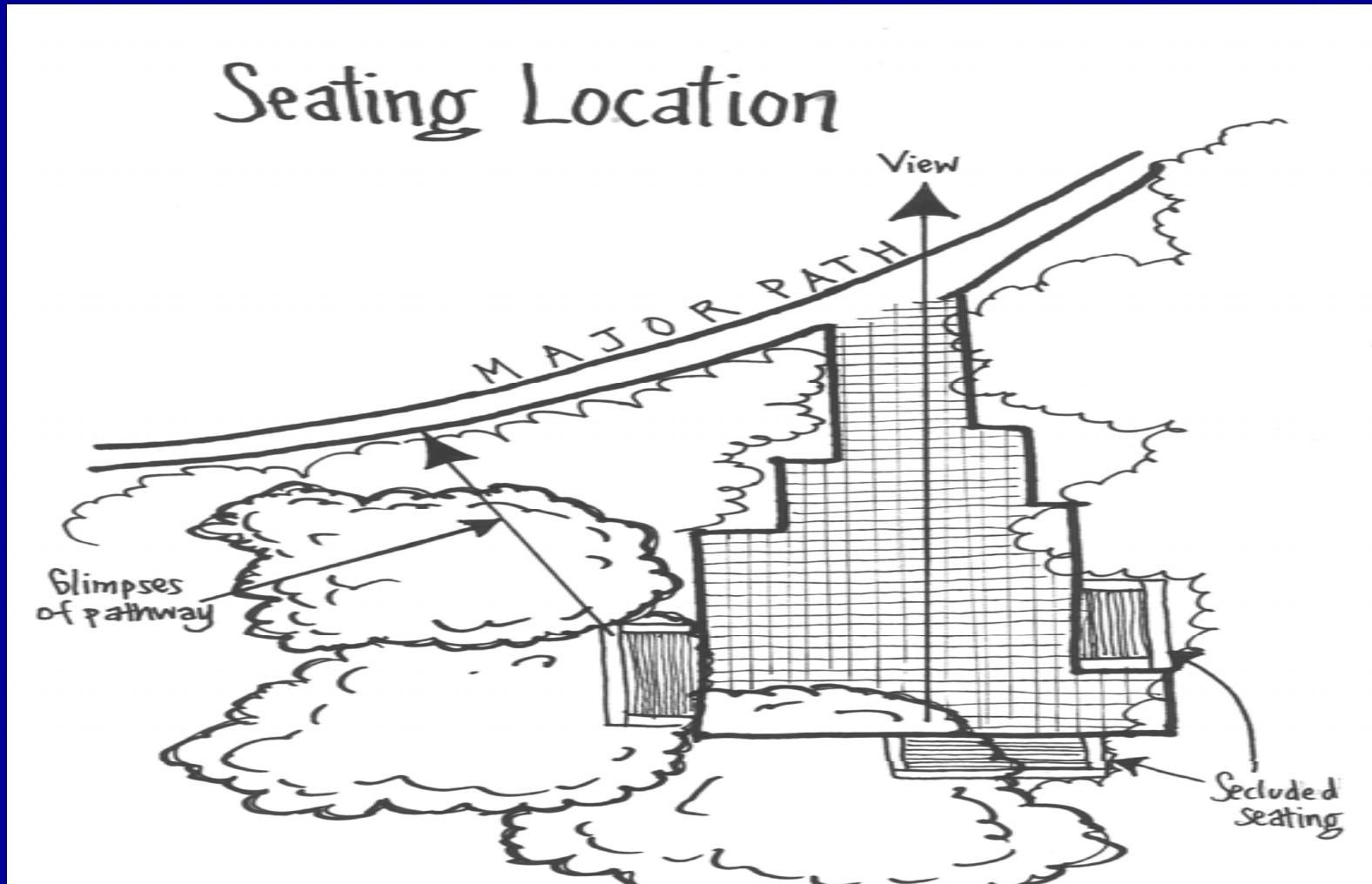
Footpaths and bicycle routes

- *Locate footpaths and bicycle routes:*
 - *near potential capable guardians so they can intervene in dangerous situations*
 - *away from dense vegetation/landscaping structures*
 - *to reduce opportunities for concealment of offenders*

Wide pathways

- *Wide, unobstructed pathways*
- *Pedestrians are more comfortable and are more likely to use wider pathways*

Seating location at likely congregation point and resulting sightlines



Mature landscaping

- *Consider implications of planting with respect to how mature vegetation may obscure areas and offer concealment opportunities*

Greenscreens



Greenscreens

- *Opportunities for greenscreens and wall planting to reduce opportunities for graffiti and vandalism and contribute to aesthetics*
- *Ensure greenscreens will not obstruct windows*

Wayfinding and signage

- *carefully designed signage and legible pathways and vehicle routes*
- *make it clear what is private, shared and public territory*
- *can help to reduce crime and promote community safety*
- *signage can specify safe routes within public open space*

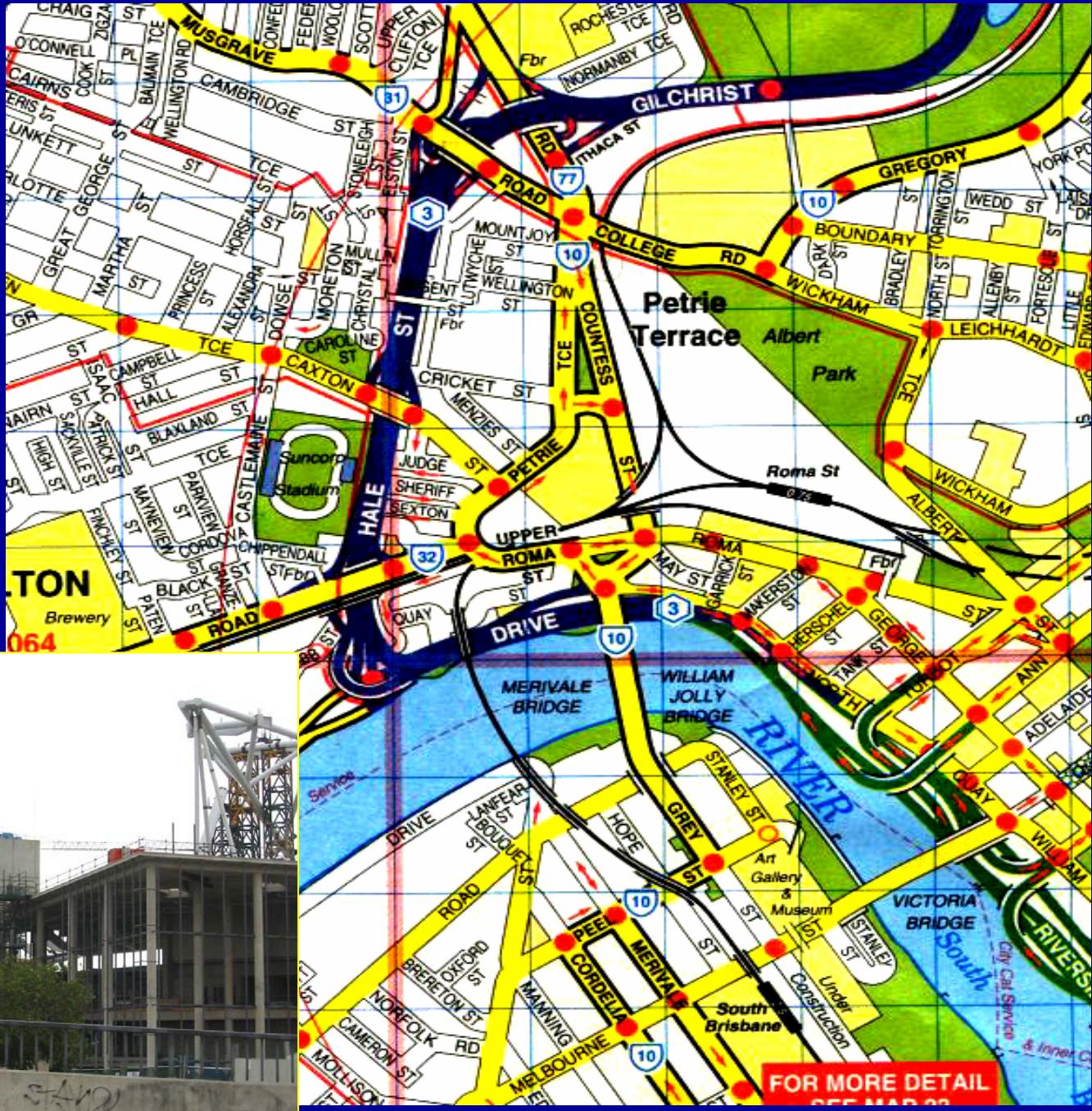
Movement predictors

- *Predictable or unchangeable routes or paths that offer few choices to pedestrians*
 - *pedestrian bridges*
 - *enclosed pathways*
 - *enclosed staircases*
- *May be difficult to escape from if someone is being followed or chased*

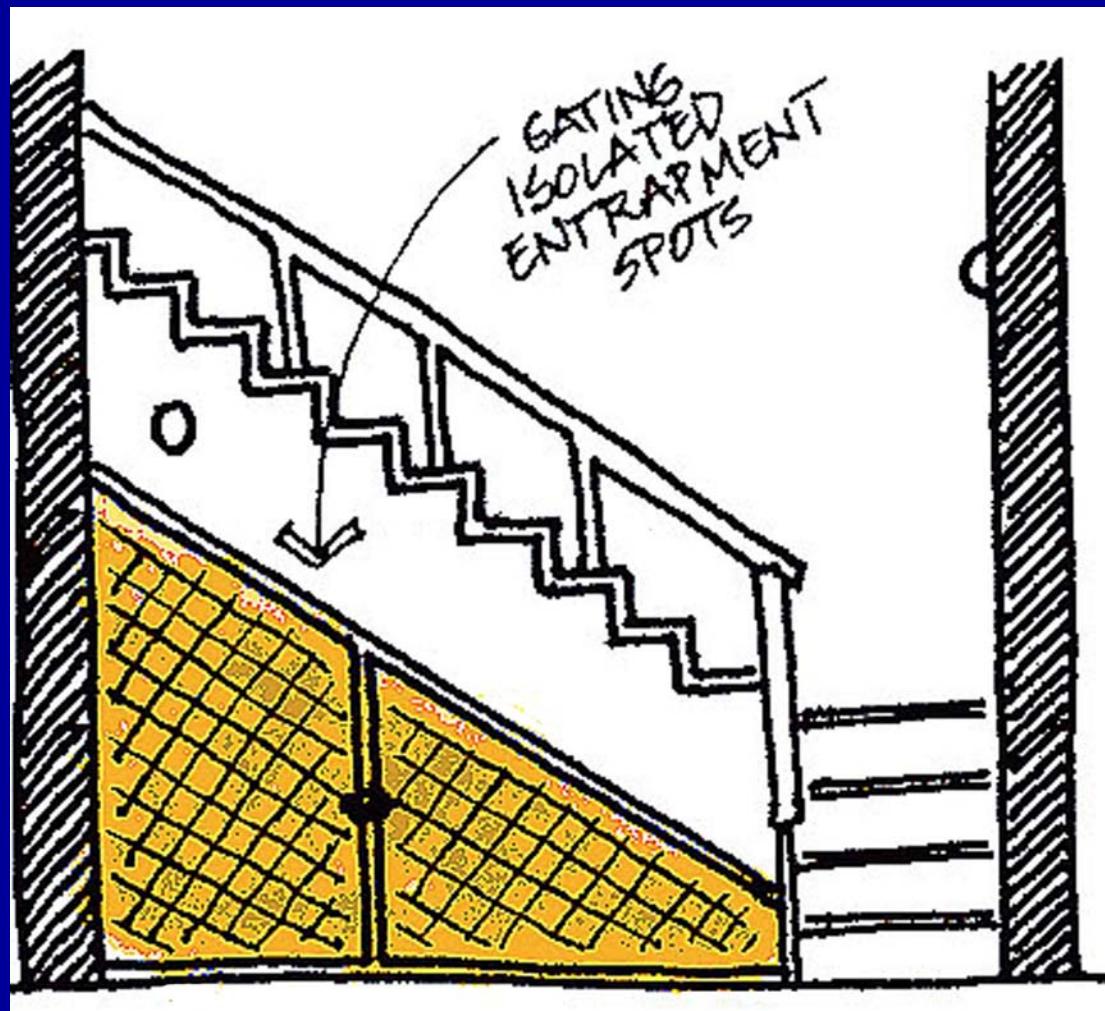
Movement predictors

- *When alternate routes are unavailable to pedestrians, movement predictor contains entrapment and concealment areas where offenders can hide and wait for victims*
- *Also influence offender's perceptions of neighbourhoods and their target selection*

Movement predictor, Brisbane



Predictable route with isolated entrapment spot



Sightlines for predictable routes

- *Provide adequate sightlines and lighting where there is no alternative to predictable routes*

Potential concealment provisions

- *Provide a minimum distance of six metres between any potential concealment and entrapment locations to allow users adequate reaction time*

Alternative access routes 1

- *Avoid predictable or unchangeable routes or paths that offer no choice for use for pedestrians, including overpasses, underpasses and narrow passageways*
- *Avoid unnecessary underpasses and overpasses unless there is no alternative*

Alternative access routes 2

- *Predictable routes with good natural surveillance*
- *Alternative access arrangements*
- *Minimise potential entrapment locations*
- *Effective signage to identify alternative routes*
- *Well lit and frequently used pathways*

Limiting Access

Lighting and sightlines

- *Where possible, use and maintain high-branched vegetation*
- *Where entrapment areas cannot be removed, specify appropriate, high-intensity lighting and mirrors*
- *Regular security patrols to pay attention to possible entrapment spots like isolated stairwells and storage areas*

Interchange & commuter safety: lighting

- *Adequate lighting for easy identification of suspect activity or individual people without 'spotlighting' passengers waiting alone at night*
- *Car parks well-lit*
- *as close to railway platforms and bus stops as possible*

Commuter safety: movement predictors

- *Pathways, stairs and ramps wide enough for people to use with prams, strollers and for two wheelchairs to pass*
- *Opportunities for exit from paths (especially 'Movement Predictors') to reduce any sense (or reality) of entrapment*

Lighting

Lighting 1

- *Lighting on a potentially dangerous site is a complex matter*
- *Lighting is an important CPTED issue for this site*
- *it needs to be addressed via a formal crime risk assessment*

Lighting 2

- *Dangerous not to light pedestrian paths and spaces*
- *May also be dangerous to light paths and spaces which may be potentially dangerous, thereby communicating to an unsuspecting user that:*
 - *the place is safe*
 - *attracting use*
 - *potentially putting people using path at risk*

Consistent lighting

- *Use multiple lights rather than single fittings to:*
 - *provide consistent lighting levels*
 - *reduce contrast between shadows and illuminated areas*
- *Mixture of lighting to give pedestrians an impression of warmth, variety and brightness*

Directional lighting

- *Lighting illuminates pathways and potential entrapment spaces, rather than windows and roads*

Landscaping and lighting

- *Locate lighting so that it will not be blocked by mature vegetation*

Light 'safe routes'

- *Identify and light safe routes to discourage use of potentially dangerous alternatives*

Shielded lighting

- *Avoid placement of 'unshielded' lighting at eye level to avoid glare*
- *clear of a zone 1.5m to 3m above ground*

High-mounted lighting

- *Lighting fixtures:*
 - *high-mounted*
 - *vandal-resistant*
 - *deflect downwards*

Overlapping lighting patterns

- *Avoid overlapping light patterns*
- *absence of glare/pools of light/dark*
- *Use transition lighting to achieve recognition of people, objects and colours*
- *Particularly important in areas used by older people*

Colour rendition and lighting

- Use low-pressure sodium lamps with caution
- their colour-draining (monochromatic) characteristics make identification difficult
- Permit facial recognition of approaching persons at 15 metres
- High-pressure sodium lighting preferable and often cheaper than incandescent lights

Vandal-resistant lighting

- *Vandal-resistant lighting*
- *Looks robust without appearing institutional or providing an interesting challenge to potential vandals*

Shared open space lighting

- *Appropriate communal area (or shared space) lighting to reduce crime risk*
- *by increasing opportunities for natural surveillance of and by passing pedestrians*

Lighting of movement predictors

- *Appropriate lighting along pathways and other night movement predictors to:*
 - *Avoid opportunities for concealment and entrapment*
 - *Encourage people to use safe routes*
 - *Discourage activity in unsafe places*

Targeted lighting

- *Lighting caters for likely pedestrian user groups*
- *It can help to attract people into safer areas*
- *Can increase night supervision*

Lighting obstructions

- *Lighting design does not create obstructions that:*
 - *block sightlines*
 - *create glare*
 - *cast shadows that may be used by intruders to hide*

Heavily-used spaces

- *Light all heavily used spaces to 50 to 100 Lux (Lumens)*
 - *car parks*
 - *major pedestrian routes*
 - *building entries*
- *Useful ground coverage of an elevated fixture is usually twice its height*

Lighting location

- *Avoid locating lighting columns and electrical equipment alongside walls or low buildings*
- *They provide climbing opportunities*
- *Other equipment may be reached for further vandalism or criminal acts*

Bollard lighting

- *Do not depend on bollards as the only light source*
- *While bollards are visually attractive, they do not illuminate to a sufficient height for an oncoming person to be seen*

Landscaping

Landscaping 1

- *plays an essential part in making an environment friendly and pleasant*
- *sometimes poorly maintained and vandalised*
- *can provide cover for unlawful activities*
- *should not detract from pedestrians' visibility*
- *should not create secluded areas*

Landscaping 2

- *Select plants carefully, bearing in mind their shape and size as they mature*
- *Landscaping can provide appropriate balance between aesthetics and safety*
- *An attractive area is more likely to be used*

Sturdy plants

- *Rather than planting saplings, consider planting:*
 - *heavy standard (120-140mm girth)*
 - *extra heavy standard (140-160mm girth)*
 - *or even semi-mature trees (200-720mm)*
- *to make it physically more difficult to snap main growing stems*

'Keep-off' planting 1

- *Carefully specify planting location of planting*
- *Use shrubs such as prickly thorns to prevent short-cuts across beds*
- *Consider dangers to children*
- *Thorny plants not be noxious weeds*
- *Not located where they can be a danger to cyclists*

'Keep-off' planting 2

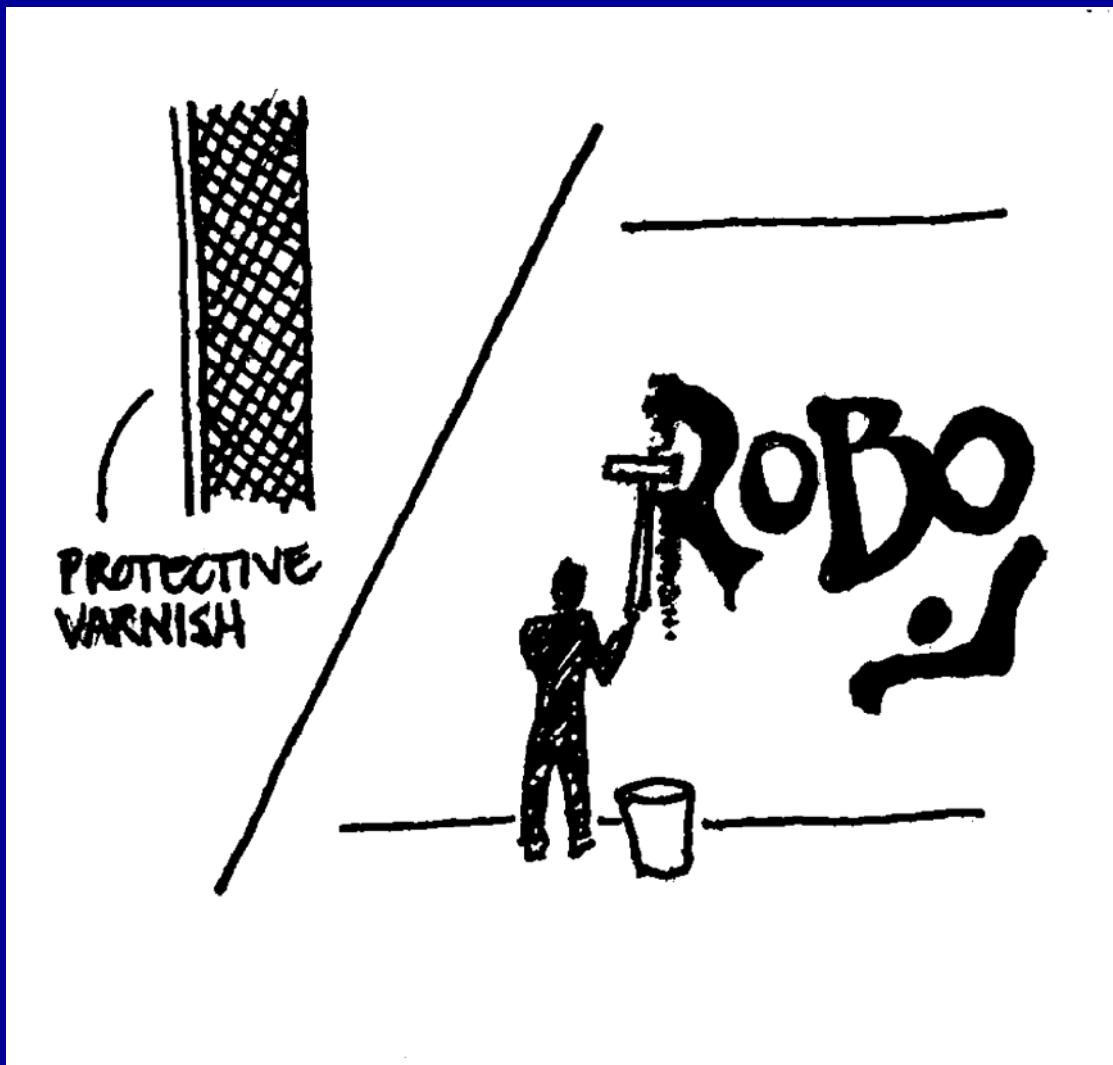
- *Carefully balance advantages of thorny shrubs as access deterrents against the disadvantages or poor appearance of litter trapped in shrubbery*
- *Railings set into low walls can reduce the chance of litter blowing through and getting trapped in vegetation behind*

Management and Maintenance

Maintenance

- *Damage left unrepaired is a cue to further misuse*
- *Timely feedback on deterioration of equipment is essential*
- *Minor faults and repairs can develop and encourage wilful damage*

Graffiti and Vandalism



Location requiring graffiti removal



Graffiti walls

- *Avoid long expanses of light coloured walls*
- *Tempting to graffiti artists*
- *Except in areas where intent is to increase the luminance of lighting, such as parking lots*
- *Or try to encourage natural surveillance and a program of graffiti removal*
- *Possibly provide graffiti artists with their own spaces*

Construction phase

- *During construction, delay installing equipment until the site is ready and remove rubbish, as it can provide ammunition*

Target hardening

Target hardening 1

- *Opportunity reduction*
- *Property owner or occupier seeks to deter criminal by making it as difficult as practicable to steal or vandalise property or buildings*

Target hardening 2

- *The basis: strengthen defences of a site to deter attack and/or delay the success of an attack*
- *Making physical security of a site stronger increases perceived risk to an offender*

Location for graffiti art?



Examples of 'target hardening'

- *Blocker plates over doorframe and lock*
- *Cages over lights*
- *Grilles on windows*
- *Shatter film on windows*
- *Enclosed shackles on padlocks*
- *Window locks*
- *Properly constructed fencing*
- *Security doors*

Caution

- *Target hardening can help to prevent illegal entry to private property*
- *There are limitations in most systems*
- *Basic hardware is sufficient increase crime effort in low to medium-risk situations*
- *Crime risk assessment (CRA) will be necessary to determine most appropriate measure*
- *Advice from police specialists is essential*

Contexts

Residential Areas

Residential site-entry boundaries 1

- *Real or symbolic barriers to discourage intrusion by strangers into communal landscaped spaces for resident use*
- *Boundaries of residential developments allow permeability without having outsiders intruding into private or semi-private residential territories*
- *This is important, as public access to the river via the Golf Course is envisaged*

Residential site-entry boundaries 2

- *Eliminate opportunities for casual short-cutting*
 - *... except via designated routes by strategic location of fences or low planting within site and at site-entry points*
- *Low fences and walls define site perimeter and channel pedestrian movement*
- *Avoid paths passing directly by dwelling windows so pedestrians do not violate privacy of nearby dwellings*

Space hierarchy 1

- *at heart of the notion of territorial reinforcement*
- *clearly identify ownership and use of different open spaces*
- *buffer those spaces from each other so intrusion into private or semi-private spaces cannot occur unintentionally*

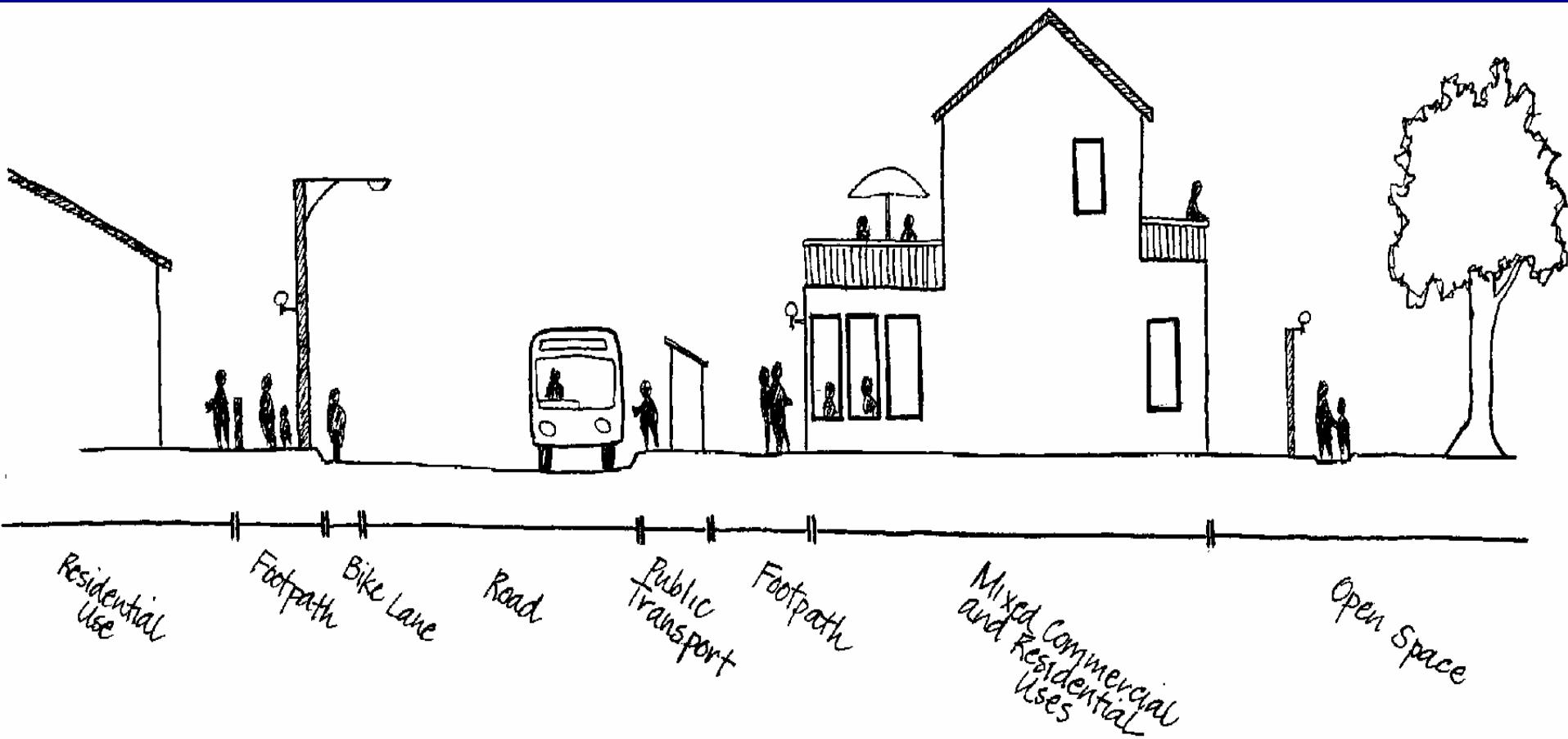
Space hierarchy 2

- *Clearly delineate hierarchy of:*
 - *public open space*
 - *community open space (shared areas)*
 - *private open space*
- *... by fencing, landscaped buffers, level and material changes or the use of open space as a buffer*

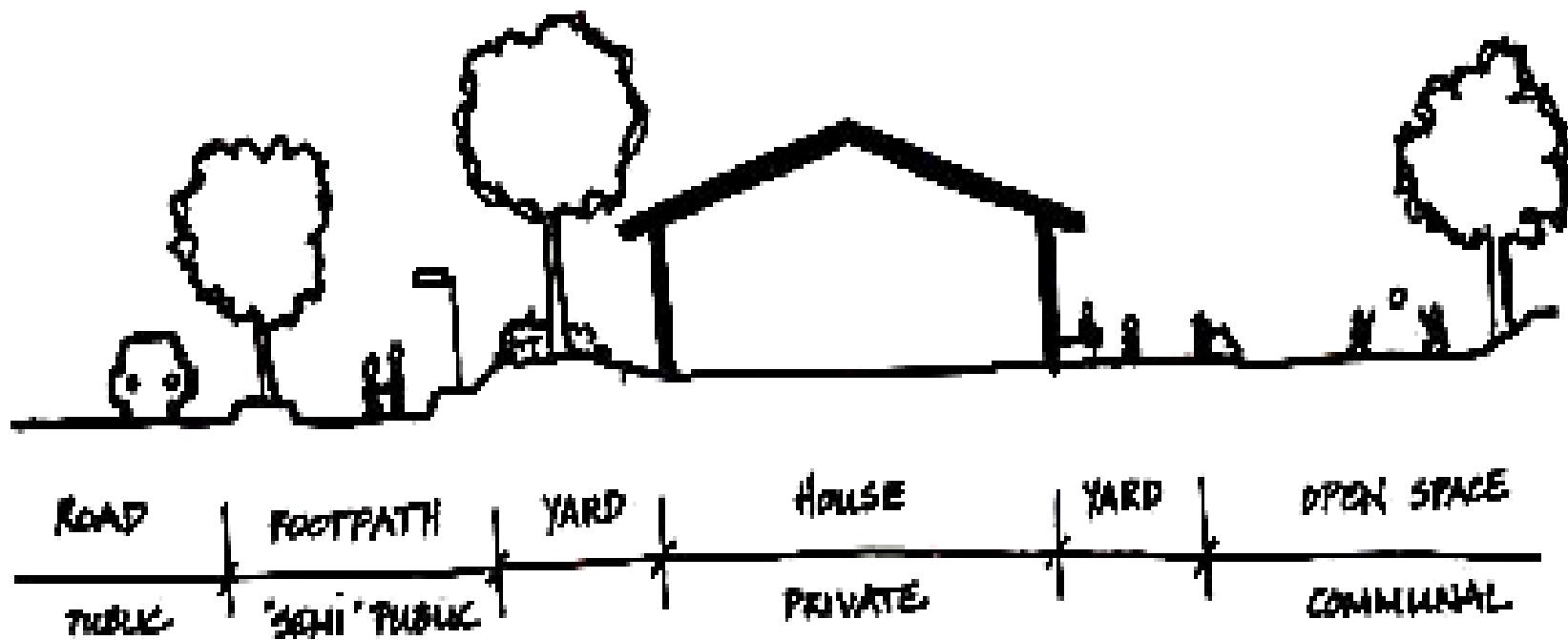
Space hierarchy 3

- *Divide large residential sites into visually identifiable and assignable 'clusters' via appropriate fencing*
- *planting and building placement*
 - . . . so open spaces become legitimate 'territory' of specific groups of dwellings
- *Where possible, provide at least a visual buffer between public and private spaces*

Hierarchy of open space 1



Hierarchy of open space 2

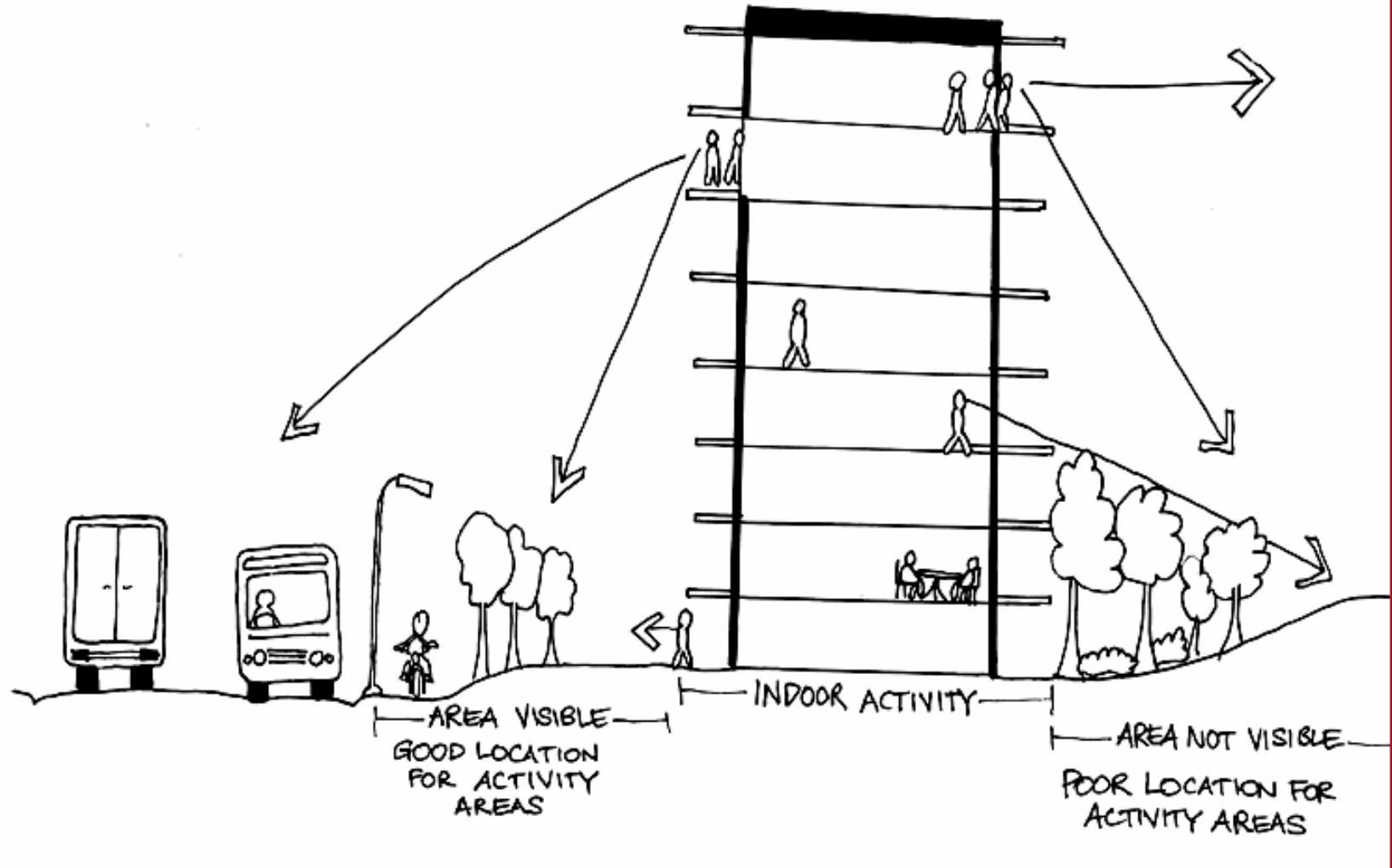


Natural surveillance

Natural surveillance

- *While protecting privacy of individual dwellings*
 - . . . *maximise opportunities for natural surveillance of pedestrian paths from windows of activity rooms (living rooms, kitchens etc.) of adjacent dwellings*

Natural surveillance from 'activity rooms'



Public open space and parks

- *Safety of common (or shared) and public open space directly related to design of spaces to encourage:*
 - *natural surveillance*
 - *sightlines*
 - *ease of wayfinding*
 - *protection from entrapment*

Dangerous open spaces

- *Places for intruders or assailants to conceal themselves*
- *Difficult to see 'at a glance'*
- *Have shrubbery, buildings or fences which block sightlines*
- *Surrounded by blank walls*

Public Open Space (POS)

Design of POS 1

- *interesting and inviting to attract usage by legitimate users*
- *foster legibility: entrances and exits easily identifiable*
- *people able to find their way around and find each other*
- *public amenities easily located*
- *avoid creating unused or unusable 'dead' spaces or isolated pockets*

Design of POS 2

- *Design for easy maintenance of well used areas*
 - *Avoid open space that adjoins rear of housing*
- or*
- *use measures such as secure fencing that is visibly permeable so open space area can be observed from dwellings*
 - *Children's play areas visible from adjoining properties*
 - *Access-control measures to deter illegitimate users from children's play areas:*
 - *low, visually permeable fencing*

Lighting of POS 1

- *Paths and areas intended for night use lit to the same level as street to indicate that they are 'safe routes'*
 - *Clear demarcation in lighting and landscaping between areas likely to be deserted at night*
- and*
- *areas where legitimate activity is likely and should be encouraged.*

*It may be best not to light
an isolated area at all*



Lighting of POS 2

- *Select and maintain landscaping elements so they do not block light onto pedestrian routes*
- *Strategically locate trees and light standards so foliage does not block light*

Sightlines

- *Pathways with unimpeded sightlines, particularly if curves or changes in grade*
- *Avoid below-grade pathways*
- *Well planned street level crossings safer than underpasses*
- *Parks or play areas visible from street*
- *housing with active frontages overlooks parks or edges of larger parks*

Entrapment Spots

- *If pathways have a landscape border: low-lying or high-branching vegetation*
- *Avoid trees or bushes which could create entrapment spots and reduce sightlines*
- *Multiple entries/exits to all parks and playgrounds*

Spaces safe from entrapment 1

Small, confined areas, adjacent to or near a well-travelled route that are shielded on three sides by some barrier:

- *lifts*
- *storerooms*
- *fire stairs*
- *dark, recessed entrances that may be locked at night*
- *gaps in tall shrubbery*
- *curved or grade-separated driveways*
- *loading docks off a pedestrian route*

Spaces safe from entrapment 2

- *Can include car parks, especially if they are adjacent to pedestrian routes*
- *Below-grade and above-grade walkways may create places that are isolated or invisible from the street*

Potential entrapment and/or hiding places

- *Eliminate potential hiding places where intruders might lurk undetected and commit acts of violence unobserved*
- *Design public spaces so that users, particularly women, older people and people with a disability can see a safe route through them*
- *and not be liable to attack in unsurveyed spaces*

Entrapment spots adjacent to pedestrian routes

- *Avoid creation of entrapment spots near a main pedestrian route or movement predictor*
- *e.g. a storage area, hidden area below or above grade or private dead-end alleyway*
- *Provide deadlocks for storage areas off pedestrian routes*

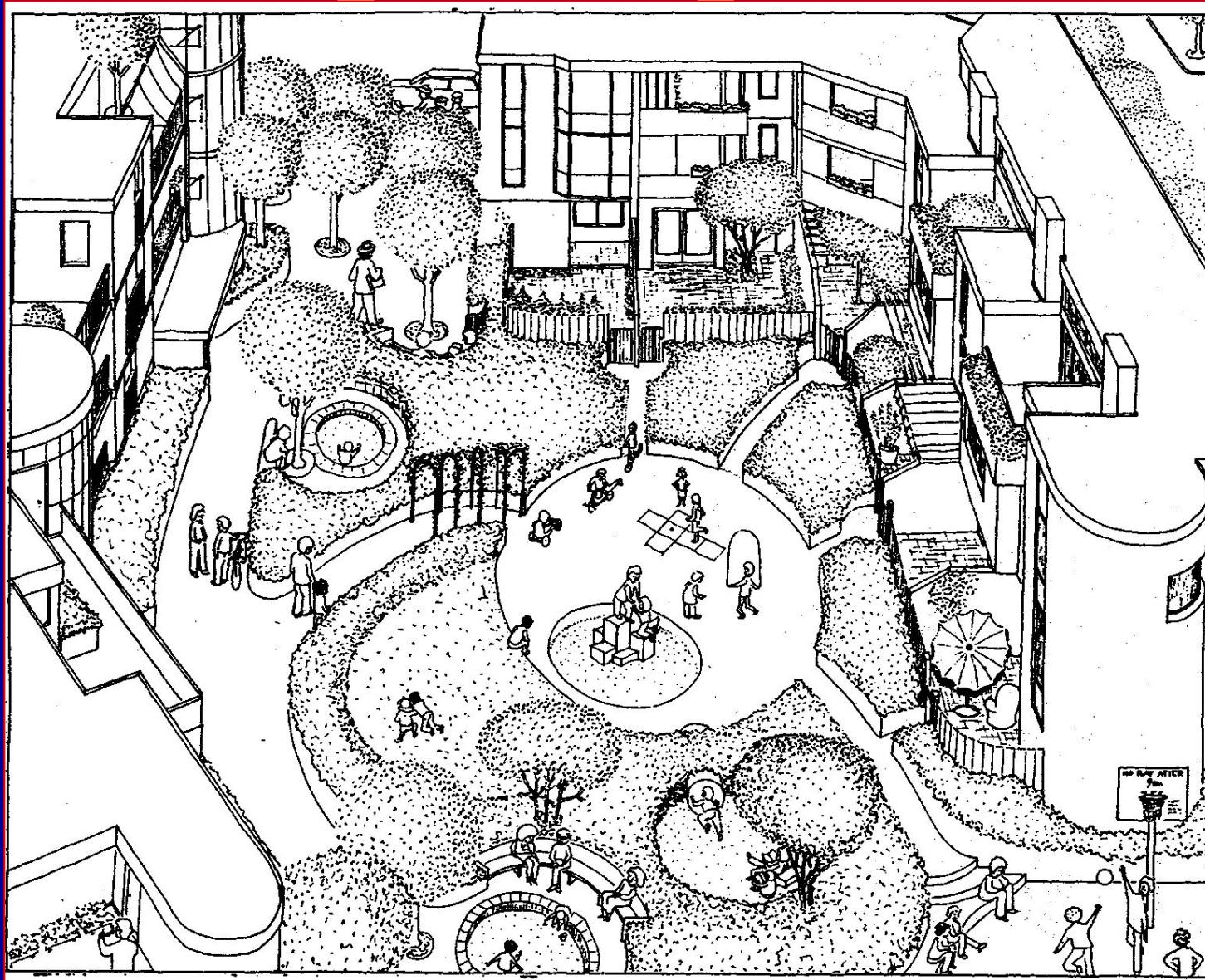
Community involvement

- *Promote community use and 'ownership' of public open space through local events and activities*

Running the gauntlet

- No group has to 'run the gauntlet' through an area dominated by others, like young people, who may represent a real or perceived threat to them

Running the gauntlet



Conflicting uses

- *Potentially conflicting activities not placed next to each other*

Pedestrian routes, lanes and alleyways

- *Design and use of lanes, alleyways and pedestrian routes have a significant impact on public safety, both real and perceived*
- *Poorly lit lanes, alleyways and secluded or heavily vegetated pedestrian paths can provide:*
 - *potential hiding places*
 - *spaces for non-legitimate uses in residential areas*

Danger by design

- *Average external rape site is 10 m² and*
- *has two or more physical barriers (bushes/walls/berms, etc.)*
- *restrict victims both psychologically and physically*

Design of pedestrian routes 1

- *Clearly define lanes, alleyways and pedestrian routes*
- *All pedestrian circulation patterns enhance other security measures*
- *Channel pedestrian traffic so residents using footpaths meet other people*

Design of pedestrian routes 2

- *Avoid dense shrubbery around pedestrian paths*
- *set shrubs well back from paths*
- *or use 'Keep-off' plant material with thorns or other repelling characteristics*
- *Circulation routes with options for length and difficulty of route to encourage casual strolling*

Design of pedestrian routes 3

- *Walkways and bicycle paths:*
 - *collector system to encourage casual social encounters near home*
- *Pathways with system of easily distinguishable hierarchies*
 - . . . *from major routes to more 'private' routes*

Location of pathways

- *Locate pedestrian pathways to enhance other security measures*
- *Locate paths for views of activity, as well as safety and security*

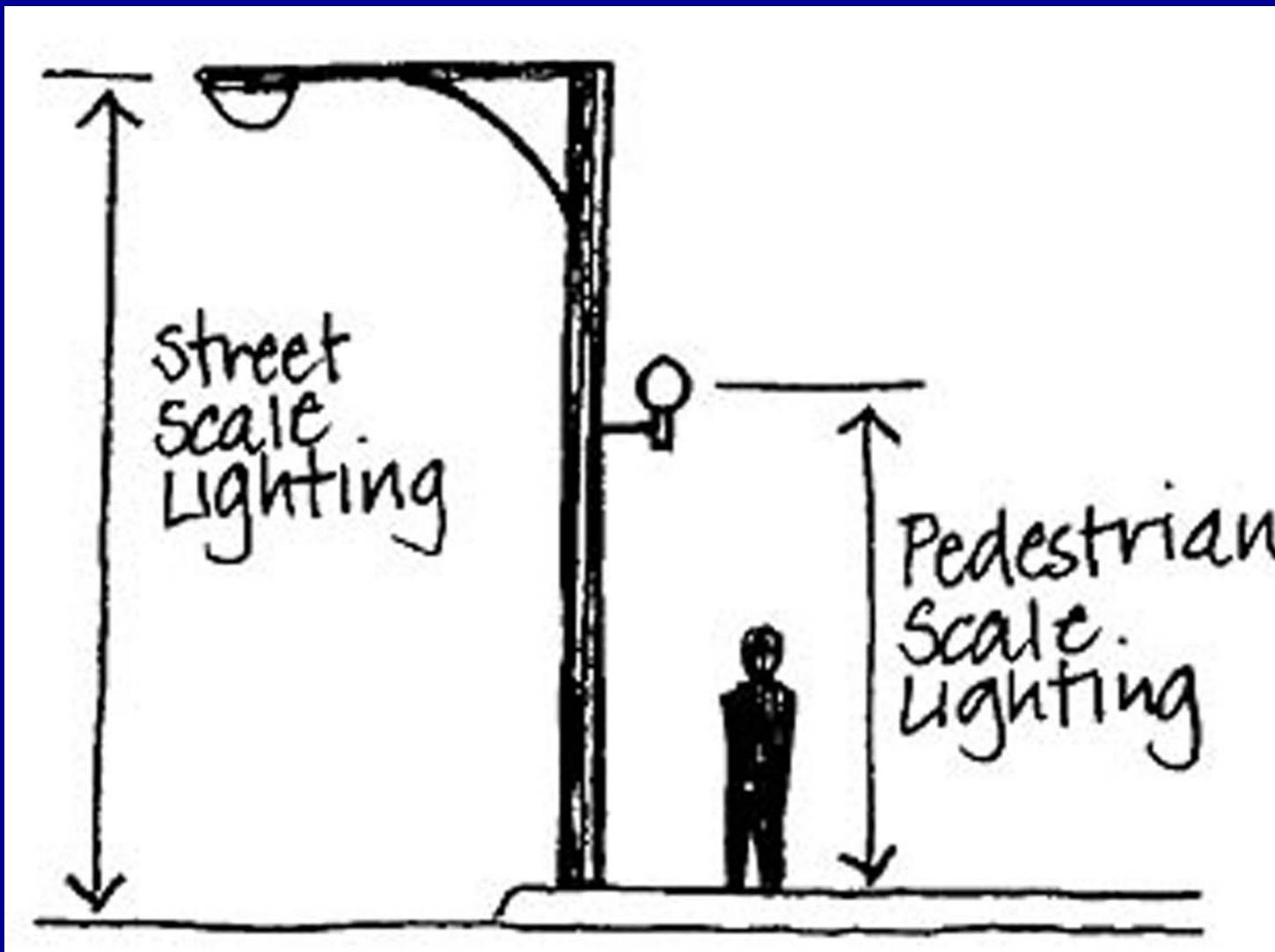
Design of alleyways

- *Avoid providing alleyways and access ways in areas with little pedestrian traffic*
- *Where back lanes are provided, pay special attention to micro-design details*
 - *... to reduce opportunities for burglary or entrapment*

Path lighting

- *Align lighting along paths to:*
 - *enable people to see their way*
 - *be seen by others in dwellings and those using paths*
- *Lighting should fall directly on paths and not cast dark shadows, especially on steps*
- *Street-scale lighting and pedestrian scale lighting*

Pedestrian scale lighting as different to street-scale lighting



Pathway sightlines 1

- *Light and landscape footpaths: possible to see a considerable distance ahead*
- *Avoid chance of attack by a hidden intruder*
- *A face should be recognisable from a distance of 15 metres*
- *Paths relatively straight for better visibility where that does not create a monotonous appearance*

Pathway sightlines 2

- *Laneways with more than one entrance to avoid 'dead-ends' and entrapment spaces*
- *Orient paths and planting so whole route between train station, bus stop or outdoor parking areas and building entries can be clearly seen*

Legitimate uses near pathways

- *Encourage casual use of spaces adjacent to pathways so they can become 'animated' and filled with legitimate uses*
. . . provided this does not intrude on the privacy of dwellings or private yards

Short-cuts

- *Avoid 'short-cuts' through housing developments or interior-facing residential buildings that encourage non-legitimate users to move through areas en route to another location*

Conflicting uses

- *Users of pedestrian routes do not have to 'run the gauntlet' through an area dominated by others who may be threatening to them:*
 - *alignment of pedestrian paths*
 - *fencing*
 - *landscaping*
 - *built form*
 - *lighting*

Dwelling privacy

- *While maintaining opportunities for natural surveillance from dwellings:*
 - *avoid pedestrian routes passing by dwelling windows so pedestrians do not violate privacy of residents*
 - *provide shades to screen dwelling windows from direct rays of street lights*
 - *or locate lights away from windows*

Natural surveillance of paths

- *Where possible, locate footpaths visible from activity rooms (not bedrooms, bathrooms or laundries) of adjacent buildings and dwellings*

Direct access routes

- *Direct access routes to and from buildings from streets, car parks and public transport*
- *Particularly important for dwellings closest to the Burswood train station so pedestrians are not in danger when walking home from the station*

Escape routes

- *Visible exit point provides an alternative route so a person can avoid a situation where they might feel threatened*
- *Signposts identifying exit routes can reduce feelings of isolation*

Barrier-free access

- *Paths 1360mm wide to allow wheelchairs to pass*
- *Space for wheelchairs to make a complete turning circle (1500mm X 1500mm)*

Path slope

- Major on-site pedestrian access routes: not greater than 5 % (1:20) slope
- These are considered paths (or walkways)
- Steeper gradients = ramps
- Walkway widths vary according to amount and type of traffic

Path design

- *Wide enough for two people walking side by side*

or

- *a person in a wheelchair and a person using a walker*
- *All paths of any importance: 1500mm wide (minimum)*
- *Major paths: 1830mm wide*

Paving and walking surfaces 1

- *Walking surfaces: predictable, non-slip and non-glare substances*
- *Surface materials for stability and firmness*
- *Relatively smooth texture*
- *Non-slip surface*
- *Minimise expansion and contraction joints (less than 12.5mm in width)*
- *Avoid soft or loose surface materials*

Paving and walking surfaces 2

- *Clear edge definition between paths and planting*
- *If planted areas do not have edges, plant materials can fall or be blown onto paths, making them slippery, especially when wet*
- *Plant materials that will not be slippery if they fall on paths*
- *Large leaves safer than small ones*

Paving and walking surfaces 3

- *Set back planter beds as far from paths as possible*
- *High edging (such as garden walls) used as seating*
- *to define edges of paths and planter beds*
- *stained broom-finished concrete best material*

Paving and walking surfaces 4

- *Brick preferable to tile*
- *Lay it on concrete, rather than sand for greater stability*
- *If exposed aggregate is used, it should not be overexposed*
- *Small stones easiest to negotiate*

Bicycle paths

- As Burswood Lakes is to be a transit-oriented development (TOD):
 - Convenient access for cyclists
 - Safe environment for cyclists of all ages
 - Adequate and safe facilities along routes and at destinations

Safe routes 1

- *Bicycle routes selected both for convenience and security*
- *Routes with vehicle and pedestrian traffic during the day and evening*
- *As few empty spaces and underground crossings as possible*
- *Routes well lit and well maintained*
- *Clear signage*

Safe routes 2

- *Avoid tall bushes, dense shrubbery and dense clusters of trees near routes and at predictable stopping points (road crossings)*

Rule of thumb:

- *low planting (maximum height 600mm) and*
- *high-branching trees (2 metres) to open sightlines*
- *particularly recommended within a distance of 15 metres from bicycle stop signs or road junctions*

Bicycle parking areas 1

- *Well lit*
- *Located where they can be informally surveyed from streets and buildings*
- *Bicycle parking and locking facilities in accordance with AS2890.3.*
- *Rails ('stands') not secure facilities for long-stay users*
- *Rails only suitable for short-stay users*

Bicycle parking areas 2

- *Arrangements for bicycle parking at the train station resolved in consultation with police crime prevention specialists*

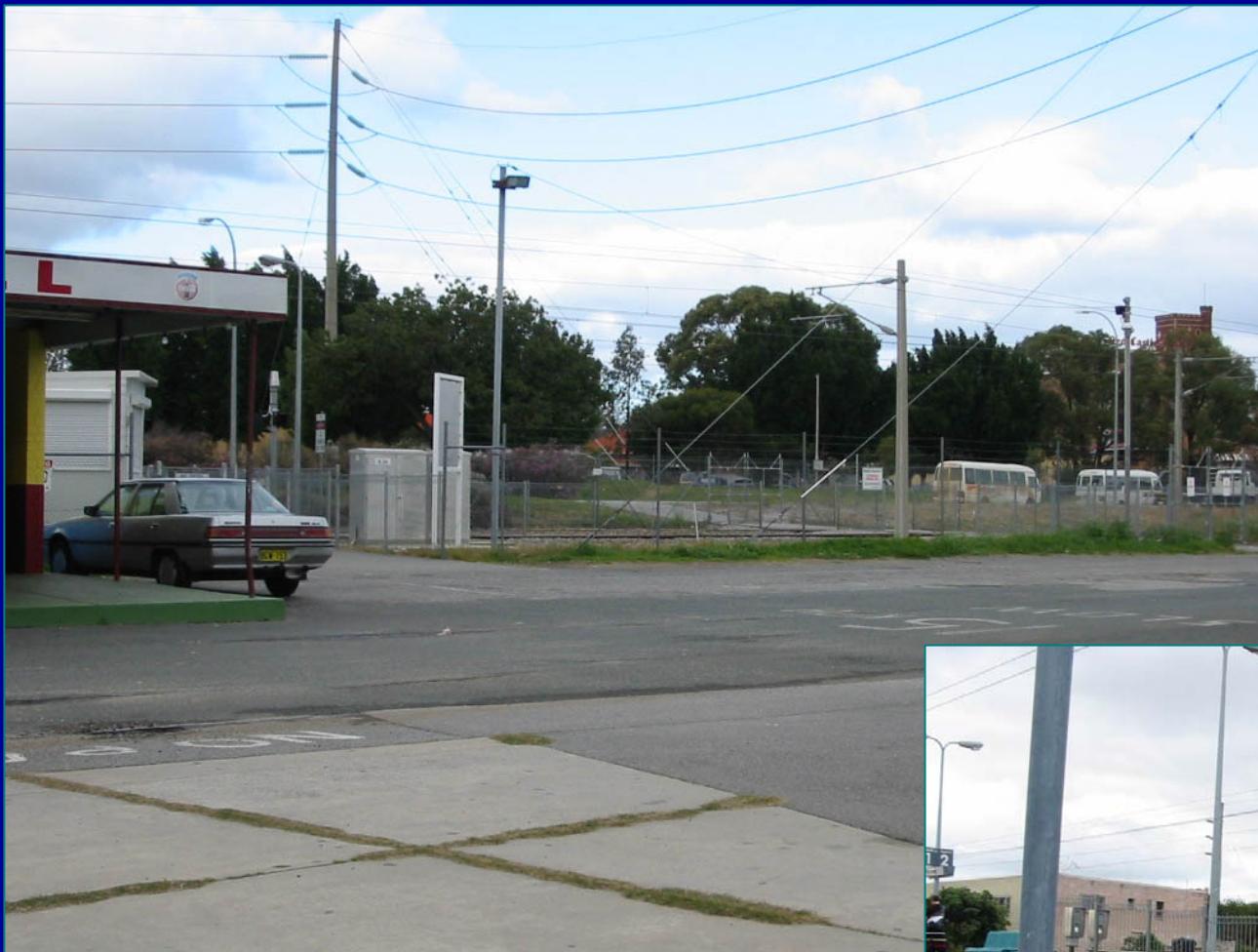
and

- *appropriate rail authority*

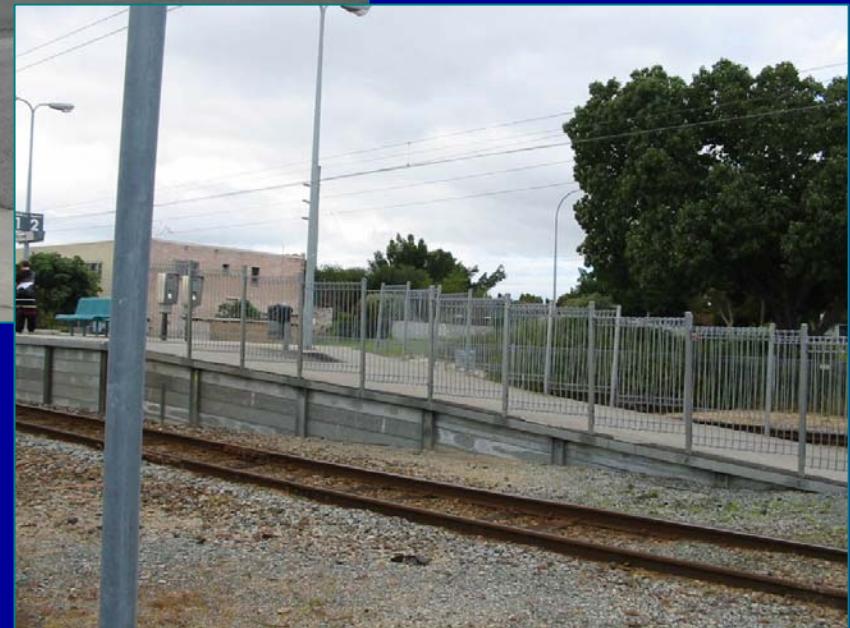
Bus stops, train stations and taxi ranks

- *Safety at bus stops, rail stations and taxi ranks an important issue*





The Train Station at Burswood

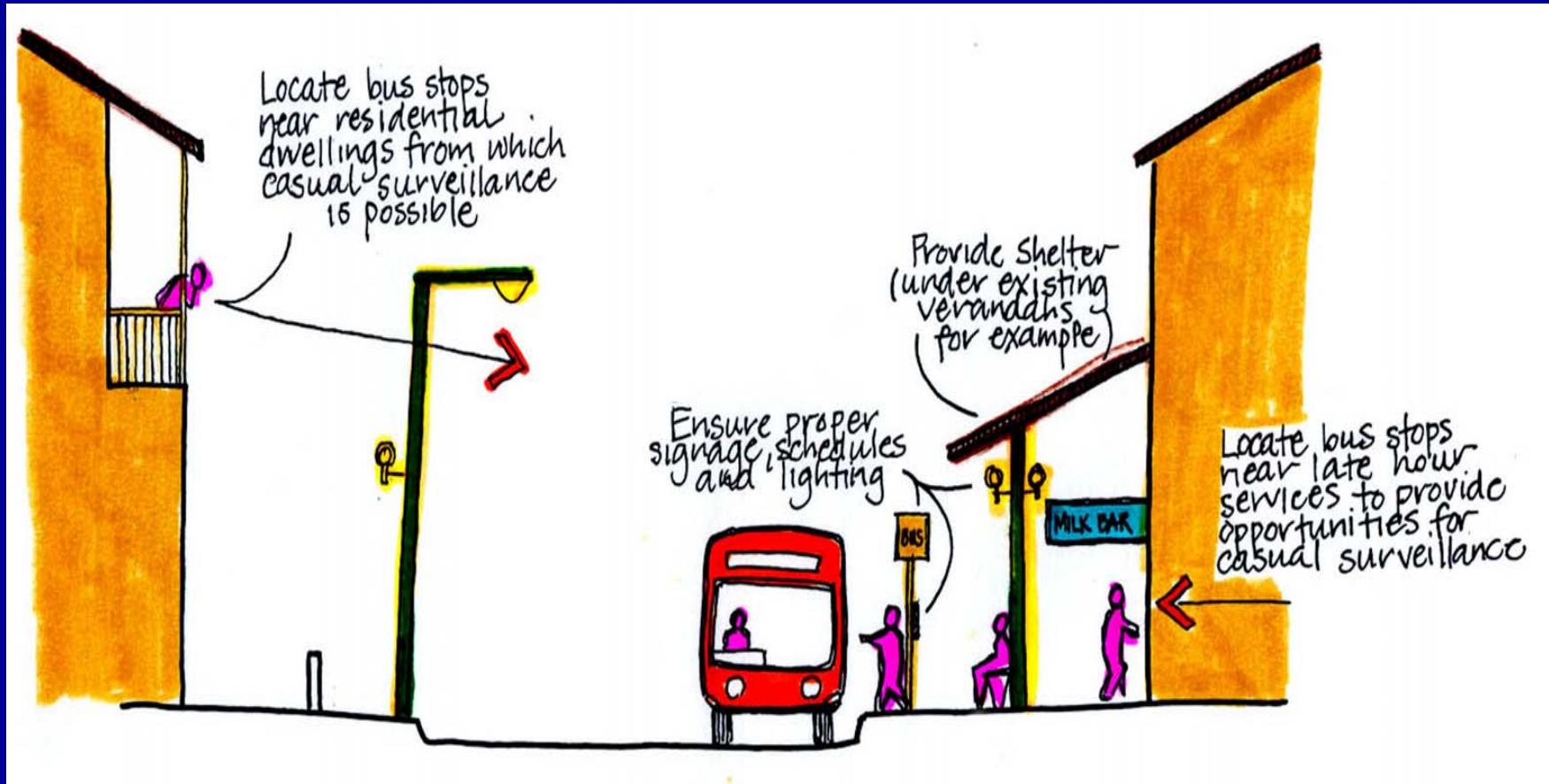




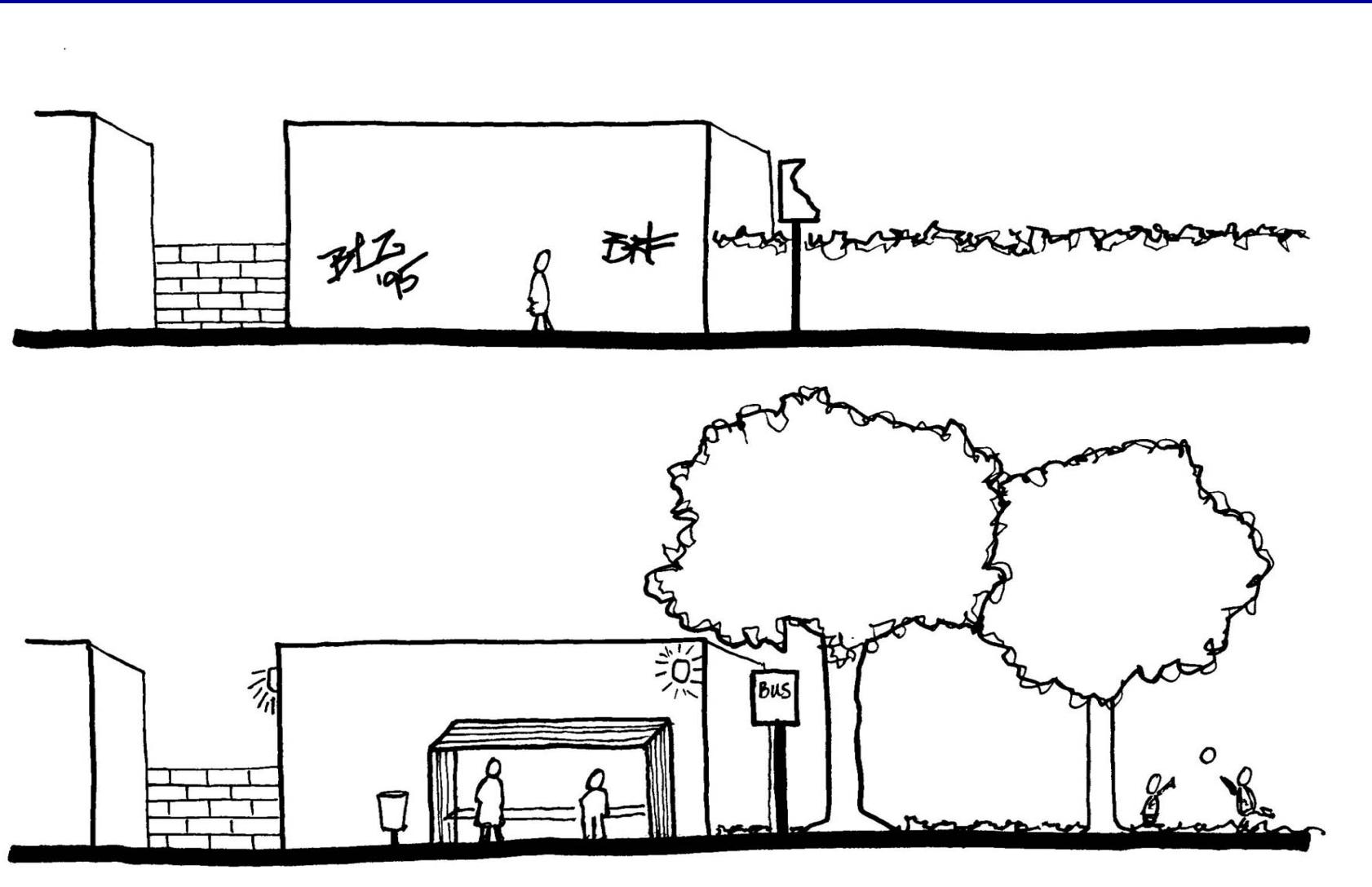
Bus stops

- *common gathering point for young people*
- *may be perceived as a threat by waiting women and older people*

CPTED principles related to bus stop provision



Bus Stops: CPTED Principles vs. vandalism and negligence



Train station: caution

- *Site-specific interventions require crime risk assessments (CRA)*
- *Basic principles can guide redesign and redevelopment of existing facilities*
- *Because it is important to encourage use of Burswood train station, careful attention to CPTED issues in its redevelopment strongly recommended*

Train station: lighting

- *Areas adjacent to the train station, bus stops and taxi ranks well lit and protected from weather*
- *Priorities developed using crime risk assessment procedures*
- *Lighting within bus shelters not too bright to affect ability to see into darker surrounding areas*

Train station: visibility

- *Persons waiting at bus stops, train stations and taxi ranks clearly visible from the street and adjacent buildings*
- *Dome site development will confer safety on route between that site and train station*

Public Transport Stop Location 1

- *Avoid locating bus stops and taxi ranks adjacent to:*
 - *vacant land*
 - *alleys*
 - *car parks*
 - *buildings set far back from the street*
 - *or near possible entrapment spots created by either landscaping or the built form*

Public Transport Stop Location 2

- *Short, safe routes to train station, bus stops and taxi ranks from night-time venues such as cinemas, etc.*
- *This will apply particularly to redevelopment of Dome site*

Bus stop at Dome site



Burswood Train Station



Co-location of services

- *Public telephones located near the train station, bus stops and taxi ranks*

Public toilets

- *Can provide locations for criminal activity: drug-use, vandalism and entrapment*
- *Appropriate design can mitigate crime related to public toilets*



Building Design

Building design 1

- *Can contribute to community safety by :*
 - *reducing opportunities for entrapment*
 - *fostering natural surveillance*
 - *Residents can see inside lobby when they enter*
- and*
- *survey surrounding open space before they exit a building, especially at night or after hours*

Building design 2

- *Hidden areas and blind corners provide excellent hiding places for potential criminals*
- *where such features cannot be removed, provide:*
 - *mirrors*
 - *windows*
 - *improved lighting*
 - *vandal-resistant*

Building entrances 1

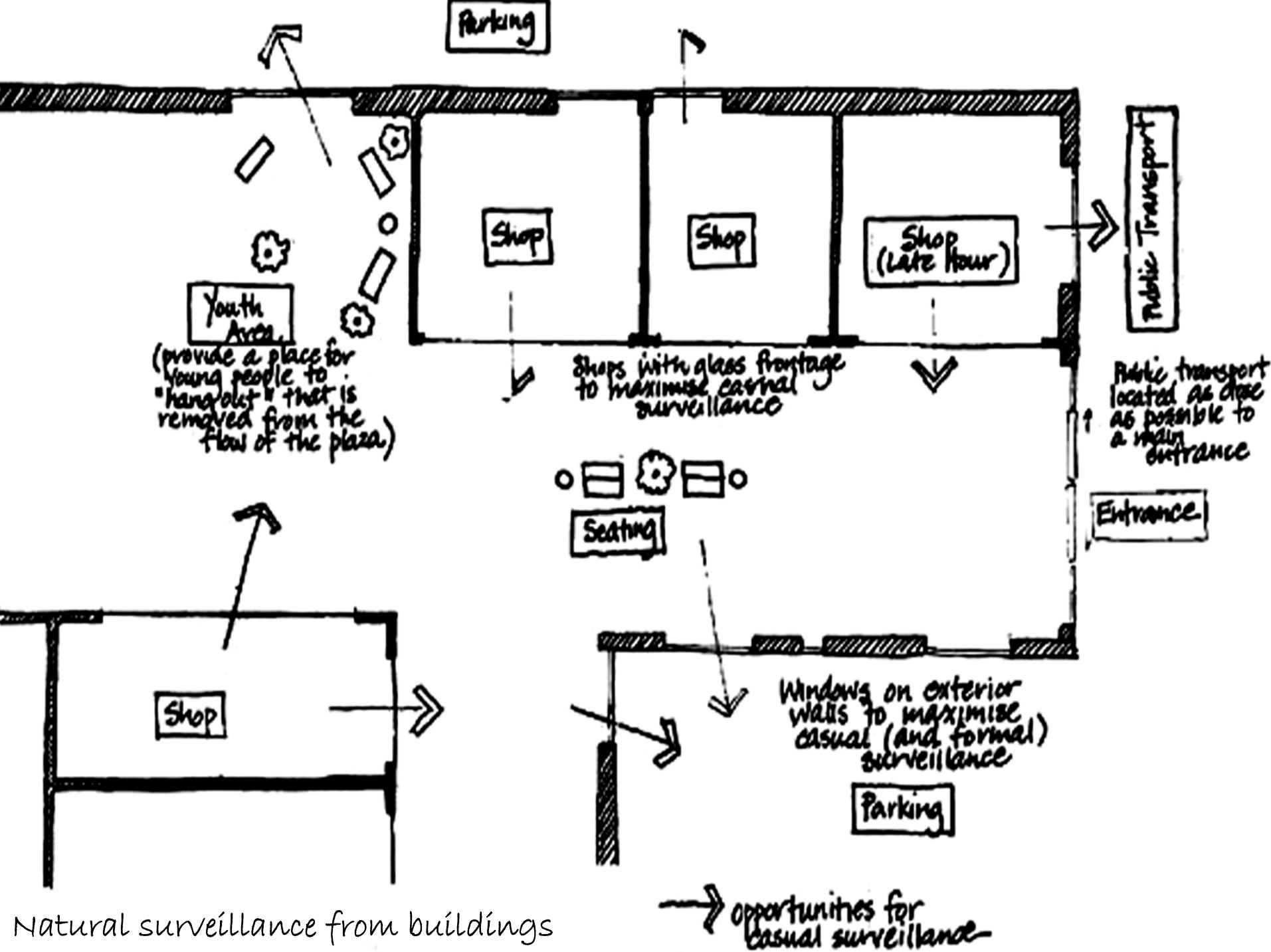
- *Entrances to buildings clearly defined*
 - *secure*
 - *well-lit*
 - *face the street*
- *Clear hierarchy of space from public street to semi-private areas of buildings increases territoriality of building*

and

- *Makes it uncomfortable for offenders to loiter in entranceways*

Building entrances 2

- *Cannot conceal intruders*
- *Allow clear view from within buildings*
- *Lobbies visible from exterior*
- *Area around main entranceway clearly distinguishable from public walkways leading to it*
- *Users feel they are entering area controlled by users*



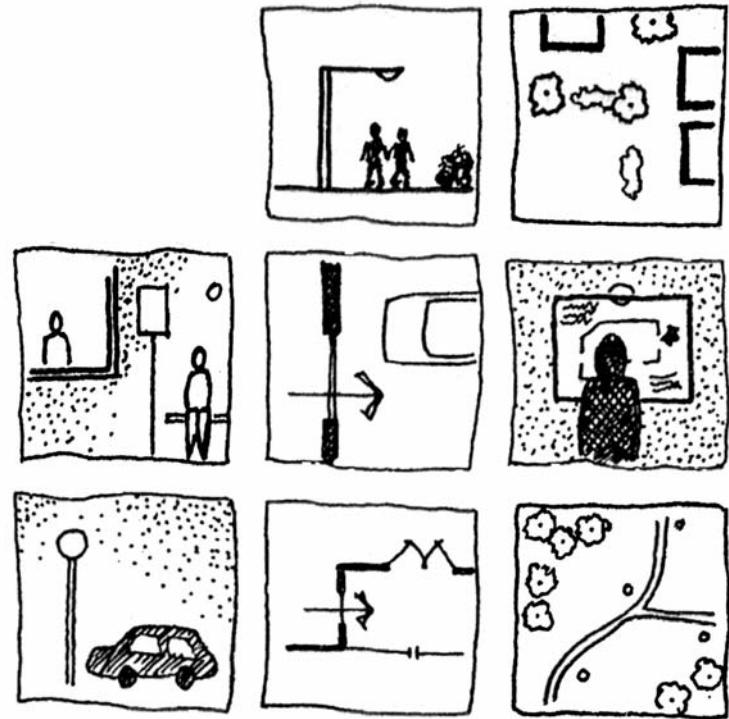
Gender Issues and CPTED

Gender issues and community safety 1

- Making public places safer for women means changing the urban and social environment to reduce fear of crime and *actual* levels of crime
- Specific nature of women's fear of crime in some public places seldom identified or acknowledged until it is too late

Gender issues and community safety 2

- Burswood Lakes planning and design team carefully consider significance of gender in perceptions of community safety, especially at the train station and any transport interchanges



Training with Care, 2003
the end...