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7 May 2014

Mr Lukas Madar  
Project Manager, Barangaroo – Building  
Lend Lease Construction and Infrastructure  
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Dear Lukas,

**Crime Prevention (CPTED or Security Design) Report  
Barangaroo South - Stage 1A Public Domain, Master Plan**

As per the email received from Abbey Johnson of 6 May 2014, we have reviewed the Revision 7 drawings from Aspect Oculus incorporating tree copse for Hickson Place, addition of a third crossing at the Lime Street and Union Walk junction, relocation of R1 stairs to within the boundary and paving design.

With regard to crime prevention and community safety issues, the subject of our 14 March 2014 report, we are of the view that the Revision 7 drawings accord with our report's findings, conclusions and recommendations.

Please find our amended final report with the referenced Aspect Oculus drawings Revision 7 dated 5/5/2014.

Yours sincerely,

Leon L. Harris Dip. Sec. Studs. CPP  
Principal Consultant

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# Harris Crime Prevention Consulting Services

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## Report on Crime Prevention Through Environmental Design (CPTED) Initiatives Incorporated into the Stage 1A Public Domain Master Plan – Barangaroo South

for

Lend Lease

May 2014

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# 1 Introduction

This report supports a State Significant Development Application (SSDA) (SSD 6303) submitted to the Minister for Planning and Infrastructure pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The SSDA seeks approval for public domain works within Stage 1A at Barangaroo South as described in the Overview of Proposed Development section of this report.

## 1.1 Overview of the Development

The Public Domain SSDA seeks approval for the all public domain works within ‘Stage 1A’ of the Barangaroo South Site. These works include typical public domain features such as street paving, street furniture, lighting and planting.

Additional items such as shade/weather protection structures, water features and bicycle facilities are also included in the design of the public domain. Various services and infrastructure such as power and water are incorporated into the proposed works where relevant.

## 1.2 Site Location

Barangaroo is located on the north western edge of the Sydney Central Business District, bounded by Sydney Harbour to the west and north, the historic precinct of Millers Point (for the northern half), The Rocks and the Sydney Harbour Bridge approach to the east; and bounded to the south by a range of new development dominated by large CBD commercial tenants.

The Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – the Headland Park, Barangaroo Central and Barangaroo South.

The Public Domain SSDA Site area is located within Barangaroo South as shown in Figure 1. The SSDA Site extends over land generally known and identified in the approved Concept Plan as Blocks 1, 2, 3, and X and the area of the foreshore between Block X and Darling Harbour.

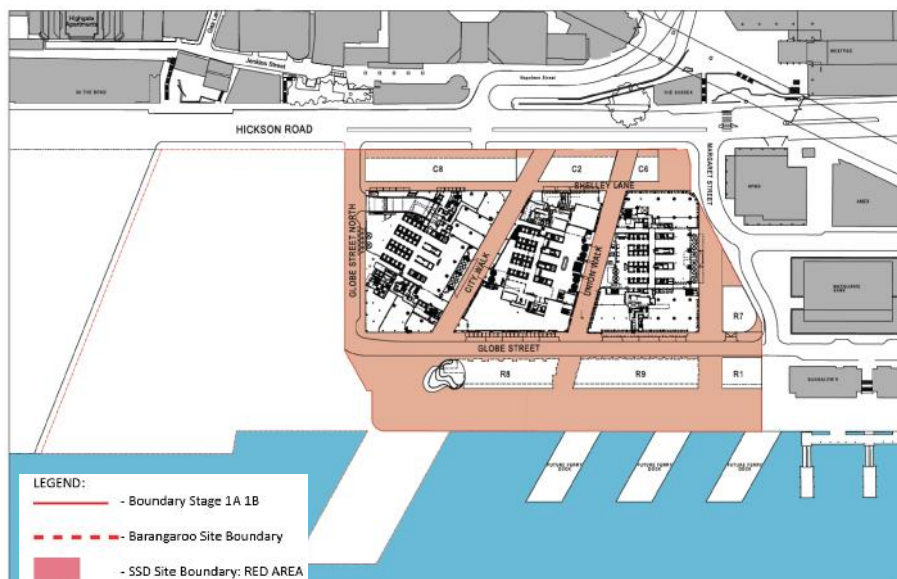


Figure 1: Public Domain Application Site Plan

# 2 The Brief and Scope

The brief sought a report on the extent to which the Stage 1A Public Domain (PD) Master Plan (the Master Plan or the Plan) considered and/or incorporated design initiatives to reduce, minimise or prevent anti-social and criminal behaviour occurring within the Public Domain footprint. The brief accords with objectives of the Barangaroo Delivery Authority (BDA) to invite and provide 24/7 activation within a ‘welcoming and safe place’ environment.

The scope was two-fold; (i) understand the PD concept and master plan purpose and requirements, (ii) review concept and master plan drawings to determine an inter-panel response to designing-out-crime through the application of Crime Prevention Through Environmental Design (CPTED)\* principles.

Harris consultants met with panel members to clarify 'safe place' issues and the (crime) risks associated with the PD's differential activation purposes. Concept and master plan drawings were subsequently reviewed to evaluate risk mitigation through design treatments. Specifics of the review included:

- compliance with CPTED informing legislation, instruments and agency policies;
- PD space allocation purposes, activation and interface (connectivity) issues;
- landscape, lighting and signage treatment;
- impact of weather, climate variations and day/night visibility and activation comparisons;
- safe day/night access/egress to streets, promenades, 'walks', pocket parks or gathering spaces, seating (furniture) for PD spaces including outdoor retail;
- (safe) location of utilities, communications and waste storage/removal infrastructure;
- options to manage after-hours security (crime) risks within, and on approaches to, the PD.

[\*CPTED's theoretical platform and principles engages project teams (panels) to re-focus, re-emphasise and/or re-package aspects of good urban design to achieve crime prevention objectives. CPTED is also referred to as 'safer-by-design', 'designing-out-crime' or 'security design'. Harris adopts five CPTED principles to inform a crime prevention (security) agenda: (i) territorial definition (ii) access control (iii) natural (passive or informal) surveillance (iv) activity support and (v) target hardening. The principles are actioned by applying aspects of architecture, engineering and technology to all urban development projects as intentional environmental crime prevention considerations.]

#### *Disclaimer*

The recommendations outlined in the report are based on information provided to Harris Crime Prevention Services at the time of this assignment. Research and experience that suggest certain design and policy approaches can be adopted to reduce opportunities for crime. It is not possible to guarantee that actual crime will be reduced or eliminated if these suggestions and/or recommendations are implemented.

### **3 The Public Domain as 'Welcoming and Safe Place'**

The Stage 1A PD forms part of an integrated public domain continuum connecting Darling Harbour, Barangaroo, Walsh Bay and the north western precincts of Sydney's CBD. The BDA, Infrastructure NSW, the City of Sydney, Transport for NSW, the Sydney Harbour Foreshore Authority and the NSW Police Force are united in their determination to present a total public realm blueprint with a 'welcoming and safe place' reputation. This is achieved through (a) attention to design and (b) use and occupancy (crime) risk management.

The PD master plan emphasises: (a) continuation of a waterfront promenade from Darling Harbour (b) east-west interconnecting streets between Hickson Road and Lime Street including City and Union Walks and (c) pocket park and/or social gathering spaces reflecting an explore-and-stay philosophy. It is a network of formal and informal pedestrian friendly zones characterised by architecture reflecting a seamless interface with retail and other built form diversity. The BDA's Barangaroo vision foreshadows... "*a place designed for play and work alongside living and learning.*", supporting earlier statements outlining the PD quantum as generating diverse liveliness through intentional (safe) interface with commercial, educational, cultural and retail objectives.

Within the Stage 1A envelope, the PD interfaces with commercial buildings C3, C4 and C5 and smaller mixed use buildings, encouraging a domain footprint within and around lower levels of building perimeters and podia.

The crime prevention objective is to establish a model whereby PD architecture and engineering (a) complements CPTED initiatives introduced into building designs and (a) informs an overall (public domain) 'welcoming-and-safe place' master plan for the total Barangaroo project.

There are three critical points of difference between Barangaroo South and external retail, pocket park or other public domain corridors and gathering spaces in and around adjacent CBD precincts. First, the development will become a preferred 24/7 destination; part of the City of Sydney's 'night time' economy initiative. Secondly, there will be multiple entry points and entry modes focussed on one destination –

light rail, ferry, city-rail, bus, cycling, walking and private vehicle. Thirdly, the PD includes a series of coordinated conduits to (new) world class mixed use options including retail centres, commercial and corporate offices, hotel accommodation, restaurants, markets, convention facilities and residential apartments; all of which add to the diverse circulation options.

## 4 CPTED Objectives and Outcomes

The crime prevention objective of CPTED is to:

- promote a legitimate use 'safe place' agenda of all natural and built environments by incorporating crime prevention or security design (CPTED) principles, codes, guidelines or criteria into all development planning and approval processes.

We believe that 'safe place' and broader crime prevention outcomes are more likely to be achieved if relevant architectural and engineering documentation is initially and progressively factored into each process stage – concept, master plan, design development and submission.

The Stage 1A project requires public domain corridors and destinations to be welcoming and safe. While it is not possible to ever guarantee safe place outcomes, a 'zero tolerance' of anti-social and criminal behaviour will send the best promotional signals. CPTED strategies are foundational to that outcome. Complementary Crime Prevention Through Environmental Management (CPTEM) strategies support design initiatives by operationally maintaining capability and by mitigating on-going crime risks.

Ghel (2010) suggests that good cities are for meeting. In the Barangaroo context, meetings across public spaces occur diversely as social, work and retail oriented, educational, cultural and residential opportunities. In our view, incorporating CPTED principles into supporting this 'use diversity' will contribute to safety (security) outcomes.

## 5 Review Specifics and Conclusions

Drawings supplied by the relevant disciplines (referenced under Section 7) have been reviewed independently and in some cases, in consultation with members of the Lend Lease project team. The reviews focussed on the following, in line with the above scope.

### 5.1 Compliance with CPTED Informing Legislation, Instruments and Agency Policies

Incorporation of CPTED principles into the Stage 1A public domain master plan is underpinned by State and local government legislation, guidelines, crime prevention (community safety plans, strategies, policies and/or management practices; either EPA enacted, or implied, by the BDA, Infrastructure NSW, the Sydney Harbour Foreshore Authority, City of Sydney, Transport for NSW and NSW Police Force.

#### 5.1.1 State Legislation

The Environmental Planning and Assessment (EPA) Act and guidelines are the instruments whereby developments subject to State or local government approval are required to consider the prevention of crime as a 'public interest' consent condition.

Section 79C (1) states: *"In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development, the subject of the development application"*.

Section 79 (1) (b) adds: *"...the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality"*.

Section 79 (1) (e) adds: *"...the public interest"*.

Interpretation of *"the public interest"* includes development of the public domain. The public interest in Stage 1A mirrors that of 'interest' in the entire Barangaroo footprint; an interest of personal and property safety (security).

### 5.1.2 Sydney Harbour Foreshore Authority

The Sydney Harbour Foreshore Authority Act 1998 will work closely with the BDA in the progressive development and management of Barangaroo. It establishes a management framework, setting out functions (a)...*to protect and enhance the natural and cultural heritage of the foreshore area; and, (c)...to promote, coordinate, organise, manage, undertake, secure, provide and conduct cultural, educational, commercial, tourist, recreational, entertainment and transport, activities and facilities...* [Section 12 (1) (a) and (c)]

While the Act makes no specific reference to the management of anti-social and/or criminal behaviour, in and around Darling Harbour, the Authority, by implication, seeks an environment within its precinct responsibilities which permits and promotes the wide ranging activities falling within its jurisdiction, including public safety (security).

### 5.1.3 City of Sydney

The City of Sydney developed the *Safe City Strategy 2007-2012* (currently under review) to provide *“an overarching to guide the City and its partners in tackling the complex range of crime and safety issues affecting both the Central Business District and our urban villages. This is in recognition that the causes of crime are complex, many and varied and that only working together effectively on a broad range of issues can we continue to create safer, vibrant and more prosperous communities”* (City of Sydney, 2006b:2). To achieve these goals, the City of Sydney established key community based objectives around preventing anti-social or criminal behaviour.

All development applications in relation to the City’s ‘village’ network (the urban LGA) are required to submit CPTED reports, undertaken either by specialist NSW police or by private planning or security consultants. Although independent from these obligations, the Public Domain’s crime prevention (design and management) initiatives form part of a whole-of-city approach to crime risk mitigation.

### 5.1.4 Transport for NSW

Transport for NSW has initiatives for (a) the extension of the city’s light rail network, (b) greater emphasis on seamless bus and light rail interchanges and (c) general improvements to personal safety and property protection across the entire metropolitan network with the creation of the NSW Police Transport Command. These proposals directly impact on, and are impacted by, the Barangaroo PD master plan. In particular, transport policy and procedures affirm the need for CPTED design as part of any re-design of the Stage 1A interchanges. Aligning the Stage 1A PD CPTED initiatives with those of Transport for NSW is essential.

### 5.1.5 The NSW Police Force

The NSW Police Force has appointed crime prevention officers within most of the State’s local area commands. Their role is to proactively review (a) anti-social and criminal behaviour ‘hot spots’ with a view to risk amelioration through increased police or security presence and/or through situational crime prevention measures – involving physical modification of (usually) external built form, applying CPTED principles.

City Central Local Area Command (LAC) works closely with City of Sydney ‘village’ communities, assessing and documenting issues likely to negatively or positively impact on criminality, especially in public domains. The LAC also manages alcohol and crowd control accords within the CBD, in conjunction with City of Sydney staff and private security companies.

The LAC also hosts community safety precinct committees, comprising business and community representatives whose role is to monitor crime risks and recommend crime reduction and prevention initiatives. Police input into, or review of, CPTED design development initiatives for the Stage 1A PD is desirable.

## 5.2 Safe Activation and Circulation

Barangaroo South’s public spaces (places) are the precinct’s living ‘breath’; interconnecting all aspects of built form and inviting both purposeful and casual exploration, first by those who will work access the realm frequently, secondly, by visitors from neighbouring Sydney suburbs, other parts of Australia and from overseas and thirdly, by Barangaroo South residents who will be the domain’s custodians. Barangaroo will become a destination ‘talking point’ and one of its recurring themes will hopefully be that

every promenade, park, corner, lane, street, and publicly accessible podium or retail outlet will ‘breathe’ safety (security) as a sustainably crime free vibrant day-night activation and circulation reality.

A successful CPTED outcome is to contribute to overall PD design, so as to reduce and/or prevent anti-social and criminal behaviour from occurring. Drawings reviewed indicate this intention.

There are three CPTED activation and circulation considerations – high day time pedestrian traffic during clement weather, medium night time clement weather traffic and low day or night pedestrian numbers during inclement weather. Street crime perpetrators may take advantage of low (pedestrian) numbers accessing public areas, exacerbated by distracting weather events (wind and rain).

Arup’s population movement summaries model some week-day and week end movements. Arup also note the likely concentration of commuters and visitors around rail, bus and ferry terminals, bounded by Lime and Margaret Streets, City Walk and Hickson Road. We emphasise the importance of directional lighting and signage to and from each transport hub to ensuring directional certainty. This minimises uncertainty, confusion and vulnerability especially for visitors at night.

We concur with Barangaroo South’s day-night ‘sense of community safety’ objectives. The proposed adoption of CPTED principles, applied through lighting, landscaping, signage by those disciplines, demonstrate a domain-wide intention to safe pedestrian interaction with a diversity of designed-for-safety public spaces. The Barangaroo South Stage 1A Public Domain Walks Design Principles, incorporating lighting concepts by Spiers + Major (2013), indicate activation and circulation priorities to share walking and cycling corridors and to separate slow moving vehicular traffic and pedestrians so as to not impede legibility and liveliness objectives.

Formal and informal activation/circulation will be enhanced by deliberate pedestrian-building interface options, exemplified by the diverse retail opportunities and by the through-site links with the commercial podia; all adding to the safe invitational mix. Markets, al fresco dining and cultural events proposed for street, park and promenade transition points, will further encourage day and night visitor numbers, thereby increasing an overall eyes-and-ears presence.

### 5.3 CBD Connectivity

Treatment of the CBD’s physical edge is critical to providing good legible connectivity to surrounding pedestrian and transport networks. The ‘inner edge’ arteries are the Wynyard Walk, City Walk, Globe Street, Margaret Street and the King Street to Globe Harbour waterfront promenade. The ‘outer edge’ (inter-street) connectors are Kent, Clarence, Erskine and Sussex cum Hickson Road. Safe and inviting edge connectivity is enhanced if, for example, where Barangaroo precinct signage, is extended as part of CBD approach corridor signage on street corners, at rail, bus and ferry terminals. This increases way-finding certainty for visitors and lessens any sense of being lost or confused about destination.

Vehicle, bus, proposed light rail and/or taxi pick-up/drop off points, for example, along Hickson Road and Transport Place, require special CPTED attention to prevent repeats of present criticisms of (some) existing stops or ranks throughout the CBD. Lighting and signage up-grades at these critical safety points are correctly a joint design exercise with the City and Transport for NSW as part of a safe CBD connectivity plan. Emerystudio’s, Concept Signage Plan indicates collaborative options for shared Barangaroo and City of Sydney signage; the roll-out of which would add to way-finding certainty along the inner and outer edge links. The City’s LED lighting of ‘edge’ corridors is progressing, enhancing overall illuminance effectiveness.

### 5.4 Lighting

Public domain lighting is a critical determinant of welcoming and safe place. Too often in such spaces, lighting characteristics (colour rendition, types of fixtures, illuminance inconsistencies leading to, shadowing, spill and throw) create conditions of uncertainty at best or confusion at worst, limiting night time surveillance and encouraging shadow concealment.

The Spiers + Major Union and City Walk Master Plan proposes a lighting continuum of catenary, pole and awning (canopy) lighting along both streets; a lighting plan which complements spill from retail and ground floor commercial (podium) spaces, but, does not rely on that additional spill during late night pedestrian circulation. The Plan suggests maximum use of overhead and/or recessed ‘down’ lighting throughout the PD with lower levels of blue-white spectrum lighting towards, and as part of, the waterfront. This is a preferred way to achieve safer night time spaces, minimising sight line interruption. In contrast, the use of bollard and other forms of up-lighting or low height spherical luminaires create glare and tend to interrupt sight line or way-finding certainty, particularly throughout what is a large

collective open and inviting public place. From a CPTED perspective, these (latter) lighting options are prone to damage and can either be 'buried' by mid height plantings or create shadow-creep.

The Spiers + Major Plan incorporates CPTED' principles into the Stage 1A project. The internal and external lighting design aims at encouraging casual exploration and visitation, around retail, social gathering and promenade activities. Their concept parallels that proposed for the streetscape-commercial building interface and promotes a 'principled' precinct-wide lighting plan.

The plan recognises lighting as critical to safe night time activation and our observations reflect those in our C4 and C5 Building reports.

## 5.5 Signage

Signage is critical to the CPTED principles of territorial definition, access control and activity support. Signage comprises (a) signs - displaying visual and/or audio text information, (b) symbols – displaying illustrated representations of text information and (c) notices – displaying warnings or messages using signs or symbols. A Barangaroo wide signage master plan is proposed, conceptually designed by Emerystudio, conveying the idea of primary, secondary and tertiary signage layers, the philosophy being to instil effortless orientation with coupled information, to remember place identity, to promote certainty (safety and 'well being') and to reinforce 'brilliant Sydney positioning' (Emerystudio's term).

The Emerystudio concept features stand-alone signage hierarchy which (a) will be illuminated to avoid glare on approach, (b) will not be located near other installations in order to reduce concealment and (c) will be replicated at low and higher levels to ensure wheel chair readability. (Regrettably, disabled people are often vulnerable to intimidating or more serious offending behaviour; hence the need to enhance their sight line and directional certainty.)

CPTED signage is also appropriate for emergency assembly points, again in conjunction with the City of Sydney's plans for city-targeted incidents or disasters.

The use of warning signs is a security feature in that such signs set limits and restrict access. Warning signs have both a security and safety function. They inform of hazards or restrictions of access, they warn of consequences including penalties for breaching access restrictions. Warning signs give some reason for encouraging compliance, for example, premises are under video surveillance, inflammable goods, etc. It is anticipated that public domain warning signage will be modelled on the broader signage plan; the specifics of which will progress through design detail.

## 5.6 Landscaping and Street Furniture

The Aspect Oculus concept and master plan incorporates (a) well defined pedestrian street, lane, green space and waterfront corridors; all of which signal strong and straight (progressive) sight line indicators, tempered by similarly well defined cornering or intersecting spaces.

Landscaping concepts for the PD propose a mix of hard surfaces, including paving and fixed seating, low plantings and/or grassed areas and high under-storey trees. The waterfront promenade, some streetscapes and transition spaces include provision for fixed seating furniture, including some walled areas doubling as social and rest spaces. Outdoor retail and event activities will provide removable furniture. Fixed furniture in and around transport hubs should not impede sight lines or surveillance opportunities.

Globe Harbour is a key waterfront destination; a meeting space along the entire Barangaroo waterfront promenade. Landscaping provides an open harbour view, sheltered seating and free open space to maximise safe informal circulation. Tiered grassed zones are proposed for the Globe Harbour precinct and Margaret Street function centre forecourt. They will be lively day time spaces. There are no apparent legibility or entrapment concerns. Lighting and landscaping design will combine to invite safe mid-to-high-volume night time casual and event-based activation.

Low plantings and high under-canopy trees are contrasting features of the landscape master plan. We identify three design detail cautions. (i) Restrict maximum heights and density for low plantings to around 1.00 metre at maturity to deter concealment. (ii) Plantings in raised beds can conceal explosive devices and, while this likelihood is 'low risk', the consequences are 'high risk'. Our recommendation is to install strong wire mesh at depths of around 50 - 100 mm below surface soil or mulch, to limit opportunities for such concealment. (iii) High canopy trees at maturity, should not be allowed to obscure street light fixtures and/or enable climbing access to building awnings or canopies.

The landscape master plan designs strengthen the PDs liveability, rebutting any intention to tolerate anti-social or criminal behaviour. Combined with lighting and signage strategies, all three aspects should enhance the CPTED ‘welcoming and safe place’ objective.

## 5.7 The Waterfront

The waterfront is ‘destination central’ and a continuum of the Darling Harbour – Barangaroo promenade interface. More than other PD zones, waterfront activation will attract day and night time circulation with the harbour as a constant back-drop.

Landscaping, lighting and signage are critical activity support measures to enhance day-night pedestrian safety (security). Landscaping suggests a combination of high canopy trees, grassed terraces and intermittent low vegetation with edged wall and custom seating of sufficient width separation to permit uncluttered pedestrian traffic; especially important at night. The lighting concept transitions from warm Kelvin consistency to low level blue-white softness along the waterfront promenade to reduce any sense of sudden contrast at the water’s edge.

Informal and event-based activation, observation and surveillance from residential balconies and commercial or retail tenancies will complement site-security management measures to counter potential anti-social or criminal incidents.

## 5.8 Buildings, Streets, and Public Space Linkages

A feature of the PD master plan is the way public spaces are interwoven with building footprints; continually emphasising exploration and navigation of those footprints through ground level retail, the through-site links and perimeter characteristics. This deliberate interface facilitates observation (surveillance) continuity.

Encouraging the transition from (safe) day time activation to similar levels of night time visitor activation will in part depend on: (a) operating hours, spread and quantum of street level retail outlets, (b) how PD design features ‘draw’ visitors to and through the Barangaroo South precinct, (c) programming of harbour-side and/or function centre events, (d) opening hours of the C3, C4 and C5 through-site links.

Encouragement depends on the retail and through-site links and (e) ‘policing’ of the PD to encourage safe 24/7 visitor, resident and tenant access while discouraging anti-social or criminal behaviour. These are CPTEM-related matters which, if combined with CPTED, will promote an holistic community safety strategy.

In an earlier report to Lend Lease, we have supported the C3, C4 and C5 link architecture which beckons, not blocks extended access. The link approaches and flanks provide good sight lines, facilitating day-night passive and active surveillance to both access and egress points. Generally, the link architecture reduces potential for entrapment or way-finding uncertainty. In support of retaining originally proposed through-site extended hours, our report noted:

*“The ideal would be to retain 24/7 use which, could be managed in conjunction with overall management (CPTEM) measures planned for the entire South precinct. IP video technology is proposed for perimeter and internal surveillance along the link routes. The option of closing the link at night (after hours) by locking link doors would solve potential unauthorised access into the lift lobbies. No additional barriers should be required.”*

CPTED principles have been applied to building edges, corners, under-crofts and set-backs, all of which combine to complement the safe-place architecture of the streets, walks, promenade and pocket gathering spaces – the core of public domain activity. The application of CPTED to buildings and surrounding PD spaces ‘gently’ and cohesively defines the total territory.

There are issues with potential opportunistic crime along the retail-commercial centric streets, specifically the Walks and Shelley Lane. Location of ATMs and cash handling operations require design considerations to ensure (a) there are no blind spots around ATMs, (b) that seating is not proximate to ATMs and (c) that ATMs are not located near any columns or furniture where intended offenders can hide. Cash-in-Transit vehicles should have 360 degree observation. Lighting clashes or glare from tenancies or streets should be avoided in these locations.

## 5.9 Infrastructure Protection

Utilities and communications infrastructure is mostly located within or adjacent to, commercial, retail and residential buildings. However utilities infrastructure, for example kiosks, metres and booster pumps, are vulnerable. Unsecured or partially exposed infrastructure increases low-risk but high-consequences crime, including (a) potential graffiti targeting or damage, (b) concealment with intent to assault, and/or (c) in the case of pump installations, attempted tampering with valves or seals. The proposed plan intends the securing of all utilities infrastructure either by external fencing or wholly contained within buildings as a master-planning standard.

There are 'safe' design issues for water, gas and electricity required for special markets or cultural events. Connector points should not be exposed and where possible end-point connections should be ground-recessed.

## 5.10 Public Domain Safe Place Management

The importance of managing Barangaroo's public domain should not be overlooked. We have emphasised that CPTED in isolation from CPTM undermines the value of design-for-safety objectives. Both strategies should be part of the Stage 1A, Stage 1B, Barangaroo Central and Headland Park CPTM Plan. The Plan should be aligned with current or flagged (public domain) strategies for Darling Harbour, Sydney's CBD and transport networks; falling within the egis of the City of Sydney, the Sydney Harbour Foreshore Authority, Transport for NSW and the NSW Police Force.

The Stage 1A Plan requires a strategic and 'layered' approach which establishes a precedent for the whole of Barangaroo. The Plan is based on five CPTM principles: (i) design maintenance (ii) systems management (iii) occupancy engagement (iv) risk re-appraisal and (v) outcome evaluation. (Refer Appendix notes for brief explanations.). We believe that a CPTM Plan could become a model for managing crime risks throughout the CBD.

In effect, the Plan is neighbourhood 'policing', a place management strategy based on the five principles and having two layers – awareness and management. Residents, tenants and visitors exercise safe-place stewardship over domain spaces, through an awareness of the value of protecting 'territory'; keeping it crime free. Government agencies and private security firms exercise the same site-wide stewardship, only as security managers – setting up coordinated policies and procedures to respond to risks, threats and incidents. Policies and procedures should have a similar status to those adopted for emergency safety and/or fire incidents.

The Plan's management 'five principles' platform seeks to:

- (i) develop regular maintenance schedules to prevent failure, anticipate redundancy and manage replacement of CPTED design features – lighting, signage, video surveillance and alarm technology etc.;
- (ii) regularly assess the reliability and relevance of all communications and security systems which, although a tenant-based requirement, should be reported and 'check-listed' centrally;
- (iii) encourage a site-wide tenant, resident and visitor security awareness regime using a variety of education methods;
- (iv) undertake on-going research into crime and anti-social behaviour risks to each Barangaroo building and specific public domain spaces; recording and sharing information amongst agencies as 'joint managers' of security; with a view to remaining proactive;
- (v) evaluate the security outcomes through inter-agency workshops, an extension of the City of Sydney's approach with a view to improving site-wide personal and property safety (security).

Precinct-based place management involves public and private policing agencies. Usually the private (security) companies work in their contracted 'patch'. In 'protecting' Barangaroo's Public Domain, consideration could be given to introducing Barangaroo 'guides' who also have a security role.

The continued marketability and security reputation of Barangaroo's Public Domain will initially be driven by design and destination attractiveness. However, the on-going reputation for safety and security will depend on how an informal (security awareness) and more formal (security management) Plan evolves.

## 6 Conclusion

Concept and master plan drawings for the Barangaroo South Stage 1A Public Domain have been reviewed in support of the State Significant Development Application (SSDA) (SSD 6303) submission to the Minister for Planning and Infrastructure.

The review, together with input from project team members, has canvassed:

- attention paid to incorporating CPTED principles in all relevant aspects of public domain architecture, engineering and technology;
- specific design parameters with respect to defined public space activation, circulation, access and egress, lighting, landscaping, signage, street and building connectivity and the ‘securing’ of utilities infrastructure;
- the need for building and public domain design to (collectively) incorporate intentional and integrated CPTED principles in the interests of holistic crime prevention outcomes; and
- the interface with adjacent (neighbouring) public domain precincts.

In our view, CPTED principles have been incorporated into Public Domain concept and master plan drawings, specifically in relation to external lighting, signage and landscaping, referred to in this report. The PD concept and master plans meet legislative, policy or guideline requirements of State agencies and support the community safety initiatives of the City of Sydney.

The overall design is a positive initial step in securing a ‘welcoming and safe place’ reputation for the entire Barangaroo project. Planning thus far embraces CPTED through attention to connectivity, (permeability) legibility and liveliness; maximising safe activation and circulation.

It is imperative that design development (detail) reflect the current documentation’s intent, ensuring CPTED principles become detailed reality throughout each of the design-and-construct phases. Design development should also consider the design of public transport, road and street corridors servicing Barangaroo South. This should be done as an inter-agency project to ensure CPTED outcome continuity.

This report has also foreshadowed the requirement to develop CPTED strategies in support of CPTED.

**With regard to the Stage 1A Public Domain development, Harris Crime Prevention Services concludes that:**

- a. **reviewed drawings and accompanying explanatory statements incorporate Crime Prevention Through Environmental Design (CPTED) principles into relevant aspects of concept and master planning documentation;**
- b. **the documentation meets ‘community safety’ planning requirements of the Barangaroo Delivery Authority and the NSW Department of Planning and Infrastructure, as reflected in the NSW EPA Act, 1979;**
- c. **the documentation also supports the ‘safe city’ objectives of the City of Sydney, the Sydney Harbour Foreshore Authority, Transport for NSW and the NSW Police Force.**

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## Appendix

### Harris Crime Prevention Services: CPTED and CPTEM Principles

Harris Crime Prevention Services (Harris) applies the following definitions and explanations to the coined terms Crime Prevention Through Environmental Design (CPTED) and Crime Prevention Through Environmental Management (CPTEM). Both initiatives encourage built form 'welcoming and safe place'.

#### CPTED

CPTED's theoretical platform and principles were suggested by American architect and city planner Oscar Newman in the 1970s, engaging architecture and engineering to re-focus, re-emphasise and/or re-package aspects of good urban design to achieve crime prevention objectives. CPTED is also referred to as 'safer-by-design', 'designing-out-crime' or 'security design'. Harris adapts five CPTED principles informing urban design-and-construct briefs:

- CPTED Principle 1 Territorial Definition
- CPTED Principle 2 Access Control
- CPTED Principle 3 Natural Surveillance
- CPTED Principle 4 Activity Support
- CPTED Principle 5 Target Hardening

There are also four spatial zones into which the principles may be applied:

- Zone 1 Public Space - for open and general use; precincts serving a variety of purposes;
- Zone 2 Semi-Public Space - open public precincts but with restricted usage;
- Zone 3 Semi-Private Space - space defined by occupancy and ownership usage;
- Zone 4 Private Space - singly defined purpose usage by specific individuals.

#### Principle 1 Territorial Definition

This is a delineator of one or more of the above spaces. Territorial design defines form and function of spatial ownership or stewardship emphasising invitational purpose. Perimeters and creative bounded form confirm spatial integrity and cared for legitimacy.

#### Principle 2 Surveillance

Spatial design maximises surveillance opportunities – formal (active) and informal (passive). Surveillance increases the number, width, depth, height and length of sight lines or fields of vision: the capacity of people and technology to observe movement and activity at distance. All forms of surveillance encourages a security 'ownership' or stewardship of territory and promotes informal 'security intelligence'.

- *Natural surveillance* encourages casual observation of all users of defined urban space.
- *Social surveillance* encourages regular (and possibly casual) users of space to more deliberately observe and routinely monitor, challenge or report suspicious pedestrian and vehicle movements through precincts or into buildings.

- *Technical surveillance* employs visual recognition technology to manage defined spatial access and support human surveillance activity. IP video surveillance technology, alarms and access control systems are mainstream crime prevention and crime management tools in urban design.

### **Principle 3 Access Control**

Access control design applies subtle architecture in support of territorial definition, by clearly indicating the directional or destination limits, restricting or halting access through certainty of access and movement. Lighting, signage, designated movement corridors, landscaping, fencing, steps and doorways (as opposed to doors) are obvious examples. The principle encourages 'distinguishing' design characteristics between legitimate user access and those seeking access unlawfully.

### **Principle 4 Activity Support**

This involves the use of creative signage, (external) lighting and other landscaping way-finding design to encourage intended patterns of usage, generating activity certainty or liveliness, particularly in public domains.

### **Principle 5 Target Hardening**

Target hardening (strengthening) increases the efforts 'offenders' must expend to disrupt legitimate occupancy and activity. Architecture is directed at denying or limiting access to potential criminal targets through more intentional and less subtle design including deliberate physical barriers such as security fencing, gates, locks and electronic alarms. However, the design goal is to avoid 'fortressing'.

## **CPTM**

CPTM is a post-construction platform whose principles complement and support CPTED. It is an occupancy management initiative which maintains embedded (security) design and monitors 'place' crime risk to sustain a safe (secure) built form environment. The objective is to sustain a development's on-going reputation as 'welcoming and safe place'. The principles are:

- CPTM Principle 1 Design Maintenance
- CPTM Principle 2 Systems Management
- CPTM Principle 3 Occupancy Engagement
- CPTM Principle 4 Risk Reappraisal
- CPTM Principle 5 Outcome Evaluation

### **Principle 1 Design Maintenance**

Some CPTED initiatives require regular maintenance and/or testing for reliability, obsolescence, redundancy, replacement and re-alignment. Lights, signs, landscaping, security doors, cameras, alarms and locks should receive scheduled maintenance and appraisal to affirm (design) capability and integrity.

### **Principle 2 Systems Management**

This involves the testing and management of security technology systems as they integrate with fire and emergency systems to ensure holistic security and safety operational readiness.

### **Principle 3 Occupancy Engagement**

'Levels' of security awareness, policies and procedures should be developed to engage occupants and user-stewards of retail, residential, recreational, commercial, health, educational, industrial and mixed use premises.

### **Principle 4 Risk Reappraisal**

Security and/or facilities managers should conduct regular 'desk top' risk assessments to identify changes and options for monitoring and managing 'new' crime risks.

## Principle 5 Outcome Evaluation

Implementation of CPTM and CPTD requires on-going regular evaluation; critical to 'test' the relevance, cost-effectiveness and value (real and perceived) of both initiatives with a view to modelling, replicating and/or improving future security design and security management outcomes.

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We believe that CPTD and CPTM principles are interdependently linked. Often they are neither applied nor linked. Both principle sets should be intentional considerations, integrated into concept, master planning, design-and-construct briefs, and ultimately, into (safe) occupancy management objectives.

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