**TEMPLATE SUBMISSION**

**APPLICANT RESPONSE GUIDELINES**

*Guidance for applicants is shown in grey italics text. This text should be deleted / revised for the final submission to council.*

**Project introduction:**

*Applicants should state the subdivision’s location in relation to surrounding buildings, infrastructure, landscape features and any other elements that may be impacted by the development.*

**Project information:**

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| Project Description | *E.g. 40 lot subdivision* |
| Number of lots (regular lots only) | *E.g. 40* |
| Does the subdivision create a super lot? If so, does the application nominate the future use of the super lot? | *E.g. Yes, medium density housing.* |

**Documents submitted:**

*The Applicant response should include the following documents (addressing the 7 categories):*

* *Subdivision Site and Context Plan*
* *Subdivision / Design Response Plan*
* *Where applicable, Supporting Plans and Assessments*

*Site Analysis and Subdivision / Design Response Plans should reflect all relevant ESD matters where feasible. Please check the Applicant's Kit for Small subdivisions for the checklist of information sought.*

***Completing the SSF Template below.***

*Applicants should describe the development’s sustainable design approach and summarise the project’s key ESD objectives.*

***Environmental Categories:*** *There are 7 Key Sustainable Subdivision Categories. The applicant should address each criterion and demonstrate how the design meets the objectives of the category.*

***Objectives:*** *The objectives explain the general intent, the aims and the purposes of the category.*

***Standards:*** *The standards define the response required from the applicant. Where applicable, the Applicant needs to explain how quantitative metrics have been derived. The applicant should show how the proposed design meets any quantitative metric through making references to drawings, specifications, consultant reports or other evidence that proves compliance with the chosen benchmark.*

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| SITE LAYOUT AND LIVEABILITY | |
| This category includes opportunities for improved functional site layout and liveability with a key focus on *connecting residents to local amenity.* | |
| SITE LAYOUT AND LIVEABILITY OBJECTIVES | |
| 1. To create compact neighbourhoods that are oriented around easy walking distances to activity centres, schools and community facilities (such as ambulance stations, community centres, libraries), public open space and public transport 2. To provide for a diversity of lot sizes to support all household types 3. To consider topography in site design including lot layout, orientation and size, length of street blocks, any existing natural and man-made features, and the street network 4. To retain natural features (e.g. canopy vegetation) for incorporation into public open space and streetscapes 5. To maximise permeability of the street network and align roads to the four compass points 6. To align active transport routes, waterways and open space corridors where possible 7. To ensure that wayfinding is logical and meets the needs of all 8. To contribute to land use and transport integration, including providing for safe, efficient operation of public transport and the comfort and convenience of public transport users 9. To reduce transport related carbon emissions 10. To improve transport efficiency 11. To reduce air pollution from transport related emissions 12. To reduce car dependence 13. To provide a commuter and recreational bicycle network 14. To provide for transition to new transport modes (electric vehicles, electric scooters etc.) | |
| SITE LAYOUT AND LIVEABILITY STANDARDS | |
| CRITERIA RELEVANT METRIC (TARGET) | |
| **LOCATION OF COMMUNITY INFRASTRUCTURE** | * *Provide a brief statement demonstrating the connectivity of the site to local amenities.*   *Where appropriate, provide:*   * *% of lots (95%) within a maximum safe walk length (in metres and time measured along routes rather than crow flies) to key local destinations:* * *Open space (400m)* * *Closest retail including access to fresh fruit and vegetables (2km)* * *Existing or proposed bus stop (400m) and/or train stop (800m) with a regular service at least every 30 minutes on weekdays between 7am and 7pm* * *Other relevant community infrastructure* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The Gumnut Estate is located within 2km of a local activity centre, sports reserve and directly abuts a local bus route (Gumnut Road). The Gumnut Estate does not provide any commercial developments due to its proximity to the Gumnut town centre.* * *The Gumnut Estate is located approximately 600m from the reserve.* * *No community infrastructure included within the proposal, however, is approximately 1.5km from Gumnut A Primary School, and 1.1km from Gumnut B School and approximately 2.8km from Cultural and Community Centre.* * *There are bus stops located along Gumnut Road to the West, and near the corner of Gumnut A and Gumnut B St to the North. A regular bus service at least every 30 minutes on weekdays between 7am and 7pm.* | |
| **LOT DIVERSITY** | * *Where appropriate,* * *Provision of a lot size table* * *% of area (superlots) set aside for medium density housing* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Lot size table was provided which indicates that there are three lot sizes (<300, 300-500, and >500 sqm). provided as the following proportion of total blocks (12%, 75%, 12% respectively).* * *The subdivision creates a super lot greater than 1,000 sqm for medium density housing.* | |
| **CONNECTIVITY OF STREET NETWORK** | * *Number of cul-de-sacs (target=0)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *No cul de sacs proposed, however streets to the north and east terminate at boundary and will create similar outcomes until peripheral development is constructed.* * *1x 'hammerhead court' is present in the south-west corner adjoining Public Open Space (POS).* | |
| INTEGRATION WITH NATURAL FEATURES | * *Qualitative assessment against objectives 3 and 4 (3. respond to topography in site design including minimisation of cut and fill - i.e. building techniques that respond to the topography, 4. retain natural features)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The street layout responds to existing conditions by maintaining the drainage reserve in the south-west corner of the site.* * *The subdivision layout is designed to minimise cut and fill by locating larger lots on sloping land and smaller lots on the flatter part of the land.* | |
| ACTIVE TRANSPORT | * *Provide a brief statement demonstrating the connectivity of the site to activity transport opportunities.*   *Where appropriate, quantify;*   * *Km of on-road (delineated/ separated) and recreational safe and convenient bike paths* * *Unbroken connection to regional active transport links (including outside subdivision if required)* * *% of dwellings (95%) within 1km of linear parks and trails along waterways, vegetation corridors* * *Bike parking and end of trip facilities at key destinations* * *Clear pedestrian priority on priority pedestrian routes* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *All lots within 1km of reserve, however amenity and landscape design unknown.* * *100% of dwellings are within 1km of local park, surrounding reserves and/or reserve.* * *Footpaths proposed on both sides of road network (except along frontage of wetland reserve) - width and use for bicycles unknown.* * *All lots are within 400m of POS - however final landscape design / amenity unknown.* | |
| WAYFINDING | * *Where appropriate, provide qualitative assessment against objectives 7 (referencing Way found: Wayfinding Signage Standards for Victoria) in Landscape Plan.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The Landscape Plan identifies wayfinding signage which meets objectives 7 in Way found: Wayfinding Signage Standards for Victoria.* | |
| INNOVATION | *Areas of innovation include, but are not limited to:*   * *Flexibility for increased density to be accommodated over time* * *Flexibility of space allocated for car parking so it can transition to new uses over time (e.g. co-located car parking for smaller lot developments, multi-function driveway space in design guidelines etc.)* * *Smaller footprint housing (e.g. two storey and increased garden and food production areas as a proportion of lot)* * *A participatory design and engagement process which aligns to IAP2 (e.g. through the Engagement Credit in Green Star Communities)* * *Demonstrated planning for electric and autonomous vehicles and electric personal transportation devices (scooters, skateboards etc.)* * *Early delivery of community infrastructure (e.g. developer sponsored public transport)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design Guidelines will be utilised to facilitate on lot sustainability outcomes including smaller footprint housing to provide for an increased area for garden and food production areas.* | |
| IMPLEMENTATION | *Implementation pathway includes:*   * *Use of IDM (and SIGs) as point of reference for detailed engineering design* * *Site Environment Management Plan (noise, air quality and chemical management)* * *Confirmed maintenance plans for active transport infrastructure* * *Design Guidelines to control on lot sustainability outcomes such as smaller footprint housing* * *Innovative planning tools or other mechanisms to retain flexibility for increased density over time* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Environmental traffic speed management is proposed by restricting street “leg length” to sensible maxima, more or less in accordance with the Infrastructure Design Manual (IDM) suggestion of 150 metres.* * *The Infrastructure and Servicing Report references the IDM for road design.* | |

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| **STREETS AND PUBLIC REALM** | |
| **This category responds to the variety of sustainability outcomes dependent on a people focused local street network and public realm.** | |
| **STREETS AND PUBLIC REALM OBJECTIVES** | |
| 1. To design and construct footpaths, shared path and cycle path networks that are safe, comfortable, well-constructed and accessible for people with disabilities 2. To ensure that streetscape liveability is prioritised by underground service design 3. To reduce transport related carbon emissions 4. To encourage walking to local destinations 5. To create pockets of nature with seats for resting and shade from trees to improve the streetscape, comfort, amenity and increase biodiversity 6. To provide green infrastructure for a range of ecosystem services (including CO2 reduction and habitat for biodiversity), to reduce the heat island effect, and to provide shade for active transport pathways 7. To encourage the integration of cultural heritage in public realm design to contribute to a unique and valued sense of place 8. To ensure the delivery of the public realm is high amenity, diverse and visually interesting | |
| **STREETS AND PUBLIC REALM STANDARDS** | |
| **CRITERIA** | **RELEVANT METRIC (TARGET)** |
| **STREET DIVERSITY** | * *Encourage alternate treatments for local streets. Where possible, identify;* * *% of local streets (including connector streets) within a subdivision applying an alternative treatment (i.e. varied street tree placement; varied footpath or carriageway placement; elements to achieve boulevard effect) (30%)* |

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| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Street-sections from the Development Plan are provided.* * *The Design Response Plan indicates a Hammer Head Court (discussed above), modified 'T' corners and one-sided parking on street abutting open space.* * *The Subdivision Plan indicates 2 road widths (of which one is a 35m wide boulevard), 3 locations of a paved easement, and 3 threshold treatments at main entrance off Gumnut Drive.* | |
| **ACCESSIBLE AND CONTINUOUS CYCLING AND PEDESTRIAN NETWORK** | * *Encourage pedestrian and cyclist amenity to promote active transport.* * *Where possible, identify:* * *Number of drinking stations (including water bottle refill) per network km* * *The extent to which pedestrian / cycling crossings conform with state government urban design guidelines (www.urban-design-guidelines.planning.vic.gov.au - objectives 2.1 - 2.4)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *A continuous network has been designed within the subdivision linking this to nearby regional cycling paths.* * *All footpaths, shared path and cycle path networks will be safe, comfortable, well-constructed and accessible for people with disabilities.* * *Drinking stations will be provided every 800m.* | |
| **MAXIMUM STREET BLOCK LENGTH** | * *Encourage walkable neighbourhoods.* * *Where possible, identify maximum street block length for a priority pedestrian priority street (200m)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Pedestrian priority street is unknown; however, the longest street is approximately 205m.* * *Environmental traffic speed management is proposed by restricting street “leg length” to sensible maxima, more or less in accordance with the IDM suggestion of 150 metres.* * *The short street lengths and traffic calming measures together support a walkable neighbourhood.* | |
| **DENSITY OF STREET TREES AND VEGETATION** | * *Encourage pedestrian and cyclist amenity through tree lined streets.* * *Where possible, identify:* * *Average street trees per 100 lineal metres on pedestrian priority streets* * *Average street trees per 100 lineal metres on other streets* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *It is proposed that a tree will be placed in front of each lot. Lot frontages range between 14-20 metres achieving an average of 5-7 trees per 100 lineal metres. The regular street tree plantings will encourage pedestrian and cyclist amenity.* | |
| **DENSITY OF REST NODES AND LANDSCAPE FEATURES** | * *Encourage pedestrian and cyclist amenity and comfort to promote active transport.* * *Where possible, identify density of rest nodes or visible features in the landscape (number per hectare)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Rest nodes are located at regular 800m intervals along key pathways. This will support pedestrian and cyclist comfort and promote active transport.* | |
| **SAFETY** | * *Encourage design for safe neighbourhoods.* * *Where possible, identify Street and public realm design accords with the Street Design section of the Safer Design Guidelines for Victoria which incorporate crime prevention through environmental design (CPTED)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Footpaths, shared path and cycle path networks will be constructed which are:* * *Safe – by providing clear sight lines which are unobstructed by buildings, fencing or vegetation to provide for natural surveillance.* * *Comfortable, well-constructed and accessible for people with disabilities – by meeting Australian Standards and through compliance with the Disability Discrimination Act.* | |
| **SERVICE DELIVERY** | * *Subdivision design provides appropriate space allocation to accommodate garbage storage and collection. Where appropriate, in consultation with regional resource recovery group, determine and set aside space allocation for neighbourhood container deposit scheme.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The municipality currently has a three-bin system (including Food and Organic Waste) and will be transitioning to a four-bin system (introducing glass). There is adequate space allocation to accommodate the three (or future four) bin system.* * *In areas of medium density larger road frontage has been provided for bin collection services.* | |
| **INNOVATION** | *Areas of innovation include, but are not limited to:*   * *Street sections and plans agreed with all stakeholders at planning stage* * *Stormwater management is used to passively irrigate vegetation* * *Street trees > 1 per 10 lineal metres* * *Major or several minor public art contributions* * *Street design optimisation for electric personal transportation devices (scooters, skateboards etc.)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Street section plans indicate large canopy trees can be accommodated within the road reserve with adequate setbacks from underground services.* * *The subdivision utilises stormwater management is used to passively irrigate all street trees along connector and arterial roads, and where shared paths are provided.* * *The subdivision integrates public art into infrastructure design.* | |
| **IMPLEMENTATION** | *Implementation pathway includes:*   * *Multi-stakeholder collaboration (including coordinated process for internal referrals)* * *Use of IDM (and SIGs) as point of reference for detailed engineering design* * *Landscape plan agreed as part of planning permit* * *Confirmed maintenance plans for blue-green infrastructure* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The Landscape Plan confirms maintenance plans for blue-green infrastructure.* | |

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| **ENERGY** | |
| **This category includes opportunities for *improved energy efficiency and increased renewable sources* of energy supply.** | |
| **ENERGY OBJECTIVES** | |
| 1. To provide lots with areas and dimensions that enable the appropriate siting and construction of a dwelling for solar access 2. To reduce stationary energy related emissions 3. To provide lot orientation which encourages roof lines capable of supporting solar PV 4. To avoid the extension of new gas networks 5. To support electric only suburbs 6. To maximise the provision of renewable energy to the subdivision 7. To promote adoption of battery storage at the subdivision or lot scale 8. To ensure streetlights and other public infrastructure requiring energy supply (pumps etc.) are of the highest efficiency standard available and integrate smart technology where appropriate | |
| **ENERGY STANDARDS** | |
| **CRITERIA** | **RELEVANT METRIC (TARGET)** |

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| **ENERGY EFFICIENCY** | * *Identify the % of lots with rear of the property facing west, north or east (75%) maintaining compliance with Standard C9 of Clause 56. If known, detail the energy efficiency of street lighting.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The target of 75% lots have appropriate solar orientation, with the rear of the property facing west, north or east (i.e. the long axis of lots within the range north 20 degrees west to north 30 degrees east, or east 20 degrees north to east 30 degrees south).* * *[Insert no. of lots and the lot numbers which make up the 75% compliance].* * *The subdivision design has considered the dimensions of lots to ensure they are adequate to protect solar access to the lot. Lots which are site constrained are larger to optimise solar orientation to these lots.* * *The remaining 25% of lots cannot meet the optimal orientation due to the location of the natural drainage corridor.* * *[Insert no. of lots and the lot numbers which make up the remaining 25% which are not optimally oriented. Is it possible for other measures considerations to support energy efficiency on the non-compliant lots?]* | |
| **RENEWABLE ENERGY** | * *Consider design guidelines that specify renewable energy provision onsite (at whole of subdivision and/or lot level).* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *As a minimum, each house is to have a NatHERS rating of 7.5 stars and a 2.5-kilowatt solar photovoltaic power system - this will be regulated via design guidelines.* * *No gas connection is to be made to the estate and design guidelines will mandate all-electric homes.* | |
| **ENERGY STORAGE** | * *Consider design guidelines that specify battery storage onsite (at whole of subdivision and/or lot level).* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design guidelines specify a minimum on lot energy storage capacity of 9kWh.Design guidelines will be registered on title.* | |
| **INNOVATION** | *Areas of innovation include, but are not limited to:*   * *Zero net energy (or zero carbon for stationary energy) target set for the development* * *Solar / battery combinations as standard inclusion in Design Guidelines* * *Energy-focused behaviour change programs for new residents* * *Provision for sharing of electricity within subdivision (e.g. Microgrid / Embedded Network)* * *Sensor triggered street lighting* * *All powered landscape elements such as external lighting are powered by renewable energy* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design guideline requirements relating to siting, orientation, setbacks and maximum dwelling size to improve passive solar access and reduce energy demand. The Design Guidelines will be registered on title.* | |
| **IMPLEMENTATION** | *Implementation pathway includes:*   * *Multi-stakeholder collaboration on electricity infrastructure (Council, Developer and Distribution Network Service Provider (DNSP))* * *Use of IDM (and SIGs) as point of reference for detailed engineering design* * *Design guidelines setting high standards for energy efficiency (including passive solar design), and on lot renewables and storage provision* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design guidelines setting a minimum, each house is to have a NatHERS rating of 7.5 stars and a 2.5-kilowatt solar photovoltaic power system. The Design Guidelines will be registered on title.* | |

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| **ECOLOGY** | |
| **This category includes opportunities for *retained and enhanced ecology* within the development plan or subdivision area.** | |
| **ECOLOGY OBJECTIVES** | |
| 1. To site and design subdivisions to minimise the impact on the natural environment 2. To provide lots with areas and dimensions that enable the retention and establishment of trees 3. To provide space that enable food production within the private and/ or public realm 4. To protect, retain and enhance native vegetation and habitat over the long term 5. To avoid the planting and spread of environmental weeds 6. To promote the creation of habitat corridors and movement of flora and fauna 7. To ensure consistency with any native vegetation precinct plan 8. To promote early delivery of medium and large trees 9. To promote a best practice and risk management approach to the management of biodiversity assets which aims to avoid or minimise environmental degradation and hazards 10. To promote the delivery of any vegetation offsets locally to the subdivision | |
| **ECOLOGY STANDARDS** | |
| **CRITERIA** | **RELEVANT METRIC (TARGET)** |

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| **CANOPY COVER** | * *Projected canopy cover at 15 years - public realm (25%)* * *Where applicable, % of car parking areas to be landscaped (15%) with % canopy cover (25%)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The use of IWM within the street network will ensure that all trees can grow to full canopy width. At 15 years this is projected to provide a public realm canopy cover of over 30%.* * *All open spaces will be planted to achieve at least 25% canopy cover.* * *Due to the scale of the subdivision, there is no car parking area to be landscaped.* | |
| **BIODIVERSITY CONSERVATION** | * *Consider native vegetation retention even when exempt by 52.17 & include in Biodiversity Sensitive Urban Design (BSUD), liveability and placemaking.*   *Where applicable:*   * *No net loss of biodiversity within the bounds or in the immediate proximity of the subdivision* * *Data required to meet the requirements of the Biodiversity Conservation Strategy for Growth Areas (Growth Area Councils only)* * *% retention of existing, mature indigenous and native trees and vegetation* * *% of native and indigenous plants or approved climate resilient species as a proportion of plants (80%)* * *Waterway conservation areas protected with at least a 30m buffer on either side (to development)* * *The provision of a satisfactory Flora and Fauna Assessment and Native Vegetation Removal Report (where native vegetation is to be removed as part of a subdivision)*   *\*BSUD definition: BSUD aims to integrate nature into the urban fabric by utilising existing habitats and supporting the creation of new habitats which support native plants and animals in the urban environment.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Road frontage will be provided to the conservation reserve providing a buffer between residential development and the conservation reserve. A Native Vegetation Removal Report indicates a General Offset Amount of 1.000 general habitat units / 20 large tree protected and identifies that there will be no net loss of biodiversity within the bounds or immediate proximity of the subdivision.* * *Of X identified trees on site, only X are anticipated to be retained, with the remaining X (indigenous canopy trees – X of which are large) expected to be removed.* * *Only 1 exotic tree (to be removed) - X trees retained.* * *This offset will be located within a retained onsite conservation reserve. The reserve will be transferred to the local conservation committee of management.* * *The Landscape Plan identifies BSUD measures to support liveability, which will be implemented by Design Guidelines registered on title. These include: Smaller footprint dwellings to provide for more vegetated space to provide habitat and reduce barriers to animal movement and a landscaping guide which provides a locally indigenous species list and promotes a diverse habitat (eg. A mix of tall trees, shrubs and small plants).* | |
| **ENHANCE BIODIVERSITY VALUE** | * *Sqm of indigenous / native / climate resilient ground cover or shrubs per hectare of developable area* * *Sqm of indigenous / native / climate resilient tree canopy per hectare of developable area* * *Qualitative assessment against Objective 5, including the extent to which the subdivision mitigates impacts on habitat fragmentation within and outside the area of subdivision* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The Preliminary Vegetation Assessment indicates minimal presence of weeds, however does not provide information on habitat fragmentation.* * *The Biodiversity Assessment report claims the site is 'not likely to be considered critical or important habitat for any significant or uncommon species'.* * *No Flora and Fauna Assessment provided in the Planning Report.* | |
| **INNOVATION** | *Areas of innovation include, but are not limited to:*   * *Programs to increase resident involvement in maintenance of blue-green infrastructure or other biodiversity assets* * *Communal food production areas either within streets or within other open spaces* * *Design guidelines requiring specific vegetation outcomes on private land* * *Novel habitat creation – particularly for local threatened species, i.e. hollow creation birds and mammals, or ponds for frogs, etc.* * *Accelerated (early) design and planting of medium and large trees in parks and other reserves* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *A Community Garden is provided adjacent to the POS area.* | |
| **IMPLEMENTATION** | *Implementation pathway includes:*   * *Landscape plan agreed as part of planning permit* * *Confirmed maintenance plans for blue-green infrastructure* * *Resolution of vegetation (especially street tree) issues not able to be addressed at functional layout* * *Biodiversity management plan (if required)* * *Adequate tree protection zones (through full construction phase) for retained vegetation (Australian Standard AS 4970 – 2009 Protection of trees on development sites)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Nominated tree protection zones (through full construction phase) for retained vegetation on site (Australian Standard AS 4970 – 2009 Protection of trees on development sites).* | |

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| **INTEGRATED WATER MANAGEMENT** | |
| **Integrated water management includes the best practice *management of all aspects of the water cycle.*** | |
| **INTEGRATED WATER MANAGEMENT OBJECTIVES** | |
| 1. To reduce water consumption through environmentally sustainable subdivision and building design 2. To provide lots with areas and dimensions that enable the appropriate siting and construction of a dwelling that can be serviced with water, wastewater and other essential services 3. To maximise use of alternative water sources for public and private use (through strategies such as public and private rainwater tanks, stormwater reuse and localised recycled water systems) 4. To incorporate water sensitive urban design techniques into development including enhancing riparian vegetation (waterway health), drainage reserves adjacent to wetlands and protection of biodiversity and landscape features for improved amenity 5. To provide a waste water system that is adequate for the maintenance of public health and the management of effluent in an environmentally friendly manner 6. To ensure the location and scale of open space responds to existing drainage channels 7. To meet the Best Practice Environmental Management Guidelines for Urban Stormwater 8. To control localised flooding and plan for increasingly intense rainfall events, as projected by climate change models 9. To use water as a tool for reducing urban heat 10. To support regional integrated water management solutions such as identified through the IWM forums | |
| **INTEGRATED WATER MANAGEMENT STANDARDS** | |
| **CRITERIA** | **RELEVANT METRIC (TARGET)** |

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| **ON LOT STORMWATER HARVESTING AND REUSE** | * *Where possible, maximise use of alternative water sources.* * *Consider design guidelines at lot level that specify onsite stormwater reuse.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *2,000-L rainwater tanks per lot are identified (but not modelled or mentioned within Design Guidelines).* * *The Stormwater Management Strategy indicates lots >250 sqm will be provided with 2,000-L rainwater tanks.* * *Class A recycled water from Gumnut Recycled Water Scheme is available and the Infrastructure and Servicing Report states that this will be connected to all passive open spaces and for the future household uses (including toilet flushing, garden irrigation, washing machines, car washing and surface cleaning) to reduce potable water use.* | |
| **WATER SUPPLY** | * *Where available, provide water supply from recycled or reused sources.* * *Where possible, quantify % of potable water substituted with a non mains source (e.g. third pipe, stormwater harvesting)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *X% of potable water has been substituted with a non-mains source (insert description)* | |
| **WATER EFFICIENCY** | * *Consider design guidelines at lot level that specify WELS rated fixtures within 1 star of best available.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design Guidelines will be produced which specify onsite stormwater reuse, and WELS rated fixtures within 1 star of best available.* | |
| **STORMWATER TREATMENT** | * *Stormwater quality outcomes (suspended solids, total phosphorus, total nitrogen, litter) using MUSIC or similar (meeting Best Practice Environmental Management Guidelines (BPEMG) or as amended)* * *Meet Standard C25 of Clause 56* * *Demonstrated use of on-site and natural features to protect water quality* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *MUSIC modelling that shows the SB6, SB7 and WL5 system can treat in excess of the BPEMG guidelines for pollutants generated from the subject site as shown in Table 3 of the Stormwater Report.* * *The Stormwater Management Strategy details the use of a retarding basin to the north-east and wetland to the south-west to manage flows.* * *"A water retention area based on Water Sensitive Urban Design (WSUD) principles is required by Relevant Water Authority Water to retain and treat storm water before it leaves the subdivision. This WSUD area is proposed to meet or exceed regulatory guidelines and it is therefore expected that water leaving the subdivision will not detrimentally impact the Gumnut Wetland"* * *Constructed water retention basin is designed to treat and enhance water quality before leaving the site, increasing aquatic and semi-aquatic habitat and a small amount of terrestrial habitat.* | |
| **FLOOD MANAGEMENT** | * *Meet Standard C25 of Clause 56* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The Stormwater Management Strategy details storage and drainage network requirements for a 1 and 20% AEP event in accordance with C25.* | |
| **WATER SENSITIVE URBAN DESIGN (WSUD)** | * *Identify WSUD initiatives* * *Where possible, quantify the proportion of stormwater treatment achieved within the streetscape or otherwise providing passive irrigation to trees or shrubs* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Requirement in Building Design Guidelines that all houses on lots greater than 400m2 must be connected to rainwater collection tanks (minimum capacity 10,000 litres per dwelling).* * *Tanks must be plumbed to re-use rainwater through the house toilet, laundry and outdoor areas.* * *Water Sensitive Urban Design strategies including stormwater harvesting for irrigation of trees or shrubs.* | |
| **SITE PERMEABILITY** | * *% permeability of the public realm and any permeability target specified in Design Guidelines or similar* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design Guidelines will be produced specifying at least 20% permeability on lot. 25% permeability target will be achieved in the public realm.* | |
| **INNOVATION** | *Areas of innovation include, but are not limited to:*   * *Celebration of water in the landscape with the vast majority of stormwater visible (in preference to ‘grey’ infrastructure)* * *Third pipe connection to precinct* * *Integrated flood management strategy which includes ‘smart’ infrastructure (e.g. Aquarevo)* * *Demonstrated alignment with ‘sponge city’ principles* * *Use of IWM to support ecology outcomes (such as passively irrigating revegetation areas or creating off line frog habitat)* * *Recycled water connection is mentioned but not committed too, otherwise no information is provided* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The subdivisions design will maximise use of alternative water sources for public and private use (through strategies such as public and private rainwater tanks, stormwater reuse and localised recycled water systems).* * *Treated stormwater will be utilised to create new ‘frog bogs’ to support local biodiversity.* | |
| **IMPLEMENTATION** | *Implementation pathway includes:*   * *Site Environment Management Plan (sediment runoff and water quality) - the focus should be on detailed measures for protection of stormwater quality and erosion during construction* * *Use of IDM (and SIGs) as point of reference for detailed engineering design* * *Confirmed responsibilities for IWM maintenance and ownership of IWM assets* * *Mechanism for maintenance learnings to be shared internally and between Councils* * *Multi agency collaboration on monitoring and evaluation of IWM initiatives* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *A Site Environment Management Plan for the subdivision outlining sediment runoff and water quality measures which will protect stormwater quality and erosion during construction.* | |

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| **URBAN HEAT** | |
| **This category includes opportunities for *urban heat reduction* within the subdivision area.** | |
| **URBAN HEAT OBJECTIVES** | |
| 1. To mitigate the urban heat island effect 2. To provide shelter for pedestrian and cyclist movement 3. To provide places with cooler microclimates which provide relief from hot conditions 4. To provide shading of roads and carparks to reduce urban heat 5. To irrigate streets and open space to cool the landscape 6. To maintain human health and wellbeing through periods of extreme heat | |
| **URBAN HEAT STANDARDS** | |
| **CRITERIA** | **RELEVANT METRIC (TARGET)** |

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| **ACCESS TO SHELTER** | * *How many streets are classified as cool routes? i.e. 2 streets approximately 500m and connect to parks, public transport and other cool routes outside of the development site.* * *How many bus stops are provided and how many bus shelters are provided?*   *\*Cool route definition: Active transport routes between destinations that provide protection from direct heat (e.g. through physical shade structure or relatively uninterrupted canopy cover).* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *See landscape plan for the nominated cool routes; being two streets of approximately 200m which connect to parks, public transport and other cool routes outside of the development site.* * *The landscape plan also identifies the protection of retained native trees and their existing canopy cover.* * *Due to the scale of the subdivision, there are no public transport stops proposed.* | |
| **URBAN HEAT REDUCTION** | * *Calculate % of hard surfaces and estimate SRI (Solar Reflective Index) based on materials.* * *Does the tree canopy coverage at 15 years reduce the SRI of hard stand footpaths and asphalt by partially covering the hard stand areas during hot summer months?*   *\*An indicative SRI is provided for the following common materials.*  *• Grey concrete: 35*  *• White concrete: 86*  *• Standard white paint: 100*  *• Standard black paint: 5*  *• New asphalt: 0* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *See landscape plan detailing canopy coverage and projected canopy coverage at 15 years.* * *See canopy coverage plan detailing where concrete paths and bitumen will be shaded when trees achieve 15-year canopy coverage.* * *See landscape plan detail where high Solar Reflective Index (SRI) materials are used, and other strategies such as ground covers and native and turfed grass areas to aid in urban heat reduction.* * *Design Guidelines will specify roof colour requirements, outlining minimum Solar Absorptance (SA) values and colour options (e.g. no black roofs)* * *There will be a mandatory landscaping requirement in the Design Guidelines that every detached dwelling must include a mature tree in their front garden to help establish tree-lined streets.* * *Water wise plant selections materials will be provided to residents with green space including tree canopy shading.* | |
| **INNOVATION** | *Areas of innovation include, but are not limited to:*   * *Precinct Urban Heat Mitigation Plan* * *Vegetation requirements for front yards* * *Surface materials with a high SRI* * *Development of microclimates for mitigating urban heat* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Complimentary front landscaping packages provided to residents to help improve greening outcomes on private land.* | |
| **IMPLEMENTATION** | *Implementation pathway includes:*   * *Use of IDM (and SIGs) as point of reference for detailed engineering design* * *Design Guidelines which require low solar absorptance on private lots (e.g. no black roofs) or include landscaping provisions* * *\*Also note Streets and Public Realm category for maintenance of green infrastructure* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Design Guidelines will make provision for low solar absorptance on private lots (e.g. no black roofs) and include landscaping provisions.* | |

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| **CIRCULAR ECONOMY (MATERIALS AND WASTE)** | |
| **This category includes opportunities for *reduced resource use* and an improved retention of value through the *materials life cycle*.** | |
| **CIRCULAR ECONOMY (MATERIALS AND WASTE) OBJECTIVES** | |
| 1. To ensure the street network is capable of supporting organics and recycling collection 2. To provide for community infrastructure to support sustainable resource recovery 3. To encourage the re-use of on-site buildings and materials from the site in the construction of subdivisions 4. To use products with high recycled content and end of life recyclability in the construction of subdivisions 5. To encourage the selection of materials with low embodied carbon in the construction of subdivisions 6. To minimise future maintenance and upgrade requirements through durable and easily recycled materials choices 7. To ensure materials and products are certified through strong third-party verification 8. To support the local economy by buying local materials | |
| **CIRCULAR ECONOMY (MATERIALS AND WASTE) STANDARDS** | |
| **CRITERIA** | **RELEVANT METRIC (TARGET)** |

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| **LOW EMBODIED CARBON** | * *Do the materials you using have low embodied energy? Are you proposing to use low embodied carbon bitumen, cement or pipes? If Yes, please provide more detail.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The materials used have low embodied energy through use of low embodied carbon bitumen, cement and pipes [insert details].* | |
| **RECYCLED CONTENT** | * *Consider which providers in your area supply recycled materials and; provide details on which recycled products you propose to use. If known, provide the % of recycled content.* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Recycled material will be used for the construction of the road pathway infrastructure, where appropriate.* * *The resulting recycled content of the road pathway infrastructure would be X %.* | |
| **LOCAL SOURCING** | * *Will materials be locally sourced (within 50km)?* * *Are recycled materials locally available?* * *Are recycled materials price competitive with virgin materials in your local area?* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Development of a Gumnut eco materials list including local supplier information.* * *Pilot the use of materials catalogue software to track the provenance of new home materials, and their composition, wastage and material value.* | |
| **FUTURE RECYCLABILITY** | * *What % of construction materials by volume are able to be recycled / reused during construction (Target of 90% recommended) and at end of life?* * *Is infrastructure designed for easy deconstruction and can products be upcycled for repurposing?* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The approach taken to construction and onsite waste management will enable the recycling of 90% of on-site construction waste.* * *X% of the construction materials for the road / pathway infrastructure are able to be recycled at end of life. .* | |
| **DURABLE MATERIALS** | * *The replacement / upgrade lifetime of key materials and infrastructure* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Materials used for road / pathway infrastructure are durable and the recycled materials have a 65% improvement in longevity compared to virgin materials [e.g. Lifespan of X years improvement].* | |
| **CERTIFICATION** | * *Where applicable, is there third-party certification of materials? (e.g. Certification of timber through Forest Stewardship Council (FSC) or low volatile organic compound (VOC) certified materials?* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *FSC certified and low VOC materials are used in the subdivision infrastructure [insert details].* | |
| **WASTE MINIMISATION AND ORGANICS COLLECTION AND PROCESSING** | * *Does the subdivision design respond to the waste and recycling collection model of the relevant municipality?* * *Are you supplying appropriate space for the separation of excess construction materials for recycling?* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The municipality currently has a three-bin system (including Food and Organic Waste) and will be transitioning to a four-bin system (introducing glass).  There is adequate space allocation to accommodate the three (or future four) bin system.* | |
| **INNOVATION** | *Areas of innovation include, but are not limited to:*   * *Total materials and construction related emissions and offset strategy (demonstrated through Climate Active)* * *Communal collection points for organic waste (where FOGO collection do not yet exist)* * *% reduction in embodied carbon in bitumen compared to the reference case - Australian Standard (60%)* * *% reduction in embodied carbon in cement compared to the reference case - Australian Standard (40%)* * *% reduction in embodied carbon in pipes compared to the reference case - Australian Standard (100%)* * *% reduction in embodied carbon in aggregates compared to the reference case - Australian Standard (20%)* * *Innovative recycled content demonstrated that is currently not in the SIG* * *Demonstrated lifespan that exceeds the service life for the relevant infrastructure standard in Australia and demonstrated circular economy principles through 100% reuse / repurpose / recyclable at end of life* * *Provision of innovative operational waste infrastructure (e.g. shared recycling / general waste, anaerobic digestion, underground collection systems)* * *Circular Economy Management Plan targeting zero net waste (consistent with a rating system such as Living Community Challenge)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *The lifespan of road infrastructure exceeds the service life for the relevant Australian standard [insert # of years exceeding lifespan]* * *The road infrastructure demonstrates circular economy principles through being 100% reuse / repurpose / recyclable at end of life.* | |
| **IMPLEMENTATION** | *Implementation pathway includes:*   * *Site Environment Management Plan (waste) - this would include provisions for managing waste issues (such as dumping and wind blown rubbish) through the construction process* * *Use of IDM (and SIGs) as point of reference for detailed engineering design* * *Confirmed responsibilities for road and asset maintenance* * *Operational Waste Management Plan confirming that Kerbside collection of organics and recycling achievable (\*note that this must not be at the expense of other streetscape objectives)* |
| APPLICANT DESIGN RESPONSE: | |
| *Example Best Practice approach (provided for guidance):*   * *Site Environment Management Plan (waste) provided indicating how waste will be managed through the construction process.* | |