**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. 100 lot PSP subdivision, with sports centre and retail* |
| Number of lots (regular lots only)  | *E.g. 100* |
| Does the subdivision create a super lot? If so, does the application nominate the future use of the super lot?  | *E.g. Yes, community hub/school/medium density housing.* |
| Public works included (i.e. streetscapes, POS, stormwater management) | *E.g. X m2 POS contribution, X m3 stormwater management area* |

**Documents submitted:**

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

* *Subdivision Site and Context Plan*
* *Subdivision / Design Response Plan*
* *Subdivision Sustainability Management Plan (SSMP) for large (60 - 249 lots) subdivisions*
* *Street Sections and Plan Examples*
* *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** | * *% 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** | * *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):** *The Concept Masterplan identifies with 11 different lot sizes.*
* *Lots greater than 1,000 sqm are proposed however their use is unknown.*
* *5% of total land area is allocated to medium density super lots. These are located near the bus route and community centre.*
* *A lot size table was provided which identifies that there are three lot sizes (<300, 300-500, and >500 sqm).*
 |
| **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 proposed works will result in the retention of a densely vegetated natural drainage which is to be incorporated into a linear open space.*
* *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 | * *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  | * *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 Infrastructure Design Manual (IDM) for road design.*
* *Local EV car-share providers have been engaged and carparks have been allocated for this purpose.*
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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**  | * *% 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 PSP/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** | * *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**  | * *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**  | * *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):** *The landscape masterplan highlights an aim for at least one tree per lot frontage. For lots greater than 15 metres wide a very large canopy tree will be provided.*
* *This density of street trees will provide canopy cover and shading for residents.*
 |
| **DENSITY OF REST NODES AND LANDSCAPE FEATURES**  | * *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** | * *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.*
* *The subdivision design provides a diversity of footpath and carriageways to provide a varied streetscape.*
 |
| **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 that the regional scale IWM infrastructure will be vested to the local water authority with passively irrigated street trees to be managed by Council.*
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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**  | * *% improvement over AS/NZS1158 for street lighting efficiency*
* *% of lots with rear of the property facing west, north or east (75%) maintaining compliance with Standard C9 of Clause 56*
* *Buildings over 100m2 which require planning permission for buildings and works meet the requirements of the SDAPP (Building Framework) and any existing local ESD policy (threshold variable by Council)*
 |
| 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**  | * *Modelled operational stationary energy (mj/kWh/annum)*
* *% of stationary energy (mj/kWh) to come from guaranteed renewable sources (locked in through confirmed precinct alternative renewable energy supply or design guidelines)*
 |
| 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**  | * *kWh of storage (in common/ public ownership)*
* *Any minimum on lot storage capacity required by design guidelines*
 |
| 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.*
* *Solar powered electric vehicle charge stations and electric vehicle charge points will be accessible in the community*
 |
| **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%)*
* *% 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.*
 |
| **BIODIVERSITY CONSERVATION**  | * *Consider native vegetation retention even when exempt by 52.17 & include in biodiversity sensitive urban design (BSUD), liveability and placemaking.*
* *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)*
* *Hectares of land secured for biodiversity conservation purposes (60 lots + 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. An existing dam to the south of the site is to be removed and replaced with a stormwater quality asset.*
* *A Native Vegetation Removal Report (from DELWP) indicates a General Offset Amount of 1.000 general habitat units and identifies that there will be no net loss of biodiversity within the bounds or immediate proximity of the subdivision. This offset will be located within a retained onsite conservation reserve. The reserve will be transferred to the local conservation committee of management.*
* *Of 184 identified trees on site, only 26 will be removed (14%), with the remaining 158 (indigenous canopy trees - 66 of which are large) expected to be retained within public open spaces.*
* *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 (e.g. 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'.*
* *The Flora and Fauna Assessment identifies vegetation that will be protected and retained within the subdivision. Appropriate road buffers have been incorporated into the design.*
 |
| **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.*
* *The local Landcare group has been engaged and will be supported to run events within the retained conservation areas within the first 12 months of new residents moving into the subdivision.*
 |
| **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** | * *Any rainwater tank capacity requirements specified in Design Guidelines or through other on lot guidelines*
* *% of stormwater reuse for passive irrigation or other non-potable end uses*
 |
| 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**  | * *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** | * *Litres / day target for overall and potable water consumption per lot / person (20% lower than regional average)*
* *Any WELS rating specified in Design Guidelines or through other on lot provision (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. The Design Guidelines will be registered on title.*
 |
| **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)** | * *Alignment with any regional objective defined by the IWM forums*
* *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).*
* *Provision of smart water meters for residents to monitor consumption.*
* *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):** *Water sensitive urban design features are integrated into development including enhancing riparian vegetation (waterway health), drainage reserves adjacent to wetlands and protection of biodiversity and landscape features for improved amenity.*
* *Alternative water sources for public and private use (through strategies such as public and private rainwater tanks, stormwater reuse and localised recycled water systems) have been provided in the subdivision.*
 |

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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.*
* *100% of all public transport stops will include designated shelter.*
* *All streets with shared paths will include passively irrigated street trees to support cooling in summer.*
 |
| **URBAN HEAT REDUCTION** | * *% private lot surfaces which constitute either tree canopy (at 15 years), other physical shade structure, shrubs or ground covers, irrigated open space, water bodies or hard landscape or roofs meeting a Solar Reflective Index (SRI) of 50 or greater (this would need to be confirmed through design guidelines or other mechanism)*
* *% public realm surfaces which constitute either tree canopy (at 15 years), other physical shade structure, shrubs or ground covers, irrigated open space, water bodies or hard landscape meeting an SRI of 50 or greater.*

*\*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):** *Maintaining minimum 30% of developable area dedicated to parks and open space*
* *Roof colour requirements in the Residential Design Guidelines outlining minimum Solar Absorptance (SA) values and colour options (e.g. no black roofs). The Design Guidelines will be registered on title.*
* *Mandatory landscaping requirement in the Residential Design Guidelines that every detached dwelling must include a mature tree in their front garden to help establish tree-lined streets. The Design Guidelines will be registered on title.*
* *Water wise plant selections providing 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):** *Interpretive signage trail educating residents on sustainability issues such as urban heat*
* *Complimentary front landscaping packages provided to residents to help improve greening outcomes on private land including requiring a tree with a minimum 3m project canopy height the front setback of each lot.*
 |
| **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 which require low solar absorptance on private lots (e.g. no black roofs) or include landscaping provisions. The Design Guidelines will be registered on title.*
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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**  | * *% of recycled content in bitumen*
* *% of recycled content in concrete (30% supplementary Cementitious Materials)*
* *% of recycled content in pipes*
* *% of recycled content road base*
* *% of recycled content in street furniture, including bollards, seating and signage (70%)*
 |
| APPLICANT DESIGN RESPONSE: |
| *Example Best Practice approach (provided for guidance):** *Recycled material will be used for the construction of the subdivision area, where appropriate.*
* *Re-using site materials in road construction to reduce the amount of materials being excavated and transported.*
* *Establishing a community resource centre that will include a repair café, a sharing shed and an upcycling shed.*
 |
| **LOCAL SOURCING** | * *% of locally (within 50km) quarried road base*
* *% of locally sourced recycled material (within 50km)*
* *% of natural excavated virgin materials reused on site (100%)*
 |
| 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** | * *% (by volume) of demolition and excess construction materials associated with subdivision construction will be recycled / reused (90%)*
* *% of materials used that could be recycled or reused at end of life (in the future)*
* *Is infrastructure designed for easy deconstruction and can products be upcycled for repurposing?*
 |
| APPLICANT DESIGN RESPONSE: |
| *Example Best Practice approach (provided for guidance):** *A list of materials use and volumes in the subdivision will be provided to the local council at the completion of the project – this will be held on an asset register for planning of use at the end of life of the infrastructure.*
 |
| **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** | * *% of timber that is Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC) certified (100%)*
* *% of materials that are certified low volatile organic compound (VOC)*
 |
| 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** | * *Subdivision design responds to the waste and recycling collection model of the relevant municipality*
* *Provision of onsite separation facilities for excess construction materials during the construction phase*
 |
| APPLICANT DESIGN RESPONSE: |
| *Example Best Practice approach (provided for guidance):** *Collection and processing of food and garden organics for use as high-quality compost in local market gardens and for agriculture.*
* *Developing a large-scale commercial composting facility, Modular Multi-Use Resource Precinct and a Materials Processing and Trade Centre*
 |
| **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.*
 |