03 – Roads, Car Parks and Civil Works

Version	Date	Authors	Summary of Changes
1.0	13 August 2010	Alex Chryss	
1.1	8 February 2012	Solomon Elijah	Changed Title, Clause Numbers & Header
1.2	10 September 2012	Adam Taylor	Changed title, added Design Philosophy
1.3	20 September 2012	George Abraham, Adam Taylor & Alex Chryss	Incorporated amendments to Clauses
1.4	21 November 2012	Ben Crossling	Added relevant Australian Standards and provided an Link to the Park & Traffic Statute
2.0	05 February 2016	Neill Daly	General Revision

Introduction

06.01 Roads and footpaths within the Australian National University (the ANU or the University) do not fall under the jurisdiction of the Australian Capital Territory (ACT) Road Transport Authority, but are subject to ACT road transport legislation.

06.02 Under the Acts 'public road' means any street, road, lane, thoroughfare, footpath, or place that is territory land open to, or used by, the public.

06.03 The Campus and Buildings Requirements Manual (the CBRM, the Requirements or the Manual) documents the minimum design and construction requirements for new, refurbishment or repurposed building works, landscapes and engineering/infrastructure projects on buildings, facilities and campuses of the ANU. The Requirements are prepared for the direction of a Consultant, Designer or Project Manager in the preparation of project specific documentation and in the delivery of project works.

06.04 Notwithstanding any Consultant's particular discipline or area of responsibility, each Consultant and/or designer shall consider the document in its entirety. The complete CBRM consists of the following Sections which may be referred to within this Section:

Campus and Building Requirements Manual	
Section 01	General Requirements
Section 02	Architectural Requirements
Section 03	Roads, Car Parking & Civil Works
Section 04	Soft Landscaping
Section 05	Roofing, Roof Fabric & Roof Safety
Section 06	Building Management Systems
Section 07	Electrical Services
Section 08	Fire Protection Systems
Section 09	Hydraulic Systems
Section 10	Mechanical Services
Section 11	Lifts, Cranes & Vertical Transportation Systems
Section 12	Security, CCTV & Access Control

Design Philosophy

06.05 To create a pedestrian and bicycle-oriented campus, where people choose to walk and cycle and perceive the landscape as safe, pleasant and easy to navigate by foot and bike. All projects on campus should apply the Planning Principles of Theme 7. Transport and Movement as documented in the Campus Master Plan 2030. Works should also support the uptake of active transport modes, including public transport and the realisation of the following targets from the ANU's Environmental Management Plan of:

- Increasing green commuting to 80% by 2015, and minimising single-occupant vehicles; and
- Reducing fleet vehicle emissions 20% by 2015 and continuing to off-set 100% of fleet emissions.

Design Principles

- Paths which get pedestrians and cyclists to where they need to go on campus and link to off-campus pedestrian and bike access points, via relatively direct routes, unhindered by safety hazards and permanent physical obstacles. This will require improvements to existing paths which:
  - are disjointed; intersected by vehicle driveways;
  - end abruptly in the middle of nowhere; and/or
  - require pedestrians to cross roads multiple times because of obstructions and discontinuations.
- Clear way finding signage and maps in the landscape.
- Increased priority for pedestrians and cyclists in areas where they intersect with vehicle traffic. This includes the introduction and realignment of crossings to allow for safe and easy crossing of roads along major pedestrian corridors. It may also include the introduction of more 'shared zones' with a clear hierarchy of priority:
  - pedestrians first;
  - followed by cyclists; and then
  - vehicle traffic.
- Minimise conflict between pedestrians, cyclists and vehicles by, where possible, segregating their paths of travel along longer corridors, such as the pathways along Sullivan's Creek.
- Improve the experience of walking on campus through improvements to path shading, distribution of drinking water stations and benches adjacent to pedestrian paths and thoroughfares.
- Street lighting to minimise dark spots at night and staff, students and visitors feel safe and confident to walk through campus at night.
- Traffic-calming to slow vehicle traffic on campus and encourage slower speeds for bike traffic in pedestrian areas.
- Improve links to and accessibility to internal and external public transport stops.
- Sheltered and clean public transport stops along internal bus routes.

Specific Design Requirements

06.06 Consultants shall design in accordance with these guidelines noting the differing requirements which may need to be applied for those projects located outside the ACT. For projects in other states Consultants are to confirm all requirements with the Principal's Representative (the Principal or the Principal's Project Manager).

Shared Use Zones

06.07 The Acton campus is predominantly a pedestrian environment. Areas which have been designated shared zones should be clearly distinguished from roads to send a clear message that vehicles must slow down and that different give-way rules apply within these zones. This should ideally involve a visibly distinct look, including different pavement type and colour, removal of traffic lane marking, as well as traffic-calming to slow vehicles approaching the shared zone. Clear signage should also be installed to advise all users that the priority is:

- Pedestrians first;
- Cyclists second; and then
- Vehicles.

Footpaths / Cycle Paths

06.08 As a general guideline the minimum width for new pedestrian paths is 1.8 m. The width may need to be wider depending on volumes of traffic. Where necessary segregation of pedestrian and bicycle traffic would be preferable.

06.09 As a general guideline the minimum width for new cycle paths is 2.5 m. The width may need to be wider depending on volumes of traffic.

06.010 Cycle paths are to be hot mix asphalt.

06.011 Pathways shall not have benches, bins, etc., in the line of pedestrian path of travel.

06.012 Inspection pits and manhole cover lids may be located within footpaths only in cases where it is absolutely unavoidable.

06.013 Cycle/wheelchair ramps to be provided to kerbs at all intersecting pathways/roadways carparks and adjacent to buildings

06.014 All pavements to be constructed using Australian standards.

06.015 All pavements to use design specifications to enable pavement to withstand being traversed by vehicles without failing.

06.016 For concrete pavement only two types of standard finishes used throughout the Acton campus; lightly washed exposed aggregate and plain concrete with broom finish.

06.017 If concrete pavement is to be divided into geometric or other shapes using elements such as brick pavers the slab must be continuous under the lines of division to minimise cracking.

06.018 Main concrete joints to be constructed using dowel joints. Keyed joints are prohibited.

Roadways and Vehicular Traffic Calming

06.019 The finished surface for all new roads and/or road refurbishment projects is hot mix asphalt.

06.020 The preferred traffic calming device is a speed hump constructed in concrete with the surface flush with top of kerb (Noting this will require the design and installation of additional storm water drainage pits).

06.021 If it is not feasible to install additional drainage the preferred alternative design is to shape the concrete speed hump to retaining existing gutters.

06.022 The installation of speed humps with drainage channels and grates between kerb and speed hump is prohibited.

Car parking

06.023 The number of parking bays will be determined taking account of local authority requirements and other project needs such as visitor parking. The University has specific signage requirements for car parks and may need to include the provision of voucher machines. These costs are to be included in the project budget.

06.024 Bay widths and bay delineator types shall be in accordance with Australian Standards.

Accessible parking bays

06.025 Accessible parking bays are required where directed by the Principal's Representative. The University has specific signage requirements for accessible bays.

Accessible parking bay directional signage

06.026 All car-parking areas should have signage at their entries clarifying whether or not the area includes access parking.

Accessible parking bay numbers

06.027 Access parking bays are to make up a minimum of 2% of any main car-park area, unless these parking spots are re-allocated to higher use access areas as directed by the Principal's Representative. Flexibility in the design of parking bays is recommended. For example, provide several wider bays that can be adapted to access parking bays, if later required, by changing signage.

Accessible parking bay location

06.028 Access bays must be located as close as is practicable to accessible routes and likely destinations, including essential teaching and learning locations. A maximum of 120.0 m travel should be allowed between access bays and likely destinations.

Accessible parking bay design

06.029 At least one access-parking bay should be 4.2 m wide for special-purpose cars. This bay can overlap with other use areas. The aim is to ensure parking is designed and sized to allow access to and around vehicles.

Accessible parking bay cross slopes

06.030 Cross slopes are potentially more hazardous than longitudinal slopes. Cross slopes are more likely to cause ankle injuries for pedestrians and problems for wheelchair users. Cross slopes in access parking bays are to be a maximum of 1:40.

Accessible parking bay surfaces

06.031 Irregular surfaces are trip hazards for all users and are difficult for wheelchair users to negotiate. Access parking bays are to be sealed, even and free from irregular levels or tree roots. Maximum allowed level difference is 4 mm.

Kerb ramps

06.032 Car-parking areas must be serviced with accessible kerb ramps with no more than 10.0 m travel distance from car to ramp. Accessible kerb ramps should be clearly visible and should be located near access parking areas.

Wheel stops

06.033 The choice of car park furniture to restrict access and/or dictate car park layout are as follows:

- Large or small galvanised steel rails
- Wheel stops
- Concrete kerb

06.034 Wheel stops or single ‘raised’ kerbs should be avoided. If unavoidable, wheel stops should be positioned so they are not hazardous. They should be clear from paths and kerb ramps. If possible, road islands should be used in preference to wheel stops. Only low profile wheel stops are to be used.

06.035 The use of treated pine logs in car parks is prohibited.

Obstructions

Car overhangs

06.036 Car noses or tow bars protruding onto pedestrian paths must not reduce the width of those paths below minimum allowable widths. Extend path widths so that car noses or tow bars do not compromise minimum allowable widths. Consider the use of garden beds, lawn or changes in path texture to separate the accessible path from the car park. Wheel stops can be used as a last resort.

Overhead obstructions

06.037 Overhead obstructions including trees and branches are to be a minimum of 2.5 m above ground level in parking areas. Stair landings or other built overhead obstructions must not be over a path or surface of the same material and texture as the path.

Doors and windows

06.038 Doors or awning windows must not open onto paths, ramps or landings unless they allow for minimum clear access widths to be maintained. They should not open onto any part of a path but must be over clearly delineated surface.

Protruding objects

06.039 Ensure paths and ramps are clear of objects that a cane can go underneath or that protrudes into a delineated pathway. If this cannot be achieved, then provide tactile pavers around base of the objects. Paths are to be clear of obstructions such as light poles.

Kerb ramps

06.040 Kerb ramps must not reduce the unobstructed path width. Kerb ramps are to be constructed to the local government standard details, and meet all requirements for tactile indicators. Kerb ramps widths (not including feathering or curving to blend with kerbs) are to be the full width of the paths they associated with.

Free standing objects

06.041 Freestanding objects must not protrude more than 500 mm into a walkway and must not reduce the clear width of the walkway.

Wall-mounted objects

06.042 Wall-mounted objects must not protrude more than 100 mm into a walkway and must not reduce the clear width of the walkway.

Fire service equipment

06.043 Fire service equipment, such as fire extinguishers and hose reels, must be recessed into walls wherever possible or set clear of walkway clear space as noted elsewhere.

Vending machines

06.044 All vending machines are to be set back 900 mm from clear circulation space.

Surface mounted grated drains

06.045 Refer to Section.09 Hydraulic Systems for surface mounted grated drains.

Grate locations

06.046 Grates must not be located at the bottom of stairs.

Street Furniture

06.047 As with all hard landscape infrastructure components the size and diversity of the Acton campus makes it impractical to adopt a uniform approach to selecting a pallet of street furniture for use throughout the campus.

06.048 Table settings and benches: ANU has a range of table settings and benches that are used as standards for use in outdoor areas XXX – GG to provide.

06.049 Bollards:

- Concrete ball shaped bollards for permanent locations
- Frustrum shaped bollards for locations where bollards need to be removed on occasion.

06.050 NB The use of bollards that are installed by being bolted to a concrete slab is prohibited.

06.051 Bicycle racks: ANU uses a standard inverted 'U' shaped bicycle rack that is installed by being bolted to a concrete slab.

Public transport

Public transport pick-up points

06.052 Bus stops and taxis ranks are to be located on accessible paths. Public transport pickup points should be accessible for all users.

Slopes at public transport pick-up points

06.053 Cross and longitudinal slopes in waiting and loading zones of public transport pick-up areas are to be a maximum of 1:40. Maximum slopes in waiting and loading areas are the same as those for paths.

Kerbs at public transport pick-up points

06.054 Tactile and contrasting colour indicators, 300 mm wide, are to run the full-length 600 mm back from the kerb, in public transport pick-up areas.

Set down and pick up areas

Road side set-down areas

06.055 Set-down areas or lay-by widths are to be located on the driver's side of the road and are to be a minimum of 3.2 m wide, located where directed by the Principal's Representative. Cross slopes are to be no more than 1:40. Set-down areas should accommodate all users, including the users of access parking bays.

Other requirements in set down areas

06.056 Set-down areas are to be provided with kerb ramps and access footpaths. They should also be provided with campus maps and seating as directed by the Principal's Representative.

Destination clues

Provide clear tactile clues

06.057 All users, particularly blind and visually impaired users, may become disorientated and lost if clear clues to destinations are not provided. Give clear visual and tactile clues to major destinations along routes using texture, lighting, contrast or other design solutions.

Identify pedestrian crossings and kerb ramps

06.058 A defined pedestrian crossing must meet the statutory requirements. A crossing must include tactile markers either end, where the crossing meets a path.

Civil Works

Site works

06.059 **Service trenching**

06.060 Where existing drawings are provided, the data should be taken as 'indicative only'. Consultants are required to take all steps to determine for themselves the location of underground services.

06.061 **Spare conduits**

06.062 Spare conduits are to be provided under concrete paths as nominated by the Principal's Representative.

06.063 **Service trenching reinstatement**

06.064 Where disturbed by service trenching or the like, the returned below ground materials (soil, sub-bases for example) must match or improve on the existing materials.

06.065 Where trenching must cross footpaths or roads, the preferred method is under-boring; however, if not possible, existing surfaces are to be re-instated to match the existing or adjacent materials/works.