COMMUNITY BY DESIGN, BY THE PEOPLE: SOCIAL APPROACH TO DESIGNING AND PLANNING COHOUSING AND ECOVILLAGE COMMUNITIES

Gilo Holtzman[1]

INTRODUCTION

Synthesis Studio is an architectural, planning, and design consultancy practice, led by Barbora Baloghova and Gilo Holtzman, who work independently, developing each one's interests and expertise while collaborating on various projects under the Synthesis Studio Brand. The studio's mission is to excel in environmentally and socially sustainable building and planning practices, by research, design, and policy advocacy, and through collaboration with other professionals.

In creating a community that works in harmony and reciprocity to its natural environment, we approach each site as an ecological system. Thus, the site layout and building design should perform in harmony with its surrounding environment and the needs of its future residents. For example, when planning and designing residential areas and buildings, we use research and implement the appropriate technologies in regard to waste management (grey water, composting, effluent) together with the form, location, orientation, shading, and social needs.

Designing and planning places for people is a challenge. On the one hand, if prospective residents are not engaged in shaping their future residence, it means that places are created based on preconceived notions of how people ought to live, or how they should use a place or a space. On the other hand, working with many prospective residents means that an architect also needs to act as a facilitator, navigating through diverse thoughts and ideas and then translating them into physical form. The latter is achieved by prioritizing and understanding the importance of engaging with the community at various levels, from the group process of running meetings and decision-making to planning and design workshops. The overall aim is to demonstrate a range of planning and architectural solutions for progressive residential models both in rural and urban settings. The encouragement of a participatory process means that each participant/stakeholder becomes an important contributor to the planning and design process, and has some role in decision-making and is extremely important in achieving the best design for our immediate home and neighborhood environments. This process has been aptly named 'community by design and by the people.'

KEYWORDS

community by design, low impact living, cohousing, ecovillage, social approach to designing and planning

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THE AUSTRALIAN CONTEXT

Unlike countries like Denmark or Israel where communal living (e.g., bofællesskaber in Denmark and the Israeli kibbutz) is reasonably inherent in the society and supported by the governing and financial sectors, in Australia, individualism and privacy are at the core of the society, reinforced by the planning systems and housing options. In Australia there are very few well-designed, community-focused developments, such as Urambi and Wybalena Grove Co-ops (mid 70s) in Canberra, Cascade cohousing (1991) in Hobart, Tasmania, and Christie Walk (2002) in Adelaide, South Australia. Although highly regarded and awarded, these projects did not have any influence on other developments, nor did they inspire changes to planning policies that would have created an easy path for other such projects. But this seems to be changing with raising awareness "and the search for answers to the question of what form of architecture and urban design can make contemporary forms of living together possible, eyes have turned to models and values from the past."[1] For the last 40 years, "one innovative housing model has demonstrated, through design and resource sharing, the capacity to develop a neighbourhood characterised by strong social cohesion and a reduced environmental footprint. This is cohousing."[2]

COHOUSING

The cohousing model involves participation by residents within a non-hierarchical management structure, fostering shared decision-making, creating and maintaining a caring community, and the development of meaningful relationships between neighbors. Moreover, it ensures that residents feel a sense of belonging. As a result, cohousing communities tend to encourage a sense of physical safety where neighborly networks keep an eye out for one another. For households that include children, the communities offer youth role models and supervision from a broader range of adults than simply parents.[3]

The size (between 10–35 households) and physical layout of the neighborhood buildings encourage this: the design is pedestrian-oriented, aiming to encourage opportunities for casual meetings between neighbors and there are large common houses and other shared facilities that provide space for both planned and spontaneous get-togethers such as celebrations, hobby clubs, movie-watching, and shared meals.[4]

A critical ingredient of a cohousing community is that residents share a commitment to sustainable practices, and this shared commitment, established through a long process of community building, enhances their ability to live sustainably. Because of these attributes, cohousing has been regarded as the most advanced housing model with the potential and capacity to be adopted not only as a housing option for the multi-generational middle-class households who are the majority demographic living in cohousing communities, but also for those on low incomes and other disadvantaged groups, such as older persons. Thus, cohousing provides innovative solutions to many of today's environmental and social challenges.[5]

Over the last few years, I have been involved in the planning stage of two communities: the Tasman Eco Village (TEV) and the Mid-Mountains Cohousing (MMCH). The two communities share the common aims and goals of developing a place that celebrates community, is environmentally aware, and energy efficient, with diverse people sharing tasks across the community. However, while both projects looking at cohousing as their design model, the TEV project has been initiated and led by a single developer, as opposed to the Mid-Mountains Cohousing project that is led by a group of future residents who will become the site developers. In this article I will describe and compare the planning processes and the design outcomes of these processes for the two communities.

TASMAN ECOVILLAGE (TEV), TASMANIA AUSTRALIA

Ilan Arnon, the owner and developer of the Tasman village site, has been working for the past seven years to achieve his dream of creating an ecovillage. Due to our common interests in building communities and cohousing as a housing model, he approached me to help him and TEV in their journey. Mainly, I was asked to advise on how to achieve their social sustainability goals. Our ongoing engagement included: improving their master plan by bringing more social cohesion to the village planning and design scheme; drafting the "Village Development and Building Design Guidelines;" and more recently, becoming a member of the Building and Construction Circle (BIC), helping to establish their approval process for every new development.

The aim of TEV is "to create a thriving, caring community that celebrates the residents' connection with the earth and with each other, and cultivates a sustainable, peaceful, and productive lifestyle. They envisage a celebration of neighbors gathered around a shared space in an arrangement that fosters neighborly relationships while valuing privacy. Moreover, the project will show that creating a village is more than just building houses, it's about building community."[6]

MID-MOUNTAINS COHOUSING, BLUE MOUNTAINS NSW AUSTRALIA

The cohousing group in the Blue Mountains NSW began its journey in late 2010. Like most grassroot developments, it started with people coming together to engage in a long collaborative process to develop their own neighborhood. Starting with a diverse mix of families with young children and over 55s, the group vision was to create a community where people feel safe and supported, that is multi-generational with diverse people of all ages, abilities, backgrounds, and income. The group wished to enhance its social environment by limiting car access, having large common spaces, sharing meals, resources, and amenities, and to build flexible and adaptable houses that are environmentally and user friendly. My ongoing engagement with the group included helping to establish their processes and governance model, land searching, and conducting a set of visioning exercises and workshops, with more planned workshops (*Common House Design and private homes)* to be held once the site is purchased.

THE PROCESS

Selecting a Land

A big challenge for every group or developer wishing to develop an ecovillage or cohousing community is finding suitable land that is reasonably priced, big enough to accommodate the community vision, and has suitable zoning. Most local municipalities in Australia are very conservative and any deviation from the norm is faced with numerous hurdles that many groups are not able to overcome.

TEV

Located in Nubeena village on the picturesque Tasman Peninsula, the property has been selected because of its location, just 100 km from Hobart and less than an hour drive to the airport. The land was once used as a golf course, sits on 23 acres (9 ha) in total, gently undulating, with water views or rural views overlooking a valley and a permanent 'Sucklings Creek' which runs through the property. It has a northerly aspect and most areas of the property get all-day sun—even in winter."[7] These natural features, combined with the availability of water, existing infrastructure, and zoning, make it an ideal location for an ecovillage.

With a population of about 300, Nubeena is the regional centre of the Tasman Shire, which has a population of about 3000. This means that most essential services are within walking distance. The size of the village, with 50+ potential homes to be built on site and the two types of zoning—residential and business/commercial—will enable the flexibility of living and living-working arrangements, together with the already existing amenities, mean that there is an enormous potential for the village to become a significant contributor to the economical and cultural future of Nubeena and the Tasman shire.[8]

MMCH

The Blue Mountains are located west of Sydney in a world heritage national park. In this scenic location lay towns and villages that are generally grouped into the lower, mid, and upper mountains, along the western rail line. After some time of land searching and local market research, land became available in the mid-mountains town of Hazelbrook. The size of the land is 3/4 of an acre, smaller than the group's initial intentions. Additionally, the site's narrow dimensions of 33 m (108 f) wide and 96 m (315 f) long, descending south to north, meant that the site was not ideal. However, with the right zoning, and considering the limited availability of suitable land, the group took up the challenge and decided to bring forward a proposal for the development of the site despite all of its limitations.

ENGAGING IN A COLLABORATIVE PROCESS

As mentioned above, while the TEV project is developer-led with some late input from the TEV association, the MMCH project is led by its future residents. This has led to some differences in the planning process and outcomes.

TEV: Connecting All the Dots

The process started with a three day visit to the site, walking about with Ilan Arnon and Karen Weldrick, the Tasman Ecovillage Association (TEVA) representatives, observing, learning, and understanding through discussions and conversations about what their ideas and needs are. At this stage, the planning process had already begun, with an approved subdivision for 72 residential lots and a few generic dwelling designs.

The master plan planning process began with a traditional approach to land subdivision, where each lot has direct car access through the circulating road running through the village. It then evolved into a more alternative scheme of circular lots called Seeds, that will help attain the goals of increasing community shared land and decreasing building footprint by deliberately decreasing the Seeds size so they range from 144 sqm–314 sqm (1550 sqf–3380 sqf), which is substantially smaller than the usual suburban block.

In order to achieve greater flexibility in the planning and living arrangements, one that can meet the village social vision, a different planning scheme was sought out. Well established in other states in Australia, the TEV became the first development of its kind in Tasmania to be approved under the *Community Development Scheme* (CDS). The CDS gives planning flexibility for the village as a whole and specifically for each planned cluster. The CDS is a type of strata title (condominium) development that has the usual benefits of strata ownership. These include title to a land and shared common property as well as policies and guidelines that promote the ecovillage's goals.

FIGURE 1. Master Plan V2, Andy Hamilton Associates.

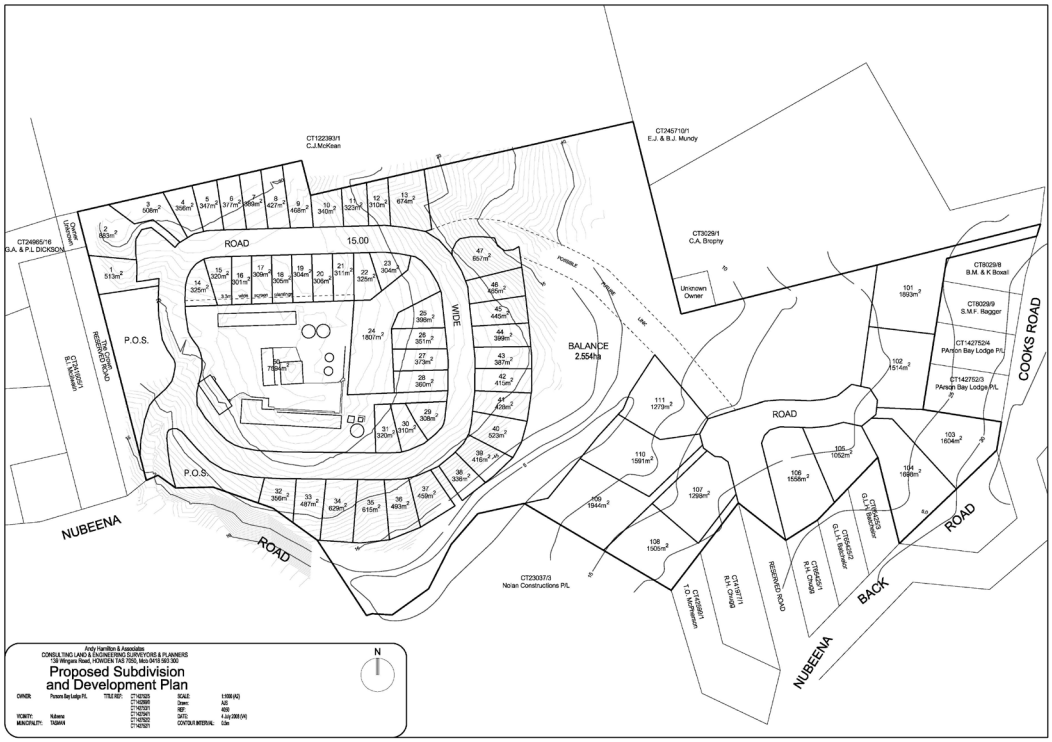


FIGURE 2. Master Plan V2, Andy Hamilton Associates.

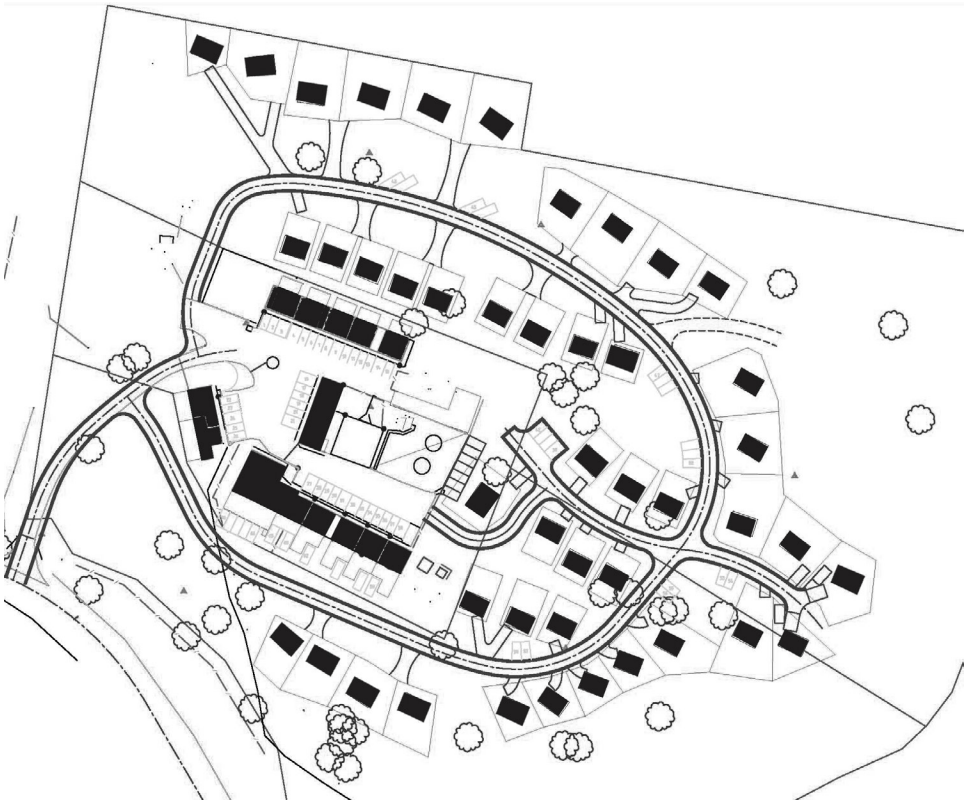


FIGURE 3. CDS Clusters V1, setting the positions of each pod.

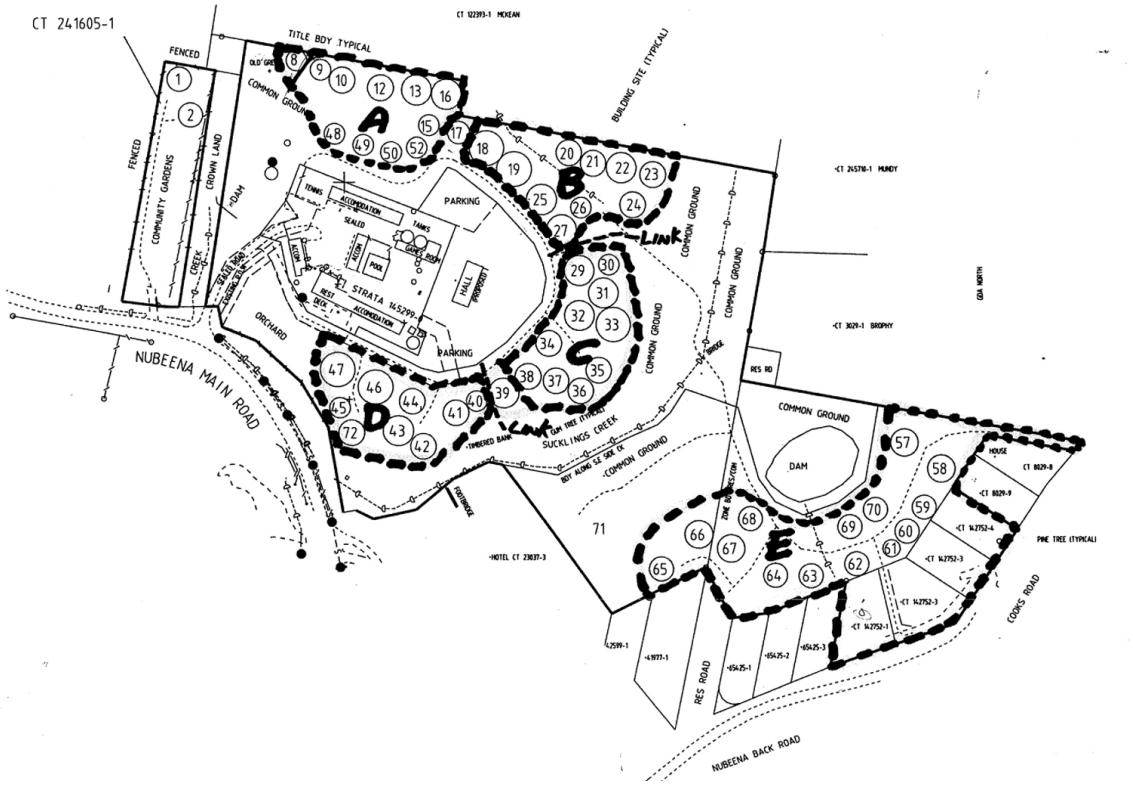
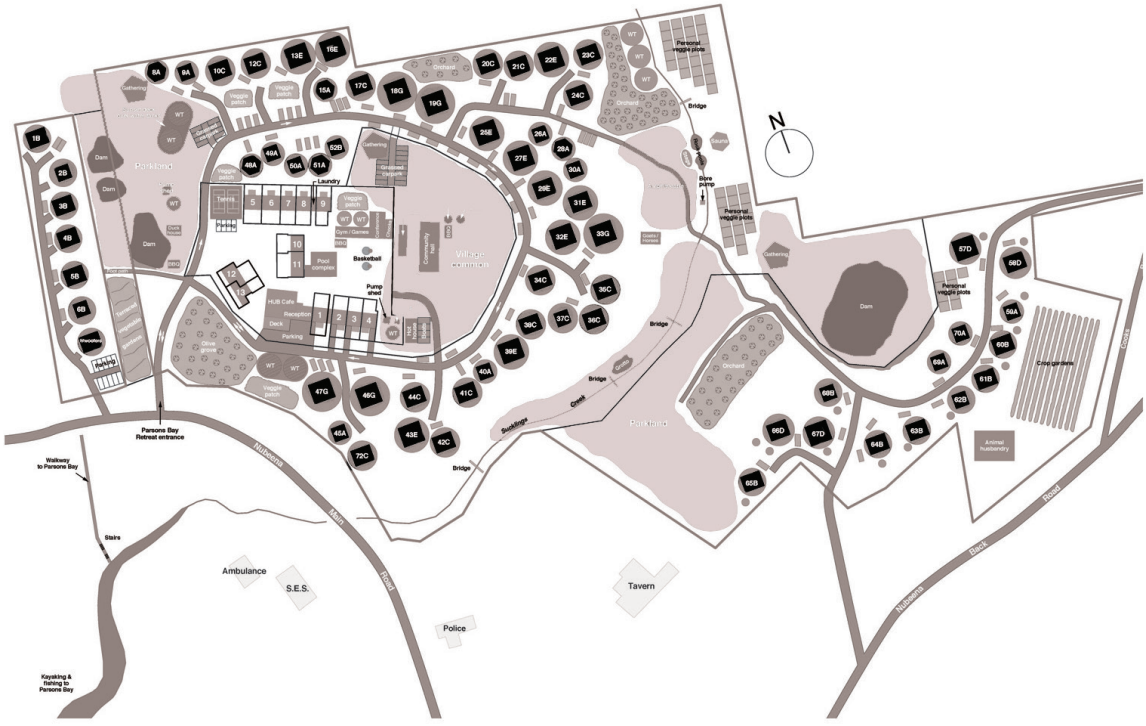


FIGURE 4. Master Plan V4, roads and driveway access to each seed.



Adopting this scheme meant that we could create several strata plans (housing clusters or Pods), where each could have their own name and managing body, offering some independence in managing their allocated common land. Once the development is completed, each Pod would elect a representative to sit on the TEV body corporate. Thus, from the governing perspective, the village management would constitute a small group of representatives, rather than having to seek consensus in a large community meeting.

The by-laws for each Pod could be similar to each other and to the Village Body Corporate (VBC) by-laws in order to create a coherent ecovillage, but with variations as necessary to cater for differences between Pods, e.g., in building style. While each Pod could have some common property, the pool, the "shed," and tennis courts would be common property, giving everyone the right to use them.

As a result of this plan, the design challenge was to provide a common thread, a consistency, between the needs and preferences of people wishing to be part of the village, as well as cohesion in the village vision. Due to the flexibility in planning, we could give closer attention to each of the Pods and Seeds, allowing us to address their unique terrain and character, and to further study and develop a clear understanding of the potential of the Pods, and to assess how they can relate and connect to the village centre, and its neighboring Pods. This allowed us to address issues such as walkability, connectivity, views, orientation, pathways, and water management.

FIGURE 5. Master Plan, final positioning of the seeds, parking spaces, and the boundaries of each pod.

Once these issues were addressed, we continued to implement design patterns that will allow a community to be created first by design: by reconfiguring parts of the village circulating road, developing the parking strategy and access to each of the Pods, and positioning and orientating the Seeds to maximize social connection to the Pod centre without compromising on solar gain and views. Finding the 'right' balance is the key to cultivating community,[9] building the layers of transitioning to and from the personal and public spaces from the moment one enters the village, parks their vehicle and walks through their Pod paths into their personal space of their homes. When this design balance has been established, it would be up to the people inhabiting and activating these spaces to make their community work.

MMCH: PARTICIPATORY PROCESS

Workshops

Following from previous exercises—including 'Sketch your Vision' private homes and community and 'Site Specific Community Vision'—was the 'Eco-Visioning' workshop. This workshop was another step forward toward bringing the group's common vision together, with clearer understanding of sustainable practices.

The Eco-Visioning workshop has the following objectives:

- To exchange collective and individual views on design targets and objectives.
- To disseminate the philosophy and principles behind the group's intent, so it will manifest itself in the project outline and outcomes.
- To discuss and present individual aspiration.
- To prepare the group for the three major workshops: Site Programming, Dwelling Programming, and Common House Programming.

The '*Site Programming*' Workshop was the group's first engagement with the participatory design and planning process. Since the land had not been purchased yet, the aim for the pre-development 'Site Programming Workshop' was to come up with a comprehensive, conceptual master plan for the site that will be used for the council pre-development advice and for marketing purposes. It was important for the group to know if the site could accommodate most of the group's objectives, vision, and viability (economy of scale) before committing to it financially.

Objectives and Targets

At the workshop we looked at issues of proximity of units to each other and the common house, location of the common house, orientation of pedestrian ways, parking, solar access, and typical cohousing site amenities. We also discussed the size and type of dwellings (townhouses, duplex, fourplex, etc.). At first the participants were divided into two groups. Each group had to explore housing densities of 8, 12, and 14 households at various layouts, and to examine the prospect of either retaining the existing four-bedroom brick house or demolishing it. Then each small group presented its concept to the entire group. After the completion of this first exercise, the small groups were joined together to discuss the layouts, working collectively to reach consensus on the final conceptual plan.

It was decided that in order to enhance the residential amenity of the site, buildings will be clustered along the main walkway and gardens. A combination of small double-story dwellings will be built along the contours to minimize excavation, while the existing house will be retained and used as the common house, with an additional two residential units on top.

FIGURE 6. Participatory process collage, draw your vision excersize, dynamic governance (socicracy), site programming, eco-visioning.

The *'Site Programming'* workshop established the residents' goals and criteria for the layout of their community, highlighting some of the key criteria for achieving low impact living, reducing the project ecological footprint, and for fulfilling the group's vision for multi-generational community. Together with the *'Eco-Visioning'* workshop, it helped the group to put together a set of sustainable targets and to clarify how each target will affect the feasibility of the project.

Sustainable Principles and Targets

Synthesis Studio advocates for new planning policies at both local and national levels that will allow planning permission on an exemption basis for eco-clusters that are sustainable, low-impact, and mixed-use developments. These include cohousing, eco-villages, and other collective living developments that demonstrate greater sustainability than current best practice, by enhancing mutual support and wellbeing.

Some of the key criteria to be considered as an eco-cluster development are:

Reduced Car Use—Adopting methods to reduce private car use substantially, which can be more widely replicated, such as on-site work and social facilities, car pooling and other shared transport, and commitment to use foot, bike, and public transport, put in as a condition through agreements and by-laws.

Community Led—Enabling local communities to create resident-led, sustainable developments to meet local needs.

Low Ecological Footprint—Innovative new integrated approaches to reduce overall carbon footprint and to enhance the overall environmental sustainability, including home energy, food, travel, and waste disposal.

Affordable Housing—Find ways to make some of the units affordable.

Creative Aging—All units to be lifetime-accessible homes. Shared facilities will be designed to support the needs of older people.

Shared Facilities—Other shared facilities that will reduce environmental impact will be encouraged—shared on-site food production (food Coop), shared tools, workshop, community house, and others.[10]

These criteria were manifested in both projects' targets and principles.

TEV

The developer had some general ideas of what he wanted to achieve; thus, the main aspect of the consultancy was to bring forward all the sustainable principles and targets that would then be manifested in the master plan through the collaborative process between the developer and the design professionals.

Social

While the ecological targets of an aspiring eco-village are fundamental to its existence, the social cohesion of the village is also of great importance. The 'Village Green' is the heart of the village, surrounded by four Pods and the hub. In the evolution of the master plan we acknowledged its vitality for connecting and bringing the village and the wider Nubeena community together in special cultural events by keeping it undeveloped. The village's existing common facilities, along with the proposed larger community house, communal gardens, and playgrounds, will all be shared by the village residents. In the Pods, where possible, the social space will be the central car-free area that may take the form of a garden courtyard or play area. The shared space is neither private (home, yard) nor public, but rather a defined space between the private and public realms. The Pod residents look out for each other, and share its management and care, thereby enhancing a perceived and actual sense of security and identity.

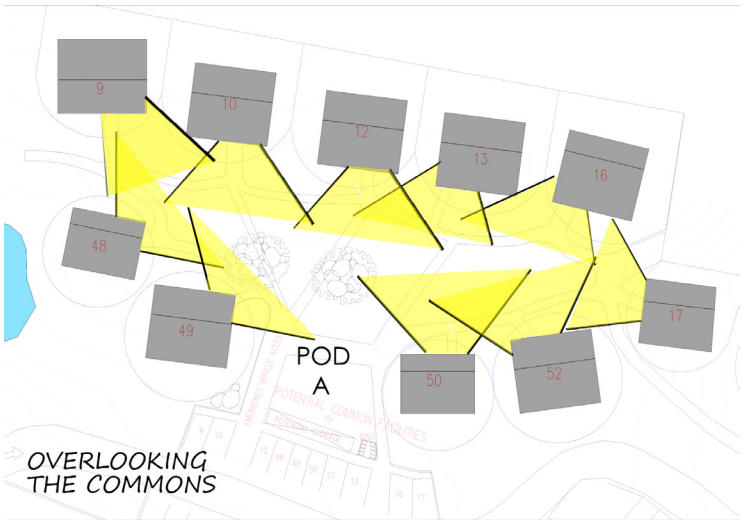


FIGURE 7. Houses oriented toward the commons.

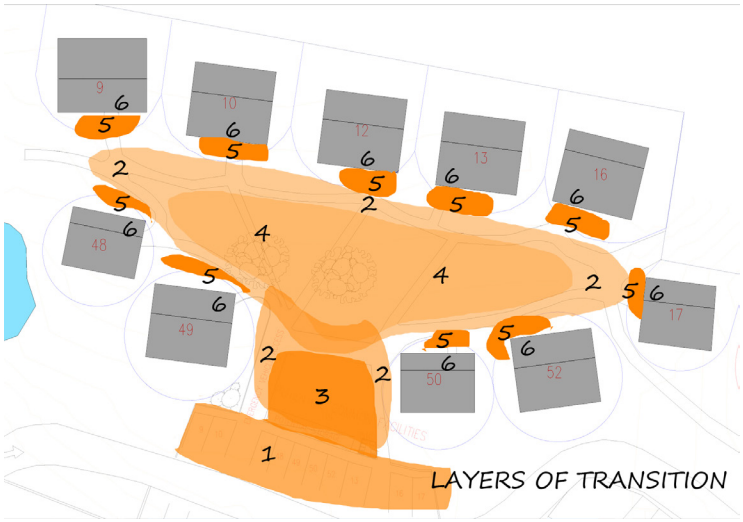


FIGURE 8. Layers of transition; public to private.

1. Car Park
2. Footpaths
3. Common Facilities
4. Commons
5. Front Yard
6. Porch/Veranda

The Public Edge

While the borders of each Pod are apparent, blurring the internal boundaries between the Seeds and the common space, with no fences or gates to separate them, will help to establish a distinct look and characteristics for each Pod. This will be even more apparent in the future, when diverse mixes of housing are built and the landscape matures.

Connectivity

In developing the circulation system within the village and within each Pod, we were looking at cars' movement, speed, and directions, and the location of parking spaces and pedestrian paths. All of which will maximize the chance for social encounter by creating layers and spaces for spontaneous and planned interactions.

Car-Free Environment

The key elements for achieving walkability are giving priority to pedestrians, creating an environment that is free of cars, noise, and emissions, and making the village safer for children and elders. We were able to achieve this by separating the parking spaces from the rest of the

FIGURE 9. Village circulating road and parking staged development, Stephen Cole.

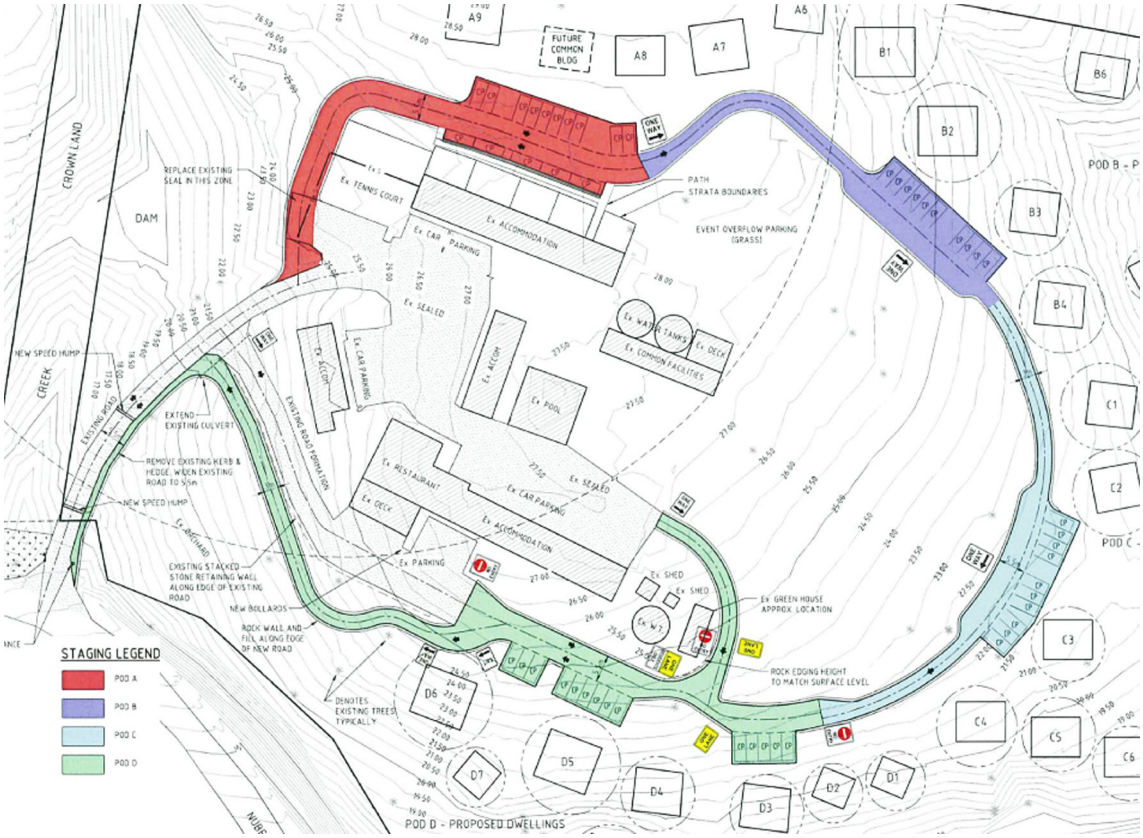


FIGURE 10. Walkable village, village circulation road (red) connecting the pods through inner path (green).

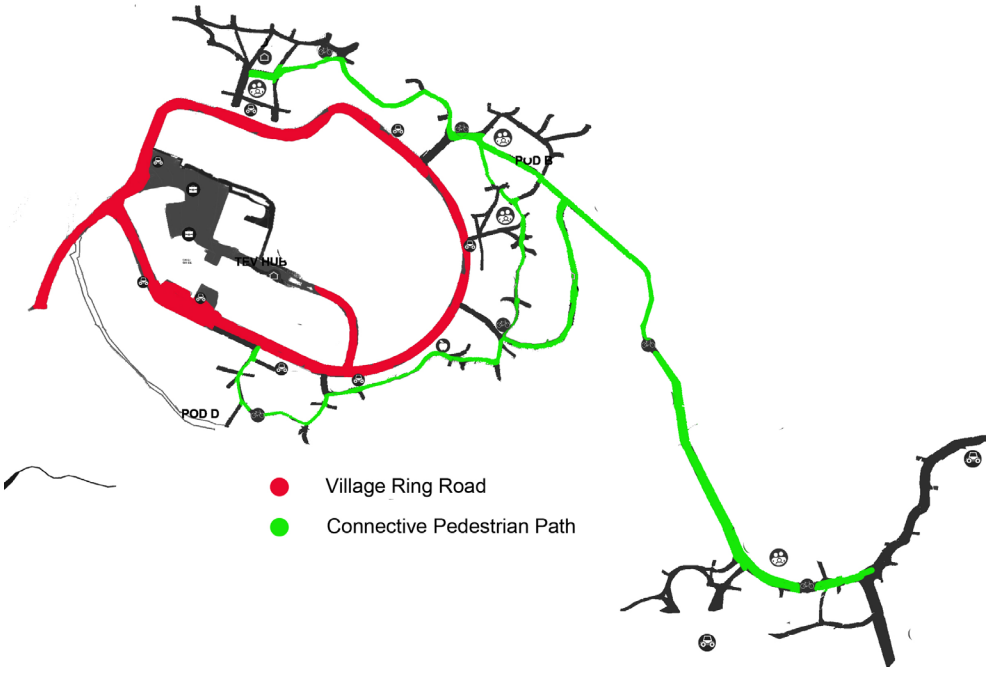


FIGURE 11. Artist impression, Pod A, conceptual sketch, diversity of houses and spaces to develop organically by the community, Gilo Holtzman.

living environment, limiting the car speed on the circulation road to 10km/h, connecting all the pods through a central pedestrian walking track, while also preserving an existing connecting track between Pod E and the village centre.

Pods

In addition to reducing the number of Seeds in each Pod to a maximum of twelve, the intent for the arrangement of the Pods was to orient the Seeds so as to enable shared spaces and facilities. This was achieved by arranging the cluster of houses around a shared common space where possible in Pods A, B, C and E. Pod D may be designated for eco-tourism, replacing the existing motel rooms that will be converted into offices to be used by the local community. Some streets and pathways leading into the Pod and Seeds have been created combining hard and soft surfaces to offer options for different uses. Another important element was to design them so they are accessible for people with disabilities.

Shared Common Space

Shared spaces and common buildings are imperative for creating rich community life and for the future viability of the community. While the village has some existing facilities in the 'Hub,' we also reserved a space within each Pod where future residents will be encouraged to build their own common facilities. Some of these spaces will be used for storage, bike shed/rack , mailboxes, bins (recycle and waste), and facilities such as shared kitchen, shared laundry,

FIGURE 12. Artist impression, Pod A, conceptual sketch, view to common.

FIGURE 13. Artist impression, Pod A, conceptual sketch, social interaction.

workshop, and recycle stations. All of these are to be decided on and activated by future residents based on their needs and wants. The open commons could be used for community gardens, play area/recreational, outdoor meeting areas, or playgrounds.

Ecological

In Australia there are two regulatory energy performance schemes—Basix and NatHERS—that demonstrate the compliance of every new or renovated home with the minimum standards of the 'National Construction Code' (NCC). Part of the requirements deal with the

building 'shell'—the roof, walls, windows and floor. Other parts of the requirements cover fittings built into the home—hot water systems, lighting, and ducts and pipes for cooling and heating systems.

Basix (Building Sustainability Index) operates only in the state of New South Wales. It also assesses the energy targets for the heating and cooling performance of the building shell and adds other aspects of sustainable development.[11]

NatHERS (Nationwide House Energy Rating Scheme) is the national framework rating the thermal performance of Australian homes. NatHERS house ratings use computer simulations to determine the potential thermal comfort of Australian homes on a scale of 0 to 10 stars. The more stars, the less likely the occupants will need cooling or heating to stay comfortable. Houses with higher star levels are considered more thermally comfortable than those of lower star levels, with those rated at 10 stars considered thermally comfortable without the need for artificial heating and cooling. The minimum rating needed is currently rising from 5 to 6 stars.[12]

Dwellings

In keeping with the rural setting and culture of the area, diversity and personal expression are encouraged as long as they comply with the village design guidelines. Each new dwelling or renovated unit will need to achieve a minimum rating of '7 stars.' This could be achieved by applying some basic ESD principles of orientation, insulation, glazing, fixtures, and the selection of nontoxic indoor materials. The social goals of the guidelines also highlight some of the features that will contribute to the social cohesion of each Pod, such as: front door to face the inner street of the Pod; having a veranda/front porch; the existence of a semi private space that will create a transition between the private homes and the path/shared space; and for some of the living areas to face the commons.

Landscape

The diversity of the terrain encouraged us to make sure that the natural features of the site were preserved. The guidelines we have developed restrict development on site locations or sections of high ecological value and also make sure that disturbances to site and regional ecosystems during construction and operation is minimized.

In the common areas an effort was made to restore the land area disturbed by the past occupants and to conserve the undisturbed landscape along the creek. It was also encouraged to maximize the onsite reuse of all rock and topsoil emanating from excavation work, minimize erosion potential, and plant indigenous flora and edible plants where appropriate.

Design Guidelines

The design guidelines were built as a general and comprehensive recommendation for achieving a high standard development. Once established, the guidelines were amended to suit more specific targets that were then approved by the TEVA. The guidelines address the main concerns for an ecological development by putting restrictions on materials that are harmful to people and the environment, and through guiding principles on how to achieve positive outcomes. The guidelines also address site specific design and how Seeds and Pods connect with and contribute to their surroundings, as well as the interaction between the Pods and the village commons.

After finalizing the master plan design, we established principles for the village design guidelines. These guidelines aim to deliver the TEV vision and objectives of low impact living

and higher building standards requirements for new and existing homes than the national and local building codes. Bearing in mind the village's locality and the above challenges, we tried to make these guidelines flexible, addressing the energy, water, transport, waste, and materials targets to support the master plan. We were also trying to assess the ecological impact of capital works in the village and include some design input as well.

Below is a breakdown of some of the guidelines:

Energy

- Incorporate passive solar design principles to maximize daylight and passive heating opportunities.
- Incorporate energy efficient design principles to minimize active heating and cooling requirements.
- Specify energy efficient equipment and lighting systems.
- Optimize opportunities to use renewable energy sources and incorporate renewable energy technologies wherever possible.
- Minimize embodied energy in construction materials.
- Electrical usage—low-energy light bulbs throughout and usage of solar panels or other energy efficient systems for domestic hot water heating.

Water

Since the village relies solely on the water it can collect and pump from its bore, a comprehensive strategy is being developed to allow for maximal use of the water collected on the site. A 3 pipe system is proposed to supply the village with all its domestic and irrigation needs.

WP1—Clear water loop pipe from the Seeds back to Seed. Rainwater storage tanks (pressurized) will be located backing to the dwellings (internal) and communal laundries that will be located in each pod will be supplied by rainwater from roofs and gravity drainage. Rainwater will then be redirected through poly pipes back to each Seed to provide clear water for use in kitchen, showers, and communal laundry. This supply will also be used for communal structures, while the overflow from this tank will be diverted to adjacent garden and toilet tank.

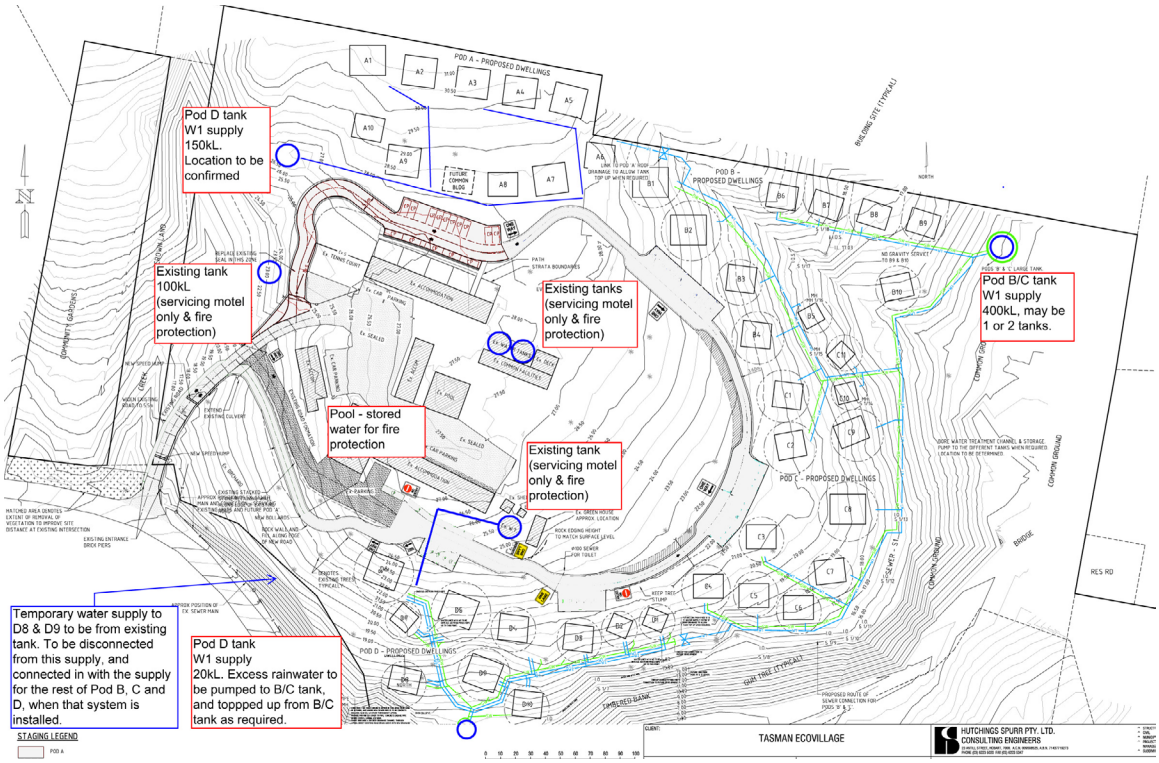
WP2—Bronze water supply for garden and toilet use. Pipe sizes and locations to be installed to allow for the following sources:

- Existing dam in Pod E.
- An approx. 20,000 L pumping tank that will installed at the bottom of Pod B.
- Creek water supply.
- Bore water supply (treatment required, means of treating to be confirmed).
- Dam supply from Pod E.

WP3—Fire Hydrant water from Bore/Dams

- A number of fire hydrants will be supplied, in accordance with the requirements of the local council and the fire department.
- Water will be supplied through the Brown Water Pipe 3 network. This water will be supplemented as needed from the dam.
- Fire pumps will be needed to supply the necessary pressure in case of power shortages.

FIGURE 14. Water plan, development of water strategy for home use irrigation and gardens. By Stephen Cole, Hutchings Spurr Consulting Engineers.



Effluent/Sewage

- The positions of the creek and the bore require special care and safety measures to prevent contamination. For this reason it was decided to connect the village to the main local sewage system.

Transport

- Minimization of fossil fuel usage associated with transport of materials and labor throughout the construction phase.
- Minimize on-site car parking facilities.
- Encourage car pooling for long distance trips and for commuting to Hobart.
- Promote the use of bicycles for onsite transport and community access.

Building Materials

- Minimize usage of building materials produced from limited or ecologically unsustainable natural resources.
- Minimize usage of building materials that have damaging ecological effects during harvesting, manufacturing, and/or construction.
- Minimize the use of building materials with high-embodied energy.
- Minimize life cycle costs through using materials and equipment that requires minimal maintenance and has maximal durability and longevity.
- Maximize the use of recycled content material.

Waste Minimization

- Maximize building longevity through creation of flexible and readily adaptable designs.
- Provide facilities to assist domestic waste separation into reusable, recyclable, compost and landfill components.
- Minimize construction waste going to landfill.
- Incorporate organic and water-based site waste disposal systems into landscaping design.

The 'Building and Construction Circle' (BIC)

While much freedom is given for individual expression and each house might be a unique expression of the owner's personality, the 'Building and Construction Circle' (BIC) is the body empowered by TEV body corporate to oversee the approval process and compliance of every development with the TEV Design Guidelines. In undertaking this role, the BIC also guides and directs the community, encouraging sustainable practices without stifling creativity of design.

Financial

Tasmania is an island South East of Australia's mainland. It has the highest rates of unemployment in Australia (30%) and very limited resources and accessibility to local materials and trades. In order to attract people to the village, affordability and vitality are key.

Affordability

In our experience, when taking into account location (rural Tasmania), contractor selection and fees, in combination with the desire to build sustainably, it is almost impossible to build cheaply. Thus in order to achieve the goals of building affordably, we put in a few strategies and actions to be taken into account when future residents start their process of designing and building their homes, either as owner-builders or with the aid of design professionals:

- The developer reduced the lot prices.
- Design factors: smart/ simple design; passive design; low maintenance; durability; modularity; source local materials; and sweat equity.
- Staged design: designing for the future while building for present needs and budget.
- Lifestyle: looking at long-term affordable living through growing your own food, sharing skills/amenities/recourses, car pooling.
- Technology: water wise systems (reuse, recycle, conserve) and energy efficiency (solar hot water and renewable source of energy to reduce cost)
- Consultation at early stages of the design process.

Vitality

While we designated some areas in the village to be used for developing business opportunities (workshops, galleries etc), the residential-commercial zoning will further provide residents with the opportunity to develop businesses from their own homes and from the business hub.

MMCH

As mentioned above, the *'Site Programming'* workshop together with the *'Eco-Visioning'* workshop established the residents' goals and criteria for the layout of their community and helped the group put together a set of sustainable targets and clarify how each target will affect the feasibility of the project.

Social

By adopting cohousing as a living model, the group has put the social agenda as a priority. The group has emphasized the need to be inclusive and open to all. This will impact greatly on the planning and design of the community.

Dwellings

- Range of sizes to accommodate diverse needs.
- Small footprint houses, ranging from 50 m^2 (538f^2)–125m^2 (1345f^2).
- All dwellings will be fully self-contained and will include all usual facilities such as a kitchen, bathroom, space for laundry, private yard.
- Same style for all the dwellings (materials, finishes, roof forms, etc.).
- Verandas to face the common areas to create transition between the private and the public areas.
- All of the dwellings to be accessible and designed based on universal principals.
- Optimise the expertise and skills of all involved.
- Ensure good management is enabled throughout the process.

Common Areas

Residents will have access to communal land and Common House facilities, including:

- A large kitchen-dining room
- Shared laundry and drying facilities
- Meeting/function/workshop rooms
- Visitors' and family accommodation
- Open spaces
- Storage
- BBQ
- Extensive vegetable garden, fruit and nut trees, and edible landscaping
- Playground

Ecological

- Minimize operational energy consumption.
- Minimize operational water consumption, while harvesting wherever possible.
- Consider the ecology of the overall system by selecting and developing sites appropriately for the occupants' lifestyles and the local ecosystems.
- Consideration of the embodied energy and lifecycle impact of all materials.

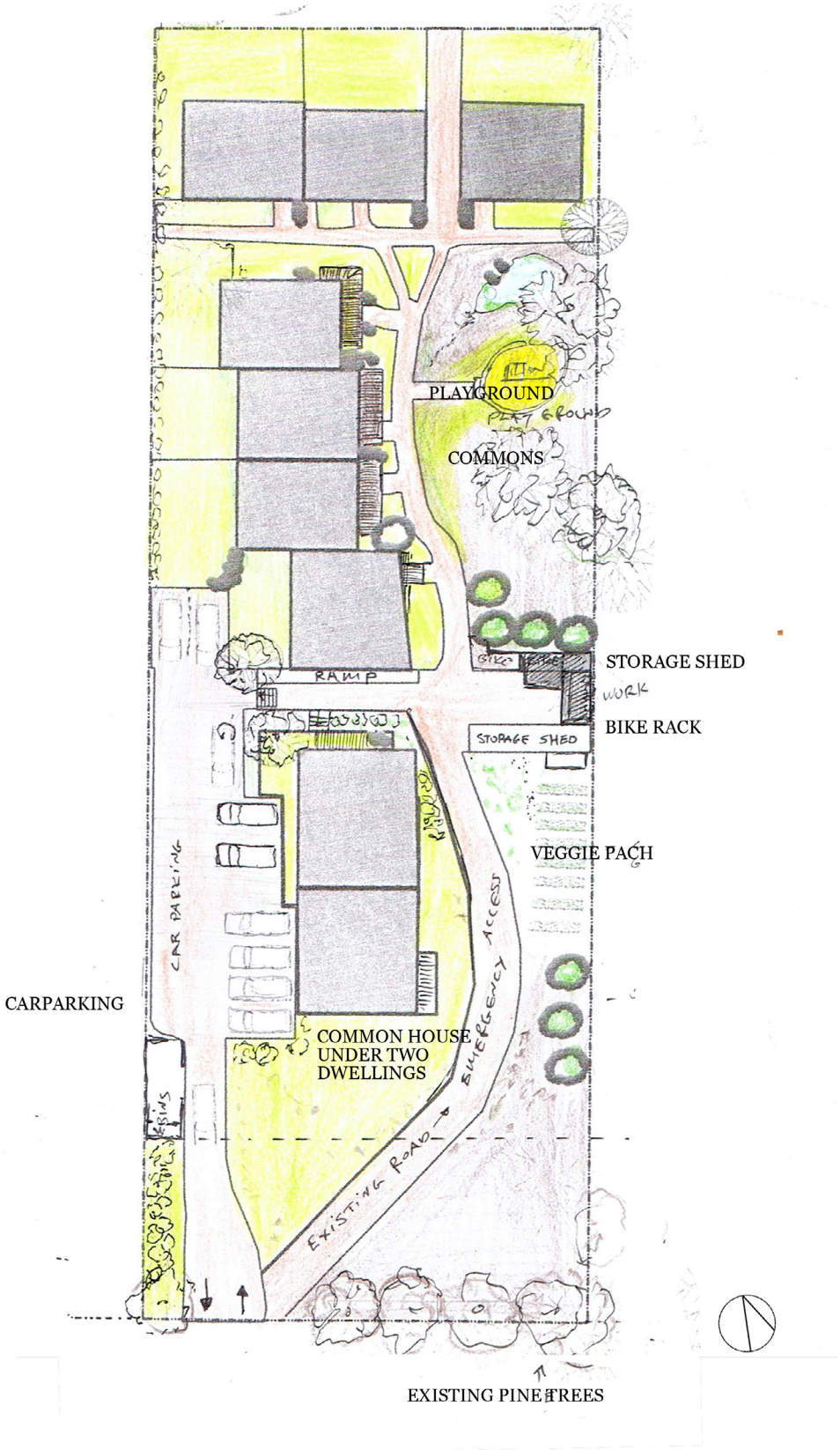
Design

- Minimize the amount of resources required by designing small and simply.
- Simplify building operations so they are easily understood, well used, and able to be maintained.
- Design to enable recycling.
- Create comfortable, stimulating, and healthy internal environments.

Water Conservation

- Rainwater to be collected in semi-centralized tanks for watering the vegetables gardens etc.
- Hard surfaces minimized, permeable surfaces used where possible.
- Plants selected for common areas to minimize watering requirements.

FIGURE 15. Conceptual pre-development master plan v1.



Energy Conservation

- Passive solar design where possible, efficient insulation and double glazing, use of internal thermal mass.
- Maximize solar access.
- Solar hot water.
- Solar panels, to reduce electricity use and costs.

Traffic/Mobility

- The site is walking distance to shops, train and public transport.
- Car-free site with centralized parking at the periphery.
- Reduced parking spots to encourage car sharing/pooling.
- Reduce noise caused by cars and waste disposal trucks.
- Bike rack provided.

Waste Management

- Reducing waste.
- Compost and recycle.

As a result of the workshops we were able to establish a preliminary proposal for the Mid-Mountains Cohousing. The proposal states the plans to develop a community living, eco-cluster, inter-generational development on the site at Glendarrah Street, Hazelbrook. With maximum 1900 m^2 (20,500 sqf) floor area allowed, the aim is to build on less than 1400 m^2 (15,100s qf), allowing for much needed common open space.

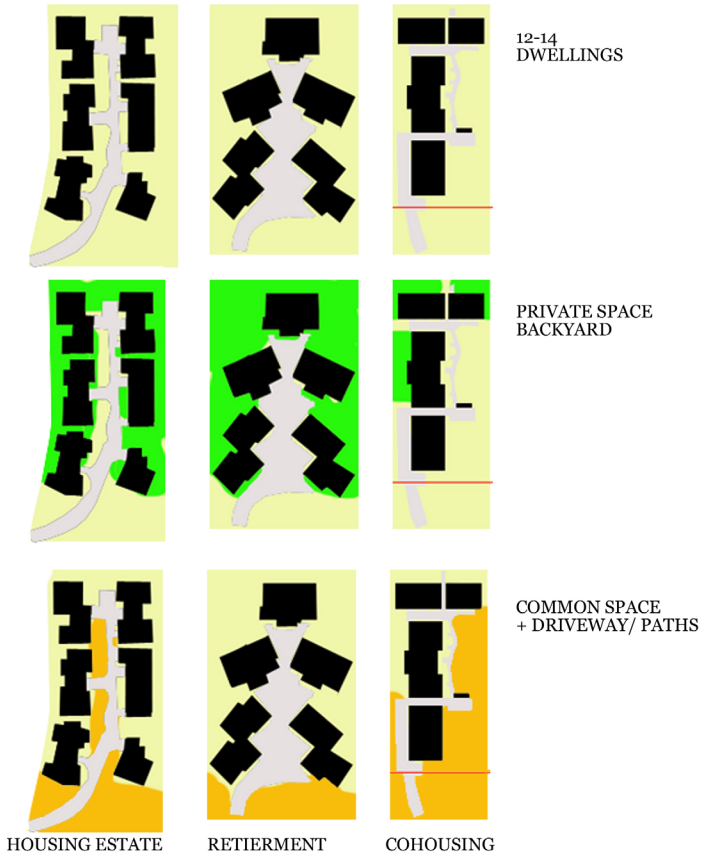


FIGURE 16. Comparison cohousing proposal to existing estates on the street.

Once ownership is obtained, the group will enter the second phase of the development, where the master plan will have to be revised and adjusted. The biggest challenge will then be to find architectural solutions for achieving the group objectives for the design of the houses that are accessible and flexible to accommodate future changes.

By comparing the MMCH master plan with other housing estate on the same street we can observe the main differences between the outcomes achieved through the workshop as opposed to a developer-led cluster aiming at maximizing the built area and profit. The main differences were:

- The ability to increase the number and diversity of dwelling on a smaller site by reducing the building footprint.
- The ability to explore progressive architectural solutions of greater environmental and social tributes that are aligned with the group intent.
- The location of the parking lot at the periphery of the site means that a safer and healthier environment could be created. Additionally, this will allow reducing hard surfaces in the form of driveways that lead to houses. The only use of hard surfaces as pathways will be in the ones leading to the main courtyard and houses, allowing for more permeable surfaces to absorb and control the water flow on the site.
- Much of the shared space could be used for gardens and play areas that can be used by all. This is an advantage that the developer-led schemes cannot offer.

CONCLUSION

While different in scale and engagement, TEV and MMCH share the same challenges: creating a place for living where the values of the community are celebrated through design patterns that are aligned with their vision. The work with the Tasman Ecovillage and the Mid-Mountains Cohousing allowed us to continue exploring alternative living models that will attempt to determine future concepts of living that should be able to live up to the demands and needs of an ever more eclectic society,[13] first by designing and planning them to allow community to happen, then by the people inhabiting and activating them, making their community work.

Though one can claim that many traditional and other forms of housing developments share much of the sustainable targets presented in this article, *"Cohousing has proved more popular than collective housing or intentional communities largely because cohousing communities reject the idea of having set ideologies; there is an absence of social hierarchy and a lack of shared economic systems. Cohousing has a pragmatic focus that makes it attractive to a wider audience."*[14] In addition, cohousing exhibits many of the characteristics of new urbanism both in terms of objectives and design strategies.[15] Examples of this can be found in these established communities: Ecovillage at Ithaca (NY) and Nevada City Cohousing (CA) in the United States, and LILAC and Springhill Cohousing in the United Kingdom, just to name few.

REFERENCES

1. C. Hildner, "*Future Living, Collective Housing in Japan*" birkhauser, Basel Switzerland 2014.
2. G. Holtzman," *Sustainable neighbourhoods: the cohousing model*", Ecos Online Magazine, CSRIO Publishing 23 April 2012, http://www.ecosmagazine.com/?paper=EC12262.
3. K. McCamant & C. Durrett with E.Hertzman *"Cohousing: a contemporary approach to housing ourselves"*- 2nd ed., 1994, Ten Speed press, Berkeley CA.
4. Ibid.
5. Ibid.
6. TEVA (Tasman Ecovillage Association) Vision & Mission Statement document 2012.
7. Tasmanecovillage.org.au/village/the-site.
8. Ilan Arnon, *"An invitation—Tasman Village information Kit"* 2011.
9. pocket-neighborhoods.net.
10. This policy was produced by Alan Heeks of the 'Threshold Centre' with inputs from Dr Maria Brenton and James Shorten. Both Alan and Maria are on the Steering Group of the UK Cohousing Network, and have several years of active involvement in cohousing projects. James Shorten is a Planning Consultant who has worked for Land Use Consultants, a leading national body.
11. https://www.basix.nsw.gov.au/basixcms/
12. http://www.nathers.gov.au/
13. C. Schittich (Ed.), *"Housing for People of All Ages",* in Detail, Birkhauser, Basel Switzerland 2007.
14. J. Williams, (2005) *'Sun, surf and sustainable housing—cohousing, the Californian experience*', International Planning Studies, p.8.
15. M. Torres-Antonini '*Our Common House: Using The Built Environment To Develop Supportive Communities', 2001,* University Of Florida.

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