

Proposed Planning Framework for Regenerative Village Pilot Project

Prepared for: Bellingen Shire Council

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3 November 2022



Image credit: Valentino Gareri Atelier

A Report to Bellingen Shire Council
addressing
Action 8.4 of the Bellingen Shire Housing Strategy 2020-2040
'Eco Village Pilot Project'

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November 2022

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EXECUTIVE SUMMARY

On 29 January 2020, Council adopted the Bellingen Local Housing Strategy 2020 (BSHS). Action 8.4 of that strategy acknowledged the broad community support for ecovillages as well as the many challenges involved in their establishment. Council therefore offered an opportunity for a proponent to provide details of an eco-village-style project that will produce exceptional environmental and social outcomes. The action provided that Council would then provide support for the alteration of planning controls, as necessary, to facilitate the development of a pilot project.

The aim of this collaborative approach is to explore how planning controls could enable or even encourage the development of such village-scale projects, providing more housing options in the area. Importantly, this would be a planned and regulated process, in contrast to the mostly unregulated or retrospectively regulated rural land-sharing communities. The aim of this project, therefore, is to establish the planning policy framework for an eco-village pilot project such that the learnings of that project could be transferred into mainstream housing in the future.

By working towards one pilot project the risks for Council are minimised, while the process of planning and building the pilot could inform further refinements to the planning controls, ensuring they deliver the desired development outcomes. The action in the housing strategy only supports the development of one village and pursuing this process in no way compels Council to allow the development of additional villages. Nevertheless, the planning framework provides a simple approach for Council to allow future villages should it wish to do so.

On 2 November 2021 Sustainability Advantage (SA), an office of the Department of Planning and Environment, agreed to provide some funding for the project and expressed an interest in exploring the possibility of applying this body of work in other local government areas across the state.

After the report authors, town planning consultants PolisPlan, submitted a detailed project proposal, Bellingen Council agreed to work with us to establish the planning policy framework for the pilot project. The submission was based on the concept of 'Networks of Circular Economy Villages' developed by PolisPlan over a number of years through national and international research, leading to a PhD on the subject from The University of Sydney. Further information about CEVs is available at the website (polisplan.com.au). A brief description of the model is:

“Our vision is to create a network of high-tech, regenerative villages that strive towards self-sufficiency and zero waste within their bioregion. Each village will house a diverse community of up to 200 people and will integrate affordable co-working and co-living spaces with water and energy micro-grids and a regenerative agricultural system.”

The terms 'Circular Economy Village' and 'Regenerative Village' have the same meaning in this report and are sometimes used interchangeably. The draft planning policies adopt the latter term.

This development model is based on the recognition that a number of global megatrends are changing the way we live. Section 4.1 discusses a recent report by CSIRO that identifies seven such megatrends and we show how the proposed development model responds to these. For example, the first megatrend refers to the transition to renewable energy. The availability of renewable energy systems allows for the development of a micro-grid that can not only provide electricity to the housing and work spaces, but also to power a fleet of shared electric vehicles

and assist in cycling water through the precinct. With more water available it is possible to irrigate a diverse regenerative agricultural system. Managing the water cycle and recycling organics through the food system helps to build soil, store carbon and regenerate natural systems. This contributes to the mitigation of climate change impacts, while also assisting residents to adapt to climate change—a second megatrend. The production of food, water and energy close to resident consumers improves local resilience. This responds to the increasing geopolitical instability—a third megatrend—that is destabilising global supply chains.

In section 4.2 we discuss precinct plans prepared by the NSW Department of Planning and Environment—for the Western Sydney Aerotropolis and Parkes Special Activation Precinct—that seek to incorporate circular economy principles into the precinct planning process. We also describe a number of cutting edge village-scale development projects, including by Lend Lease, Mirvac and Renewal SA—the South Australian Government’s development arm—that incorporate various components of the development model such as water cycle management, a circular food system, as well as energy generation, storage and demand management.

Section 4.3 brings together the key ideas and summarises them as a set of nine design objectives that are also included in the draft DCP. Section 4.4 shows how the model is consistent with other objectives of the housing strategy, while section 4.5 describes what a regenerative village might look like in terms of land area (minimum 40ha), population (200 people) and arrangement of land uses.

While section 4 of this report describes the proposed development model, section 5 outlines the various components of the planning policy framework. Section 5.1 describes the comprehensive internal consultation process, undertaken in February 2022, to identify the implications of such a project for other Council departments. Whilst the concerns of most departments were readily incorporated into the draft planning policies, the matter of levying ordinary rates on regenerative villages required detailed consideration including separate legal advice obtained by Council.

The concern was that according to Council’s Revenue Policy, the most appropriate category for the proposed regenerative villages is ‘Residential - Rural’. This would yield substantially lower rate revenues than residential dwellings in the townships. For regenerative villages to be a viable alternative form of development for Council to facilitate, their residents should contribute to Council services, facilities, and infrastructure on an equitable basis with other residents. This should be balanced against the acknowledgement that these villages would be less dependant on public infrastructure and services than others in the community due to the on-site provision of these.

While it is preferred and recommended that the site remains in single title, it may be necessary, subject to further legal advice, for regenerative villages to be subdivided to create a Community Title (CT) scheme. Council also has the discretion to create a new sub-category and a rating regime specifically for regenerative villages.

At this stage the exact mechanics of how ordinary rates will be assessed and calculated has not been determined. Nevertheless, it is recommended that Council adopts the principle that future residents of regenerative villages should contribute to Council services, facilities, and infrastructure on an equitable basis with other residents, taking into account any services, facilities, and infrastructure provided by the village to the broader community.

Section 5.2 discusses relevant strategies, regional plans and State Environmental Planning Policies to ensure the planning framework is consistent with these, while 5.3 describes the approach adopted to identify appropriate localities for the pilot project. Mapping rural properties having a minimum area of 40 hectares we noted that the vast majority of opportunities were on the Dorrigo Plateau. This suggested that there may be an opportunity for a cluster of villages in the future but, given its relative inaccessibility, the entire plateau was excluded from consideration for this pilot project.

After eliminating national parks, state parks, flood-prone land and bushfire-prone land, from the land east of the escarpment, very few opportunities remained. Nine precincts were identified from this desktop analysis and after site visits, three of these were eliminated leaving six possible precincts in Hydes Creek, Boggy Creek, Thora, Brierfield, Gordonville and Promised Land. The precincts vary in size from 75ha to 340ha, with a total for all precincts being 1200ha, but only 40ha in one of these precincts is required for the pilot project. Maps of the precincts are included in Appendix B.

Sections 5.5 and 5.6 outline key aspects of the draft LEP clause and DCP chapter. Regenerative villages are proposed to be permitted by an additional clause in the Bellingen LEP 2010. The clause will only apply to the areas included in an associated map. Council may include one or all, or certain parts of the identified precincts at Appendix B in the LEP map. The draft LEP clause is included in Appendix C.

A draft DCP, proposed to be included as chapter 18 of the Bellingen DCP 2017, provides additional provisions, including the nine development objectives. Existing provisions in other chapters of the DCP were referenced where possible to ensure consistency. A range of plans will be required to be submitted with any proposal for a regenerative village including to address open space and landscaping, integrated water cycle management as well as transport, traffic and parking. The proposed draft DCP is included in Appendix D and includes the following definitions:

Regenerative Village is a settlement that has been designed:

- (a) in accordance with the principles of the Circular Economy, and*
- (b) as a system that integrates food, water, energy, transport infrastructure and the built environment.*

Circular Economy is an economic system based on the following three principles:

- (a) eliminate waste and pollution,*
- (b) keep resources and products circulating within the system, and*
- (c) regenerate natural systems.*

Section 5.7 examines the approach to managing infrastructure. Regenerative village developments will include various facilities, assets, and open spaces to service the population within the development site. The draft LEP clause includes a provision requiring the submission of an infrastructure and services plan that outlines the nature, extent, and timing of delivery, as well as ongoing operation and management arrangements for the infrastructure and buildings on the site. It is assumed that developers may wish to provide additional or expanded facilities and infrastructure to offset any required development contributions. Council's draft voluntary planning agreements (VPA) policy has been revised and updated to incorporate recent State Government guideline requirements. The VPA policy, included in Appendix E, has been structured to require

developers to differentiate infrastructure and facilities required to meet the needs of the development itself and those servicing the broader community. Only those servicing the broader community can be used to offset development contributions.

The final section 5.8 examines the Living Future Certification Scheme as a method for demonstrating that the project delivers exceptional social and environmental outcomes.

In conclusion, this report sets out a draft planning policy framework for regenerative village developments to address the “many challenges to siting, funding and developing eco-villages” as noted in Action 8.4 of the Bellingen Local Housing Strategy. The proposed framework has been designed to assist in the development of a pilot project, while also allowing for relatively simple further modifications to provide for future villages such that “planning controls ... provide guidance for future potential eco-village projects”.

Recommendations and Next Steps

In accordance with Action 8.4 of the Bellingen Shire Housing Strategy, and to continue towards the satisfaction of that action, it is recommended that:

1. In calculating ordinary rates, levies and other charges, that Council adopts the principle that future residents of regenerative villages should contribute to Council services, facilities, and infrastructure on an equitable basis with other residents, taking into account any services, facilities, and infrastructure provided by the village to the broader community,
2. That this report be referred to Council’s Rates Section for their consideration in the establishment, at the relevant time, of a process and formula for calculating ordinary rates for regenerative villages,
3. That Council adopt the following definitions:
 - Regenerative Village*** is a settlement that has been designed:
 - (a) in accordance with the principles of the Circular Economy, and
 - (b) as a system that integrates food, water, energy, transport infrastructure and the built environment.
 - Circular Economy*** is an economic system based on the following three principles:
 - (a) eliminate waste and pollution,
 - (b) keep resources and products circulating within the system, and
 - (c) regenerate natural systems.
4. That Council acknowledge the challenges of identifying sites for regenerative villages given the many constraints in the LGA and adopts the locality planning process outlined in this report as an appropriate starting point for the identification of suitable sites,
5. That Council acknowledge that the framework developed in this report is the preferred approach for assessing a proposal for a regenerative village. This includes:
 - (a) An additional clause in the LEP permitting regenerative villages only on land identified through an appropriate locality planning process
 - (b) Provisions in the Development Control Plan, preferably an additional chapter, that are as consistent as possible with existing provisions for other developments but acknowledge the unique qualities of regenerative villages and thus include development objectives such as those outlined in clause 18.6 of the draft DCP included in Appendix D,

- (c) The requirement to prepare an infrastructure and services plan that outlines the nature, extent, and timing of delivery, as well as ongoing operation and management of all infrastructure, assets, services and facilities to be provided,
 - (d) The requirement for a proponent to undertake a planning proposal to resolve the detail of all of the above in relation to any regenerative village proposed for a particular site,
6. That Council adopt the draft Planning Agreements Policy (including draft legal template and explanatory note) to provide a framework for negotiating the provision of local infrastructure by developers of major projects, including any potential regenerative villages,
 7. That Council draft a letter to land-owners within the identified precincts advising them of the action in the housing strategy and the steps taken to date, offering land-owners the opportunity to participate in the continued development of the pilot project on their land,
 8. That Council explore the possibility of applying to the Living Future Institute of Australia (LFIA) for preliminary certification of the project as a Living Community Vision Plan. This would indicate community agreement around a common vision and will assist in the promotion of the project through the LFIA network.

1. PROJECT COMMISSION

This project is funded by Sustainability Advantage (SA) an office of the NSW Department of Planning and Environment.

SA has expressed an interest in exploring the possibility of applying this body of work in other local government areas across the state. The project outcomes have been designed to be readily transferable, although development provisions must always be tailored to local conditions and be consistent with the interests of the local community.

2. BACKGROUND

2.1. Bellingen Shire Local Housing Strategy

The Bellingen Shire Local Housing Strategy 2020-2040 (BSHS) was adopted by Council at its meeting of 29 January 2020 and referred to the New South Wales Department of Planning, Industry & Environment for final approval. Final approval was issued for the Strategy on 15 April 2020.

Action 8.4 of the Action Plan in that strategy stated as follows:

8.4 Eco Village Pilot Project

Eco-villages were broadly supported during the Homes for Our Future community engagement process. However, there are many challenges to siting, funding and developing eco-villages.

Nevertheless, eco-village housing could provide additional housing choices aligned with the Housing Vision if implemented well.

In the event that a **proponent presents Council with a suitably detailed project** that will produce exceptional environmental and social outcomes, and the learnings of that project could be transferred into mainstream housing in the future, then Council will provide support for the alterations to planning controls that would be necessary to facilitate the pilot project. Established schemes such as the Living Future Challenge and Certification Scheme may be used to demonstrate merit.

Finding a location for the eco-village should focus on minimising natural hazard risks to people and property and result in clear improved environmental outcomes on the site (e.g. locating the village on an already degraded site rather than developing and clearing land in a healthy natural area). Council will work with any proponent to assist in locating an appropriate site for the project.

Depending upon the outcomes of any Pilot Project, **Council will consider the development of future amendments to planning controls that will provide guidance for future potential eco-village projects.**

According to the timeline adopted in the Housing Strategy, this action is intended to commence in the short term (1—3 years from the date of adoption). Key aspects of this action have been marked in bold and are addressed in the following sections.

2.2. Proponent with suitably detailed project

The action is triggered by a proponent presenting Council with a suitably detailed project. By letter dated 1 February 2020, PolisPlan presented Council with a project outline for the development of Circular Economy Villages (CEVs).

In response, by letter dated 20 February 2020, Bellingen Shire Council confirmed its willingness to work with PolisPlan “to advance this project in the terms anticipated in Action 8.4.”

An overview of the key features of the proposed concept is outlined again in section 4 of this report.

The concept of a Network of Circular Economy Villages has been developed by the author of this report through a PhD research project at The University of Sydney. Further information about CEVs is available at the website (beautilitydevelopments.com.au), with peer-reviewed journal articles available on the resources page of that website.

2.3. Planning controls to guide future potential ecovillage projects

A critical aspect of Action 8.4 is that the proposed pilot project, and the planning process through which it is developed, should provide guidance for similar projects that may arise in the future. That is, “Council will provide support for the alterations to planning controls that would be necessary to facilitate the pilot project”, and depending on the outcomes, these may inform planning controls for future projects.

The principal purpose of this scoping paper is therefore to identify the various alterations to planning controls that would be necessary. This is to ensure, given the broad community support, that Council has articulated its expectations when assessing future ecovillage developments.

2.4. Terminology

For the purposes of clarity, the following terms are defined:

Ecovillage: A rural or urban community that is consciously designed through locally owned, participatory processes in all four dimensions of sustainability (social, culture, ecology and economy) to regenerate their social and natural environments¹.

Circular Economy Village (CEV): A specific type of rural ecovillage that has been designed from the outset in accordance with the principles of the Circular Economy—i.e., eliminate waste and pollution; keep products and materials in use; and regenerate natural systems². The adoption of this terminology also seeks to emphasise that the village is more than just housing, it is a holistic system of energy, water, food, and transport infrastructure that supports both housing and local economic activity. The narrowing of the definition to a specific type and scale with certain

¹ Definition from Global Ecovillage Network (<https://ecovillage.org/about/about-gen/gen-glossary/>)

² Source of Circular Economy principles: Ellen MacArthur Foundation <https://www.ellenmacarthurfoundation.org/circular-economy/concept>

characteristics also simplifies the process of developing planning controls and a business plan for the development of a network of villages.

The scale of CEVs is proposed to be limited to housing a diverse community of up to 200 people, integrated with co-working spaces, water and energy micro-grids and a regenerative agricultural system. The financial model underpinning the CEV is also circular, adopting life-cycle costing.

Regenerative Village: for the purposes of this report, an alternative term for Circular Economy Village, using the language adopted for regenerative development and regenerative agriculture.

3. PROJECT AIM

As outlined in Action 8.4 of the Bellingen Shire Local Housing Strategy 2020-2040, council is seeking advice on the establishment of planning policies and processes that would enable the development of a new village that delivers exceptional environmental and social outcomes.

The aim of this project, therefore, is to establish the planning policy framework for an eco-village pilot project such that the learnings of that project could be transferred into mainstream housing in the future.

4. THE REGENERATIVE VILLAGES MODEL

The development model proposed for the eco-village pilot project is the concept of a 'Network of Circular Economy Villages' developed by PolisPlan³. The short description of this model is as follows:

"...a network of high-tech, regenerative villages that strive towards self-sufficiency and zero waste within their bioregion. Each village will house a diverse community of up to 200 people and will integrate affordable co-working and co-living spaces with water and energy micro-grids and a regenerative agricultural system."

As this concept is planned as a network of villages, it is a replicable development model, satisfying Council's requirement that the pilot project inform future eco-village developments. Furthermore, the concept has been developed as a response to the six global mega-trends identified by CSIRO⁴ and has been informed by, and incorporates, best practice from other similar projects.

4.1. Responding to Global Megatrends

We are living through a time of substantial change and upheaval. Every sphere of human endeavour should explore alternatives to business-as-usual (BAU) that are more sustainable, economically affordable and which empower people and communities. Housing, land development and infrastructure provision shape our built environment and our relationship with the land upon which we live. The proposed development of a village with an integrated ecosystem of infrastructure offers an alternative to BAU and has the potential to inform how we collectively adapt to a changing future.

³ <http://beautilitydevelopments.com.au/>

⁴ <https://www.csiro.au/en/research/technology-space/data/our-future-world>



Figure 1: Seven global megatrends identified by CSIRO. Source: *Our Future World, CSIRO 2022*

The CSIRO has identified seven global megatrends (**figure 1**) that are changing the way we live and responding to these provides some guidance as to a possible future direction.

The **leaner, cleaner, greener** mega-trend is also a critical strategy for **adapting to a changing climate**. The shift from the current 'extract, make, use, dispose', linear economy to a circular economy, would ensure that resources are not just used more efficiently, but are kept circulating within the economy. A circular economy village can be a local economic system designed to eliminate waste and pollution while regenerating natural systems and increasing biodiversity. Biodiversity loss and environmental degradation can only be reversed with a shift from extractive to regenerative practices, such as regenerative agriculture and regenerative development.

Global geopolitical shifts and ongoing crises are disrupting global supply chains, demanding the re-localisation of our economies, particularly for basic necessities such as food, energy and shelter.

The **escalating health imperative** is partly driven by ageing populations, resulting in a significant increase in the number of retirement villages. Rather than providing such housing only for the elderly, campus-style micro-neighbourhoods could house people of all ages. The pandemic lockdowns highlighted the value of neighbourhood communities. It would be preferable to be locked down in a resilient neighbourhoods that can sustain residents, rather than in a house or apartment.

Diving into digital describes how the internet has transformed many aspects of our lives. To balance the substantial expansion of the virtual world and global online connectivity, we should reinforce our local connections in the real world both to the land on which we live and the people we share that place with. Nevertheless, incorporating co-working spaces in the regenerative village would support remote work opportunities.

4.2. Informed by current best practice

The proposed regenerative village pilot project has been developed through research that examined, amongst other things, best practice in the development of greenfield precincts as well as emerging development and financing models that would be suitable for such projects.

4.2.1. Embedding Circular Economy principles in precinct plans (NSW Department of Planning)

Embedding Circular Economy (CE) principles into the planning and development of new precincts has recently been adopted in masterplans by the NSW Department of Planning and Environment as an essential pathway to the achievement of both economic and environmental sustainability outcomes. For example, Parkes Special Activation Precinct (SAP) masterplan (June 2020) has the aspiration of being Australia's leading CE precinct. Similarly, the 'Western Sydney Aerotropolis Plan 2020' identifies the CE as one of 11 key drivers in the planning of the new Western Sydney Airport precinct. The plan describes how this will influence planning of infrastructure as follows:

The Aerotropolis is low carbon, featuring next-generation energy, waste and water infrastructure. Circular economy principles minimise waste and pollution, retain water in the environment, reuse energy and regenerate natural systems to increase the tree canopy and urban cooling. Sustainable food production in the Agribusiness Precinct minimises food miles and reduces food wastage.

The emphasis on localising and circulating food, water and energy are key characteristics of the proposed Circular Economy Village (CEV).

As previously mentioned, implementing a CE requires that planning and design processes be informed at the earliest stage by the three key principles, specifically:

- eliminate waste and pollution,
- keep products and materials in use, and
- regenerate natural systems.

Regenerative villages differ from the industrial precincts proposed by the State Government in that they will circulate resources primarily by enhancing natural ecosystems, such as using constructed wetlands to clean water and natural processes to convert organic waste into soil.

We have also contributed as lead authors of a recent report for Circular Australia (formerly NSW Circular) on "Embedding circular economy principles within precincts and infrastructure business case processes in NSW"⁵.

4.2.2. Water cycle management: Lochiel Park (Renewal SA, South Australia)

Engineers and others in the water management industry have long recognised the superiority of natural ecosystems for managing water when compared with dams, pipes, and concrete channels. This approach is generally referred to in the industry as Water Sensitive Urban Design (WSUD), water sensitive cities, or cities as water catchments.

Designing water sensitive cities is about integrating water systems planning with land use planning. A leading example is Lochiel Park in Adelaide, completed in December 2015. A project

⁵ <https://circularaustralia.com.au/wp-content/uploads/2022/03/NSW-Circular-Precincts-Infrastructure-Rapid-Review-2022.pdf>

by the state-owned Renewal SA, it has achieved substantial savings in water demand from the grid:

*Water efficiency measures include rainwater for re-use as hot water and ... recycled stormwater for toilets, washing machines and irrigation contribute reaching a target of **78% saving of potable water** (against the 2004 average). (Renewal SA website)*

The technology and expertise to design settlements in a far more water efficient manner, using nature-based water infrastructure systems, is available. As the Lochiel Park masterplan in **figure 2** shows, on-site water management requires significant land area for constructed reservoirs and wetlands. This implies a requirement for significant open space to be provided around the built environment.

The proposed regenerative village should seek to capture, store, clean and recycle water within the precinct. Renewable energy should be adopted to assist in cycling the water, particularly where it needs to be pumped uphill.

4.2.3. Energy management: The Cape (The Sustainable Landscape Company, Victoria)

The transition from fossil fuel energy sources—coal, oil, and gas—to renewable energy harvested from the environment is now generally accepted as inevitable. Renewable energy technologies are characterised by low capital cost, minimal maintenance, relatively small size and scalability, which means that renewable energy generation and storage may be installed almost anywhere by anyone. As a result, it is now possible for new precincts to incorporate an energy micro-grid that harvests, stores and distributes energy throughout the village precinct. Communities living in a regenerative village and responsible for managing the supply of energy would necessarily seek to minimise the demand, minimise waste and maximise efficiency.

An illustrative example is a new housing precinct developed in Cape Paterson, Victoria. Homes in this precinct significantly exceed the minimum energy efficiency rating of 6 stars (NatHERS rating system), all include solar panels for energy generation, and some are now including batteries for storage. In an evaluation carried out by RMIT University⁶ it was found that on average, homes draw **88percent less electricity** from the grid than the average 6 star rated home.



Figure 2: Lochiel Park masterplan showing constructed reservoir and wetlands (Source: Renewal SA)

⁶ Moore, T, Willand, N, Holdsworth, S, Berry, S, Whaley, D, Sherriff, G, Ambrose, A & Dixon, L 2020, *Evaluating The Cape: Pre and post occupancy evaluation update January 2020*. Report by RMIT University and Renew, Melbourne.

Masterplan

1. Revegetation
 2. Modified fuel buffer
 3. Local parks
 4. Ornamental streetscape planting
 5. Public road reserve
 6. Wetland
 7. Home sites
 8. Conference Centre and Café
 9. Multi unit precinct
 10. Ecolodges
 11. Sports precinct
 12. Community garden precinct
 13. Playground
- ▲ Electric vehicle recharge stations
● Fitness station

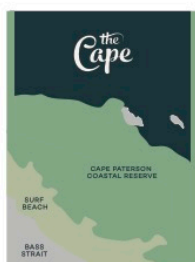


Figure 3: The Cape masterplan (source: <https://liveatthecape.com.au/about/>)

As illustrated in **figure 3**, The Cape also includes electric vehicle charging stations, conference centre and cafe, community food garden managed by a community gardener, significant open space, bush regeneration, and wetlands.

4.2.4. Circular food system: Yarrabilba, (Lend Lease, Queensland)

A circular food economy is being developed in a partnership between Lend Lease, QUT and the FoodAgility CRC (Cooperative Research Centre) at Yarrabilba in South East Queensland. Like the systems for monitoring energy and water, this is a digitally enabled smart food grid. Key outputs of the project are:

- New, scalable model for urban agriculture that can be applied in other Australian towns and cities.
- Prototype digital community composting system with in-built sensors, dashboard and incentive system.
- Smartphone-enabled community credit/bartering system where people can exchange goods and services related to food.
- Community engagement program to build local skills and knowledge.

While this project is still in the planning phase, it illustrates the ambition of a major developer to incorporate a comprehensive system of organic food cycle management within a housing estate. While the proposed regenerative village may or may not include the digital technology, the provision of significant open space for water management and bush regeneration offers the opportunity for significant on-site food production.

4.2.5. Build-to-Rent development model: Liv (Mirvac, NSW)

Adding infrastructure for the provision of food, water and energy increases the overall construction costs when compared to delivering housing alone. Retaining significant areas for use as open space, food production and bush regeneration, rather than providing more housing, reduces the potential income from a development project. The consequence is that such projects, if viable, deliver housing at a considerably high cost, thus further exacerbating housing unaffordability issues.

Key to resolving this issue is the adoption of a different financial strategy for such development projects. The emerging build-to-rent (BTR) development model offers a relevant possibility. This may be contrasted with the current prevailing land development model, which we can refer to as build-to-sell. Build-to-sell is based on land value speculation. A developer purchases land, undertakes the relevant planning, design and construction processes to maximise housing product, speculating that a certain market price may be achieved for that product. The number of houses that can be achieved and their expected sale price informs the price a developer is willing to pay for land.

A shift to a BTR development model substantially reduces land speculation. This is because the developer holds and manages the land at the end of the construction process. They are therefore more concerned about achieving consistent rental returns rather than maximising land value. Importantly, as the entire precinct is retained in the ownership of the developer they are able to incorporate common assets that increase the liveability for future tenants.

The financial strategy for BTR project considers the entire life cycle of a precinct, from planning, design construction and then ongoing management post construction. In such circumstances, it is in the developer/operator's interests to maximise the durability of assets as this reduces the life-cycle costs of management and maintenance. It is also in their interests to minimise waste and maximise efficiency justifying the inclusion of shared assets and the infrastructure ecosystem.

According to the Australian Housing and Urban Research Institute (AHURI 2019), BTR is an established practice in both the UK and USA but has seen minimal adoption in Australia. The AHURI brief cites tax settings designed for the build to sell model—in particular, land taxes, GST provisions, and income tax levels for overseas investors—as impediments to uptake in Australia. Nevertheless, it appears that several major developers are pressing ahead and lobbying governments to address these issues. In a media release in July 2020, the New South Wales state government announced:

The NSW Government will introduce a land tax discount for new build-to-rent housing projects until 2040 and a new Housing Diversity SEPP to provide more housing options, greater surety for renters, boost construction and support jobs during the COVID-19 recovery.

In September 2020, Mirvac opened Liv (livmirvac.com) their first BTR project in NSW at Sydney Olympic Park, financed through a managed investment trust. Regenerative village projects should adopt financial models using such long-term capital, rather than short-term debt. Managed investment trusts, superannuation funds, impact investment funds or other similar funds seek steady, long-term returns such as from rents, rather than speculating on the return from individual projects.

The NSW Government and major developers are clearly committed to supporting and advancing the BTR sector, a development strategy that is ideally suited to the construction and management of the integrated precinct-scale infrastructure of regenerative villages.

4.2.6. Community Land Trust and fractional property ownership: Western Sydney University

A significant concern with the BTR development model is that residents are all tenants and there is a consequent loss of security that usually comes with home ownership. Home ownership also provides a sense of autonomy, while renters may be subject to the whims of landlords.

To overcome this issue, there is growing interest in the concept of a Community Land Trust (CLT), that enables the collective ownership of land, infrastructure and housing by a community through a shared equity scheme. One form of shared equity scheme is fractional property ownership, where people can own shares in, or a fraction of, a property. A CLT is usually set up as a non-profit community organisation with the aim of providing affordable housing and other community benefits but may be a company, land trust or other appropriate legal entity. We understand that Dr Louise Crabtree from Western Sydney University, the recognised expert on CLTs, has assisted Council in the development of a CLT in Bellingen for the delivery of affordable housing.

Applied to the proposed pilot village, a CLT would purchase and own the land in perpetuity, allowing future residents to purchase units in the trust. Residents may obtain security of tenure by purchasing a certain minimum number of units or purchase sufficient units to offset all their rent.

4.3. Key design objectives

4.3.1. One Planet Living

Match the population of the village to the capacity of the land and its infrastructure. This ensures that the demand for food, water, energy and housing does not exceed the capacity of the local infrastructure and ecosystems. Planning processes should assume a fixed population and the infrastructure should be designed at a scale that supports the pre-determined population, preferably so that supply of these basic necessities exceeds demand.

An additional benefit of planning for a discrete population, and matching local supply with local demand, is that it allows waste and pollution to be designed out. Organic materials can be kept in circulation to improve soils and regenerate natural systems. The systems then satisfy the requirements for a circular economy.

A predetermined and fixed scale is also more readily replicable and therefore able to be adopted in planning provisions. That is, the land area required, impact on road networks, scale of community facilities and capacity to manage waste and other impacts of the development can be more readily applied to future developments. Standardising the required land area and maximum development potential also minimises the opportunities for land value speculation.

To select an appropriate scale, we have adopted the anthropological and sociological evidence developed by Robin Dunbar that suggests that “there is a cognitive limit to the number of individuals with whom one person can maintain stable relationships”⁷. Proponents of this concept

⁷ Dunbar, R. (1993). Co-Evolution of Neocortex Size, Group Size and Language in Humans. *Behavioural and Brain Sciences*, 16(4), 681-735. Quote from p 691.

assert that cohesive groups consist of between 100 and 250 individuals with 150 commonly referred to as Dunbar's Number. While there is continuing debate surrounding this concept, it serves as a useful starting point for the pilot project.

For our purposes we propose that the infrastructure be designed to accommodate 200 people, including 150 permanent, or long-term, residents and 50 nomads and short-term residents. This represents the population carrying capacity of the village infrastructure. The actual population can be lower than this number but not higher.

Dunbar's research also infers other 'natural' group sizes—the household (5 persons), the hamlet (35), the village community, and the broader community of acquaintances (1500 persons). It is proposed that the village of 200 people will be designed with 6 hamlets, while CEVs will also be designed to form connections with other CEVs and create a larger social network.

4.3.2. Maximise diversity

Natural systems are both more productive and more resilient as biodiversity increases. Mimic this diversity in all infrastructure systems. Food systems should include a wide range of fungi, plants, animals—including aquatic species in the reservoirs—not just to feed the humans but complement and support the ecosystem as a whole. With respect to energy, provide a wide range of generation and storage options. In the built environment, provide a diverse range of flexible, multipurpose spaces. Express diversity in respect of multiple users and multiple purposes for any space.

4.3.3. Maximise energy harvesting, minimise energy losses

The current economic system requires constant inputs of fossil fuel energy while, much of which is wasted. Each circular economy village can be thought of as a thermodynamic system but not a closed system since it receives a continuous input of energy from the Sun. Maximise the amount of input energy that is harnessed, whether with solar panels, other technology or by plants. Also minimise the energy that is lost as waste.

4.3.4. Enhance ecosystems

Natural systems are designed to convert waste into resources and to constantly regenerate. Aim to enhance the capacity of the environment to provide these ecosystem services. For example a closed water cycle can mimic the natural water cycle and provide an endless supply of water. Create integrated ecosystems such that organic waste can improve soil health or increase soil volume to retain more water. Water could be used to generate and store energy, while passively designed buildings can minimise energy demand.

4.3.5. Maximise productive efficiency

Efficiency is the ratio of energy inputs to energy outputs. Minimise the energy needed to deliver the required outputs—particularly food, water, electricity, mobility services and shelter. Aim to eliminate fossil fuel energy and minimise the human labour needed to deliver these basic necessities for all in the village. Use of durable labour-saving devices and technologies. Enhance ecosystems so that they provide a wide range of ecosystem services.

4.3.6. Maximise distributive efficiency

Save energy by minimising the distance resources and goods are transported. That is, strive to maximise local production for local consumption. For goods not able to be produced within the village, collaborate firstly with neighbouring villages, then others within the bioregion before looking beyond. For fabricated goods, aim to minimise the mass of the object being transported. This can be done by transporting the 'blueprints' electronically and have the item produced locally with a 3D printer.

4.3.7. Maximise durability

The longer things last, the less work is needed to fix or replace them. In contrast to the current disposable, consumer culture, greater durability means a longer life-cycle for all products and buildings. The most durable could be defined as sustainable—able to be sustained in a functioning form for a very long time or even indefinitely. Building design and construction should consider each design element in terms of maximising durability.

4.3.8. Share as much as possible

Share spaces and utilise spare capacity. In legal terms, ownership is the right to exclude others and results in a significant amount of unused spare capacity. Online sharing economy platforms facilitate the transition from ownership to access by enabling the use of spare capacity, for example in buildings, cars, tools or land. In addition to shared infrastructure, the circular economy village incorporates assets, facilities and spaces that can be shared. Designs should create 'degrees of privacy' without resorting to exclusive ownership. Residents will have use of, access to, and be responsible for, various parts of the settlement. Rather than owners of land, residents will collectively be stewards of an ecosystem of infrastructure and natural assets.

4.3.9. Maximise connectivity

Circular Economy Villages should not be regarded as isolated places but as nodes within a broader network. Provide high quality internet access for virtual connectivity and create a network of shared electric vehicles and charging stations for physical connectivity. Also, whilst each village would produce the basic needs for its residents and guests, it would still rely on the broader network for the satisfaction of more complex needs or to share rarer skills. Design interdependence into each settlement, perhaps with each village providing some goods or services for the broader network. The complementarity of settlements, particularly within a bioregion, would guarantee a wide range of goods and services for all.

4.4. Consistency with Bellingen Shire Housing Strategy

Whilst this project addresses just one of many actions that Council must implement as a result of the adoption of the BSHS, this project can address or inform a range of other actions. These include:

- (a) **Enable more housing types by changing planning controls and encourage smaller homes** (actions 1.2 and 1.4). The BSHS (p33) notes that 88percent of housing is separate detached dwellings and that the size of houses are increasing. The proposed planning provisions are designed to encourage housing for one- and two-person households within the

proposed flexible housing or co-living arrangements. The smaller private spaces will be compensated by the availability of shared work, entertainment and community spaces.

- (b) **Enable greenfield housing diversity** (action 1.3). The proposed village pilot project has been developed as an alternative to greenfield subdivisions on the edge of existing towns and villages. By enforcing the onsite delivery of supporting infrastructure and significant open space, the proposed development framework also ensures that the rural character is retained instead of creating a sea of roofs.
- (c) **Housing choices for Aboriginal and Torres Strait Islander people** (action 1.6). The CEV development model was informed, in part, from working with, and learning from, First Nations people. The integration of food, water and energy systems into and around the built environment allows the residents to connect with their local environment as they will be managing these systems to provide for their basic natural needs. This encourages residents to be responsible for the land that supports them. The land tenure, being some form of collective ownership, will encourage cooperation and collective management. Individual rental arrangements for all are intended to encourage a shift from ownership, control and exclusion to access, flexibility and stewardship.
- (d) **Encourage a variety of tenure types** (action 1.7). The proposed LEP clause has been constructed for “people who collectively own a single lot to erect on that lot multiple dwellings, as well as work, education, care, entertainment, and other spaces”. This will require that the land and assets are purchased and owned, in perpetuity, by a single entity (such as a Community Land Trust (CLT)).
- (e) **Walking and cycling** (strategy 3). The CEV development model provides living environments within walking or cycling distance of work opportunities.
- (f) **Affordability** (strategy 4). The planning process has been designed to limit the possibility of property speculation that constantly pushes housing prices higher. The collective construction of the entire village, significantly reduces construction costs when compared separate construction processes for individual houses. The CEV development model also strives to reduce the cost of living by providing food, energy and shared electric vehicles.
- (g) **Community connections** (strategy 5). The CEV development model is designed to encourage community connections through collaboration and care as residents work together to provide for everyone’s basic needs. The efficient delivery of these basic needs would ensure there was more time for connections and creativity.
- (h) **Innovative demonstration projects** (action 6.3). The CEV development model builds upon previous innovative demonstration projects such as The Cape in Victoria, which has demonstrated an 88 percent reduction in demand for grid electricity. This project includes a work hub and community garden and shared electric vehicles. Lochiel Park in South Australia includes substantial on-site water and energy management systems. “Water efficiency measures include rain water for re-use as hot water and ...recycled stormwater for toilets, washing machines and irrigation contribute reaching a target of 78% saving of potable water (against the 2004 average).”
- (i) **Environmental Protection and Sustainable Living** (strategy 7). The CEV model proposes to move beyond sustainability to regenerative development, that is, where daily human activity has a positive impact on the land. On-site water cycle management integrated and regenerative agricultural practices seek to build soil health and volume, improve water quality and quantity and create space for other species. A renewable energy micro-grid is required to generate, store and distribute sufficient energy to “substantially meet the needs of the village community”. The proposed development provisions also include a requirement to maintain or

rehabilitate a minimum of 5 hectares of local indigenous vegetation, preferably contiguous with a similarly vegetated area on adjoining properties, and managed to support local fauna”.

4.5. What might a Regenerative Village look like?

Drawing from the above design principles and incorporating the best elements of current best practice, the following key characteristics are proposed for the regenerative village pilot project. These have been used to inform the draft LEP provisions:

- (a) Selected site to be currently zoned for rural purposes.
- (b) Maximum population capacity 200 persons, consisting of a diverse age demographic. It is proposed to manage this in the development controls by providing for a maximum of 200 bedrooms. This is considered reasonable as the population of NSW (8,072,163) is currently housed in over 8,800,000 bedrooms⁸. On this basis, 200 bedrooms would house 183 persons. The proposed controls provide for a minimum of 150 bedrooms offering long-term security of tenure.
- (c) A total site area of no less than 40 hectares, equivalent to a common colonial land grant of 100 acres. This provides an overall residential density of 5 persons per hectare, which is the same order of magnitude suggested by Ebenezer Howard for his Garden Cities (8.8p/ha), consistent with the intention of both projects to maintain the rural landscape character.
- (d) Where possible, living and work spaces should be clustered together to minimise infrastructure costs. This may be in the form of a single compact urban area, or a cluster of hamlets as shown in the two options in figure 4.

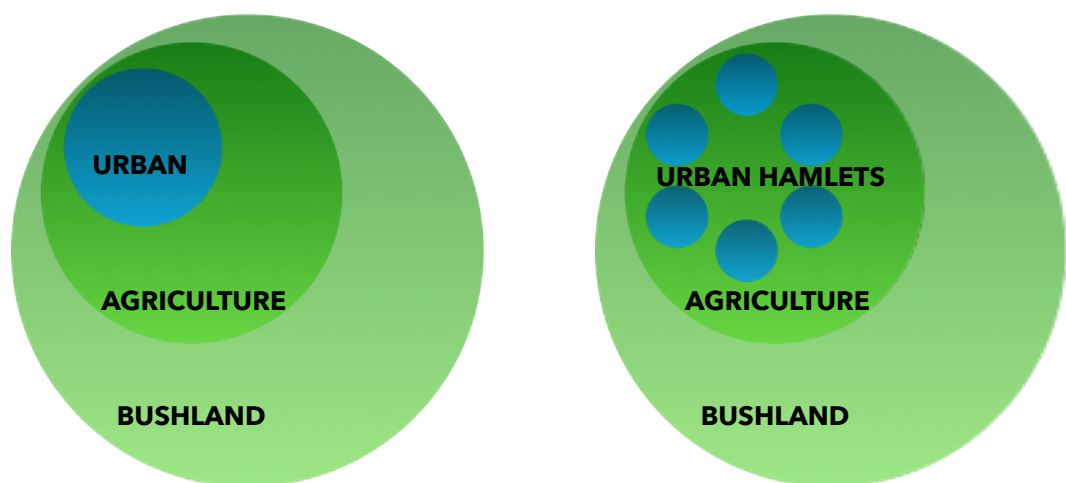


Figure 4: Possible arrangements of land uses in the proposed Circular Economy Village pilot project

- (e) Convert an existing gully into a riparian corridor with a chain of ponds, including reservoirs and a constructed wetland. Design this as a water supply, stormwater and grey-water management system for the urban environment as well as an irrigation system for the regenerative agriculture.
- (f) Retain some land for the purpose of native bush regeneration.

⁸ ABS 2021 Census of Population and Housing: Table G41 dwelling Structure by number of bedrooms.

5. FORMULATION OF PLANNING POLICIES

In the previous section we have addressed the provision in action 8.4 of the BSHS that requires the articulation of “a suitably detailed project that will produce exceptional environmental and social outcomes”. We have also shown that the proposed development model is replicable, ensuring that the lessons learnt from its development could be transferred to future similar developments.

In this section we discuss “the alterations to planning controls that would be necessary to facilitate the pilot project” as required in the relevant BSHS action.

5.1. Internal consultation within Bellinghen Council

Before drafting any planning policies, it was considered prudent to first discuss the concept with staff across various departments in Bellinghen Council to determine the implications of the proposed development for other Council roles and responsibilities. A summary of these discussions and their outcomes is provided in the following sections.

5.1.1. Ordinary Rates

Pursuant to the provisions of section 493 of the Local Government Act 1993, there are four categories of ordinary rates: farmland, residential, mining and business. At its discretion, Council may divide these into sub-categories. According to Council’s Revenue Policy, the most appropriate category for the proposed regenerative villages is ‘Residential - Rural’. This is the rates sub-category currently applied to rural land-sharing communities or Multiple Occupancies.

When calculating the applicable ordinary rates per residential dwelling within a rural land-sharing community, the amount can be as low as 10-15% of the amount paid by a residential dwelling in an urban residential zone.

Given that the proposed regenerative villages will also be on rural land and the land will, preferably, not be subdivided, there is a potential that a similar situation may arise resulting in relatively lower rates being paid by residents of such villages compared to other residents in the local government area. For regenerative villages to be a viable alternative form of development for Council to facilitate, it is considered that future residents of regenerative villages should contribute to Council services, facilities, and infrastructure on an equitable basis with other residents. Accordingly, some mechanism must be included in the proposed planning framework to ensure equity between all residents in the jurisdiction.

While it is preferred that the site remains in single title, one possible solution may be to require that Regenerative Villages be subdivided in accordance with the provisions of the Community Land Development Act 2021. This Act provides for the subdivision of land by a community plan—creating a Community Title (CT)—with a community-owned lot and “development lots” on which dwellings or businesses are located. These “development lots” would then be assessed by the Valuer General, allowing Council to levy rates according to the determined values.

Council has obtained interim legal advice to determine an appropriate path forward. That advice is attached as **Appendix A**. At the time of writing the lawyers contacted the Valuer General’s office and are seeking clarification of certain matters. At present, both options may be possible—that is, site to remain in single title (preferred) and site to be subdivided as Community Title.

Other key points in the legal advice are as follows:

- It is inappropriate to use Planning Agreements as a de facto mechanism for levying ordinary rates.
- Given Council's ability, pursuant to section 529 of the LG Act, to create sub-categories, it is possible for Council to create a new sub-category of rates for regenerative villages to ensure equity with residents in urban residential areas. They have referred to the 'Council Rating and Revenue Raising Manual' (2007) prepared by the then, Department of Local Government (now Office of Local Government (OLG)). The manual sets out two key legal principles for levying rates to ensure they are fair and appropriate. These are:
 - ➔ The benefit principle: those who receive the benefits of council's services also pay for those services; and
 - ➔ The ability to pay principle: those who pay for council's services have the ability to pay for them.

The lawyers recommended caution in applying these two principles as they may act against each other, for example where residents may benefit from services but are unable to pay for them; or where residents are benefiting from infrastructure and services within the village that they are paying for through other means.

The legal advice also sought to examine how rates would be calculated. This matter is also not yet resolved. The advice suggests that "it could be argued those leased areas [separately leased buildings] should be regarded as separate 'parcels' for the purposes of valuation and rating", referring to the NSW Valuer General's policy on 'Valuing separate parcels' (p.3). In our view, the proposed development form would not satisfy the four requirements identified in the VG's policy.

In conclusion, the exact mechanics of how ordinary rates will be assessed and calculated has not yet been determined. Nevertheless, we recommend that Council adopts the principle that future residents of regenerative villages should contribute to Council services, facilities, and infrastructure on an equitable basis with other residents, taking into account any services, facilities, and infrastructure provided by the village to the broader community.

5.1.2. Water and Sewer Levies

Water and sewer levies were discussed with the rates team and the Manager Water and Waste Water. Both advised that if the property on which a development was proposed was within 225m of a water main or 75m of a sewer main, then levies would be charged, with a lesser fee if the development was not connected to this infrastructure.

Regenerative villages are proposed to be designed with complete water cycle management and so will not require connection to water infrastructure. The precincts identified later in this report as potential sites for the pilot project are all beyond the 225m and 75m proximity to mains, will not increase the burden on Council infrastructure, and so should not be required to pay either connection charges or usage charges. Nevertheless, Council should assess this requirement on a case-by-case basis.

5.1.3. Fire Service charge

We reviewed Council's Revenue Policy in relation to the Fire Service charge and note that it states:

Council may exempt properties from the payment of this charge where a Council approved permanent on-site water supply systems have been installed, generally as a requirement of development consent and where the property is not connected to Council's reticulated water supply system.

Once again, it is considered that this charge should not generally apply to regenerative villages but should be assessed on a case-by-case basis.

5.1.4. Waste Levies

Waste levies were discussed with the Waste and Sustainability team. Given the circular economy design intent for regenerative villages, the aim is to not require Council's waste services. Whether this can be practically achieved remains to be seen and should be considered when a more detailed proposal is submitted to Council. If Council is required to service the village, then required number and types of bins should be provided but staff advised that there are many areas that don't have kerbside collection. In such circumstances residents can take their waste directly to the transfer station or obtain the services of a private contractor.

It is likely that regenerative villages will not require Council's waste services and so should not pay waste levies. For any waste not managed on site a private contractor would be engaged. The requirement for waste levies should nevertheless be assessed on a case-by-case basis.

5.1.5. Sustainability Education

In further discussions with the Waste and Sustainability team it became evident that there may be opportunities to incorporate sustainability education programs at the regenerative village pilot project.

This should remain an open discussion to be addressed at the time of formal lodgement of a proposal but there are clear mutual benefits to both Council and a future developer to facilitate and incorporate such programs into the village project.

5.1.6. Development Assessment Processes

Detailed discussions were held with Council's strategic planner, development assessment planner and the Manager, Local and Regional Planning from the Department of Planning and Environment. A relatively clear planning policy framework was quickly agreed and included the following elements:

- An additional clause in the local provisions of the Bellingen LEP. Certain elements of the clause could be drawn from the provisions for rural land-sharing communities in the SEPP (Primary Production) as well as the Lismore and Byron LEPs,
- The LEP clause should refer to a map or schedule indicating where the clause applies,
- A Development Control Plan (DCP) setting out more detail, and
- A Voluntary Planning Agreement (VPA) policy setting out infrastructure requirements.

The development of these components of the planning policy framework are discussed in more detail in later sections of this report.

5.1.7. Engineering Infrastructure Requirements

Discussions with Council's development engineer involved consideration of the impacts of a regenerative village development on Council's infrastructure. Following are the outcomes of this discussion:

- Incorporate requirement to prepare transport plan in LEP? This has been included in the draft DCP.
- Include provisions in VPA policy requiring developer to address road infrastructure issues through a transport plan. Requirement to provide adequate vehicular access to the lot from a bitumen sealed public road included in the LEP clause and transport plan required in the DCP. The VPA policy would not be the appropriate mechanism as it is a voluntary process.
- Consider flood risk. Flood risk management to be addressed primarily through the locality planning process, identifying land outside the probable maximum flood.
- Ensure consideration is given to riparian laws related to impacts on upstream and downstream properties, as well as access to watercourses. Council assisted by referring an enquiry to the Natural Resources Access Regulator (NRAR). They advised as follows:

Basically any proposals involving watercourse works should give due consideration to NRARs guidelines for controlled activities, most particularly the riparian corridor guidelines which can be accessed at <https://www.dpie.nsw.gov.au/nrar/how-to-apply/controlled-activities>

Controlled Activity Approvals (CAAs) are usually required for any works on waterfront land. Waterfront land is defined as the bed of a river, lake or estuary and the land within 40 metres either side of the bank.

For more information on CAA's please use NRAR Assist - <https://www.dpie.nsw.gov.au/nrar/nrar-assist>

Secondly, any "water structures" which are proposed for the capture/storage/use/extraction of surface water and/or groundwater will need to consider water licensing issues and should be discussed with WaterNSW.

These matters are required to be addressed by the pilot project proponent and assessed during the consideration of that proposal.

- Project will require the preparation of a Community Management Plan for all on-site infrastructure, setting up processes for their effective ongoing management. The requirement to prepare and Infrastructure and Services Plan is included in the LEP, DCP and VPA policy. The proposed approach covers the design, delivery and ongoing management of infrastructure and facilities in a regenerative village.
- Consider the application of a security bond to ensure works are carried out to appropriate standard. This would only be required if Council would be required to draw on the bond to undertake works.

5.2. Consistency with existing strategies and planning instruments

5.2.1. Local Strategic Planning & Community engagement

For CEVs to be financed, developed, and replicated, the development model must be enabled through Council's planning policies, which are informed by state and regional strategic plans as well as local government strategies. Local strategies are developed through community

consultation processes that are undertaken through Council's Community Strategic Planning processes and with the development of individual strategies. The provisions included in Local Environmental Plans and Development Control Plans should reflect the expectations of communities as articulated in local and regional strategies.

As noted in Action 8.4 of the Bellingen Shire Housing Strategy, "Eco-villages were broadly supported during the Homes for Our Future community engagement process."

The local community supports the development of an eco-village pilot project that may assist in informing the development control framework for future similar developments.

Should additional regenerative villages beyond the pilot project be desired, then the community would need to be engaged again to modify the housing strategy accordingly. During that time—as the strategy was being developed—the report authors also presented the regenerative village concept to the Housing Matters Action Group (HMAG) and similarly received support for the concept. Ongoing communication with HMAG has been maintained.

Wider community engagement should be undertaken as the project develops and also as required by the legislation.

Also, with the identification of specific precincts where the pilot project may be developed, affected land holders should be formally advised. This process should also involve initial discussions exploring whether landholders are willing to participate in the development of the pilot project.

5.2.2. North Coast Regional Plan

The proposal to develop an eco-village pilot project is generally consistent with the North Coast Regional Plan and seeks to advance a number of settlement planning principles and policy directions articulated in that plan. For example, the project proposes to create a "great place to live and work in a unique environment" and has been mindful of "managing the sensitive coastal strip" when identifying appropriate localities for the project.

With respect to specific directions, the project seeks to:

- deliver environmentally sustainable growth (direction 1),
- manage natural hazards and climate change by excluding flood prone and bushfire prone land in the locality planning (direction 3),
- promote renewable energy opportunities (direction 4) by incorporating a renewable energy micro-grid that generates, stores and delivers energy in the precinct.
- Protect and enhance productive agricultural lands (direction 11) by incorporating a comprehensive and diverse regenerative agricultural system for intensive but low impact food production on land that is inefficiently utilised.
- Provide great places to live and work (direction 14) by establishing a replicable precinct planning process, the supports the development of healthy, safe, socially engaged and well-connected communities (direction 15), through a process that includes coordinated local infrastructure delivery (direction 21).
- Deliver greater housing supply (direction 22), while increase housing diversity and choice (direction 23) in well-planned rural residential housing areas (direction 24) that effectively manage the conflict between such housing and valuable agricultural land.

- Deliver more opportunities for affordable housing (direction 25) by reducing opportunities for land speculation, minimising construction costs, while also reducing other living costs such as food, energy and transport.

5.2.3. SEPP (Primary Production) 2021 - Rural Land-sharing communities

The State Environmental Planning Policy (Primary Production) 2021 includes, in Schedule 5, provisions for rural land sharing communities. These provisions currently enable the development of rural land-sharing communities in the Bellingen Local Government Area provided, amongst other things, that the land is not subdivided.

The prohibition on subdivisions has made it difficult for existing and potential residents to obtain finance or readily buy and sell their share of the assets. As a result, rural land-sharing communities are being encouraged to convert multiple occupancies currently on a single title, into a community title scheme whereby dwellings are on separately tradable lots, with community land being collectively owned. This also allows Council to levy separate rates on individual dwellings.

There is a contradiction between adopting a new provision that enables the subdivision of land, when consent for such development is only permissible if the land is not subdivided. As a result, Council has resolved to amend the Bellingen Shire LEP, through Planning Proposal 20, which proposes to permit community title subdivision of existing multiple occupancies and prohibit the establishment of new multiple occupancies. At the Council meeting of 24 August 2022, Council received an update on Draft Planning Proposal 20, indicating that it will be on public exhibition from Saturday 13 August until 12 September 2022.

Both Lismore City Council and Byron Shire Council have undertaken similar processes. This involved removing their local government areas from (a previous version of) Schedule 5 of SEPP (Primary Production) 2021, and adoption of a local clause or clauses in their LEPs, enabling the development of rural land-sharing communities, together with community title subdivision of that land.

The draft LEP provisions prepared for regenerative villages have drawn, in part, from the provisions in SEPP(Primary Production) Schedule 5, Lismore LEP 2012 clause 6.8, and Byron LEP 2014 clause 4.2B. Also, like the provisions in the Lismore LEP, a map is proposed to be included, identifying appropriate localities for potential regenerative villages.

5.3. Locality Planning

Action 8.4 states the following in respect of identifying an appropriate location for the pilot project:

“Finding a location for the eco-village should focus on minimising natural hazard risks to people and property and result in clear improved environmental outcomes on the site (e.g. locating the village on an already degraded site rather than developing and clearing land in a healthy natural area). Council will work with any proponent to assist in locating an appropriate site for the project.”

To identify appropriate potential localities for the pilot ecovillage, Council provided PolisPlan with access to their Geographic Information System (GIS). This allowed us to undertake an initial desktop analysis based on a process of progressively excluding land deemed inappropriate based on certain criteria.

This project is not intended to identify a specific site for the pilot project as this would impact land values and potentially trigger regulatory issues. The aim is to set up a process for identifying suitable precincts or localities that allows Council to provide a level of transparency regarding why certain sites would be acceptable and others not.

The first step was to consider the overall structure of the Bellingen Local Government Area (LGA), noting the significant areas of State and National Parks, immediately excluded as potential sites. The two main road corridors are the Pacific Highway close to the coast and Waterfall Way.

Waterfall Way starts at the Pacific Highway at Raleigh, passes through Bellingen township and Thora, following the Bellinger River, up the escarpment to Dorrigo and eventually inland to Armidale.

Figure 5 shows these features as well as the sites having an area of 40 hectares or greater, with many of these located on the Dorrigo plateau. While this suggests that there may be numerous opportunities to develop regenerative villages in this area, the Waterfall Way road corridor that provides access is very steep and subject to regular landslips resulting in road closures. The relative inaccessibility of the Dorrigo plateau area suggested that the location of the pilot project should focus on areas between the escarpment and the coast. Should Council wish to encourage regenerative villages on the plateau we would recommend that a cluster of villages be planned for concurrent development to provide economies of scale.

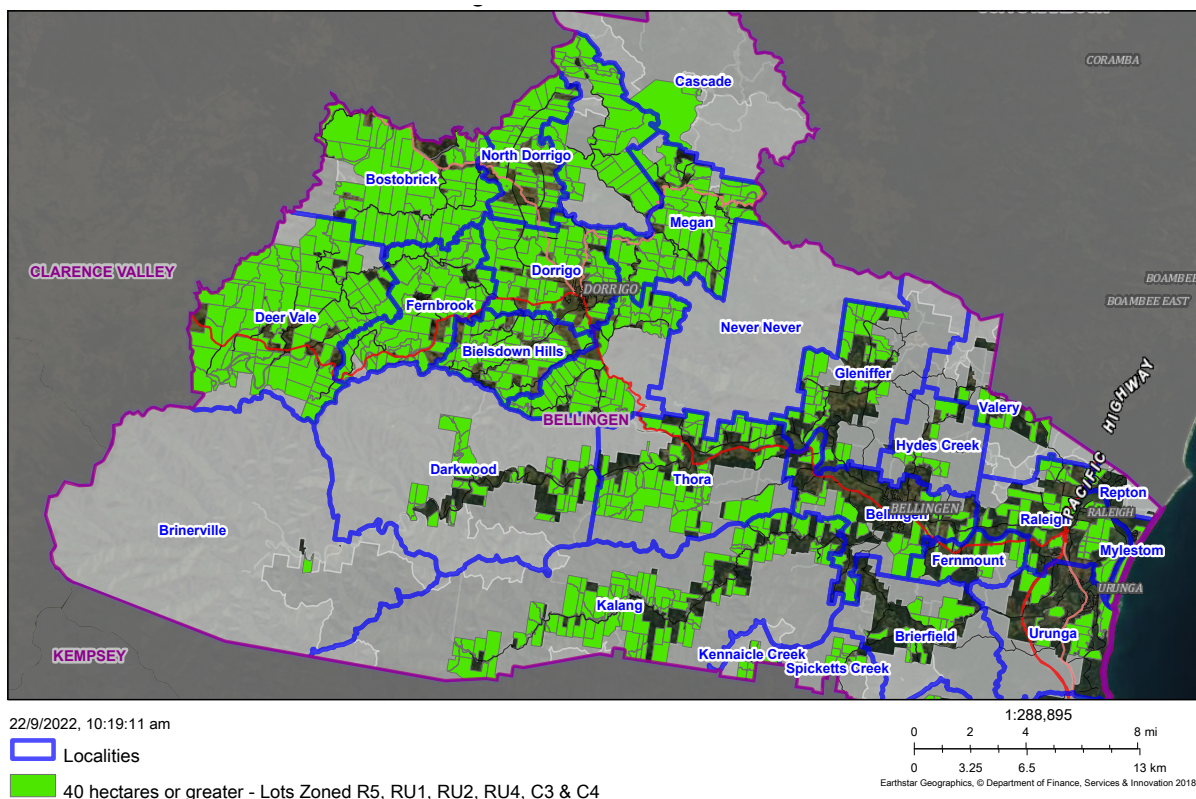


Figure 5: Bellingen Local Government Area. The areas shaded grey within the LGA are State and National Parks

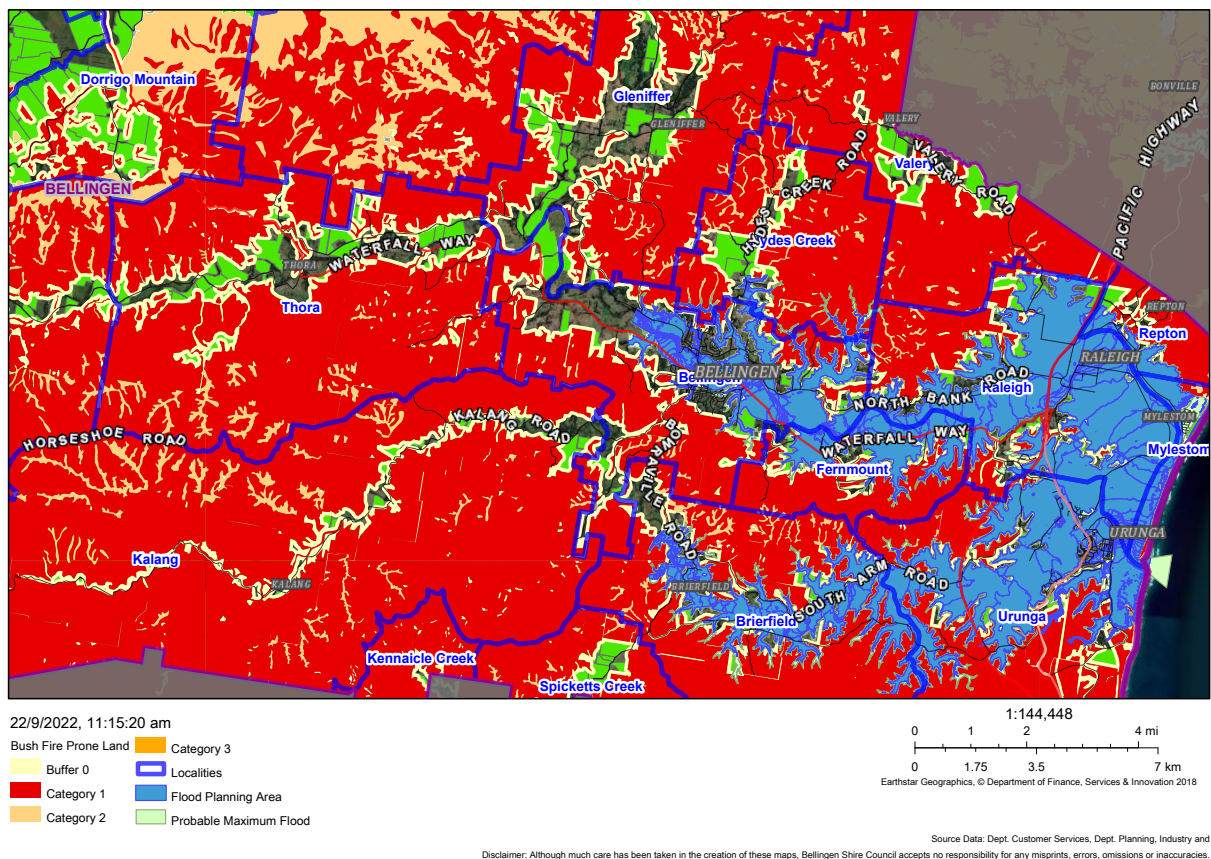


Figure 6: Extent of flood prone and bushfire prone land in the Bellinghen LGA, east of the escarpment.

The next step was to map land that is bushfire prone or flood prone as shown in **Figure 6**, ensuring this is excluded. This significantly reduced the options for potential sites. It is also noted that the flood risk management study extended to a point just west of Bellinghen township, so land beyond the study area, although not identified as flood prone, may still be affected. Flood prone land is also often identified as regionally significant farmland, so we used this map to further exclude land that would likely be flood affected.

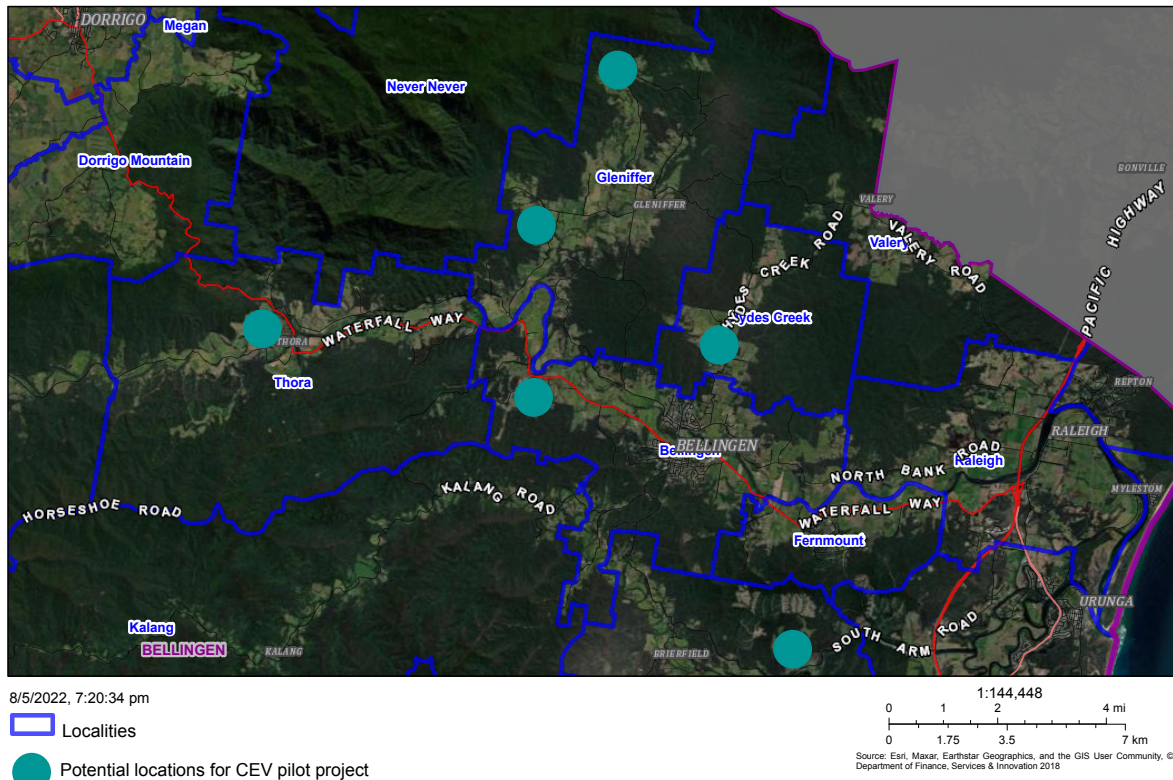
Acknowledging that the North Coast Regional Plan 2036 places a high priority on managing the ecologically sensitive coastal strip, we also excluded land between the Pacific Highway and the coast from our consideration. Much of this is, in any case, flood affected or bushfire prone

Given the minimal availability of suitable land, we then also included land having an area of between 10 hectares and 40 hectares that could potentially be consolidated to achieve the minimum of 40 hectares required for the development of a village.

The end result of the desktop analysis was the identification of nine (9) defined precincts that were potentially suitable. To ground-truth our desktop analysis we undertook a site inspection of all the sites, together with Council's strategic planner. This resulted in the exclusion of three (3) precincts, leaving six (6) possible precincts as shown in **Figure 7**.

Appendix B includes six (6) maps identifying the land parcels included in each of these precincts. The approximate areas of these precincts and some brief comments are provided in the table below. Only 40 hectares is required in any one of these precincts for the pilot project.

	Precinct	Approx. Area (ha)	Comment
1	Hydes Creek Road, Hydes Creek	280	Close proximity to Bellingren
2	Mahers Road, Boggy Creek	160	Close proximity to Bellingren
3	Darkwood Road, Thora	110	Road access may be an issue
4	South Arm Road, Brierfield	237	Solar orientation mostly south & east facing
5	Gordonville Road, Gordonville	75	Road capacity may be an issue
6	Promised Land Road, Promised Land	340	Road capacity may be an issue, solar access affected by mountains to north.



Source Data: Dept. Customer Services, Dept. Planning, Industry and
Disclaimer: Although much care has been taken in the creation of these maps, Bellingren Shire Council accepts no responsibility for any misprints, errors, omissions or inaccuracies.

Figure 7: Potential localities for pilot project

5.4. Local Environmental Planning Provisions

In a meeting with the Manager, Local and Regional Planning at the NSW Department of Planning and Environment, some options for the enabling provisions in the LEP were discussed. These included adopting a RU5 Village zone, which is available in the Standard Instrument but not currently adopted in the Bellingren LEP. A second option, which was preferred, was to draft an additional local clause.

A copy of the proposed draft clause is included in **Appendix C**. Key aspects of the proposed LEP provisions are as follows:

- A list of aims describing the development intent,

- Reference to a map identifying locations where the clause applies. This allows Council to amend the map in the future should it wish to identify locations for future projects. An LEP amendment is required both to include this clause in the first instance and to amend the map and add additional precincts.
- Requirement for a concept plan and site-specific development control plan (DCP) to be lodged in conjunction with a DA or LEP amendment,
- Requirement of a minimum site area of 40 ha,
- Requirement for minimum of 5 ha to be retained for bush regeneration,
- Requirement for a maximum of 200 bedrooms arranged as multi-dwelling housing, co-living housing, group home, boarding house, eco-tourist facility, camping ground, or any combination of these. A minimum of 150 of these to provide security of tenure for permanent residents,
- Shared areas provided for work, education, care, eating and drinking, and entertainment will, in total, be not less than the private areas provided for bedrooms and associated dormitory facilities. Also to be not more than double the area of private spaces,
- A requirement to submit an Infrastructure and Services Plan, outlining the nature, extent and timing of delivery as well as ongoing operation and management of the management of the site and supporting infrastructure.
- No subdivision of the site permitted.

We note that the requirement to prepare an Infrastructure and Services Plan (ISP) adopts the same terminology and processes as proposed in the draft Voluntary Planning Agreement (VPA) documentation. This ensures a relatively straightforward conversion of the ISP into an appendix to the VPA, should an applicant propose to provide additional infrastructure to offset development contributions.

5.5. Development Controls in the DCP

In accordance with section 3.42(1) of the Environmental Planning and Assessment Act 1979:

(1) The principal purpose of a development control plan is to provide guidance on the following matters to the persons proposing to carry out development to which this Part applies and to the consent authority for any such development—

(a) giving effect to the aims of any environmental planning instrument that applies to the development,

(b) facilitating development that is permissible under any such instrument,

(c) achieving the objectives of land zones under any such instrument.

In considering the approach to drafting the DCP, we first considered modifying clause 2.6.2 in chapter 2 'Multi Dwelling Construction' in the Bellingen DCP 2017. This clause refers to 'Rural Multiple Occupancy', requiring proponents consider the requirements of single dwellings. As it is anticipated that this clause would be removed with the adoption of LEP amendment under Planning Proposal 20, one approach would be to modify this clause to apply to regenerative villages.

This approach was considered to offer insufficient direction to proponents. As a pilot project, the aim is to encourage innovation, so the planning controls should remain relatively open and flexible in the first instance, while also offering a clear direction. Accordingly, we recommend

drafting an additional chapter for the DCP such that it directs development by reference to the key design objectives (s4.3 of this report), while minimising prescriptive controls. The draft DCP proposes to also refer to specific controls in other DCP chapters to provide guidance. **Appendix D** includes Draft Bellinghen DCP - Chapter 18 - Regenerative Villages.

This performance-based approach allows for some of the reasoning set out in section 4 of this report to be included as objectives in the DCP. We note that a proponent intending to develop the pilot project will be required to commit to an LEP amendment process providing Council with significant flexibility during the assessment process to achieve the desired objectives.

Given the specific qualities of regenerative villages—including the requirement that it be designed as a singular, integrated project—proponents will be required to prepare a concept plan and site specific DCP (clause (3) of the draft LEP).

Section 4.23(1) of the EP&A Act prohibits the inclusion of provisions in the LEP requiring the concept plan to be lodged and approved by Council as a concept development application (CDA). Regardless, the applicant may do so as an alternative to preparing a site-specific DCP (s4.23(2)).

We therefore consider that the proposed controls included in the Draft DCP are sufficient, at least at this stage, and that the assessment process provides the opportunity for all parties to negotiate the desired outcomes.

Particular provisions included in the draft DCP that are of note are outlined in the following subsections.

5.5.1. Definitions

In preparing the draft DCP it became clear that defining the regenerative village would be crucial for conveying the key principles underpinning the concept. Two definitions were included in the DCP, although in due course they should appropriately be included in the LEP definitions:

Regenerative Village is a settlement that has been designed:

- (a) *in accordance with the principles of the Circular Economy, and*
- (b) *as a system that integrates food, water, energy, transport infrastructure and the built environment.*

Circular Economy is an economic system based on the following three principles:

- (a) *eliminate waste and pollution,*
- (b) *keep resources and products circulating within the system, and*
- (c) *regenerate natural systems.*

5.5.2. Accommodation

The draft LEP proposes to allow various types of accommodation including multi-dwelling housing, co-living housing, shop-top housing, rural worker's dwelling, farm stay accommodation, bed and breakfast accommodation, hotel or motel accommodation, caravan park, or any combination of these. It also proposes that a minimum of 75% should be characterised as 'residential accommodation', providing for permanent residents with security of tenure, while the balance may be 'tourist and visitor accommodation' for visitors including nomads.

The draft DCP is therefore consistent in encouraging the creation of a diverse environment for people at different life stages and with different housing requirements, including aiming to encourage flexibility in the housing design.

To ensure that housing is designed to meet actual community demand, we compared the dwelling supply across NSW with the number of occupants in those dwellings. Figure 8 shows that 58% of occupied dwellings have just one or two persons in them, while 66% of dwellings are detached houses designed for families. In a previous discussion we noted that the population of NSW (8,072,163) is currently housed in 8,804,969 bedrooms⁹, demonstrating an over-supply of housing capacity relative to the overall demand. Whilst we are not proposing to address this state-wide problem, we can approach the housing design and ownership arrangements differently in this pilot project, striving to provide greater flexibility in design as well as substantially improved efficiency in the use of space. Such an approach should lower construction costs and improve housing affordability.

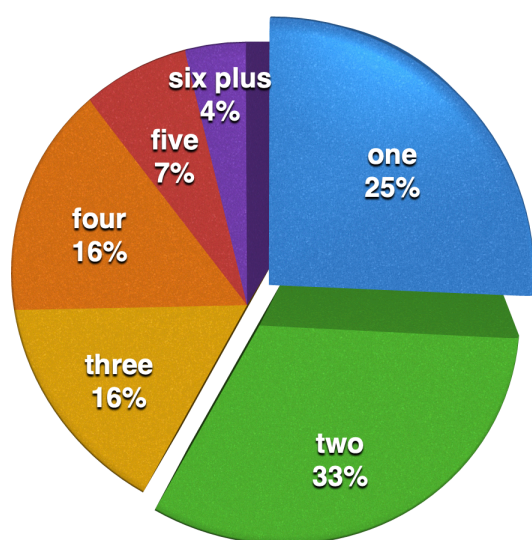


Figure 8: Occupants per occupied dwelling in NSW. Source: ABS (2021) Census of Population and Housing, table G35

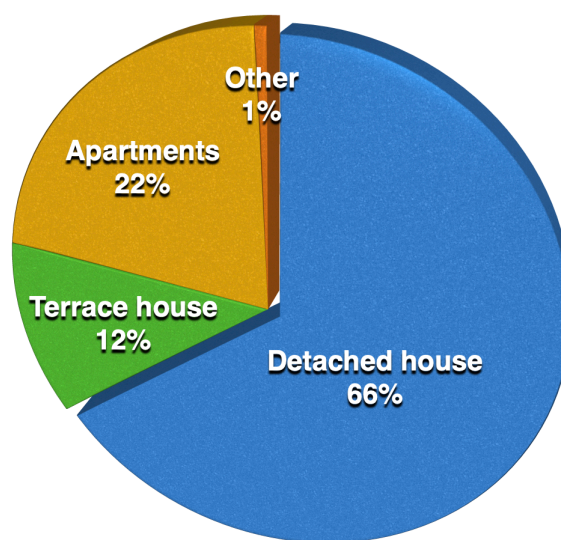


Figure 9: Dwelling structure of occupied dwellings in NSW. Source: ABS (2021) Census of Population and Housing, table G36

Given the wide range of work, education and recreation spaces proposed for the village, we considered that, rather than leasing dwellings, the unit to be leased would be a bedrooms suite. These could be arranged in various formats, including clustered to form a flexible dwelling for related or unrelated persons. All bedrooms suites would be connected to shared areas for living, dining and other activities.

Current one- and two-person households could then gain access for a much lower capital cost. All residents would enjoy lower living costs with food, water, energy and access to shared vehicles included with their housing cost.

⁹ ABS 2021 Census of Population and Housing; Table G41 dwelling Structure by number of bedrooms.

5.5.3. Retail and Industrial spaces

The principles of the circular economy seek to encourage the reuse of resources, materials and products that would otherwise be discarded as waste. This requires that certain light industrial activities be permitted. The proposed clause in the DCP provides that:

18.7.4 (2) Light industrial activities will only be approved if they can demonstrate that their primary purpose is to recover, recycle, repurpose, remanufacture, refurbish, repair, or reconstitute products or materials that would otherwise be discarded as waste.

While light industrial activity can provide for the recycling of inorganic material, agricultural activity provides for the recycling of organics.

The overall intention is to encourage this economic activity primarily as a way of servicing the needs of the resident community. Nevertheless, where a surplus is produced there should be an opportunity to provide this to the broader community.

For example, shared kitchen and dining areas used by the community could reasonably be used as food and drink premises that are accessible to the broader community. The draft DCP limits the scale of retail activity by providing that these will only be approved if they can demonstrate that they are primarily providing an outlet for goods produced on-site.

5.5.4. Infrastructure requirements

The draft LEP clause provides that an infrastructure and services plan be submitted that outlines the nature, extent, and timing of delivery, as well as ongoing operation and management arrangements for infrastructure and facilities.

This is expanded in the draft DCP, which requires the following:

- A buildings and facilities plan of management shall be submitted outlining the purposes and uses of various shared spaces, any access limitations, and management responsibilities,
- An open spaces plan shall be submitted describing the various uses and access requirements for the substantial open space provided in a regenerative village development,
- Detailed Landscaping documentation by an appropriately qualified person shall be submitted with any proposal for a regenerative village satisfying the requirements of Chapter 9 – Landscaping Requirements and taking into consideration the development objectives in this chapter. This plan is also required to be informed by a person with appropriate expertise in regenerative agriculture,
- An integrated water cycle management plan shall be submitted for all regenerative village developments. This shall illustrate how the entire water cycle is managed, including integration of stormwater conveyance and treatment systems, potable and non-potable water supply, wastewater treatment and re-use, and management of waterway health,
- A transport plan shall be submitted with any proposal for a regenerative village. The plan shall consist of two complementary sections describing the management of movement within the village, and management of movement to and from the village by residents and visitors.

This infrastructure and facilities are an intrinsic aspect of the village design and the required plans should ensure that the design is appropriately coordinated and integrated. As a package, these can form the Infrastructure and Services Plan (ISP) required by the LEP.

5.6. Local Infrastructure planning - Voluntary Planning Agreement

Regenerative village developments will include various facilities, assets, and open spaces to service the population within the development site. Some of these may also be made available to the proximate township and other communities in the broader area. The provision of facilities, infrastructure or services to the broader community could potentially allow the developer to offset development contributions required pursuant to Sections 7.11 or 7.12 of the EP&A Act. We understand that, at the time of writing, Council only applies fixed rate contributions in accordance with a plan made under section 7.12.

A note is included in the draft LEP clause to the following effect:

Note: Infrastructure or other community facilities and services should be scaled to meet the needs or respond to the demand generated by the new community within the development. Any infrastructure or community facilities that seek to serve the broader community with the intention of offsetting development contributions should be included in an offer to enter into a planning agreement.

In the circumstances where proponents intend to increase the scale of the infrastructure or facilities such that these can service a wider population, then there is a potential to offset any required development contributions. In such circumstances applicants would enter into a voluntary planning agreement.

We have therefore reviewed the draft Voluntary Planning Agreements (VPA) guideline prepared by Council in September 2020, which we understand has not yet been adopted. Noting also that the Department of Planning, Industry and Environment (DPIE) introduced new practice notes in February 2021, we considered it appropriate to make certain revisions.

One of the proposed revisions was to extract references to material public benefits from within the body of the legal agreement and reference instead an ISP as an attachment. This would effectively simplify the process by allowing the ISP documentation to serve a number of purposes (ie. satisfying the requirements of the LEP, DCP and VPA process). Section 8.0 - 'Implementation Plan' of Council's draft guidelines has been modified and included as section 12 - 'Infrastructure and Services Plan'.

In the VPA explanatory note we have also provided for an explicit separation of Category 1 from Category 2 infrastructure and services—the former provided to meet the needs and increased demand generated by the village community itself, and the latter relating to those servicing the broader community outside the village.

Appendix E of this report includes a draft Voluntary Planning Agreement (VPA) policy, including a standard template VPA and explanatory note template, providing a framework for the delivery and management of infrastructure, both on the subject site and the surrounding area. We have preferred the term policy, adopted by Council, to guideline.

Another purpose for revising the VPA policy was to incorporate various requirements from the DPIE guidelines including:

- Section 6 outlining the objectives of planning agreements,
- Section 7 providing new requirement for an 'Acceptability Test',
- Section 8 describing when planning agreements should be used.

In our view, a negotiated planning agreement relating to regenerative villages should, in addition to provisions in the ISP, address the following:

- (a) The effect on any development contributions required pursuant to Sections 7.11 or 7.12 of the EP&A Act,
- (b) The effect on any charges for water supply, sewerage, and storm-water drainage facilities under s64 of the Local Government Act, 1993,
- (c) The effect on waste levies, and
- (d) The requirement for the VPA to run with the land pursuant to Section 7.6 of the EP&A Act.

5.7. Certification Scheme

Action 8.4 of the BSHS seeks to achieve “exceptional environmental and social outcomes” and also provides that, “Established schemes such as the Living Future Challenge and Certification Scheme may be used to demonstrate merit”.

We have reviewed the Living Future Challenge website and discussed the possibility of using the scheme for the pilot project with the Living Future Institute Australia (LFIA). They advised that the international body had introduced a Living Community Challenge¹⁰:

INTEGRATED COMMUNITIES

The Living Community Challenge is a framework for master planning, design, and construction. It is a tool to create a symbiotic relationship between people and all aspects of the built environment.

The program is a call to action to governments, campuses, planners, developers and neighborhood groups to create communities that are as connected and beautiful as a forest.

At the time of our discussion with LFIA there were no projects with Living Community Certification in Australia, so there is a unique marketing opportunity to have the first certified project in Bellingen Shire.

Certification is provided at various stages of development, including:

- (a) Living Community Vision Plan, an optional phase when there is community agreement around a common vision.
- (b) Living Community Master Plan, when formal site plans have been developed and compliance obtained. Marketing may refer only to the fact that it is a compliant Living Community Master Plan, not a certified living community.
- (c) Emerging Living Community. This designation can be used when construction has commenced.
- (d) Living Community Certification. This may be achieved only after 12 months continuous operation after completion of construction.

Should Council agree to proceed with the adoption of enabling provisions for the development of regenerative villages, it may be possible to apply for preliminary certification under (a) Living Community Vision Plan.

¹⁰ <https://living-future.org/lcc/>

Given that full certification can only be obtained 12 months after the final Occupation Certificate has been issued, it may be difficult to enforce any requirement for such certification. Full certification may therefore not be an enforceable regulatory requirement.

It may nevertheless be useful to provide that Living Community Master Plan compliance be obtained as a requirement in the DCP. When proponents have commenced involvement in the scheme they may perceive it as a useful marketing strategy and obtain certification.

6. CONCLUSION

This report sets out a draft planning policy framework for regenerative village developments to address the “many challenges to siting, funding and developing eco-villages” as noted in Action 8.4 of the Bellinghen Local Housing Strategy.

The proposed framework has been designed to assist in the development of a pilot project, while also allowing for relatively simple modifications to provide for future villages such that “planning controls ... provide guidance for future potential eco-village projects”.

The recommendations and next steps are included in the Executive Summary at the front of this report. The formal components of the planning policy framework are attached as appendices as follows:

- APPENDIX A: Legal advice in respect of application of ordinary rates
- APPENDIX B: Maps of precincts where the Regenerative Village Pilot Project may be located
- APPENDIX C: Draft clause 7.11 for inclusion in Bellinghen LEP 2010
- APPENDIX D: Draft chapter 18 - Regenerative Villages for inclusion in Bellinghen DCP 2017
- APPENDIX E: Draft Voluntary Planning Agreement policy, including standard templates for legal agreement and explanatory note.