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Summary

The “Tū Whare Ora – Building Capacity for Māori Driven Design in Sustainable Settlement Development” project seeks to address the growing desire among Māori to be more active in developing living environments for their people and the overall settlement patterns of their respective rohe. This has been a concern since the 1950s when increasing numbers of Māori re-established themselves in metropolitan centres like Auckland. Today, an overwhelming proportion of the Māori population are urban dwellers, most of whom have only known this environment and this way of living. Yet they are increasingly aware of their rich heritage, particularly their relationship with the environment.

There are four parts to this report. Chapter 2 outlines a review of literature that provides a background to the journey of the Māori built environment, from traditional design, development and planning elements, through early European influences and adaptations, to the rapid adoption and adjustment to European styled buildings and settlement patterns, and finally the recent emergence of Māori driven urban design and development aspirations. These recent attempts to design housing and urban built environments compatible with, and incorporating of, Māori cultural values have highlighted the ongoing relevance of traditional Māori concepts, in particular environmental connection and stewardship, but have also demonstrated a willingness to incorporate aspects of European design and planning disciplines to achieve, and lead the way in culturally sensitive, socially responsible, economically feasible, and environmentally friendly design and development. Missing, however, are working models and frameworks to allow for greater integration and the realisation of a truly New Zealand sustainable urban development paradigm.

The aim of Chapter 3 is to identify an assessment process for papakāinga design. A Kaupapa Māori research approach was carried out with hui/workshops as the primary method for gathering information. Two hui held were held, each organised with a key contact person from the iwi where the hui was held. The first hui was held at the Te Rūnanga o Ngāi Tahu building in Christchurch and included a list of Māori professionals, including architects, consultants, academics, researchers and iwi resource managers (11 participants). The setting for the second meeting was the Tamapahore marae in Mangatawa close to Tauranga City (12 participants). Participants were supportive of an overarching aspiration for papakāinga development that reflected a genuine whānau/hapū/iwi led and driven initiative with access to clearly defined processes and supportive tools. One such tool was the mauri model, a tool with its foundation firmly rooted in mātauranga Māori. The value in the tool is the relative ease with which different outcomes in design can be compared using a quantitative measure. The mauri model is not the only model that ought to be considered in assessing papakāinga. For these assessment models to work effectively in papakāinga design, kaupapa Māori/co-design processes ought to be involved. This report developed a process-based assessment that runs parallel to the planning, design, building and living process of a papakāinga development. Co-design was seen as an opportunity for design professionals to improve their performance by working collaboratively with whānau/hapū/iwi. The papakāinga assessment processes allow for creative thinking to occur as well as providing space for constructive and reflective feedback, founded on cultural values, to improve the process of developing papakāinga for all.

Chapter 4 investigates traditional and contemporary settlement patterns and assesses common threads and themes that may influence how papakāinga are developed in the future. Urban design is the practice and process of shaping physical environments in which people can live. To understand papakāinga we must also seek to understand the role of urban design. The

research uses case studies to help understand localised perspectives of papakāinga development. This section attempts to integrate mātauranga Māori with respect to papakāinga and contemporary urban design. Mātauranga Māori is seen to possess qualities that can assist and support the preservation of culturally significant resources and landscapes as well as build community identity and participation. To implement mātauranga Māori into design processes, papakāinga development must occur in a manner that acknowledges kaupapa Māori processes and considers the indelible link between whenua and whānau/hapū/iwi. This chapter concludes that it is important for Māori to determine the shape and form of their own living environments. They need to understand what makes them unique and reflect that peculiarity in the design of their spaces. Māori need not accept the current trends and styles of urban design, but can seek to reflect their own character and nature into their living environments.

In Chapter 5 a process for best practice papakāinga design is developed. Best practice in papakāinga design can be summarised as requiring the unified resolve of whānau members, access to finance, the best skills in design and engineering, and the best possible working relationships with the Māori Land Court and Territorial Local Authorities. Given that all of the above are in relatively short supply, this section attempts to assist whānau in navigating through what can be a very trying and complex process. Information for this section was gathered from Māori urban design professionals focusing on best practice guidance for developing designs and consent documentation for papakāinga. A hui of Māori design and housing professionals was consequently held at the Jet Park Hotel and Conference Centre in Mangere. This chapter acknowledges that the papakāinga design and development process can be trying, complex and lengthy, but challenges us all to find new and appropriate solutions to living on whānau land.

1. Introduction

The term papakāinga originates from two Māori words that refer to “land and home” (Ryan 1989; Williams 2000). In a traditional Māori context, papakāinga are settlements where Māori lived, worked, and raised their families. They are settlements where communal units occupy and spend a majority of their time (Best 2005). From the mid-19th century with the onset of colonial domination over Māori lives and settlements, and especially during the rapid economic development phase in the latter 20th and early 21st centuries, Māori have become increasingly over-represented in a raft of negative socio-economic statistics, measures, and inequities which still shape their lives today. Adequate and affordable housing for Māori has always been an ongoing issue. Eurocentric models and standards for good housing have often ignored Māori values, traditions and practices for settlement design and wellbeing.

This project, “Tu Whare Ora – Building Capacity for Māori Driven Design in Sustainable Settlement Development” seeks to increase Māori capacity and input into housing and settlement design in New Zealand. It reflects a growing desire among many Māori to be more active in planning and shaping living environments for their people and the overall settlement patterns within either their respective rohe or the contemporary environments in which they now live. This has long been a concern, ever since the 1950s when increasing numbers of Māori re-established themselves in metropolitan centres like Auckland. Today, an overwhelming proportion of the Māori population are urban dwellers, most of whom have only ever known this environment, and this way of living. Yet, they are increasingly aware of their rich heritage, particularly their relationship with the environment.

There are four parts to this report. Chapter 2 sets the scene by reviewing the literature relevant to the Māori built environment. The review covers the spectrum of Māori housing from pre-European times, through the state-sponsored Māori housing schemes of the 1950s, up to the current climate of iwi/hapū advocating for kaupapa Māori based solutions for housing. The aim of Chapter 3 is to identify an assessment process for papakāinga design and the chapter presents what Māori design professionals who participated in two hui believed were key attributes and aspirations of a papakāinga. Once a baseline has been set in which to make comparisons, a process can be defined to measure whether those things we aspire to are being met. Chapter 4 sets out to identify the underlying principles and values of papakāinga from a design perspective. A model for integrating both Māori design principles and urban design principles is presented that draws on two case studies from the Ōrakei and Oikimoke papakāinga. Chapter 5 generates best practice guidance for developing designs and consent documentation for papakāinga. This process was developed from a workshop with a number of Māori design professionals.

2. Co-evolution and Sustainability in the Māori Built Environment

There is increasing awareness among Māori that traditional environmental knowledge, values, and concepts may be critical to more fully resolving the contemporary sustainable development dilemmas being faced in New Zealand. This is particularly evident in the area of urban environmental management, where iwi and hapū are attempting to re-assert traditional authority in an effort to become more active in developing living and built environments for their people and in influencing the overall development and growth of their respective rohe. Key to this realisation and reassertion is the persistence of underlying Māori beliefs, concepts, and customs (i.e. values) used in modern Māori society despite rapid changes and continual challenges to traditional worldviews and lifestyles. Such values have also been recognised in a raft of New Zealand's major environmental management and urban planning statutes as a matter of national and regional importance. Notwithstanding this acknowledgement, due to a lack of working models, examples, and frameworks, governments, planners, developers, communities, and Māori alike continue to struggle with the meaningful integration of Māori knowledge and values. The urban built environment therefore offers an important area of study that not only demonstrates unique Māori tradition and cultural capability, adaptation, historical loss, and a lack of recognition, integration and application in mainstream practice, but also a recent recovery of self-determination in design and development that is challenging conventional approaches, particularly with regards to sustainability.

This section provides a brief review of literature and gives a background and explanation of the journey of the Māori built environment: from traditional design, development and planning elements, through early European influences and adaptations, to the rapid adoption and adjustment to European styled buildings and settlement patterns, and finally the recent emergence of Māori driven urban design and development aspirations. These recent attempts to design housing and urban built environments that are compatible with, and incorporating of, Māori cultural values have not only highlighted the ongoing relevance of traditional Māori concepts, in particular environmental connection and stewardship, but have also demonstrated a willingness to incorporate aspects of European design and planning disciplines to achieve, and lead the way in, culturally sensitive, socially responsible, economically feasible, and environmentally friendly design and development. Missing, however, are working models and frameworks to allow for greater integration, and the realisation of a truly integrated New Zealand sustainable urban development paradigm.

2.1. Pre-European Māori Built Environments

Cosmology, genealogy, oral traditions, and the relationships to land and the environment underpin the form and function of traditional Māori values and settlements. From a Māori perspective, settlements are not just physical spaces where people live, but are an expression and extension of identity.

Traditional creation stories underpin notions of identity and character. The personification of the earth and sky as primal parents reflects the proposition that the environment is an interacting network of related elements sharing a common relationship and origin (Buck 1952; Marsden 1975). Primal genealogies of Māori originate from Papa-tū-ā-nuku (Earth Mother) and Rangi-nui (Sky Father) and extend through their offspring. The progeny of Papa-tū-ā-nuku and Rangi-nui are personified as natural phenomena, conditions, and products (Best 1934). Forests, oceans, weather, war, geological activity, cultivated food, and uncultivated food, were some of the embodied elements that were represented by the children of Papa-tū-ā-

nuku and Rangi-nui. The creation model used by Māori reflects a distinctly human expression that shows the interrelated and interdependencies between land and sea, water and air, flora and fauna, and people and the environment (Durie 1998).

Māori refer to themselves as tangata (people) whenua (land) meaning “people of the land”. This expression illustrates the profound relationship Māori have with land and the environment. At the centre of this relationship is the personification of earth as a mother: similar to a maternal bond, land and environment provide sustenance and nutrition for its inhabitants. Māori, like other indigenous peoples, view land as being the basis of their very survival (Burger 1990; Posey & Plenderleith 2004). Māori people venerate land as the mother of all living beings, including humans; all things in the natural world are the progeny of mother Earth. Therefore, people's health and survival require good land care and management (Barrera-Bassols & Zinck 2003).

There are distinct differences between tribal groups and their traditions. A tribe may be tangata whenua of one area, but not another. The word ‘whenua’ also refers to placenta. Just as a placenta connects a baby and mother, there is an inherent connection between people and land. The placenta provides sustenance from the mother to baby, as does the land to people. In a symbolic manner, after the birth of a child, the placenta is buried on tribal lands, representing a personal and collective bond to a geographic area that establishes cultural and spiritual continuity (Mead 2003).

The design and construction of settlements is not a new phenomenon for Māori. Traditional Māori settlements were highly organised and coordinated to meet the needs of their inhabitants. This section of the report is not to give a definitive account and explanation of Māori settlement patterns throughout New Zealand, as each tribal group and region will have their own unique settlement structures and designs. However, there are some generic and common principles and strategies employed by different tribal groups. The purpose and rationale for particular settlement patterns are comparable. This principle has serious implications because it requires careful attention to those things that are clearly generic and those that are unique.

The first Polynesian migrants found New Zealand unlike the warmer tropical environment of the equatorial Pacific. Māori had to adapt to the cooler and seasonal climate of New Zealand. Common foods and material resources found in the Northern Pacific were either non-existent or scarce. Early Māori settlement was predominantly coastal, taking advantage of both land and marine resources. The typical climate is temperate and rainy with warm summers and no marked dry season, while the variation between regions is considerable. Māori brought with them tropical plants and endeavoured to establish them; however, the only plants to become established were kumara, taro, yams and paper mulberry, all of which were seen on Cook's first voyage (Davidson 1987).

The primary purpose of strategic positioning of settlements in the landscape was to secure and protect people, precious food stocks, and prized resources. Tribal groups tended to congregate and settle where the tribal unit was best protected from enemy assault and situated in close proximity to important sources of food and natural resources (McFadgen, Williams, & Edkins 1991; Best 2005). Popular settlement locations included coastal environments, the edges of rivers, streams, or lakes.

Vayda (1970) notes that traditional Māori settlements were characterised by two distinct forms, namely the pā or fortified settlement and the kāinga or unfortified settlement (Vayda 1970; McFadgen et al. 1991). The pā (see Fig. 1) was a defensive fortification built on hills, spurs, craggy headlands, islands in lakes, swamps or off the coast. The natural topography of

the site assisted the defensive earth works in the form of rampart and trench. Each line of the defensive works of the pā supported stockades.

Dwellings, storehouses, and other buildings were contained within the confines of the settlement; however, in some instances the resident population lived outside the pā and retreated only in times of insecurity. Pā and kāinga accommodated anything from single family units to several large extend family groups. The pā is likened to European medieval citadels that protected people and possessions during times of conflict (McFadgen et al. 1991); however, the day-to-day living and functioning of the tribal groups generally occurred in the kāinga outside the confines of the pā (Buck 1952). Many fortification and defensive works were elaborate and highly sophisticated (Vayda 1970).



(Heaphy 1896)

Fig. 1 Traditional pā (village) entrance

Anthropologists note that Māori occupied a number of different settlement types during any one year. Tribal groups constructed main or base settlements as a focal congregation centre. These settlements were characterised by the length of time and frequency a tribe would occupy a site. Groups often spent winter in base settlements and gathered and stored provisions to cover the needs of the tribe during seasonal occupations and periods (Davidson 1987). Temporary and seasonal settlements were established in different parts of the tribal area to access or harvest foodstuffs and other raw materials (Buck 1952).

A Māori settlement study completed by Groube (1965) suggested Māori settlements should be classified as either a domestic or communal unit. Groube outlined a number of distinct stages in the development of pre-European Māori settlement forms, patterns and building types that critically describes the nature and extent of Māori traditions in the built environment. Through the examination of archaeological records, Groube suggested the earliest settlements were coastal villages consisting of a complex of huts with internal fires, and/or groupings of sunken sleeping pits, always with separate cooking, food storage, and waste-disposal structures and areas. These villages showed an absence of substantial structures, however, which reflected the largely nomadic and hunting-gathering nature of lifestyles at the time. These early village forms then developed into a mixture of pā (fortified settlements) and kāinga (undefended villages), both consisting of large above-ground and/or sunken sleeping dwellings, all with internal fireplaces, and again having separate cooking and waste areas. At the time of European contact a more developed but flexible pattern of settlement was encountered that centred on strategically positioned pā, which were used when needed, and their associated

'hamlets' or cluster housing settlements, where day-to-day living occurred. These hamlets consisted of three types of above ground buildings, "a large and small version of substantially the same design... and a temporary house" (Groube 1965, p. 45), with cooking and waste areas remaining separate in all cases. Many of the buildings were highly decorative with carved symbolic figures depicting tribal ancestors, history and traditions (Harmsworth 1997). According to many early observers, the storehouse (pātaka) was always the largest and most decorative building in the settlement. Sissons (1998) argues that the construction of modern day whareniui (meeting houses) are 19th century innovations that have evolved from a traditional house structure. Early accounts of large decorative buildings appear to have begun in Northland in the 1830s; before that period it was not unusual for chiefs to have larger houses than others in the settlement and to display a carved lintel above the door of the dwelling.

An account by Reverend Mohi Turei of Ngāti Porou given to Herbert Williams (1896) in the late 19th century extends Groube's assertions and highlights the high degree of planning that went into the construction of houses and settlements. Turei also gives in-depth linguistic clues to the significance of traditional Māori knowledge or mātauranga for building design and development. Williams' (1896) paper emphasises that the selection, acquisition, transportation, and preparation of timber and other building materials, along with the preparation and planning of building sites required careful management. All work was presided over by specialist experts or tohunga of a particular tribe and included the measuring (whanganga), squaring (hauroki), and laying out of individual houses, known generically as whare. In terms of construction, scaffolding (tokorangi) and pulley systems were used to hoist and secure framing into place, and posts were either rammed, supported in the ground by slabs of ponga (tree fern), called turihanga, that also preserved the post, or externally with supports called hirinaki. Trees, which were often selected years in advance, were felled by means of fire, splitting with wedges, shaped again by fire and finished with a toki or stone adze. Carving and decorative work was then carried out if required.

A unique feature of pre-European Māori buildings was that they were constructed almost entirely of native plant material. Paetara (wall plates), tāhuhu (ridgepoles), heke (rafters), poutahu and poutokomanawa (support posts), poupou (wall slabs), kaho (batterns), and tatau (doors) were constructed of dressed timber slabs, or full and half round logs, usually of tōtara. A diversity of materials were used, sometimes in combination, for roofing, internal and external wall coverings, ceilings and insulation, including:

- Nīkau (New Zealand palm)
- Wīwī (rushes)
- Pūkio, Kuta, Paopao (sedges)
- Pukakaho (toetoe reeds or shoots)
- Pātīī (tussocks)
- Raupō (swamp reeds)
- Tōtara bark.

These materials were either thatched or tied, most commonly with harakeke (New Zealand flax) (Williams 1896).

Different names are also recorded for the various roofing and wall materials and methods including:

- Karapi (ceiling panels of toetoe)
- Tuahuri (insulating roof covering of raupō)
- Aranati (roof covering of raupō)

- Aratuparu (roof covering of toetoe)
- Arawhiuwhiu (external/final roof covering)
- Tupuni (external wall covering of raupō)
- Tukutuku (decorative internal wall panels) (Williams 1896).

Takuahi (fireplaces), whāriki (mats or floor coverings of weaved flax), and moenga or rara (raised bedding) made of kareao (supplejack) and plaited flax were also common in traditional buildings. Stone and earth, however, do not appear to have been used as building materials, apart from the use of stones for fire hearths, and clay, occasionally, as a lining on walls in dwellings constructed of ponga (tree fern) trunks (Williams 1896; Beattie & Anderson 1994).

Traditional whare (see Fig. 2) were predominately rectangular in shape, with a small door, often made of a solid sliding timber slab, and a pronounced whakamahau (porch) at the front, internal fire hearths down the centre and bedding down the sides (Williams 1896; Prickett 1974; Beattie & Anderson 1994). However, whare rau (round houses) and side entrance dwellings were also evident, as were sunken communal sleeping houses, most commonly known as whare puni (Beattie & Anderson 1994; Martin 1996). Separate food preparation and storage structures such as whata or pātaka, as well as waste facilities, including clearly identifiable and planned dump pits as well as paepae (latrines), were common features of pre-European Māori villages. Interestingly, the now common wharenuī-wharekai-marae ātea structures of the modern marae complex were not noticeable features of pre-European settlement design, but instead represent an important adaptation in the initial post-European period (Groube 1965; Martin 1996).



(Earle 1838)

Fig. 2 Preparing food

Much of the raw material used for settlement construction was sourced from the local environment (Firth 1959). The low population densities of traditional Māori settlements ensured the sustainable management of natural resources; that is, the ecological footprints of Māori settlements were restricted to what was available and accessible within the surrounding environment. Māori existed and lived in a state of balance with the environment; rather than being superior to nature, Māori remain a part of nature (Durie 1998). This is illustrated in the spatial relationships with iconic landscape features such as waterways and mountains that enable Māori to maintain associations and connections with important cultural spaces and elements (Mead 2003). Greenop and Memmott (2006) note that values of place manifest

themselves not just in a physical form but are also included in symbols, memories, events, and mental associations. As a means of social and cultural stability, iconic landscape features provide not just a physical orientation of space but also a social and cultural reference point.

In the past, Māori migration, occupation, and settlement also significantly modified and transformed New Zealand's landscape and extensive indigenous flora and fauna were impacted upon, particularly by early Māori clearing large tracts of native vegetation through systematic burning (Central Government Co-ordinating Group for Biodiversity 2000). As the Māori population increased there was an increasing demand on natural resources, but at the same time there is also compelling evidence of widespread kaitiakitanga through examples of cultivation, gardening, sustainable harvest and ecosystem (e.g., repo, mahinga kai, ngahere) management.

“Historically, the development of Māori settlement and manner of providing housing for themselves is interestingly different from European precedent” (Rosenberg 1964 p. 243). It is clear from the literature that a unique Māori tradition within the built environment exists. Several studies using archaeological records, early ethnographic accounts and linguistic evidence highlight distinctly Māori settlement forms; construction techniques, use of materials, terms, meanings, and functions predated European contact, and have survived, albeit in modified forms, to the present. This significant tradition provides a reference point for beginning to understand Māori values in the contemporary urban environment as well as being critical to appreciating how and why the Māori built environment has developed and changed over time.

2.2. Post-Contact Adaptations and Change

For approximately 100 years after first contact with European culture, the Māori built environment resisted large-scale changes and instead showed a gradual and resilient approach to the adoption of European design and technologies (Martin 1996). This is, however, in stark contrast to a dramatic period of rapid and almost complete adoption of European styled houses and settlement patterns shortly after the beginning of the 20th century. This journey of adaptation and change provides an important insight into the overall development of contemporary Māori values in the urban built environment, in particular the emergence of the modern marae complex. The development of wharenuī and marae was a critical factor in the survival of Māori cultural values in the face of ongoing changes and pressures from European influences.

The initial post-European contact period is therefore characterised by “a considerable increase in the degree of nucleation of settlement” (Groube 1965, p. 78), where more permanent villages with more specialised communal structures, such as large meeting houses or ‘guest houses’, and elaborate pātaka (food storehouses) developed (Groube 1965; Beattie & Anderson 1994; Martin 1996). But overall, as Martin (1996) attests in his in-depth thesis drawing on ethnographic, photographic, and archaeological evidence, the change in ordinary whare was gradual, demonstrating a gentle adoption of European features and building materials that picked up from around 1870 onwards (see Fig. 3). Such changes included:

- larger and hinged doorways and the appearance of windows and chimneys
- taller walled houses, and the increasing use of side entrance houses with verandas
- the use of nails, sawn timber, flat glass and sheet metal.



(Ministry of Culture and Heritage 2008)

Fig. 3 Transitional housing

The traditional rectangle house-shape remained common, however, and cooking and eating facilities were kept separate. Furthermore, traditional building materials and methods still dominated. The increased use of side-entrance houses by Māori, which at first appeared to be influenced by European cottage design, is attributed to traditional ‘temporary’ whare being made into more permanent homes “as people were uprooted after land-sales and confiscations” (Martin 1996, p. 82). It was the incorporation of the chimney, however, that “signalled that serious modifications to the pre-contact way of life ... were about to occur ... [as this] eventually led to cooking inside the whare on fires rather than in hāngī” (Martin 1996 pp. 80-81). Interestingly, it was often rangatira (chiefs) or emerging communal structures, such as the whareniui, that lead the way in the adoption of European design features and materials (Martin 1996).

The gradual co-evolution of Māori and European house design in the initial contact period was sharply interrupted by a sudden, drastic and almost total switch to European styled homes by Māori in little more than two decades after 1900. Initially motivated by concerns for Māori health, and promoted by Native Health Officers and other programmes led by key Māori political leaders such as Te Rangi Hiroa and Maui Pomare, Māori were encouraged to abandon seemingly ‘substandard’ whare and construct new houses and settlements of European style and materials. While appearing to be an uncritical adoption, these changes must be put into the context of the multitude of other effects of colonisation beginning to be felt by Māori at this time. Loss of population due to European disease, land confiscation and loss of access to natural resources, rapid and planned mass European settlement and population growth, and the gradual weakening of traditional worldview and lifestyles, all combined to create an imbalance within Māori culture (Martin 1996).

The adoption of European style houses was, however, paralleled by the emergence of, and greater emphasis on, the communal carved meeting house or whareniui within Māori communities and settlements “where traditional usage of space [and cultural practices] was perpetuated” (Martin 1996, p. 116). This response to the challenge of colonisation demonstrates how Māori uniquely adapted to their built environment, which incorporated and was facilitated by the influence of European materials and technology. More important, this development allowed for resilience to be built into Māori communities, counteracting the cultural loss associated with the impact of colonisation. This also gives an insight into the way in which Māori cultural values and practices were able to be maintained alongside the

continual collision with European values, as well as how values were then transferred within a European urban setting.

In 1926 nearly 85% of Māori lived in rural areas, by the year 2000 that trend had reversed. Health and sanitation of Māori housing was a major concern for early governments. Tuberculosis, whooping cough, measles, and typhoid fever were all too common in Māori communities in the late 19th century, and continued to be prominent in the early 20th century. These diseases had an enormous impact on the Māori population. At the turn of the 20th century, the Māori population was around 40 000 and had significantly reduced from the reported 150 000 in the early 1800s. Māori predominantly lived in the rural communities and had limited and ad hoc access to health services. By the late 1930s, the government had structured a systematic welfare programme for Māori, and by 1939, the Board of Native Affairs was cooperating with a number of other government departments, notably education and health, and their agents, to improve Māori services. A housing survey in the 1930s showed that 36% of Māori housing was not fit to live in. The Government of the day was slow to remedy the problems with Māori housing. Fig. 4 shows a Māori group in 1929 outside a typical dwelling in Māori settlements. In 1935, the Native Department instituted surveys in rural Māori communities across the country designed to assess housing needs. At the heart of housing surveys was the investigation of individual homes to ascertain not only the assistance required but also the cost to the department. At the same time, however, the surveys provided a comprehensive summary of the housing conditions of Māori throughout New Zealand. Although the survey noted a correlation between poor health and poor housing and living conditions, it failed to understand the complexities of Māori social structures where communal living, employment, and inter-generational structures were a cultural norm (Wanhalla 2006).

European models and standards for good housing tended to ignore traditional Māori traditions and practices for settlement design. European single-unit dwelling with individual private sleeping quarters were foreign arrangements to Māori, whose families tended to sleep in the same room where the privacy of the individual was limited. Traditional Māori dwellings and settlements are communal centres. In spite of this, European house design failed to accommodate communal styles of living.



(H.N.Whitehead Collection 1929)

Fig. 4 Typical Māori Dwelling 1929

The built structures improved, however, and Māori modified new modern dwellings to suit communal living arrangements, given that Māori occupied houses with extended family members, including grandparents, sons, daughters, aunts, uncles, and cousins alike. Larger households required informal modifications, such as an outside kitchen.

2.3. Mid-20th Century Developments

Demographers in New Zealand describe the urban migration of Māori as the most rapid movement of any population recorded in New Zealand. It became particularly evident after the Second World War that Māori rural lifestyles were in transition and this ‘urban drift’ increased markedly after 1950. New Zealand, like many other countries, was experiencing prosperity and there was a growing demand for labour in the towns and cities. Rural growth, on the other hand, had slowed, and employment prospects for young Māori in the countryside were limited. Despite efforts to develop Māori land holdings, small family farms became uneconomic to support a rapidly growing Māori population. For most Māori employment and modern lifestyles were the main drivers for urban migration. While the cities offered better paying jobs, many migrants were poorly educated and took up low-skilled, manual employment on the wharfs, freezing works, construction sites, and factories. Many Māori thrived in their new environment, establishing successful careers and enjoying the advantages of city life, while never losing the close relationship to their rural and tribal roots. Others, however, struggled to make the transition to urban life. In the 1950s, the Department of Māori Affairs provided low-interest housing loans to help Māori families build homes. The scheme allowed a builder to cut costs by building a group of houses in the same area. The Family Benefits (Home Ownership) Act of 1958 allowed family benefits to be capitalised, thus providing a means to advance capital to help people own their own homes (Department of Maori Affairs 1959).

As Martin (1996) points out:

...by early in the 20th century most Māori lived in houses that were ostensibly European... [but] there is evidence that many aspects of traditional meaning were transferred to the new dwelling, so that symbolically it remained distinctively Māori to its inhabitants ... [buildings therefore] contain elements of ideology which help to maintain and reproduce cultural values (p. 2).

A period of adjustment by Māori followed the rapid adoption of European styled homes in the early 20th Century. This was characterised by a gradual development and use of uniquely Māori meanings and functions for new houses while continuing to incorporate more traditional building forms into modern houses and settlements. During this ‘adjustment’ period the wharenuī continued to be important for Māori communities as it “took over the pre-European functions of ...[traditional] whare Including group activities” (Martin 1996, p. 109) such as tangihanga (funerals) and hui (gatherings). Stea (1980) argues that it was at this time that the modern marae complex, complete with wharenuī, wharekai and open welcoming space, became the focus of most Māori communities and settlements:

the period of extensive marae building ...is relatively recent, hence marae can be regarded as part of ‘new’ Māori tradition, fusing elements of Māori spatial cognition with new technologies and patterns of settlement (p. 3).

A study by Beaglehole and Beaglehole (1946) also found:

that beneath a general veneer of Europeanism ... such as working at a Pakeha [European] occupation, living in a Pakeha-style house, eating Pakeha food, using a Pakeha calendar

and observing the rites of the church – there was a hard core of persistently surviving Māori beliefs and feelings that centred not surprisingly on the tangihanga, the marae and the whareniui or meeting house.

The Beaglehole and Beaglehole (1946) study also highlighted the emergence of uniquely Māori meanings for European houses. These meanings largely revolved around the importance of the whānau (extended family), and the ways a ‘Māori’ house was used differently from that of a Pākehā, particularly in regards to the need to accommodate a large number of relatives regularly for communal discussions and gatherings. Winiata (1967) also found that such extended family interaction was common within a traditionally located settlement with European style homes at Huria, but not at a newer subdivision just 3.4 km away on land with little traditional significance. The latter point highlights traditional connection with place as an important element of maintaining cultural values within the built environment, especially when considering the impacts of urbanisation beginning to be felt at the time. Hohepa (1970) further clarified the maintenance and importance of extended family interaction within Māori homes as well as the fact “that respect for [key cultural values, such as] tapu had ‘persisted in a modified form.’” Tapu is the concept of sacredness in which certain objects, relationships and activities are restricted and enforced by a strong belief in traditional religion; the breaking of such restrictions would bring punishment in the shape of discipline, misfortune and even death (Tikao 1990; Barlow 1991).

Due to the continuing presence of the marae within traditional communities, the major changes that occurred between pre-European and mid-20th century Māori housing was mainly physical, from the “dwelling unit complex consisting of separate sleeping, food storage and cooking buildings ... to a ‘home’ under one roof” (Martin 1996, p. 109). While European influences had some impacts on Māori cultural practices and beliefs, a “Māori cultural reality however survived” (Martin 1996, p. 109) in the use of the built environment. The relatively larger size of European houses and the development of internal walls creating separate functional spaces continued to facilitate extended family interaction and traditional practices, such as those relating to tapu. The central importance and role of the kitchen and dining areas, use of the open space of the living room for hui, discussion, and sometimes tangi, and the accommodation of relatives and extended family members are all aspects of traditional meaning transferred to these new dwellings (Rosenberg 1964; Hohepa 1970; Martin 1996). This situation began to change, however, as an increasing number of Māori moved away from traditional communities and into urban areas that were totally devoid of traditional structures or values.

As urbanisation increased from the 1950s, a raft of issues developed as a result of the inadequacy of the Eurocentric built environment to fully provide for the values and needs of Māori. Rosenberg (1964) neatly summarises the problems that were beginning to arise from the mass urbanisation of Māori in the 1950s, stating:

Death is the occasion when the community is most important. A dead body takes precedence over everything. Any other arrangement on the marae has to be cancelled for the tangi. Community centres are not used for tangis [sic]. It would disrupt their functioning. In Auckland there are 25,000 Māoris [sic] and there would be a death every few days. One could not keep the ordinary functions of the community going. There is no functioning marae in Auckland. Their house is therefore the Auckland Māori’s [sic] ‘little marae’ (p. 243).

Urbanisation removed Māori from mainly rural marae-centred communities located in areas of traditional and historical significance and thrust them into highly foreign and Eurocentric urban areas (Kawharu 1968; Walker 1987; King 1997). Without the use of communal marae complex or whareniui for continuing cultural practices and maintaining cultural values, Māori

began using their family homes, which soon began to highlight problems with the European dominated built environment.

Rosenberg's (1964) insights acknowledged the unique aspects and traditions of the Māori built environment and gave credence to the problems that existed with European standards of design and development for Māori. He therefore advocated the consideration of unique features in the design and development of houses for Māori in his seminal paper. These features included:

- providing adequate space and facilities for the size and nature of Māori extended families, intergenerational interaction and cultural use
- having well-separated and placed toilet and bathroom facilities in relation to the kitchen/dining room and living areas to allow for respect of tapu
- recognising the use of the living room as a wharenuī or marae and the importance of porches, entrance ways and private outdoor space to facilitate specific cultural uses such as tangihanga, mihi and pōwhiri.

Economic reform in the early 1980s had a dramatic impact on Māori, especially those in the unskilled labour market. Employment was no longer secure and high unemployment and interest rates soon pushed down housing affordability. The two key trends in Māori home ownership for the period between 1980 and 2001 have been the:

- decline in Māori home ownership (from 52% in 1981 to 44% in 2001)
- significant and persistent disparity between Māori and non-Māori home ownership rates (44% for Māori compared with 68% for non-Māori in 2001) (Department of Labour 2005).

From these negative statistics began a critical realisation of the link between physical form and cultural reproduction and the importance of designing built environments with cultural and social issues in mind. Assisted by the Māori land rights movement and wider societal and political changes, various Māori groups and other agencies, including the government began investigating Māori housing and design issues (Stea 1980). The reports from these studies largely supported and gave substance to Rosenberg's work and began to form the basis of a Māori driven design and development paradigm.

A Housing New Zealand report by Goodwillie (1990) found that Māori believed cultural values were a critical consideration when designing a house, and that while traditional values were still seen as relevant, they were being lost in contemporary housing situations. The concepts of tapu (sacred/restricted) and noa (open/unrestricted) were important traditional beliefs and values holding continuing relevance in modern living situations because they "affect the relationship between a person and the way they use their house" (p. 11). Home ownership was also seen as important, because it allowed "their house to become part of their wairua, their existence" (p. 11). Renting, on the other hand, did not engender the same feelings and consequently reduced the ability to practice traditional values. The main design preferences identified by Goodwillie (1990) included:

- a large lounge for accommodating whānau (extended families) and manuhiri (visitors)
- a sizeable kitchen with a family room and a kai room adjacent, with more pantry and cupboard space
- toilet should be placed outside and away from the kitchen as the kitchen represents food, which is noa, while the toilet and laundry are tapu
- sliding doors and landscaping to enhance relationships between the land/whenua, the house and people

- kitchen, laundry and bathroom to be a good size – so as to not infringe tapu and to allow for the accommodation and servicing of the extended family and manuhiri
- outdoor area needs protected from neighbours so mihi can be undertaken
- main entrance should be on the north side and adjacent to mihi area and wide enough to accommodate a coffin in case of a tangi
- elimination of hallways, which are seen as wasted space and costing money – a hexagonal house was proposed
- incorporation of shapes and styles to give the appearance of a whare – roof, windows, doors and pillars could be specially designed
- incorporating greater cooperative or communal spaces and settings.

Similarly, a report on Ngāti Porou housing issues by Houia et al. (1988) raised questions about the “adequacy of Pākehā architecture to accommodate the immediate and extended whānau ...[or] cater for Māori ceremonial, ritual and social functions” (p. 9). The report suggested that through urbanisation, and government housing schemes in rural areas, Māori had largely “accepted Pakeha type homes as the norm” (p. 35) but that both the individual rooms and overall houses were too small and compact, and as a result were having negative impacts on the social climate within the home. Houia et al. (1988) noted how family “relationships ...are often strained, [causing] domestic disputes and conflict” (p. 10), which often resulted in forcing elders (kaumātua) to find alternative accommodation, breaking down the extended family, and the important cultural socialisation processes of kaumātua–mokopuna (grandparent–grandchild) interaction within the home. Larger houses or houses with larger rooms were preferred to allow for the extended family and cultural practices. Granny-type flats for kaumātua situated close to the main home were also seen as a positive design, as were kitset homes and garages that offered flexibility and affordability in the design and gradual development of different functional spaces. The use of local materials, labour and expertise were also seen as important elements of sustainable urban design and development.

The recognition of problems with European dominated urban design continued to grow throughout the 1990s and into the new millennium, particularly through the increasing involvement and experience of Māori under the Resource Management Act 1991 as well as a growing pool of Māori planning and design professionals. Legal obligations for the involvement of Māori meant that whānau/hapū/iwi now had the opportunity to push for greater recognition of their traditions and values within their rohe. Increased expertise in the area of design and planning gives further weight to the incorporation of Māori cultural values within the built environment. While not leading to the widespread application of Māori values in urban environmental management, the experiences and expertise have encouraged a recent recovery of self-determination among Māori and led to the identification of key principles and values that are important for future, more sustainable development in the built environment.

2.4. Revitalisation and the Emergence of a Māori Driven Design Paradigm

Hoskins et al. (2002), Morgan (2005; 2006), Blair (2006), and Rolleston (2006) give examples of recent Māori driven urban design and development projects that are successfully merging Māori values, approaches and principles with Eurocentric architectural, design, engineering, and planning disciplines to produce frameworks for guiding future developments. The frameworks clearly elucidate greater integration between cultural, social, environmental, and economic aspects of urban design and favour more low impact, energy, resource and cost efficient design, to achieve socially and culturally sensitive sustainable development in urban built environments. In particular, they provide preferences for urban design features such as:

- use of porous roads and walkways and native vegetation to control stormwater runoff and produce biodiversity gains
- development of communal resources and facilities for greater social cohesion
- orientation that recognises the connection to important landscape features
- incorporation of energy efficiency, solar water heating, solar passive design, permaculture methods, rainwater collection, greywater reuse, ecologically sensitive materials, and indigenous species that show respect for the natural environment and contribute to a sense of security, familiarity and identity.

Hoskins et al. (2002) outline a modern holistic approach that reinforces and builds on the work of Rosenberg, Goodwillie and others by identifying and recommending practical architectural design options for accommodating traditional design features and values in modern housing situations. They suggest that the living or ‘whānau’ room is “the heart of the Māori house and can be likened to a marae wharenui . . . where visitors are received, welcomed and sleep, where meetings and celebrations are held, and sometimes where a tūpāpaku (deceased family member) will lie” (p. 11). They also note that well-placed kitchens and dining areas, large food storage space, and outside food preparation and eating spaces are important to traditional cultural values. High, private rear fences and low front fences that maintain communal connection are suggested, along with permeable fences with friendly neighbours to allow interaction; and communal vegetable gardens are particularly recommended to maintain, transfer and enhance horticultural and permacultural traditions. Other design ideas showing a clear link to traditional values include incorporating:

- an obvious and welcoming front and back entrance, such as the mahau or porch, that allows for positive interaction with manuhiri
- a large secondary living space, such as semi-detached garage or sleep out, for tangihanga or space for children, or for long-term whānau stays.

Importantly, the approach also provides a planning matrix to help set out interior space that pays attention to cultural sensitivities, particularly in relation to tapu and noa. The matrix lists different parts of the house and shows where either a conflict, neutral or desirable relationship exists.

Blair (2006) and Rolleston (2006) also outline contemporary, holistic approaches that lead to practical design features and preferences aligned to traditional cultural values. Both rely strongly on a social action research approach, working with actual developments involving Māori communities. Both studies identify rangatiratanga (self-determination), whānaungatanga (social/family relationships), whakapapa (genealogical connection), and kaitiakitanga (sustainable environmental management) as key traditional values in contemporary Māori driven urban design and development. Blair (2006), however, defines rangatiratanga in terms of leadership and self-sufficiency, being a responsibility of iwi or hapū to uphold, while Rolleston (2006) referred to it as recognition and acknowledgement, or an important ‘right’ to be recognised by others. Whānaungatanga is seen by both as the need to enhance communal space and facilities, while whakapapa recognises the importance of “the relationships and connections between people and place” (Rolleston 2006, p. 8) and kaitiakitanga outlines the importance of environmental protection, enhancement and the sustainable use of natural resources. Blair (2006) and Rolleston (2006) therefore provide the beginnings of frameworks to guide and drive developments that in particular emphasise the importance of social and cultural values, alongside environmental and economic values that are most commonly the focus of mainstream developments (Morgan 2006).

Morgan (2005; 2006) further highlights the importance of taking a holistic approach to urban design and development, arguing that traditional Māori cultural values assist in more effectively “integrating economic, environmental, social and cultural considerations” (Morgan 2006, p. 1). Morgan argues that a method of incorporating indigenous concepts and knowledge into mainstream practice is needed to avoid “narrow analysis of the problems identified and the subsequent suggestion of solutions that may not be well suited to the meta-physical situation within which the engineering challenge is being addressed” (Morgan 2006, p. 1), and puts forward the ‘mauri model’ as a possible option. Morgan describes the mauri model as an integrated decision making tool that uses mauri as a central concept “to interpret tangata whenua values in the context of contemporary development ... [which] enables a direct comparison between the results of conventional engineering analysis and the results based on analysis of impacts on mauri” (Morgan 2006, p. 3). Mauri is a traditional concept referring to “the binding force between the physical and the spiritual” (Durie 1998), or an intrinsic “power which permits ... living things to exist” (Barlow 1991, p. 83). As a power or force, mauri can therefore be degraded or enhanced by human action. Morgan (2005) uses evidence from a contemporary papakāinga development, the Haumingi papakāinga, to demonstrate that merging Māori cultural values and engineering practice is possible, practical, and effective.

Morgan (2005) outlines the process of developing the Haumingi papakāinga on the shores of Lake Rotoiti in the 1980s, and the conflicts between local council views and local Māori values in planning the development. The first design for the settlement by registered surveyors included subdivision of the area into seven half-acre allotments, and a 16.5-m road reserve dividing the land in two that had a 6.2-m sealed road with kerbs, channels, footpaths, overhead power lines, and street lighting. The second design was created from the values and aspirations of the Māori owners of the Haumingi land block, which highlighted particular concern with the effective treatment of storm water due to the spiritual and cultural connection to, and mauri of, the surrounding lake environment. Other important traditional values expressed included:

- kaitiakitanga and rangatiratanga
- whatungaro te tangata tu tonu te whenua (people perish but the land remains)
- mai Rangi-nui ki Papa-tū-ā-nuku (rainfall is sacred until it has passed over mother earth and then becomes culturally suitable for human use).

These values were used to develop alternative engineering solutions and site plans that included:

- narrow porous carriageways/roads (using Beton-Gras turf slabs)
- grassed walkways separated from the roads and using native sub-canopy plantings/barriers
- greater native bush cover and reserves over the whole area
- no street lighting and power poles
- restricting development to land with communal title to remove the need for subdividing land.

While the Māori driven proposal for the papakāinga was consequently labeled a “future slum” and a sub-standard subdivision by council engineers involved in assessment of the development” (Morgan 2005, p. 5) and also received objections from the Ministry of Transport and the Bay of Plenty Catchment Board, the owners managed to receive planning consent to proceed. Comparisons between the Haumingi papakāinga development and nearby subdivisions considered best practice at the time, however, show that the papakāinga had only 10% of the impervious surfaces of other subdivisions, an extra 10 000 m² of native bush

reserve, and that initial infrastructure costs were down by 43%. After 20 years of monitoring, the papakāinga has experienced no maintenance requirements, particularly important given that three severe storm events in 4 years have meant nearby subdivisions with conventional impervious surfaces faced high maintenance costs, and, as a result of runoff, have had a greater impact on Lake Rotoiti itself (Morgan 2005).

Critically, Morgan (2005) highlights a number of common problems that hamper the incorporation of Māori cultural values in contemporary development due to the lack of credit or validity given to indigenous knowledge, and the blindness or ignorance of western conventional knowledge to acknowledge and apply aspects of traditional knowledge. On a positive note, however, the example also demonstrated that both indigenous and western approaches can be merged to seek better, more sustainable solutions. This will only be possible, however, with the application of working frameworks for adequately assessing designs and proposed developments that include critical social and cultural values together with environmental and economic considerations.

2.5. Applying Sustainable Development – Māori Built Environments into the Future...

While the literature has shown that a clear and unique Māori built environment tradition exists and that aspects of traditional design have been able to survive, adapt and co-evolve alongside the domination of European technology and influences, the application of a working framework that takes better account of cultural values within, and allows the critiquing of, conventional development practice is lacking. This is particularly important in the context of the recent emergence of a Māori driven design paradigm that has highlighted a strong preference for sustainable development that adequately addresses social, cultural, environmental, and economic perspectives, knowledge, and issues in a more holistic way.

The emerging paradigm demonstrated throughout the literature has highlighted the increasing awareness amongst Māori that traditional knowledge, values, and concepts are of continuing relevance across a range of areas. In particular, within the area of urban planning and environmental management, an increasing number of Māori with expertise in design and planning disciplines are leading growing calls for greater acknowledgement and provision of traditional and contemporary cultural values, as required by the Resource Management Act 1991 and Local Government Act 2002. The paradigm shift represents a recovery of self-determination (*rangatiratanga*) as well as the articulation of key values and principles to guide future development. Despite this recognition and reassertion, the evidence offered has yet to be fully understood, recognised and implemented in any tangible way by the mainstream. This has led to calls for a more articulated, integrative and progressive paradigm framework to be demonstrated in order to achieve an inclusive New Zealand or Aotearoa sustainable urban development paradigm (Hoskins 2007).

This project “Tu Whare Ora – Building Capacity for Māori Driven Design in Sustainable Settlement Development” provides the foundation for the collation, development and application of Māori driven frameworks within mainstream practice, that may then be integrated into or work alongside existing models to help plan, implement, and assess developments. Such merging of Māori values with European perspectives and technology, such as the development of wharenui in the 19th Century, and the more recent example outlined by Morgan (2005), has already been shown to be effective in achieving sustainable development outcomes. However, a greater effort is required to collate, articulate, and illustrate a range of examples across New Zealand that show how Māori values can be effectively incorporated into mainstream planning and design and therefore contribute to

greater goals of sustainable development. Once achieved, this could be evaluated through the development of a set of meaningful indicators by which Māori, designers, planners, developers and local governments could better assess and monitor the level of integration and incorporation of culturally based design and planning principles that directly contribute to future social, cultural, environmental and economic urban development outcomes. This will be essential if cultural identity, history and traditions of both Māori and Pākehā are to be truly reflected in the built environment.

3. Evaluating Papakāinga – An Assessment Process

Papakāinga is a term used to describe Māori communal and cluster type settlements. The term papakāinga comes from Papa – meaning land, earth, ground; and kāinga – meaning settlement, community, dwelling or village (Ryan 1989; Williams 2000). In traditional times, settlements were designed on the clustering of dwellings and other building utilities with the use of common open space between. The central focal point of the community was usually the largest dwelling and the marae – or the open courtyard in front (Best 2005). The use of papakāinga community models continues today by many Māori communities.

Contemporary papakāinga are usually dwellings, buildings and other structures constructed on communally owned family landholdings. Common descent from an ancestor generally affirms an individual's rights and privileges to occupy and build on common property (Metge 1995). Shares or occupational rights are allocated to individual members of a family to build, live, and occupy a portion of space on family land (Durie 1998; Mead 2003). A range of papakāinga tenure models are apparent in New Zealand and they are commonly based on a Māori governance structure – under Te Ture Whenua Act 1993 – and influenced by the Resource Management Act 1991, and local government rules and regulations. They therefore have some common characteristics and elements.

Many papakāinga are positioned near or close to a marae or community complex. The central focus of the Māori community is the marae, and the papakāinga is an extension of the relationship with the marae. Other community facilities in close proximity with the papakāinga can include but is not limited to: schools, kōhanga reo (Māori pre-school), kaumātua flats (elderly housing), medical centres, farms, orchards, and sporting facilities. The ability to live on their traditional lands in papakāinga developments is a way in which Māori will be able to maintain and enhance their culture and traditions. Two aspirations of papakāinga are ahi kā and mana whenua: the first is the desire by families to maintain ahi kā – the occupation and use of their traditional lands; the second is the continued maintenance and ownership of land within the family. As demands and costs for housing increase, Māori are investigating options to live and occupy their own lands (Waldegrave et al. 2006).

Māori land is estimated at 1.5 million hectares of New Zealand's 26.9 million hectares (6%) (Kingi 2002). These estimates, however, exclude land owned by Māori that is held under general title, and accurate estimates are therefore difficult to determine. Under both Māori collective title (e.g., Māori freehold, traditional, or multiple-owned land) and under general land there is huge potential for Māori to build and develop their lands for housing. The concept of papakāinga is inextricably linked to a relationship with land. Land is not just a physical article, but possesses an important social, cultural and spiritual dimension.

Papakāinga remain significant to many Māori in terms of culture, wellbeing, and customary, social, spiritual and living requirements. This significance is closely aligned with the inherent values many whānau/hapū/iwi have, especially those with integral inter-connected relationships with specific whenua environments, cultural sites, and customary resources. New Zealand does not have a well-developed urban Māori housing or papakāinga housing sector (Walker & Barcham 2007). Only recently has the New Zealand Housing Corporation developed a strategy to address Māori housing needs (Housing New Zealand Corporation 2008). Papakāinga are seen as one avenue for whānau/hapū/iwi to remedy the situation and find solutions to close inequities, such as inadequate Māori housing and poor design (Waldegrave et al. 2006). While the “get on with it” attitude is admirable, accountability of our actions ought to be recognised. If whānau/hapū/iwi are willing to battle it out in the legal

system to uphold our right as kaitiaki, whānau/hapū/iwi ought also to engage actively in the very principle that is so readily defended. Notions of what defines a papakāinga are called into question. Is a papakāinga merely a collection of buildings on papakāinga-zoned land? Or is it a physical space based on various principles (design, environmental sustainability, mātauranga Māori, ecological efficiency, economic efficiency, etc.)? How do you know if the outcome of a completed papakāinga is of benefit to iwi and hapū?

We report in this section an assessment method and process for evaluating and comparing papakāinga design. In order to carry out these assessments one must first take stock of the current situation. This section therefore presents what participants of two hui of Māori design professionals believed were the key attributes of papakāinga, and we use these key attributes to develop an assessment method and process. In assessing papakāinga design it is essential to establish a baseline for evaluation and comparison. From this a method and process are defined and discussed. The primary aim of this assessment is to determine and measure whether desired whānau/hapū/iwi aspirations and values for papakāinga development are being met.

3.1. Methodology

A Kaupapa Māori research approach was carried out. Kaupapa Māori research (KMR) is defined as a “development framework and suite of methods” rather than one method. This approach is therefore concerned more with methodology than method (Smith 1999). KMR does not exclude the use of other methodological approaches and processes. Key working principles that have emerged from the Kaupapa Māori research literature include: whakapapa (genealogy); te reo (Māori language); tikanga (protocols); rangatira (leadership); and whānau (family). This set of working principles helps inform the nature of the research. Cram et al. (2000) explain:

In this sense Kaupapa Māori is a theory and an analysis of the context of research which involves Māori and of the approaches to research with, by and/or for Māori. A Kaupapa Māori approach does not exclude the use of a wide range of methods but rather signals the interrogation of methods in relation to cultural sensitivity, cross-cultural reliability, useful outcomes for Māori, and other such measures (p. 10).

The primary reason for engaging in a Kaupapa Māori approach is to remove or mitigate barriers between the participants and the researcher. The first contact is most important in removing those barriers that exist between a researcher and the participant – trust must be gained. Establishing a relationship with key members of the iwi is also a necessary part of the process. Through previous research work (Foundation of Research Science and Technology funded Low Impact Urban Design and Development), Landcare Research had established a relationship with some of the participants through a Māori urban design learning group. Members of the Māori urban learning group formed the majority of the participants. Other participants who had been active in forming Te Aranga – Māori cultural landscapes strategy (Hoskins 2007) were also invited. Each invited participant was provided with a koha for their attendance and participation in a series of hui.

Two hui were held; each was organised with a key contact person from the iwi where the hui was held. The first hui was at the main office of Te Rūnanga o Ngāi Tahu in Christchurch and included a number of Māori professionals: architects, consultants, academics, researchers, and iwi resource managers (13 participants – refer to Appendix 2 for a list of participants). This was excellent in developing relationships between the researcher and key informants. It was generally agreed that a 1-day hui was insufficient for meeting the needs not only of the researcher but also of the group as a whole to share information on papakāinga design and to

develop a strategic framework to respond to the increasing need of Māori housing. A further hui was agreed on by the group as a whole, with Tauranga selected as an ideal location.

The setting for the second meeting was essentially Māori – Tamapahore marae in Mangatawa close to Tauranga City (12 participants – refer to Appendix 3 for a list of participants). Marae protocols formed the framework within which the data gathering methods worked. Flexibility was a key factor for the flow of the meeting; while the agenda was fluid it provided some structure for the events. Tauranga was ideal as a location for a number of reasons: a significant proportion of participants lived there; the development of a papakāinga toolkit by the Tauranga District Council was in progress; and a number of parties (hapū) in the Tauranga rohe are very interested in exploring the development of papakāinga on their whenua. As with this type of methodology, the invitation was put out to members of the wā kāinga, and a number of attendees from Tauranga Moana not only attended and listened to the korero from the professionals but also participated in the discussion. This participation not only reinforced the concept of manaakitanga through the exchange of ideas but also helped further inform this research.

Apart from the main research question of this research, other key questions explored in the hui including:

- What is a papakāinga?
- What are iwi/hapū aspirations for papakāinga?

Exploring these issues first helps inform our main research question:

- How do we assess papakāinga design?

The dialogue from the Tamapahore hui was captured by three note takers. Each participant at the Tamapahore hui has been randomly assigned a pseudonym. The notes from the hui have been organised thematically under each research question and are presented in the following section.

3.2. Assessing Papakāinga Design

Defining papakāinga

An emerging theme from the hui was that papakāinga include not only the physical buildings and the land that goes with it but also the mātauranga (ideas and principles) that underpin it. It is important to consider mātauranga, particularly when iwi-centricity of knowledge is recognised. Comments from two participants at the Tamapahore hui whose sentiments were shared by other participants supports this argument.

P 10: Only the whānau or hapū can define papakāinga

P 8: [Papakāinga] depends on how whānau define papakāinga, it is different for each whānau or hapū.

Other participants identified whakapapa (kinship) to whenua (land) as a key ingredient for papakāinga.

P 3: It's about whānau living on the whenua

P 11: [Papakāinga] is a piece of whenua that ties everyone together

P10: Whakapapa provides the opportunity for whānau to live in a traditional landscape

P9: Papakāinga is whānau housing on whenua.

Defining who belongs to whānau and who controls the process of belonging was recognised as a potential barrier to the papakāinga process. Working through these processes to achieve a positive outcome for whānau was seen as a successful goal. Indeed, for some participants, papakāinga is not just about dealing with physical issues but also involves managing the social aspects of iwi/hapū.

P1: We got to build people not just buildings

P3: It's about building a community – not houses.

Papakāinga is also seen as an avenue for improving access to housing for Māori. Through the practice of kotahitanga, whānau are provided with the opportunity to share costs and resources. Papakāinga was also recognised as being holistic in nature and able to respond to changes in economic climate.

P3: Māori land is a resource in terms of housing affordability into the future

P4: Papakāinga are organic – economics/infrastructure costs change – [papakāinga] will never be static.

Developing papakāinga involves the promotion of the concept of papakāinga to whānau. Participants admitted while it was challenging to manage the process of deciding to build a papakāinga on one's whenua, the challenges could be approached by developing clear processes and sharing information. In this way, whānau become more informed and are less likely to provide resistance to the process. Wānanga were seen as one method for the promotion and education of papakāinga within whānau.

P9: Running wānanga [are important for] getting people into the same mind-set

P4: Showing pictures are great for educating the whānau

P10: Educating whānau and educating staff from local councils is essential. People need to be involved in the process – they need to draw and select.

The job of promoting and convincing whānau of the merits of a papakāinga is generally carried out by a strong whānau leader or champion. This person needs to be adept at managing whānau relationships and information. Misinformation among whānau was seen as a potential barrier to the development of papakāinga. Good record management helps to mitigate this barrier.

P9: Maintaining Records is key – where you have been, who you have talked to. Keeping a folder of all info as a running record [is important].

Aspirations for papakāinga

‘Walking the talk’ is a worthy mantra to guide the process of developing a papakāinga, given that it influences the way P1’s hapū carries out the process of developing their papakāinga. Their challenge is to design papakāinga that returns the mauri to Papa-tū-ā-nuku. This aspiration involves not only physically securing occupancy but also the restoration of meta-physical aspects important to the hapū. P6 also reiterated the need to ‘walk the talk’ by taking a lead and becoming more involved in issues dealing with urban design.

The role of leadership is an important factor for determining the direction of papakāinga. Participants acknowledged there are tensions between affordability and cultural values. Strong leadership provides avenues for achieving both aspirations. As P3 says:

We need to just get out there and do it. We just need to get more papakāinga on the ground. Funding is a big issue, getting pilot projects is important, they provide the opportunity to get stage one up, monitor it, and improve on it. We have papakāinga with four whare and plan for six more. All timber travels down the harbour, we are completely off the grid, we have walked our talk.

Where you have the choice to connect to existing infrastructure, an environmentally sustainable housing project (eco-stand) is difficult. It is difficult in terms of persuading others that this is the right choice for Māori environmental views. If whānau are disconnected or are living in remote rural areas, being sustainable and self-sufficient is a relatively easy choice as there are very few options available. Within the current economic environment of free market ideology, it is a challenge to uphold the integrity of environmental sustainable housing. Financial considerations usually dictate mindsets and decisions. In response, members of the hui believed leadership and education are the keys to achieving sustainable solutions.

Leadership style is an equally important consideration for the papakāinga design process. What is required is an advocate who is passionate about the job at hand and yet is willing to listen to the advice of whānau.

P9: We are looking at whānau papakāinga as a means to get back on the whenua before we lose our senior generation and whenua. [We want to] start with one now but would like six [papakāinga]. The journey has pulled us together, the more we developed our whenua, the more it developed us. [I believe in] the process of being guided by shareholders and what they want to achieve.

Participants at the hui recognised the difficulty of leading and educating the whānau was not one to be underestimated. P7 reflects on these difficulties. While the scale of developing commercial housing implies a level of detail and complexity, ‘doing 3 houses with your own whānau is much harder.’

The difficulty of working with whānau was highlighted particularly with a proposed assessment tool used as an example:

P1: People can be afraid of what you might find out

P10: Māori are not good at self-analysis

P11: We have done it before, for example we walk away from streams that are polluted.

There is a mistrust of research by Māori derived from lived experiences of exploitation by researchers seeking personal gain without recognising the source and assistance provided by Māori. Control of the process of developing papakāinga is a key consideration. Participants advocated for a closer role by whānau/hapū/iwi in designing, managing, and developing living environments.

How do we assess papakāinga?

Participants of the two hui believed that the assessment of land (and other) developments, including papakāinga, by whānau, hapū and/or iwi, either independently or in conjunction with professionals (co-design), is a critical and necessary part of future practice, if Māori driven design and development is to become a reality. There was strong suggestion from the participants that the majority of current and conventional planning, design and property development practice and the professionals who work in these areas struggle to deal competently with and incorporate Māori cultural values in their work. This has led to and will continue to create problems for tāngata whenua who want to assert their own values and traditions in relation to their built environment and see themselves reflected in the contemporary landscape.

Because of this desire (and tikanga) to assert their own mana and rangatira within their rohe/takiwā, a prescriptive, ‘one size fits all’ model or tool for tāngata whenua is not possible or appropriate. Participants identified an assessment framework, basically outlining a process-based, checklist approach is possible and more appropriate for papakāinga design. A process-based assessment that runs concurrently with the planning, design, building, and living processes of a papakāinga development can work to make self-assessment and critical thinking by tāngata whenua a normal part of the process. It allows creative thinking to occur as well as giving the space for constructive and reflective feedback, founded on cultural values, to improve the process for all. The assessment process basically sets up the ‘whare korero’ and the chance for the whānau, hapū or iwi to have either an internal or a facilitated discussion (via a professional, i.e. co-design) about the development’s progression within a certain stage, before moving to the next step.

Key questions for assessing papakāinga

In putting this process forward, the participants identified a series of questions required for the process of papakāinga:

- ◆ Why assess papakāinga?
 - To build knowledge and gather information that will help tāngata whenua decision-making about developments on their land and within their rohe.
- ◆ At what stage should papakāinga be assessed?
 - Existing papakāinga – as a learning exercise for others or for extensions to existing papakāinga
 - Developed design proposals – as a check list before detailed design or consent lodgements
 - Newly developed papakāinga – as part of a post-occupancy evaluation for example 1 year after occupation (after experiencing all seasons).
- ◆ Who carries out the assessment?

- Either the tangata whenua themselves as an internal kōrero, or a design/development professional or project manager/facilitator as part of a co-design philosophy.
- ◆ How is the assessment carried out?
 - A concurrent, continual process running alongside the conventional planning, design, building and living process guided by a decision-making framework.
- ◆ What are the reasons for the assessment?
 - To assist the decision-making process
 - To build knowledge and cohesion (kotahitanga) about the development
 - To empower tangata whenua in the design and development process
 - To provide accountability and minimise potential problems
 - Papakāinga are organic, staged, progressive developments, and not static.

Papakāinga assessment outline

After considering the above questions, participants from the hui presented an outline for an assessment process that included the following:

1. Identify interested parties and key relationships
 - a. including the whakapapa to whom the development belongs, how this is decided, and who should and can help
2. Define the development
 - a. what are you doing, why, who for, how, when, and by whom
3. Develop the criteria or aims and indicators for the development
4. Create a master list of aims and indicators and group, prioritise, rank or weight them (if appropriate)
5. Develop a scorecard for the chosen aims and indicators
6. Assess the progress of the development against the scorecard
7. Move to the next stage in development and repeat 5 as necessary
8. Close the loop by using information to inform new developments, maintenance and improvements

The Mauri model – assessing aims and aspirations

Kepa Morgan's (2007) mauri model was presented at the first papakāinga hui in Christchurch and had also been used by Ngāi Tahu Property Limited to assess the House of Tahu project, an expression of Ngāi Tahutanga within Christchurch City (Pauling & Morgan 2006). The cultural sustainability assessment for the House of Tahu used a scorecard assessment based on Morgan's mauri model barometer (5 point scale from +2 to -2) to assess the designs against an agreed list of aims/indicators for the development. This was carried out in a wānanga, involving both iwi and design professionals in groups and facilitated by a third party. The results of the scorecard for the assessment of the House of Tahu are presented below in Table 1.

This process allowed those involved in the assessment to prioritise and highlight the key areas for improvement in the final designs. Analysis of the results suggested participants considered the House of Tahu project has the potential to deliver a culturally sustainable outcome for all performance metrics with the exception of *Mana whenua* (recognition and provision for local hapū). Furthermore, *Kaitiakitanga* (reducing impacts/self-sufficiency), *Water* and *Energy* aspects rated at below 0.5, and would require further work to allow them to achieve a more sustainable score.

Table 1: Scores for Cultural Sustainability metrics using the Mauri Barometer

No.	Metric	Group 1	Group 2	Group 3	Group 4	Group 5	Average
1	Ngā Wai Tipuna – Water	1	1	-1	0	1	0.4
2	Ngā Otaota Māori – Biodiversity	0	1	-1	2	1	0.6
3	Wāhi Tapu/Taonga – Heritage	2	2	1	2	1	1.6
4	Kaitiakitanga – Reducing Impacts/ Self Sufficiency	1	-1	-1	1	1	0.2
5	Tikanga – Energy and Resource Efficiency	1	0	-1	1	1	0.4
6	Whakapapa/Matauranga – Cultural Materials & Design Elements	2	1	-1	1	1	0.8
7	Whanaungatanga/Tūrangawaewae	2	1	1	2	2	1.6
8	Mana/Mauri /Manaaki – Hospitality & Wellbeing	2	1	1	2	2	1.6
9	Rangatira – Te Reo, Kawa, History & Identity	1	1	1	2	2	1.4
10	Tohungatanga – Long-Term Cost Effectiveness & Efficiency	2	1	0	2	1	1.2
11	Mana whenua – Recognition & Provision of local hapū	-2	-2	-2	-1	-1	-1.6
Total (out of 22 : 22)		12	6	-3	14	12	8.2

The results of the analysis were placed on the sustainability barometer as individual metrics to indicate their relative sustainability and potential areas for further improvement as shown below in Fig. 5:

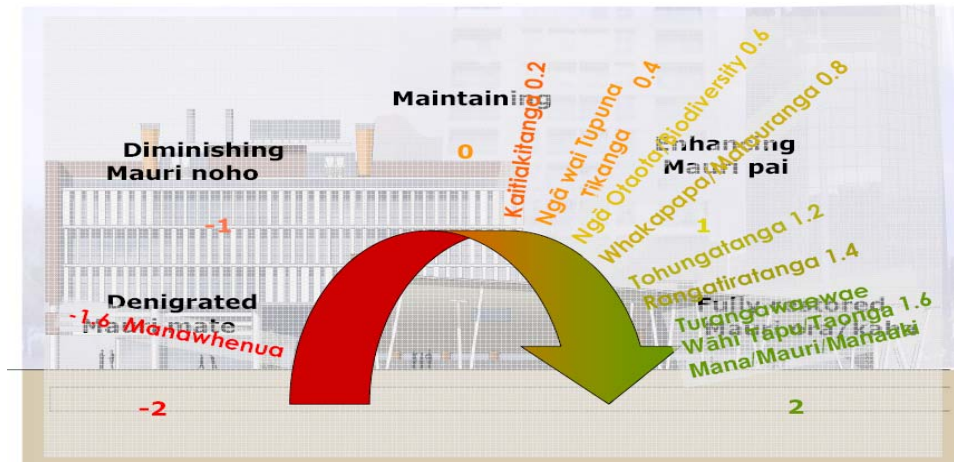


Fig. 5 Sustainability barometer with averaged group scores

Assessment stages

Hui participants recognised that an assessment process ought to be formalised and staged in the following steps:

1. Planning
 - a. Assessing the design brief/terms of reference (leading to the development of concept plans or preliminary drawings)
2. Design
 - a. Assessing the concept plans/preliminary design drawings/notes
 - b. Assessing final plans, timelines and costs
 - c. Assessing contractor/tender briefs and contracts
3. Building
 - a. Assessing the building plans, timelines and milestones
 - b. Assessing the progress of building against plans
4. Living
 - a. Assessing the plans for opening/launching
 - b. Immediate post-occupancy assessments (within 1 month – first impressions)
 - c. Long-term post-occupancy (after 1 year and living all seasons)
 - d. Life-cycle assessments (after 5, 10, 20, or 50 years)

3.3. Discussion and Concluding Remarks

An overarching aspiration for papakāinga development is a genuine whānau/hapū/iwi led and whānau/hapū/iwi driven initiative with access to clearly defined processes and supportive tools. To achieve this, the level of control whānau/hapū/iwi have of the process of developing papakāinga is important. There is a danger that the papakāinga may not reflect the aspirations and identity of whānau/hapū/iwi, resulting in an outcome lacking in the very essence that defines who tangata whenua are. Papakāinga developments require leaders (whānau, hapū or iwi based) to take charge of the regulatory processes involved in developing a papakāinga as well as generate support from the whānau. Participants from the two hui expressed their

frustration at navigating some Territorial Authority frameworks. Future research could involve developing a stock-take to identify those local government authorities that have the best relationship with whānau/hapū/iwi. Such a stock-take will identify positive models of relationships between local government and whānau/hapū/iwi that can be used in other parts of New Zealand.

Participants of the hui acknowledged co-design or co-planning as an essential part of professional practice in New Zealand. The participants understood co-design to be a design professional working in a participatory and partnership arrangement with the client. A papakāinga assessment process that could be used by professionals, or indeed made part of the process by whānau/hapū/iwi (put in as part of the brief/contracts to professionals), would therefore be important. Essential ingredients of Māori driven design in architecture and planning are kaupapa Māori based processes that recognise the role whānau/hapū/iwi have to play in the exercise of design as well as the values and aspirations underpinning the design. Therefore, a design professional needs to be supportive and aware of whānau/hapū/iwi values and aspirations.

This chapter presented the mauri model as an important tool for assessing papakāinga as its foundation lies rooted in mātauranga Māori. The mauri model ought to have resonance with whānau/hapū/iwi considering papakāinga developments. The tool also allows for prioritisation and highlighting of specific parts of design and development that are either working well or need improvement based on the underlying principles identified by whānau/hapū/iwi. The value in the tool is the relative ease with which different outcomes in design can be compared using a quantitative measure. The mauri model, however, is not the only model that ought to be considered in assessing papakāinga. Other quantitative and qualitative measures are equally useful in assisting decision makers. These measures could be based on: waste – kg/weight of rubbish produced per/week per/year; energy use – kWh per/month per/year; water use – litres per/month per/year; the abundance of natural light; levels of humidity; Te Reo retention/improvement/spoken among members of community; levels of carbon sequestration; and the presence/absence and abundance of native bird, plant and fish species. For these assessment models to work effectively in papakāinga design, kaupapa Māori/co-design processes ought to be involved and run parallel with the planning processes of local government and urban design professionals. This section developed a step-by-step papakāinga assessment process. This assessment process allows for creative thinking to occur as well as providing the space for constructive and reflective feedback, founded on cultural values, to improve the process of developing papakāinga for all.

4. Ngā Hua Papakāinga – Papakāinga Design Principles

Papakāinga development is a process of design. Settlements were traditionally designed to house and support communities and the process of design has not changed. Urban design, on the other hand, is a process of development that strives to create better living and working environments for people. Urban design is the process of shaping the physical environments and settings for life in cities, towns and villages (Rolleston 2005). It involves the design of buildings, groups of buildings, spaces and landscapes, and the establishment of processes that make successful development possible. Urban design is about the expression of a cultural perspective within a defined geographical space and location (Schofield 2004). The design of a single unit dwelling, subdivision, community or town centre reflects and replicates the underlying cultural values of those that live or access services within those communities. Urban design is more than just the construction and placement of physical structures, it is about making connections with people, places and spaces (Ministry for the Environment 2005a):

Urban design is concerned with the design of the buildings, places, spaces and networks that make up our towns and cities, and the ways people use them. It ranges in scale from a metropolitan region, city or town down to a street, public space or even a single building. Urban design is concerned not just with appearances and built form but with the environmental, economic, social and cultural consequences of design. It is an approach that draws together many different sectors and professions, and it includes both the process of decision-making as well as the outcomes of design (p. 8).

Like many other cities around the world, New Zealand cities face a complex array of social, economic and environmental issues from increased population growth (Greenaway et al. 2005). Issues are often manifested in, for example, inadequate infrastructure, crime, environmental degradation, urban expansion, and sub-standard housing. The growing importance of urban design has been one of the most significant developments in the planning profession over the past decade (Dewar 2004). Much of New Zealand's development in our urban centres is increasingly driven by changing trends and lifestyles (Ministry for the Environment 2002). The New Zealand Government has identified cities as a key programme area to achieve sustainable development in the New Zealand context (Department of Prime Minister & Cabinet 2003). Intensification of urban settlements has not only affected the natural and built environment but also severely affected the relationship Māori have to traditional resources, landscapes, and other sites of significance (Rolleston 2005).

The urban environment functions as part of an integrated social and ecological system (Greenaway et al. 2005). Modern urban expansion has a propensity to overlies landscapes, natural features, resources, settlements, occupations, land use, and activities, with little recognition of what was previously there. Trade, military and port settlements are historical features of New Zealand's colonial development. Each layer has an expression of value, meaning, importance, significance, and usefulness to those who connect to those particular spaces. Occupation of land by Māori over generations has instilled those connections and expressions of value into the landscape and natural resources (Firth 1959). There are many examples throughout the country where neighbourhoods and communities tend to reflect exotic styles and design, which exhibit no characteristics or qualities of New Zealand's culture, landscape, or environment.

Chapter 4 seeks to develop a set of key Māori principles and values to be included in papakāinga design plans. This chapter also attempts to integrate mātauranga Māori with respect to papakāinga and contemporary urban design. Consideration of mātauranga Māori

within the context of the New Zealand Urban Design Protocol explored first. This initial exploration is followed by the presentation of two case studies outlining the aspirations and underlying design principles of two Māori organisations (Ngāti Whātua o Ōrakei Māori Trust Board and Ngāi Te Rangi Māori Trust Board) and their proposed papakāinga.

4.1. Urban Design Principles

The New Zealand Urban Design Protocol identifies seven essential design qualities that create quality urban design. Each design element reflects modern quality urban design, but may also provide some insight into urban design of the past (Ministry for the Environment 2005b). Some may argue that all seven of the essential design qualities featured in the Urban Design Protocol apply to Māori settlement patterns. However, quality urban design principles may serve and reflect good design, but still fail to reflect anything Māori.

Context

Context refers to buildings, places, and spaces as part of a whole settlement and not as isolated elements. Māori settlements traditionally reflected their location and were constructed within a natural environmental context. The construction and design of buildings and utilities were not intrusive or invasive but rather reflected the relationships and connections between people and the environment. Settlements recognised the landscape and surrounding environment as an integral component of the built form. Māori considered the placement and location of buildings and the design and function within the landscape (Buck 1952; Best 2005).

Character

Character refers to reflecting and enhancing the distinctive character, heritage and identity of a settlement. The character of settlements portrayed the life and nature of the people who occupy those spaces. Māori were instilled with value, respect and appreciation for the environment in which they lived. Buildings were not just physical structures but represented relatives and ancestors. Structures depicted the personality and nature of people. These notions are evident in the narratives, myths, legends, historical accounts and oral traditions. The personification of the natural environment is a feature of a Māori worldview. These include natural features such as water bodies, mountains, bluffs, and islands. The design and construction of traditional buildings exemplify notions of personification. The decorative carved art forms displayed on buildings depicted ancestors, important cultural icons, genealogy, and stories (Buck 1952; Marsden & Royal 2003; Best 2005).

Choice

Choice refers to ensuring diversity and choice for people. The design of buildings and communities varied within their environmental context, which was reflected in the choice and diversity of the built form. The influence of the location and position of settlements played an important role in relation to natural resources, security, and protection. The selection of a settlement site was extremely important and influenced the types of buildings that were constructed. The availability and accessibility of certain materials also affected the design of some structures. Settlement designs were innovative and adaptive to local conditions (Best 1974; Davidson 1987; Best 2005).

Connections

Connections refer to enhancing how different networks link together for people. Reliable and consistent between spaces, buildings and resources were essential. The transportation modes were restricted to walking or canoe, which emphasised the need for spaces to be accessible and well connected. To enable efficient and effective access to available resources site selection was very important. Some tribes established links with and paths to temporary settlements to enable seasonal gathering and harvesting of food sources. There are still tribes who maintain traditional paths and access ways as traditional links between tribes and family groups (McCaskill 1954; Matheson 1975; Marshall et al. 1994a; Marshall et al. 1994b).

Creativity

Creativity refers to encouraging innovative and imaginative solutions. The design and materials used in settlement development created important connections with the surrounding environment. Design and planning of structures and communities required a level of creativity, especially in relation to site selection. The construction of pā on coastal rock outcrops, cliff ledges, and mountaintops was a feat of ingenuity; the enormous excavations that occurred for some pā were extensive; the design and construction of fortified strongholds were elaborate. Many pā incorporated carved palisades, depicting tribal ancestors, genealogy, and history, into the outer perimeter of the settlement, as well as panels and decorative arts on and within buildings (Cook & Beaglehole 1955; Best 1974; Davidson 1987; Best 2005).

Custodianship

Custodianship refers to ensuring design is environmentally sustainable, safe and healthy. Communities needed to be located where they could take advantage of natural resources while maintaining a high level of protection from enemy intrusion and attack. The reliance on the environment for survival persuaded and encouraged Māori to foster a guardianship or custodianship philosophy to caring for the environment. Māori consider themselves caretakers and protectors of land and its associated resources, to preserve and maintain them for current and future generations. They continue to respect, care for, and practice sustainable management of the environment (Minhinnick 1989; Roberts et al. 1995; Kawharu 2000; Marsden & Henare 2003).

Collaboration

Collaboration refers to communicating and sharing knowledge across sectors and professions, and with communities. Leadership, expertise, knowledge, and experience from the whole community supported the development of quality settlement design. Collaboration between different sectors and specialists within the Māori community helped create effective design solution. The roles of rangatira (chief), tohunga (specialist), pūkenga (knowledge holders), and toa (warriors) all played an important part in the design and development of traditional Māori settlements (Marsden 1975; McKay 2004; Ember & Ember 2004).

4.2. Māori Urban Design Principles

There is growing recognition that no single skill or profession can deal with the complexity of change in towns and cities (Sternberg 2000). Urban design is the process of shaping the physical environment and setting for life in cities, towns, and villages. It involves the design of buildings, groups of buildings, spaces and landscapes, and establishing the processes that make successful development possible. Urban design is about the expression of a cultural perspective within a defined space and location (Schofield 2004). The design of a single-unit

dwelling, subdivision, community or town centre reflects and replicates the underlying cultural values of those that live or access services within those communities.

This report draws on nine mātauranga Māori cultural design qualities from the literature and considers them within the context of the urban design and development process. These qualities aim to assist and support the preservation of culturally significant resources and landscapes as well as build community identity based on mātauranga Māori. To protect and preserve those unique values and qualities, development must occur in a sensitive manner and consider those values impressed on the landscape by previous tenants and occupants.

Whānaungatanga

Māori are a communal people and value collective participation and membership. Traditionally, participation and membership was founded on genealogy, lineage and descent (Barlow 1991). Each member of the collective had set roles, responsibilities and functions that contributed to the day-to-day living of the tribe. These notions recognise common interests to encourage and build community pride, identification, and ownership. Arranged marriages, occupations, and use of traditional resources had an important role in establishing strategic relationships between people and people, and people and land. Marriage was an important institution and mechanism that preserved and sealed strategic connections between tribes and families (Salmond 1991). These relationships were important in times of conflict as well as securing access to, and use and rights of scarce or specialised resources. The personification and identification of natural landscape features was also used to maintain the close relationship ties with the environment (Best 1934; Buck 1952). Relationships and connections reflect the importance of the social interactions between people and people, and people and the environment. Settlement design should help the community make social and environmental connections. Whānaungatanga refers to notions of membership and participation within communities. The design of spaces must encourage community participation and membership and not isolate or segregate its members.

Kotahitanga

Traditionally, unity and collaboration were an important part of Māori life. Survival and endurance ensured the ongoing development of tribal units. The word kotahitanga comes from the word kotahi, meaning one. The suffix tanga expands the definition to notions of oneness or unity. The term kotahitanga refers to principles of collective cohesion and collaboration (Barlow 1991). In a design context, kotahitanga refers to spaces and environments that are in unison and harmony with their surroundings. The design of physical spaces must link and connect people together but must also connect environments. Spaces should be inclusive of people. Cross-cultural and multi-disciplinary collaboration of knowledge and understanding of Māori values and perspectives are imperative.

Wairuatanga

Māori recognised an immortal element in man, which is referred to as the wairua. Wairua refers to the innate spiritual nature of a person and their extended relationships to natural, physical, and supernatural characteristics of their environment. Wairuatanga is a condition of spiritual and emotional connection. In a Māori context, wairua is a spiritual and emotional connection between people and people, people and ancestors, people and deity, and people and the environment. Wairuatanga underpins our relationships (Barlow 1991; Mead 2003). In a design context, wairuatanga draws on the emotional relationships and connections people make with physical and natural spaces – it is an intimate personal bond with an environment.

Mauritanga

The word Mauritanga originates from the word mauri, which means life force or essence, and is both animate and inanimate. Mauri binds the two parts of body and spirit together. When a living thing dies, its mauri dies but the wairua lives on. It has a similar meaning and significance to that of a soul. Every natural and physical object contains mauri. Although mauri is susceptible to damage, restoration of mauri can also occur (Barlow 1991; Mead 2003). Communities are animate environments, similar to that of a living breathing organism. Design must take into account the presence of the existing mauri of an environment, but also maintain or enhance the mauri within a community.

Orangatanga

Referring to health and well-being, the term orangatanga originates from the root word ora, which means life, well, and health. Oranga is broad in its interpretation and includes personal characteristics of physical, mental and spiritual well-being; it also extends to external characteristics such as environment, society and culture (Durie 2003). Protection, access and utilisation of traditional sites of significance are important in maintaining the physical, mental and spiritual relationships of indigenous communities with the environment. The structure and design of physical environments play an important part in either nurturing or diminishing our personal well-being. Lack of community services, poor quality infrastructure, poor quality housing, and poor access to natural areas contribute to poor physical health. Design can contribute to creating better social, cultural, and environmental interaction for people who occupy or utilise those spaces.

Manaakitanga

Manaakitanga is an important cultural tradition. Hospitality and kindness extended toward neighbours and visitors establishes strong relationships. The ability of a host community to receive, provide, and welcome visitors can enhance or spoil the reputation and status of a host community. The ability to nurture and protect inhabitants is also an important element of manaakitanga (Barlow 1991; Mead 2003). The design of communities must take into account aspects of manaakitanga. Communities must be places where people feel accepted and safe.

Kaitiakitanga

The sustainable use of natural resources is a key tenet of kaitiakitanga (Minhinnick 1989; Harmsworth 1997). Cultural lore and traditions of tapu, rāhui, and noa (sanction) govern and regulate the use of natural resources. Sustainable use of the natural environment promotes community awareness of inherent values contained within the environment. It is important to identify and protect important natural resources as a taonga (treasure) for current and future generations. Innovative design solutions are possible to preserve and protect significant natural assets. Design must reflect the role of kaitiaki in the management of communities.

Sustainable management is not only about protection and conservation, but is also concerned with allowing and providing for its use and development. Traditionally, Māori depended on a balance between protection, conservation and use (Durie 1998). Sustainable management and use of resources is an important cultural quality that recognises the significance of intergenerational equity. Where natural resources are identified, settlement and community design should provide for its sustainable management, while balancing its use.

Rangatiratanga

Māori are recognised and acknowledged as the native and indigenous people of New Zealand (Minhinnick 1989). Rangatiratanga for Māori is about determining and achieving their aspirations both individually and collectively and reinforces indigenous rights to participate within urban design and planning. As indigenous people, Māori developed a unique relationship with the environment underpinned by specialised protocols and values. Māori have struggled to maintain and protect their traditions and knowledge in an ever-changing environment (Harmsworth 2002). Recognition and acknowledgement promotes community awareness of fundamental cultural values pertaining to the environment and landscape. Significant contributions to recognising a Māori world-view are possible.

Māori restricted and regulated access to certain areas through the use of tapu, rāhui and noa (Durie 2003). Māori used sanctions both to replenish sensitive or scarce food stocks, and to respect or honour a significant event or incident such as birth or death. Identified cultural sites of significance should be protected under traditional sanction mechanisms. However, the community should have unrestricted access to all other resources and assets. Access and admission is concerned with encouraging community ownership and responsibility of important natural resources and features found within a community.

Mātauranga

The role of history, genealogy, mythology, and cultural traditions has played an important part in shaping Māori attitudes, beliefs, values and behaviours toward environmental management (Buck 1952). Māori culture is based on strong oral traditions, accounts, and descriptions (Barlow 1991). Knowledge and understanding promotes, facilitates, and builds community identification of local history and the importance of underlying cultural heritage values that relate to particular areas and resources of significance to local Māori. Settlement should reflect an understanding and awareness of local history through design.

4.3. Case-Studies: Ngāti Whātua o Ōrakei

Background

Ngāti Whātua o Ōrakei are a hapū (sub-tribe), of the Ngāti Whātua iwi (tribe) based in Tāmaki-makau-rau, commonly known as Auckland. Ngāti Whātua o Ōrakei currently number over 5000 people who through genealogy are affiliated to the tribe. Although many are scattered throughout the world, the heart of Ngāti Whātua o Ōrakei is centred on the Ōrakei Marae (Ngāti Whātua o Ōrakei 2007).

According to Ngāti Whātua traditions, the hapū originated in the far north, then over time migrated south toward the Kaipara Harbour. During this period, Waiohū occupied Tāmaki-makau-rau. Conflict occurred between the neighbouring tribes and by the mid-17th century, Ngāti Whātua had taken possession of Tāmaki-makau-rau, overrunning the Waiohū. The Ngāti Whātua chief Tuperiri remained in Tāmaki-makau-rau to strengthen Ngāti Whātua interests in the region (Taonui 2007).

Before 1840 Ngāti Whātua had limited contact with Europeans. However, in March of that year, several Ngāti Whātua chiefs, including Te Kawau, Te Reweti, and Te Tinana signed the Treaty of Waitangi on the shores of Manukau. After signing the Treaty, a deputation of Ngāti Whātua chiefs was sent to the Bay of Islands inviting Governor Hobson to establish a township on their lands. An exchange of land was made for European education, medicine,

and trade opportunities. Hobson accepted the invitation and an alliance with the Crown was in prospect.

However, within 10 years of signing the Treaty of Waitangi, Ngāti Whātua would lose control over much of the Auckland region. Apihai Te Kawau, the grandson of Tuperiri and a Ngāti Whātua rangatira, wanted to protect what remained of Ngāti Whātua lands, namely the 700-acre Ōrakei Block. Apihai Te Kawau used the Native Land Court to confirm Ngāti Whātua's title to the Ōrakei Block and ensure it stayed in communal ownership not individual title.

In 1868, Chief Judge Fenton of the Native Land Court declared the Ōrakei Block would be "...absolutely inalienable to any person in any manner whatsoever". However, to the dismay of Ngāti Whātua, in 1898 the Native Land Court divided large portions of the Ōrakei Block into individual title and communal ownership was extinguished. As a consequence many individual titles were sold.

Ngāti Whātua o Ōrakei continued unavailingly to protest the loss of land through the Courts. By 1951, they were evicted from their homes in Ōkahu Bay and relocated as tenants to 35 state houses. The marae, homes, and buildings were pulled down and burnt. The hapū would be virtually landless except for a ¼ acre area on the Ōkahu Domain that comprised the urupā – cemetery.

In 1976 the Crown moved to a final disposal of its remaining lands at Ōrakei. This was the last 60 acres of uncommitted land at Ōrakei in which the hapū had notified their interest in settlement of their claims. In the event, a section of Ngāti Whātua, under the leadership of Joseph Hawke, protested by occupying Takaparawhau (Bastion Point) for 506 days. On 25 May 1978 the Government sent in police and the army to evict the protesters for trespassing on Crown land. Two hundred and twenty-two people were arrested for trespassing on their ancestral lands.

Ngāti Whātua o Ōrakei lodged a claim with the Waitangi Tribunal over the loss of the 700-acre Ōrakei Block. The Government agreed the Crown had failed to keep its part of the Treaty of Waitangi – the promise to protect the rights and property of the hapū – and paid compensation, title to returned lands, and enacted the Ōrakei Act 1991 recognising the Ngāti Whātua o Ōrakei Māori Trust Board as the tribal authority representing all members of the hapū (Ngāti Whātua o Ōrakei 2007).

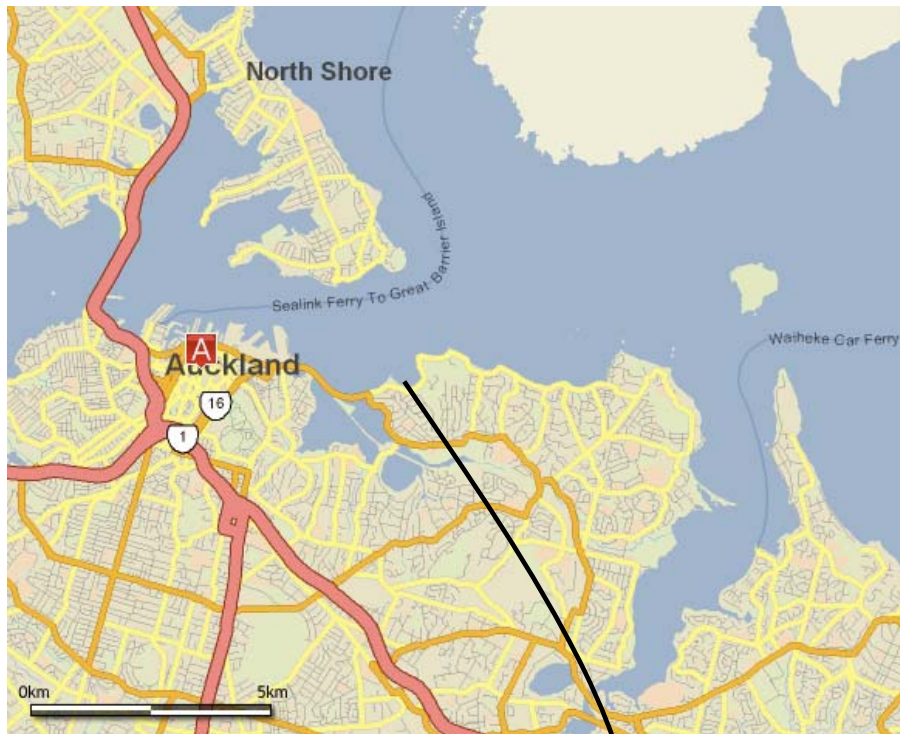
Ōrakei Site

Ōrakei is strategically placed in the heart of the Auckland isthmus (see Fig. 6 and Fig. 7). The site is approximately 80 hectares in size and relatively flat, with panoramic views across the Waitematā harbour to Devonport, Rangitoto and Waiheke Islands. Ngāti Whātua o Ōrakei is one of the biggest landowners in the Eastern Bays region of Auckland. The land is held and governed under a number of statutes and regulations (see Table 2).

Table 2: Ōrakei

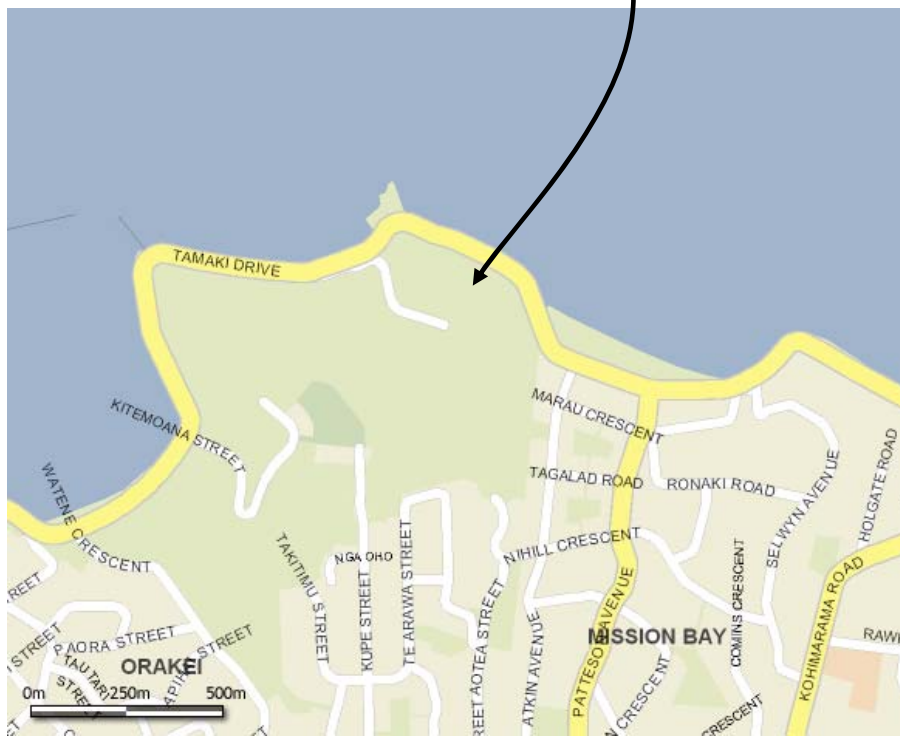
Land Name	Statutes/Regulation	Land Status	Area
Takaparawhau Reserve Ōkahu Domain	Ōrakei Act 1991 Reserves Act 1997 Resource Management Act 1991	Reserves	51.8 ha
Ōrakei Papakāinga	Ōrakei Act 1991 Te Ture Whenua Māori Act 1993 Resource Management Act 1991 Auckland City Council District Plan	Māori	14.2 ha
Ōrakei Marae	Ōrakei Act 1991 Te Ture Whenua Māori Act 1993 Resource Management Act 1991 Auckland City Council District Plan	Māori	
Kupe Street	Resource Management Act 1991 Auckland City Council District Plan	General	

(Ngāti Whātua o Ōrakei 2007)



(Wises Maps 2007)

Fig. 6 Auckland



(Wises Maps 2007)

Fig. 7 Orakei

Ōrakei Community

According to the 2001 census, the medium income of people in the Ōrakei¹ area is \$29,500, compared with \$22,300 for Auckland City, and \$18,500 for all of New Zealand. Significantly more people in the Ōrakei community earned over \$50,000 or more. The unemployment rate was also lower than that for the rest of Auckland and New Zealand. Couples without children were also over-represented in comparison with the rest of New Zealand. Home ownership for the area is significantly lower than the rest of New Zealand; however, rents are significantly higher. These significantly higher incomes and low unemployment rates indicate the Ōrakei community is an established upper decile community. The majority of Māori residents of Ōrakei tends to live in close proximity to the marae. There are approximately 200 tribal members of Ngāti Whātua o Ōrakei currently living in the Ōrakei area (Statistics New Zealand 2007b).

Development Plan

Home ownership rates for Māori have reduced significantly over the previous 15 years. This trend is particularly evident for residents living in New Zealand's main centres. The cost of living in Auckland is significantly higher than that of regional towns and cities such as Huntly or Wanganui and this makes it especially difficult for Maori affiliated to certain tribes in main centres to maintain their connections with ancestral lands. Many iwi/hapū/whānau Māori have significant land resources available to them to assist in providing affordable housing for their tribal members. However, there is a current lack of affordable housing to accommodate a growing tribal population. For many Māori communities, few tribal members have an opportunity to build or live on tribal lands.

As kaitiaki, Ngāti Whātua o Ōrakei have a responsibility to protect and sustain land resources for current and future generations. The maintenance, restoration, and development of Ngāti Whātua traditions are seen as paramount to the creation of a sustainable papakāinga. The tribe has significant land holdings at Ōrakei and has an opportunity to assist tribal members into their own homes (Ngāti Whatua o Orakei 2007). A major goal of the Ngāti Whātua o Ōrakei Trust Board (Trust Board) is to attract iwi, hapū and whānau members back to live at Ōrakei. To achieve this goal, the Trust Board have initiated a plan and strategy process to investigate options to develop a sustainable papakāinga housing development on tribal lands at Ōrakei in Auckland. The vision for the papakāinga development is to:

- house and accommodate tribal members on ancestral lands
- be a leader in sustainable land management and building
- promote social and cultural well-being.

Development Principles

In 2005 the Trust Board decided to review its housing strategy and halt any housing developments until there was an agreed plan from the hapū. The Trust Board conducted a series of hui, wānanga, and workshops with hapū members to establish a process to assess the potential papakāinga development options for Ōrakei. Participants to the wānanga were given the opportunity to design their ideal papakāinga for the Ōrakei site. Many of these designs included ideas and concepts on spaces for extended whānau, communal spaces, and access to traditional spaces. Due to the defined limits of the site, some thought it necessary to build dwellings with multiple levels, building up rather than out. Hapū participants were asked

¹ Statistics New Zealand has divided Ōrakei into two distinct communities – Ōrakei North and Ōrakei South. The statistics represented in this community profile refer to Ōrakei North

questions that determined the types of living environments that would be used for the papakāinga development.

The ideas and concepts from the wānanga were collated and refined into mātauranga Māori principles. Development principles are important in the design of all spaces; however, Māori have a particular set of principles that reflect their cultural knowledge, needs, and understanding of settlement patterns. These principles, which will underpin any papakāinga development that occurs at Ōrakei and will guide and strengthen Ngāti Whātua now and into the future are:

- Kotahitanga
- Wairuatanga
- Manaakitanga
- Rangatira
- Whanaungatanga
- Kaitiakitanga.

Table 3 below outlines the papakāinga principle, general English translation, and description of the principle, its purpose, and the types of potential design responses. The workshops were useful forums for whānau and hapū members to share their visions and how they would like to use and live in the area. The discussion on any future development initially focused on the marae. A major constraint for Ngāti Whātua o Ōrakei is the amount of available land to build housing, and its location. Workshop participants were encouraged to ‘think outside the square’, particularly with regard to the physical constraints. The conceptual framework for the papakāinga adopts the use of a koru design that starts at the centre and works its way to the periphery. At the centre of the community is the marae.

Table 3: Ōrakei Papakāinga Principles

Principle		Description	Purpose	Response
Kotahitanga	Cohesion and Collaboration	Collective cooperative and effective partnerships and collaboration with community	To encourage community unity and identity	Community centre and amphitheatre that enables community to gather to celebrate their uniqueness as Ngāti Whātua
Wairuatanga	Embedded Emotion/Spirit	Emotional connection with the environment that links people	To maintain and preserve the essence of Ngāti Whātuatanga	Papakāinga orientation that captures views and perspectives of important iconic landmarks, such as Maungakiekie, Rangitoto and Te Waitemata; maintains good community access to the marae, kōhanga reo, kaumātua flats and urupā for all residence; restoration of traditional place names
Manaakitanga	Hospitality and Security	Acceptance and hospitality given to visitors, and protection and security of community	To embrace and welcome all peoples especially visitors and to provide a safe and secure community environment	Restore and access traditional medicinal and kai resources, communal gardens; design community using CPTED principles – Crime Prevention Through Urban Design; and use traditional palisade style structures to enhance community security
Whanaungatanga	Participation and Membership	Participation and membership in the community and social setting	To encourage community participation and pride through building and emphasising community identity and Ngāti Whātuatanga	Communal facilities, community centre, communal laundromat, open reserves, parks, communal gardens, common and civic spaces reflecting local identity
Kaitiakitanga	Guardianship and Stewardship	Protection of significant landscape features important to the local community	To support the protection of important environmental and cultural features through community ownership and collective responsibility	On-site mitigation for 3 waters, recognition and protection of spiritual guardians, restoration of waterways and natural areas, higher density living to maximise communal reserves and the natural environments
Rangatira	Leadership, Identity and Self-Determination	Community can take a lead and responsibility for creating and determining their own future	To promote self-determination and independence, where Ngāti Whātua governs, controls and manages their own destiny	Live and work from home, mix use high-density living environments, heritage markers (pou)

Based on the above development principles, the Trust Board decided to develop a master plan for the Ōrakei papakāinga. The main features of the master plan are:

- Whenua rangatira² is kept as open space with restored bush and streams
- Buildings on the whenua rangatira could include facilities for eco-tourism, ecological research, sports and leisure, and cultural centres
- Hapū housing is concentrated along the Kupe Street ridge and papakāinga-zoned land
- Future housing will be groups of 3-level and higher townhouses and apartments
- Units are ‘clustered’ to maintain openness between housing and allow the land and people to breathe
- To improve safety for pedestrians and children, local lanes will be used rather than roads. Cars should not dominate
- Potential for 6000 whānau to live on the papakāinga
- Master plan is flexible and must be reviewed every 5 years to ensure it still meets the needs of the hapū.

The master plan adopts sustainable urban design principles that support hapū aspirations for a sustainable, affordable, and culturally responsive papakāinga.

District Plan Zoning

A special purpose activity zone in the Auckland District Plan (Plan) includes land owned by Ngāti Whātua o Ōrakei that facilitates the re-establishment of Ngāti Whātua o Ōrakei on their ancestral land and particular lifestyle needs at Ōrakei. The application of a special purpose activity zone for the papakāinga is to accommodate the physical, social, cultural, economic, and spiritual needs of Ngāti Whātua o Ōrakei, while the whenua rangatira (noble or chiefly land) zone will be for the common use and benefit of the members of the hapū and the citizens of the City of Auckland as provided by the Ōrakei Act 1991 and the Reserves Act 1977.

The Plan recognises that Ngāti Whātua o Ōrakei should be able to utilise, their ancestral land at Ōrakei in a manner that provides for their needs in the context of resource management. The objectives of the papakāinga zone are to:

- facilitate the re-establishment of Ngāti Whātua o Ōrakei on their whenua tupuna (ancestral land) and provide for their particular lifestyle needs at Ōrakei
- recognise the distinct nature of the papakāinga land, its special qualities and outstanding assets and its ability to provide for a self-sufficient and self-reliant village environment providing for the well-being of the hapū
- recognise and make provision for the interrelationship between the papakāinga and the whenua rangatira
- recognise the importance of individual trees and groups of trees for their cultural significance, landscape, visual amenity, and historical and botanical values
- make provision for areas of spiritual, cultural, traditional, and archaeological significance.

The objectives of the whenua rangatira zone are to:

- ensure the cultural and spiritual sustainability of the Ngāti Whātua o Ōrakei hapū while providing benefits for the public of Auckland

² Whenua rangatira is a Māori reservation, for the common use and benefit of the members of the hapū and the citizens of the City of Auckland

- ensure the sustainability of the cultural and physical resources of the whenua rangatira
- provide for wider community needs
- ensure accountability in the management of the whenua rangatira
- ensure the Ngāti Whātua o Ōrakei Board fulfils its statutory obligations
- ensure any development will be harmonious and consistent with the principles of the Reserves Management Plan.

4.4. Case Study: Oikimoke

Background

When the Tākitimu, the ancestral waka of the Pirirakau, anchored at Tirikawa at the base of Mauao, the captain Tamatea went ashore to give thanks for a safe landfall after a long journey at sea from Hawaiki. Tamatea climbed to the summit of Mauao and performed an ancient ceremony and implanted the mauri or life force of his people into the mountain, sealing their identity in the area (Tata 1990).

According to Pirirakau oral tradition, they are descended from Tamatea through his great-grandson, Ranginui, who is the eponymous ancestor of Ngāti Ranginui, one of the three principal iwi in the Tauranga area. Tutereinga, Ranginui's son, is the principal ancestor of the hapū. When he grew old and approached the sunset of his life, Tutereinga became concerned about his inevitable death. He was asked where he would like to lie:

E koro ana mate koe, e hiahia ana koe kia takato koe I te taha o maatua e moe mai ra I te tihi o Mauao? E kao, engari me moe ahau ki Tahataharoa kia rongo ai ahau I te tangi o te tai.

Old one, when death comes, is it your desire to lie with your forebears who slumber on the crest of Mauao? No, take me to Tahataharoa that I may hear the murmur of the sea (Tauranga Moana District Maori Council 1989).

This act is particularly significant for Pirirakau for mana whenua held over the Te Puna area. Even though there were sizable settlements around the foreshore, Whakamarama was the heartland of Pirirakau. Whakamarama occupies a central location within the rohe and provided Pirirakau with a sanctuary both before and after the arrival of Europeans.

Oral tradition maintains that the name Pirirakau originates from the Ngāi Te Rangi conquest of Mauao, when the remnants of Ranginui fled to their forest settlements. The survivors became known as Pirirakau or 'clinging to the trees' (Pirirakau Incorporated Society 1997). The Wairere track, which passed through the territory of Pirirakau, was like a river delta that branched in many directions to cover an area from Te Papa to Aongatete. It was the major thoroughfare in the district and was used as an access point to the Waikato. Other important access routes to the Waikato included the Te Tuhi track and Thompson's track. The links to the Waikato maintained important strategic alliances for Pirirakau. Taumau or arranged marriages strengthened these relationships and kinship ties.

Early European traders and missionaries played an important role in contact between Pirirakau and Pākehā. In the early 1840s a number of French settlers came to live with Pirirakau, including Louis Bidois, Pierre Charles Poiter (see below), and Emile Borell. Another settler was Joseph Te Kira Faulkner, the son of the English trader John Lees Faulkner. Joseph married the daughter of Pierre Charles Poiter and Porina Te Karapapa. This

European connection had a major influence on the adoption of Catholicism among Pirirakau, and helped provide a direction for the hapū in the wake of the raupatu (confiscation).

Pirirakau support of the Kingitanga (King Movement) in the 1850s–1860s saw portions of their land confiscated by the colonial government. Colonial land agents also purchased land north of Te Puna by placing Pirirakau under duress. This event was known as the Te Puna Katikati purchase. By the early 1900s Pirirakau had lost most of their land through confiscation, dubious purchases, and native land court decisions (Rolleston 2004).

At the conclusion of the conflict in Tauranga, what Pirirakau land remained was returned as reserves and held in trust by individuals or families for the benefit of Pirirakau. One of those reserves was Lot 157 Parish of Te Puna, granted to the half-caste children of Pierre Charles Potier under the New Zealand Settlements Act 1863. The lot was 203 acres (82.15 Ha) located at the mouth of the Wairoa River and included the old Pirirakau Pā of Oikimoke. Potier, a sailor from Honfleur on the French coast in Calvados, deserted ship in the Bay of Islands on 5 May 1839. He married a Pirirakau woman, Te Karapapa, the daughter of Puhi and Meria. They had three sons, Charles Rotohiko, Alfred, and James, and one daughter, Jane Mata. The descendants of the Potier Family still own a portion of the site.

Oikimoke Site

Oikimoke is close to Tauranga city (see Fig. 8 and Fig. 9), on a headland overlooking the Tauranga harbour with sweeping views of: Wairoa River, Matuaiwi, Mauao, Rangiwaea, Matakana, Motuhoa, and Omokoroa. The current area of the site is 93.58 acres (37.87 ha) of the original 203 acres (82.15 ha). The property has been partitioned into 6 separate holdings consisting of over 300 owners, and includes an urupā reserve (see Table 4). The site is relatively flat with a low undulating surface. There are a number of freshwater springs on the site that feed into wetlands. The property has historically been under for pastoral use, is currently leased for grazing, and from time to time maize is also grown on parts of the property. The current economic productivity of the land is minimal. An old urupā is located at the northern end of the property on the pā site overlooking the harbour and comprises many unmarked graves. There are now over sixty marked graves in the urupā with the oldest dating from the early 1900s. While many other family homesteads fell into disrepair and vanished, the Rolleston family still have a house on the southern boundary of the property.

Table 4: Oikimoke

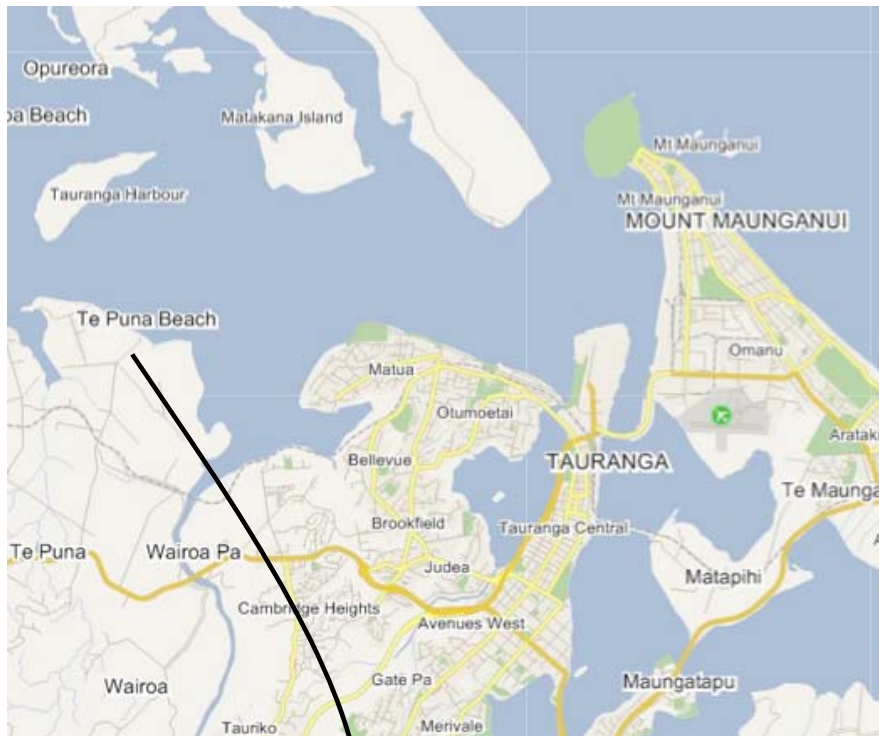
Land Name	Number of Owners	Area
Te Puna Parish Lot 157C1	Mamaeroa Trust	0.24 ha
Te Puna Parish Lot 157C2	186	19.7642 ha
Te Puna Parish Lot 157D1	45	1.068 ha
Te Puna Parish Lot 157D2	3	4.2 ha
Te Puna Parish Lot 157D3	6	4.2 ha
Te Puna Parish Lot 157D4	41	8.4 ha

(Boffa Miskell & Ngati Ranginui 2006)

Oikimoke Community

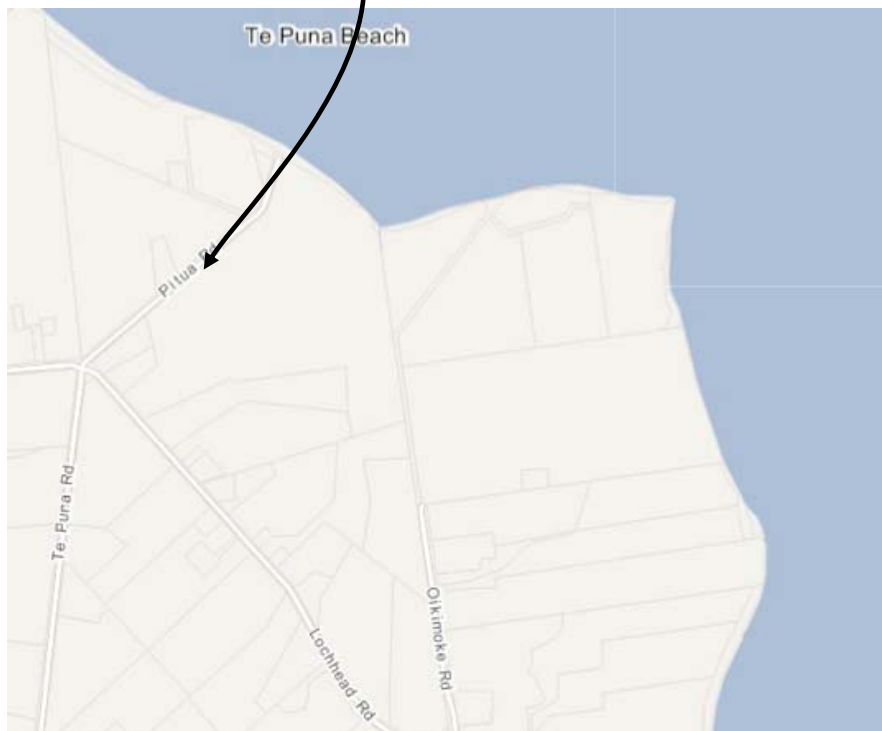
Oikimoke is located in Te Puna, a small rural community located in the Western Bay of Plenty sub-region. The area has experienced significant growth in the last 20 years, which has put immense development pressure on urban and rural communities. The population of the western Bay of Plenty, which was 130 000, is predicted to increase to 289 000 by 2051 (Smartgrowth Implementation Committee 2004).

The 2001 census data showed that the population of the Te Puna community has increased by 6.4%, to 2526, since 1996. The resident population is relatively youthful in relation to the district and the rest of New Zealand. Statistics show that 35% of the Te Puna community have post-school qualifications compared with 29.6% for the district and 32.2% for New Zealand. Income rates are slightly higher than the district and national averages. The unemployment rate for Te Puna is 4.4% compared with 6.7% and 7.5% for the District and the rest of New Zealand, respectively. There were 759 families living in Te Puna, 46.4% with children, 43.9% without, and 10.3% one-parent families (Statistics New Zealand 2007a). Under the current rules for subdivision, the Council allow for lots to be subdivided to a minimum of 2 ha per dwelling in a rural zone. The erection of dwellings on Māori land in a rural zone is subject to the lot being not smaller than 4000 m² (Western Bay Of Plenty District Council 2002). Smaller rural lot sizes increase the opportunities for land to be subdivided.



(smaps 2007)

Fig. 8 Tauranga



(smaps 2007)

Fig. 9 Oikimoke

Development Principles

Development principles are important in the design of all spaces, and Māori have a particular set that reflect their cultural understanding of their settlement patterns. The landowners of Te Puna Parish Lots 157C and D have developed a vision for their property and the future use of their land. The vision has a number of mātauranga Māori principles that support their aspiration for sustainable development of the properties under their control. Mātauranga Māori principles will guide and strengthen tangata whenua values and standards now and into the future. Local wānanga were used to identify the following seven development principles:

- Kotahitanga
- Wairuatanga
- Manaakitanga
- Rangatira
- Whanaungatanga
- Kaitiakitanga
- Mātauranga

Table 5 below outlines the papakāinga principles, general English translation, and description of the principle, its purpose, and the types of potential design responses. The workshops were useful forums for whānau and hapū members to share their visions for the area and how they would like to use it and live in it.

Table 5: Oikimoke Papakāinga Principles

Principle		Description	Purpose	Potential Design Response
Kotahitanga	Cohesion and Collaboration	Collective cooperative and effective partnerships and collaboration with community	To encourage community unity and identity	Combined planning and administration, community facilities and services, live-work-play concepts
Wairuatanga	Embedded Emotion/Spirit	Emotional connection with the environment that links people	To maintain and preserve the essence of our taonga and tupuna	Papakāinga orientation that captures views and perspectives of important iconic landmarks, such as Mauao; maintain good community access to the urupā and harbour for all whānau
Manaakitanga	Hospitality and Security	Acceptance and hospitality given to visitors, and protection and security of community	To embrace and welcome all peoples especially visitors and to provide a safe and secure community environment	Restore and access traditional medicinal and kai resources, communal gardens; maintain access to kaimoana; minimise community contamination of harbour (on-site reticulation of waste)
Whanaungatanga	Participation and Membership	Participation and membership in the community and social setting	To encourage community participation and pride through building and emphasising community identity	Communal facilities, community centre, open reserves, parks, communal gardens, common and civic spaces, community working bees
Kaitiakitanga	Guardianship and Stewardship	Protection of significant landscape features important to the local community	To support the protection of important environmental and cultural features through community ownership and collective responsibility	On-site mitigation for 3 waters, restoration of wetlands, springs and natural areas, protection of kaimoana stocks, ecological restoration
Rangatira	Leadership, Identity and Self-Determination	Community can take a lead and responsibility for creating and determining their own future	To promote self-determination and independence, where whānau governs, controls and manages their own destiny	Live and work from home, mix use living environments, heritage markers (pou)
Mātauranga	Knowledge and Learning	Develop a love for learning and personal development	To encourage community development through personal discovery	Protect and use traditional resources and taonga as a learning tool, encourage whānau to maintain, learn and use traditional knowledge

Development Plan

SmartGrowth³ marae workshops conducted in 2005 promoted the development and use of tangata whenua management plans as a planning tool for improved utilisation of Māori land. A process was developed to assist owners of multiply-owned Māori land to develop a collective vision and concept plan for their land assets. The individual properties of Te Puna Parish Lot 157 C and D formed a natural cluster for potential development.

A series of hui were held at a local marae to agree on future aspirations for the Oikimoke blocks. Hui participants strongly agreed that Oikimoke is very important as an expression of their whakapapa, heritage, tūrangawaewae, and relationships. A mapping exercise on the site also allowed the owners to walk across the property and identify areas of whānau, cultural, and environmental significance. The outcome of the hui and site visit was the development of a concept plan that attempts to combine common elements developed during the visioning hui (the development principles from above) with ideas from visiting the site (see Fig. 10).

The concept identifies a number of features owners believed required significant protection:

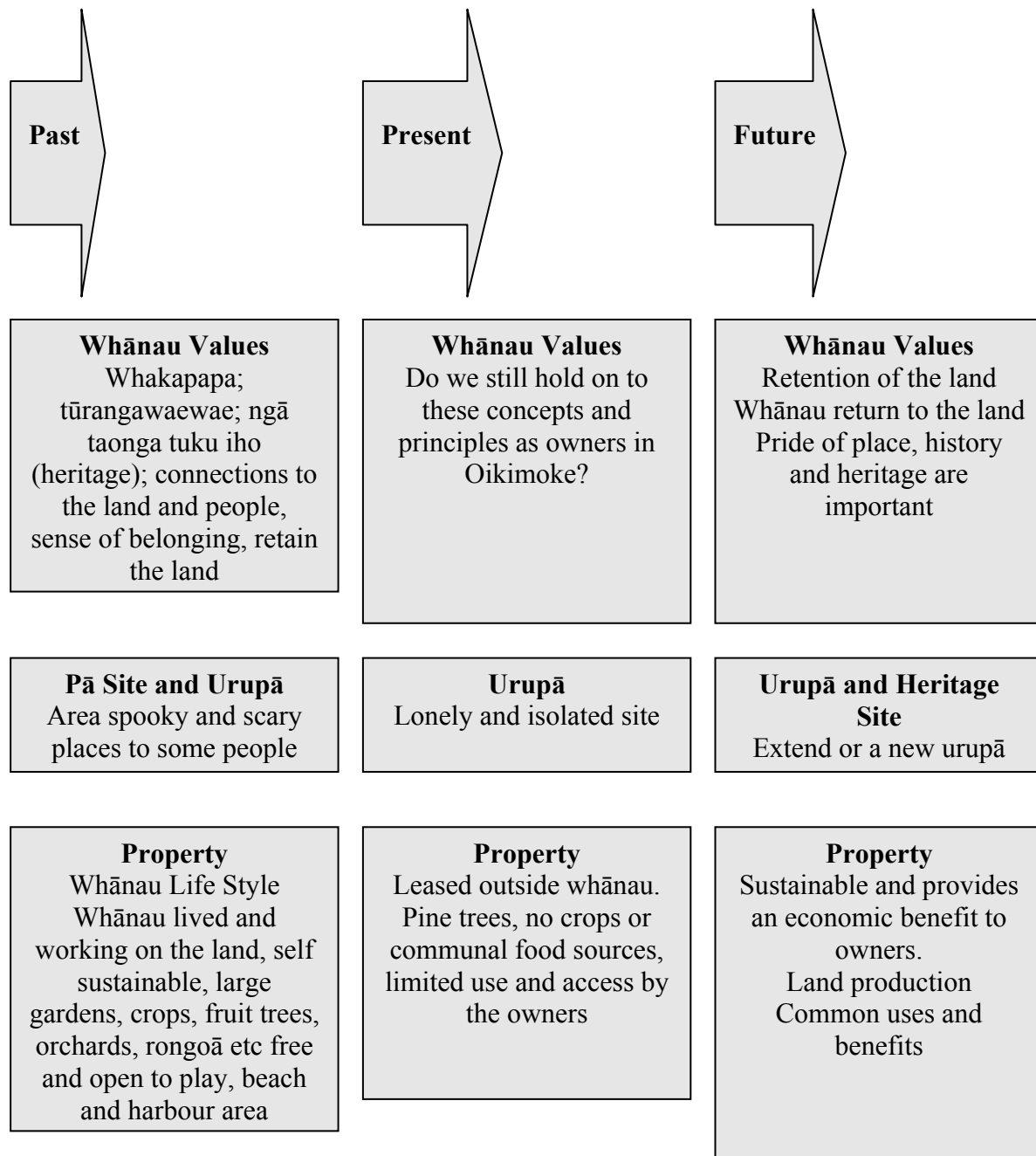
- Urupā – the most significant cultural heritage site on the property
- Fig tree – important in recognising the past
- Flax dye – important cultural taonga
- Walnut tree – centre of Oikimoke
- Wāhi tapu
- Springs – identified on either side of the property
- Buffer setback from the top of the embankment
- Centre of the property
- Harbour reserve areas
- Coastal protection.

Development areas and features identified included:

- Staged housing development
- Community areas
- Confirm existing access route but
- Extend along existing boundaries.

³ SmartGrowth is a programme aimed at developing and implementing a plan for managing growth in the western Bay of Plenty

Fig. 10 Vision Process



Oikimoke is currently zoned Rural H. The District Plan allows for one dwelling per Lot, and subdivision is a controlled activity. Under the current rules for subdivision, the Council allow for lots to be subdivided to a minimum of 2 ha per dwelling in a rural zone. Dwellings on Māori land in a rural zone are subject to the lot being not smaller than 4000 m² (Western Bay Of Plenty District Council 2002). Smaller rural lot sizes increase opportunities for land to be subdivided. There are provisions to seek a plan change to allow a papakāinga zone to be established; however, that process is both costly and time consuming. Another option is to seek a change under a District Plan review. As Councils are required to review their Operative District Plan every 10 years, this allows the community to repeal, amend or create policy within District Plans.

4.5. Concluding Remarks

An ongoing commitment for Māori involvement and activity in the design of sustainable settlements is essential if Māori aspirations and desired integrated urban outcomes are to be met and achieved in future. For Māori, traditional settlements were designed primarily to protect and provide for the needs of their inhabitants, and these aspirations and ideals have not changed. This research project sought to develop a set of Māori principles and values that could be incorporated into papakāinga design plans. Papakāinga case studies have been used to illustrate the integration of Māori concepts, models and values in the design and development of papakāinga. In summary the case studies have identified seven key principles:

- Kotahitanga
- Wairuatanga
- Manaakitanga
- Rangatiratanga
- Whanaungatanga
- Kaitiakitanga
- Mātauranga

Two additional principles are identified through a review of literature:

- Orangatanga
- Mauritanga

The resulting nine key Māori sustainable development design principles are developed for wider application and summarised in Table 6 below. The aim of these principles is to assist and support the preservation of culturally significant resources and landscapes as well as build community identity and participation based on Māori values. To protect and preserve those unique values and qualities, papakāinga development must occur in a sensitive manner and consider those values impressed upon the landscape by previous tenants and occupants. The Ngāti Whātua and Oikimoke case studies have provided an opportunity for Māori to set their own agenda for their papakāinga based on cultural knowledge and perceptions of urban design. It is important that Māori determine the shape and form of their own living environments, understand what makes them unique, and reflect that peculiarity in the design of their spaces.

Mātauranga Māori is seen to possess qualities that can support the preservation of culturally significant resources and landscapes as well as build community identity and participation. To implement mātauranga Māori into design processes, papakāinga development must occur in a manner that acknowledges kaupapa Māori processes and considers the indelible link between whenua and whānau/hapū/iwi.

Table 6: Generic Design Principles

Principle		Description	Purpose	Response
Kotahitanga	Cohesion and Collaboration	Collective cooperative and effective partnerships and collaboration with community	To encourage community unity and identity	Community centre, amphitheatre, community facilities, parks, reserves, walkways, good access links between spaces
Wairuatanga	Embedded Emotion/Spirit	Emotional connection with the environment that links people	To maintain and preserve the essence of tangata whenua	Site orientation to important landmarks important to tangata whenua, sight lines, environmental restoration projects,
Manaakitanga	Hospitality and Security	Acceptance and hospitality given to visitors, and protection and security of community	To embrace and welcome all peoples, especially visitors, and to provide a safe and secure community environment	Restore and access traditional medicinal and food resources, communal gardens, design community using CPTED principles – Crime Prevention Through Urban Design;
Whanaungatanga	Participation and Membership	Participation and membership in the community and social setting	To encourage community participation and pride through building and emphasising community identity	Communal facilities, community centre, communal Laundromat, open reserves, parks, communal gardens, common and civic spaces reflecting local identity
Kaitiakitanga	Guardianship and Stewardship	Protection of significant landscape features important to the local community	To support the protection of important environmental and cultural features through community ownership and collective responsibility	On-site mitigation for 3 waters, recognition and protection of spiritual guardians, restoration of waterways and natural areas, cluster buildings to maximise communal reserves and the natural environments
Rangatira	Leadership, Identity and Self-Determination	Community can lead and take responsibility for creating and determining their own future	To promote self-determination and independence	Live and work from home, mix use high density living environments, clustering of dwellings, heritage markers (pou)
Mauritanga	Essence/Life-force	Life-force or essence of a natural environment	To identify and promote the maintenance or restoration of mauri	Community monitoring of natural environment, swale systems for stormwater, rain-tank collection systems, grey-water recycling systems, passive solar design
Orangatanga	Health and Well-being	Maintain health and wellbeing of the community	To promote environmental protection and a safe community	Restoration projects, maintain community access to resources (flax, eels, waterways, etc.), indigenous flora on public and encouraged on private space, encourage walking and cycling by linking spaces, traffic calming measures, CPTED principles, public transport available
Mātauranga	Knowledge and Understanding	Understanding of community history, identities, character	To encourage community understanding and pride through shared knowledge	Education promotions, interpretation boards, heritage markers (pou), heritage trails

5. Papakāinga Design and Documentation – Towards Best Practice

Best practice in papakāinga design can be summarised as requiring the unified resolve of a distinct group (such as whānau and hapū members, a trust, an incorporated society, limited liability company) in order to access finance, contribute best skills in design and engineering, and engage in meaningful dialogue and working relationships with key Māori agencies (e.g., the Māori Land Court) or other planning and policy agencies (e.g., Territorial Local Authorities). Given that all of the above are in relatively short supply, this section attempts to help whānau navigate through what can be a very trying and complex process. Information for this section was gathered from Māori urban design professionals and focuses on best practice guidance for developing designs and consent documentation for papakāinga. Consequently, a hui of Māori design and housing professionals was held on 8 August 2007 at the Jet Park Hotel and Conference Centre in Mangere. An attendee list can be found in Appendix 1.

A process for carrying out designs and consent documentation for papakāinga follows. This process has been synthesised from the workshop of design professions:

5.1. Steps in the Papakāinga Design Process

Te Wawata – The Vision

The most important element in the papakāinga design and development process is for a clear and strongly held desire or vision to exist within one or more members of a whānau, group or collective, who have ancestral connection or bond to the whenua. The entity must have sufficient unity to support a kaupapa and vision and contribute to this vision through additional factors such as finance, skills and knowledge.

A clear vision is critical to the overall success of the project, as is ensuring the right team and champions for the development. Time involved at this stage in ensuring these basic elements should not be stinted.

Te Ture Whenua Act/Governance

With almost all rural papakāinga coming under marae, Ahuwhenua or Whānau Trusts pursuant to Te Ture Whenua Act 1993, there is a need to ensure the governance provided by both the Trust and any sub-committee formed is as robust as possible. This may include updating the Trustee register with the Māori Land Court or even creating a new Trust to replace an older Section 438 or 439 Trust. Where Māori land is temporarily converted to General land for lending purposes, a 'Whata Trust' may also be appropriate.

Most important is that the Trust deed or Marae charter either allows for, or can be amended to allow for, the establishment of papakāinga housing on the land block. Once the Trust is in place, with duly elected trustees, the appointment of a whānau representative or key contact and/or a building committee is required to steer the management of the project. This individual or sub-committee will be required to maintain the links between the trustees/whānau and the range of consultants and Territorial Local Authority (TLA) staff involved and will report back regularly to the full Trust.

In urban areas a papakāinga may be developed on General land, with governance coming from an Incorporated Society, Charitable Trust or even a Limited liability Company. In all

cases, legal advice should be taken to ensure the governance and management structure is the most appropriate for the particular land block and type of papakāinga proposed.

It is also important at this stage to check any TLA rules that may allow for or support Papakāinga. A number of regional policy statements ((Environment Canterbury 2008; Environment Southland 2008) have such provisions and if your region does not have one, it may be worth advocating for one.

Choosing a Lead Consultant or Project Manager

Once a vision is held and the wider landowners or trustees have given their formal endorsement to the papakāinga development, a lead consultant is required to provide advice to whānau, project management and or design skills and to preside over the appointment of a range of other design and engineering professionals necessary to successfully establish the papakāinga.

This lead consultant could come from a variety of backgrounds, including project management, architecture, business or engineering; however, the person or company must have direct experience in papakāinga development or have ready access to individuals with such experience. Most important, the lead consultant must gain the faith, trust and respect of the Trustees/whānau.

Relevant experience in working with Māori, or in collaborative projects with communities and evidence of this experience is important for the professionals with whom you may work.

The size of the project will often determine whether a dedicated project manager is required with smaller developments of up to 10 whare, for example, where experienced architects or designers should be capable of fulfilling this role alongside their design and documentation roles.

The project manager or lead consultant could also be involved in establishing the appropriate governance and management structures for the papakāinga/whenua/project if these are not already in place.

Appointing a Lead Consultant or Project Manager

Most lead consultants will be appointed following a word-of-mouth recommendation and a preliminary meeting with trustees to present credentials and relevant experience. Once rapport has been established, a formal offer of service will be requested from the consultant who will set out the services offered and relevant fees. This offer of service should also spell out the structural relationship between the Trust, the consultant and other professionals required to complete the papakāinga development.

In order to protect those unique values, papakāinga development must recognise the value of kaupapa Māori based processes, essential ingredients in architecture and planning. These processes recognise the role that whānau/hapū/iwi have to play in the exercise of design as well as the values and aspirations underpinning the design. One approach that has the potential to adhere to this kaupapa is co-design, i.e. a design professional working in a participatory and partnership arrangement with the client. Such a design professional needs to be supportive and aware of whānau/hapū/iwi values and aspirations. Co-design is an opportunity for design professionals to make a concerted effort to improve their performance. An assessment process that could be used by professionals, or indeed made part of the process

by whānau/hapū/iwi (put in as part of the brief/contracts to professionals), would therefore be important.

Scoping/Feasibility – Establishing Parameters for the Papakāinga Design

The lead consultant will normally be engaged to coordinate an initial feasibility study that will set out to establish the vision, project parameters, design brief, the preliminary design concept, and the overall viability of the project. This study will then inform the following design and development stages necessary to establish the papakāinga on the whenua. The feasibility process will generally include up to five professional consultants including:

- a **land surveyor** to complete a full topographical site survey. This survey records all legal boundaries, formed or legal access ways, buildings, services and significant vegetation on the site
- an **architect** to develop a design brief and complete a conceptual development plan in conjunction with trustees/whānau members
- a **geo-technical engineer** to undertake investigations into the stability of the land and the type of foundations necessary to support the proposed buildings
- a **drainage engineer** – to undertake soil soakage tests and initial drainage reports and recommend preliminary options for the treatment and disposal of black water (sewerage), grey water (laundry, kitchen and bathroom wastewater) and stormwater (rain water)
- a **quantity surveyor** to provide preliminary cost estimates for all of the necessary earthworks, buildings, access and services required for the papakāinga.

The services of an alternative energy consultant for remote sites or a permaculture designer for larger sites could also be valuable depending upon the type of development being planned. The term permaculture comes from a contraction of PERMANent AgriCULTURE. Permaculture is the conscious design and maintenance of productive eco-systems that have the stability and resilience of natural eco-systems. Permaculture is a unique, comprehensive design methodology that enables the conscious assembly, implementation, and management of environmental systems.

The feasibility study will also be informed by:

- knowledge of/research into critical land issues/puna/wāhi tapu/history
- knowledge of/research into current and previous occupations of the whenua
- previous/traditional housing types and materials utilised
- knowledge of/research into microclimates, prevailing winds, flooding and ground stability
- analysis of Māori Land Court issues pertaining to the whenua
- preliminary consultations with TLA/Council planner(s) regarding the District plan
- a whānau and local resource skill inventory
- alternative energy options/approach (for remote sites)
- permaculture design approach
- conclusions on funding options available
- the next steps required to progress the development.

An over-arching aspiration for papakāinga development is a genuine whānau/hapū/iwi-led and whānau/hapū/iwi-driven initiative with access to clearly defined processes and supportive tools. To achieve this aspiration, the level of control whānau/hapū/iwi have for controlling the

process of developing papakāinga is an important aspect to consider. The assessment of land (and other) developments, including papakāinga, by whānau, hapū and/or iwi, either independently or in conjunction with professionals (co-design), is a critical and necessary part of future practice, if Māori driven design and development is to become a reality. However, because of this desire (and tikanga) of tāngata whenua in asserting their own mana and rangatira within their rohe/takiwā, a prescriptive, ‘one size fits all’ model or tool is not possible or appropriate. An assessment framework, basically outlining a process based, checklist approach is possible and more appropriate. A process-based assessment that runs concurrently with the planning, design, building and living process of a papakāinga development can work to make self-assessment and critical thinking by tāngata whenua a normal part of the process. This issue is explored further in Section 4.

Papakāinga Development Process Model/Project Control Group

Once the Feasibility Study has been completed, the project moves into a new phase where, for larger projects, a Project Control Group (PCG) usually assumes responsibility for progressing the detailed design, acquiring Territorial Local Authority (TLA) consents, funding options and actual construction. The PCG can assume a similar management/governance relationship as established for the feasibility study phase but will normally require the involvement of more nominated Trustees (appointed for their expertise or leadership skills) and the addition of financial management skills and services – normally an accountant and or a quantity surveyor. These services can either come from within the trustee body or be hired specifically for the project.

The PCG will at the outset clarify the roles of all professionals and whānau involved in the design project, and may wish to explore apprenticeship opportunities where rangatahi with perceived abilities can work alongside marae trustees and/or hired professionals. In this way future developments can maximise the involvement of whānau skills and build capacity.

Master Planning – Establishing a Long-Term Vision for the Papakāinga

A concept plan or preliminary master plan will normally form the basis of the feasibility study, but will be further developed and refined as part of the Resource Consent process. The master plan will look at the entire land block, identifying both immediate and long-term development or land management priorities and will then focus on the first stage papakāinga development area in more detail. The master plan needs to remain an ‘organic’ document where Trustees are able to regularly review and update the vision as new information, issues, development priorities, or opportunities arise. The design and implementation plan should consequently be developed in a CAD or electronic format where amendments can be made in conjunction with the architect, planner, or designer.

The development of a master plan can only occur once a detailed topographical site survey has been completed by a land surveyor. Such a survey will provide an accurate picture of the current site boundaries, land contour, road access, existing buildings, puna or water ways, significant vegetation and any site services, e.g., power, sewer lines, etc.

The master planning process will be progressed as an overlay of this survey plan and needs to involve as many trustees and whānau as possible to ensure both maximum input into, and ownership of the plan. This will normally require a design workshop on site with an architect/designer acting as a facilitator using participatory design techniques which allow all those involved to have meaningful input into the design process. Such techniques include the

use of scale models, drawing pens and paper, wooden blocks, cardboard and scissors, white boards and marker pens where all involved have a hands-on role in the design process.

Master Planning and the Role of Permaculture

The master planning process should be holistic in focus, acknowledging not just the need for access, housing, energy and services but also for play/recreation, communal facilities, and food production on the site. The discipline of permaculture can provide valuable assistance with this process. Permaculture has five key components:

- Ethics – Care of the earth, care of people, share surplus
- Principles – The principles of Ecology
- Patterns – Observing and understanding the patterns inherent in our environment, as a basis for living in harmony with them
- Strategies – General methods for achieving desired goals.
- Techniques – Specific detailed methods.

Permaculture brings together the combined land management wisdoms and techniques of indigenous peoples from around the world, and skilled practitioners can add value to the master planning process, enhancing the inputs of architects/designers and whānau members.

Stage 1 – Development Planning

Once the master plan has been set in place and the project is deemed viable, the focus shifts to the immediate development priority that is normally the first-stage housing development. This first-stage development area then needs to be planned in detail with all decisions clarified on the design of the vehicular access, pedestrian circulation, services, food production, and actual house designs.

Whānau/Local Skill and Resource Inventory

A detailed whānau/local skill and resource inventory is essential in this development planning process to identify the full range of the local materials available and the individuals and companies who may be able to provide services or direct support to the project. This inventory is also a good community/whānau building exercise ensuring that all those with connections to the whenua and an interest in the project are given the opportunity to participate.

Establishing Design Briefs

The architect/designer and PCG in consultation with Trustees need to establish detailed design briefs and a budget for each whare or house type. This brief should give a clear indication of the proposed housing tenure, i.e. whether the houses are to be long-term rental properties (leased to whānau members), individually owned by whānau, dedicated as kaumātua whare or remain as whare āwhina or emergency housing for at-risk or high-need whānau; the latter often being used as a transition into longer term housing tenure either on the papakāinga or elsewhere.

The number of bedrooms, relationship to communal facilities and other dwellings, plus the general construction technique and materials to be utilised also need to be stipulated as part of this phase.

If whānau labour or in-kind contribution and equity is to be employed, both house design and materials need to be consistent with this approach. Similarly, if local building materials (e.g., timber supplies, pumice, earth, etc.) are available and seen as appropriate, the design process must acknowledge these from the outset.

As part of their research, the PCG/Trustees may wish to engage in site visits to existing papakāinga/housing developments to learn about perceived highly successful examples through to unsuccessful examples.

Flexibility and Durability

In all cases it is important to remember that housing needs and solutions must be both durable (i.e. in the face of normal whānau dynamics) and adaptable to changing requirements. For example, a two-bedroom kaumātua whare may also be suitable for use as accommodation for solo parent families. A common requirement for residents to ‘age in place’ is also a very important planning consideration, and whare may have to be designed with easily accessible toilets and showers either being part of the initial plan, or easily retrofitted to allow for these later requirements.

Māori Design Vernacular

With Māori housing solutions having been determined by the state or other mainstream cultural drivers for over 60 years, (i.e. largely since post WWII urbanisation) it is important for Māori to be increasingly engaged in their own papakāinga development processes and examine their own cultural needs and explore their own design aesthetic. This is necessary, as drivers for change are needed to ensure future planning and design developments meet cultural, social and economic aspirations of Māori that enforce and strengthen their own cultural identity. *Ki Te Hau Kāinga – The Māori Housing Design Guide 2002* written for Housing New Zealand Corporation by Hoskins et al. (2002) is a highly useful base document to inform this approach and process.

Alternative energies

Although reticulated energy and water services (including sewage) are sometimes the easiest options available for papakāinga developments, alternatives should be always be considered, particularly where the following occurs:

- Some remote areas of the country (e.g., East Coast) have an unreliable electricity supply, some of which is not guaranteed to be maintained after 2013
- While regions may have a reticulated supply, some actual papakāinga sites may be several hundred metres from the lines. In such cases it may be more cost effective to set up alternative systems both in terms of operating and connection costs
- In some cases, the papakāinga site or local waterways may have the ability to generate electricity that can be used for the papakāinga while excess power can be sold back to the national grid. Such opportunities will normally involve either wind or micro-hydro power generation and will need a willing electricity generation company with which to engage.

Of course, many Māori land blocks will not have reticulated power within several kilometres, and here alternative energy needs to be explored in tandem with the overall papakāinga master planning design process. Regardless of the availability of reticulated electricity, solar hot water heating should be explored as a cost-effective means of providing 90% of summer and 55% of winter hot water needs. With three main alternative energy sources available, including solar (for both hot water heating and photovoltaic panels), wind to drive windmills or turbines, and water for micro-hydro, a detailed assessment of electricity generation options for papakāinga should be undertaken. A combination of techniques will often be most appropriate, generally with a backup diesel, petrol or bio-fuel generator. An experienced alternative energy consultant should be engaged early in proceedings to assist with such analysis and to give preliminary cost estimates for appropriate systems.

Testing the Design(s)

Before developing Resource or Building Consent plans, it is important to test the design on the actual site by pegging out the design, which allows whānau members to get a real sense of the size, location, and orientation of buildings and spaces. This will allow for critical refinements or changes to the design(s) before committing to consent documentation. The use of physical or CAD models is also valuable in making the design more accessible than two-dimensional plan drawings. It is also important to test the design for cost at every stage, with the involvement of a quantity surveyor. Where estimated costs exceed budgets available, the plans, materials, or specifications or combination of all of these elements will need to be amended.

Resource Consents

A Resource or Land-Use Consent will be required by TLAs for most papakāinga projects and this can be determined at the outset through discussions with a council planner. While the basis for the Resource Consent requirement will vary from site to site, waste water disposal and housing density (the number of houses proposed for the site or land block) will normally trigger the need for the Consent. A close working relationship with a council planner is desirable in this process and, where possible, a non-notified Consent application should be sought – avoiding publicly advertising the proposal and thereby saving both time and costs.

In some circumstances a consultant planner engaged by the PCG will be required to assist in the Resource Consent process, especially where the issues are complex and the proposed application is considered discretionary, controlled or non-complying.

A non-notified Resource Consent application will often require the consent of all neighbouring landowners, and whānau members are normally best placed to obtain these signatures. The actual Resource Consent application will at a minimum include a site plan, building plans and elevations, and an Assessment of Environmental Effects report. Drainage reports prepared by an engineer will often be required, especially in coastal areas. A non-notified Resource Consent application will normally take several months to put together and the TLA will generally take six weeks or more to process. A notified Resource Consent, requiring public advertising of the proposal, submissions from affected parties and a hearing, will normally take up to six months or more from the application date until a decision is reached by the TLA.

Detailed Design/Building Consent

Detailed design documentation is required for a Building Consent application to the TLA. Detailed design includes all plans, elevations, sections, details, and specifications to describe the project in detail. PCG members, Trustees and whānau members should be fully consulted during this phase to ensure the design, materials and building details are appropriate for their needs and aspirations. A building consent will normally take four to six weeks for a TLA to process; longer if there are requests for further information.

Material Choices and Sustainability

The choice of materials will normally be determined by their durability, local availability, cost, maintenance costs and personal preference; however, the sustainability of these materials should also form a major part of this decision-making process in our increasingly 'carbon conscious' world. Here the use of certified sustainable plantation timber (in solid, laminated and ply forms) is highly favoured as a truly renewable resource. The Forest Stewardship Council has a certification scheme for products produced according to sustainability criteria and can provide guidance for those looking for sustainable timber products.

Consideration should also be given to recycled material, as well as to the use of native timbers for exposed internal or external features, which may add to the cultural significance of the material use. Hoskins et al. (2002) recommends the use of ecologically sensitive materials and indigenous species that show respect for the natural environment and contribute to a sense of security, familiarity and identity.

Materials are also considered in terms of their 'embodied energy', i.e. how much energy it takes to bring them from their raw form(s) to the building site. Steel, aluminium, and glass have very high embodied energy, concrete is reasonably high, and timber has a very low embodied energy component. Materials sourced locally will obviously have lower embodied energy due to lower transportation costs, and recycled materials are also favoured in this regard.

Attention to the potential toxicity of materials is also important, given increasing concern about potential health effects from some treated timbers, paint finishes, and formaldehyde glues in particle board and MDF/custom board. The architect or designer should be able to advise on all the above issues in conjunction with material suppliers.

Timber Floor versus Concrete Slab

While most papakāinga whare will require timber pile foundations (to allow the building to be removed from site in the event of foreclosure by the lender), where options exist, an exposed or insulated concrete slab floor on grade should be considered as it will give better passive solar performance (storing and re-releasing heat from the sun), easier connection to outdoor environments (no stairs, decks or ramps usually required), and cost benefits on flat sites. However, concrete slabs, not having the give of timber floors, are less forgiving for young children (knocks and tumbles). Where a timber floor is required or considered desirable, choices regarding the toxicity and durability of timber are recommended.

Tendering

Once the Building Consent is in hand, the project can be tendered by the architect, designer or project manager to four to five companies who have a demonstrated track record in residential development. The local skill inventory is valuable in this process, ensuring appropriate whānau/local contractors have the opportunity to tender for the project or parts of the project. In some cases, certain sub-contractors can be nominated by the PCG in the wider tender process on the basis of their specialist skills or project knowledge.

Tender documents will include a building contract like NZS 3910 or NZIA SCC as well as full Building Consent plans and Specifications with additional detail in terms of fittings, finishes, materials, and colour schemes. The Tender period will normally be 3–4 weeks and on receipt of qualifying tender prices, the architect will write a Tender summary and recommendation to the PCG nominating the preferred contractor.

Construction

During the construction process it is usual for the contractor to assume control of the site and to insure the new works. This sometimes makes it difficult for whānau to have ready access to the site or to participate in the construction unless they are actually employed by the contractor. Despite the contractor assuming control of the site it is important they are briefed on or aware of cultural processes like karakia to bless the site and to formally open the whare.

The role of women on the building site also needs careful consideration, given specific gender and cultural sensitivities and requirements. Notwithstanding this, Māori women were commonly involved in building domestic whare in pre- and post-contact times and in most areas of the whare there are few barriers or difficulties that exclude females. Additionally, many contractors will have female employees or sub-contractors and it is not always possible to monitor such involvement in the project. In all cases the PCG or trustees need to arrive at a formal position and communicate it to all concerned.

Post-Occupancy Evaluation and Maintenance Plans

It is important to evaluate papakāinga design solutions fully both in terms of future improvements or modifications to the individual whare and wider site as well as to inform other stages or separate developments. Such post-occupancy evaluations can be formally commissioned by the Trust (using an independent consultant) or can be undertaken by a building committee member on a semi-formal basis. In both cases whānau can assist through providing personal responses or feedback as well as monitoring house performance, for example, recording aspects of winter heating such as: how many nights a year was the fire lit? An evaluation of this nature should normally be undertaken after at least a year's occupation so that the house performance can be monitored over a number of seasons through each year. A detailed maintenance plan should also be developed to ensure the housing assets are maintained in as good a condition as possible and to prevent costly repairs resulting from poor or deferred maintenance.

5.2. Concluding Remark

Although the papakāinga design and development process can be trying, complex, and lengthy, the need to find new and appropriate solutions to living on whānau land is a challenge that must be taken up.

Ma whero, ma pango ka oti te Mahi.

Kia hoe kotahi!

6. Conclusion

This research, based on a number of hui, a Māori research collective, dialogue with policy and planning professionals, collaborative learning, case studies and a review of literature, shows that a clear and unique Māori built environment tradition exists. Mātauranga Māori has survived, co-existed, adapted and co-evolved alongside dominant Eurocentric perspectives and practice. This report highlights the emerging awareness among Māori that mātauranga Māori and Māori values have an important part to play in papakāinga design as well as in modern urban planning and settlement design. The growing Māori expertise within design and planning disciplines has led to a concerted and collective effort to advocate for greater acknowledgement and provision of mātauranga Māori in papakāinga design. The paradigm represents a recovery of self-determination as well as the articulation of key values and principles to guide future sustainable development.

Mātauranga Māori derived from both contemporary and traditional knowledge and has the potential to influence the way papakāinga are designed today. This report has developed a set of mātauranga Māori based principles that can be used to underpin papakāinga design plans. Papakāinga case studies have been used to illustrate the integration of mātauranga Māori into the design and development of papakāinga. The case studies and literature identified the following nine principles:

- Kotahitanga
- Wairuatanga
- Manaakitanga
- Rangatiratanga
- Orangatanga
- Mauritanga
- Whanaungatanga
- Kaitiakitanga
- Mātauranga

The aims of these design principles are to support the preservation of culturally significant resources and landscapes and to build and strengthen community identity and participation based on Māori values. In order to protect those unique values, papakāinga development must recognise the value of kaupapa Māori based processes that originate and manifest from a Māori world-view.

This report acknowledges that the expression of principles is important, but that equally important is the ability of iwi/hapū/whānau to conceptualise and develop papakāinga plans that reflect values that are meaningful to them. Iwi/hāpu/whānau interested in building papakāinga recognise the importance of collaborating with urban design professionals to leverage their skills in design. Collaborative planning processes such as co-design that incorporate kaupapa Māori based approaches to design provide uniqueness and cultural identity to papakāinga design as well as to New Zealand design in general. In order to carry out kaupapa Māori based planning, design professionals need to be supportive and aware of whānau/hapū/iwi values and aspirations. Co-design is an opportunity for design professionals to reflect the Māori urban design principles outlined in this report for future papakāinga. An assessment process that could be used by professionals, or indeed made part of the papakāinga planning process by whānau/hapū/iwi (put in as part of the brief/contracts to professionals), would therefore be important. This report developed a step-by-step papakāinga assessment process that allows for creative thinking as well as providing the space for constructive and

reflective feedback, founded on mātauranga Māori, to improve the process of developing papakāinga for all.

This research has explored a kaupapa that is still in its infancy – the interface between mātauranga Māori and Western knowledge (in this case urban design and planning). The merging of mātauranga Māori with European perspectives and technology, such as the development of wharenuī in the 19th century and the mauri model, are effective models for achieving sustainable outcomes. There is an urgent need for the application of mātauranga Māori based frameworks and kaupapa Māori approaches in mainstream urban design and planning. Further research is therefore required to collate examples from throughout New Zealand where mātauranga Māori has been effectively incorporated into mainstream urban design and planning to achieve goals for sustainable urban development that would allow for the construction of a generic model and framework by which Māori, designers, planners, developers, and local governments could better assess and monitor the cultural, social, environmental and economic outcomes of future urban development. This will be critical in truly reflecting the cultural identity, history and traditions of both Māori and Pākehā in the built environment.

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9. Glossary

Aotearoa	New Zealand
ahi kā	burning fires of occupation – title to land through occupation by a group
aranati	roof covering of raupō
aratuparu	roof covering of raupō
arawhiuwhiu	external/final roof covering
atua	ancestor with continuing influence
hāngī	earth oven
hapū	sub-tribe
harakeke	New Zealand flax, <i>phormium tenax</i>
hauroki	squaring
heke	rafters
Heretaunga	Hastings
hirinaki	support post
hui	gathering
iwi	tribe
kaho	battens
kai	food
kaimoana	seafood
kāinga	home
kaitiaki	resource manager
kaitiakitanga	the expression of a two-way relationship that involves obligations to give, receive, and repay
karapi	ceiling panels of toetoe
kareao	supplejack, <i>ripogonum scandens</i>
kaumātua	elder
Kaupapa Māori	a Māori epistemology
koha	gift
kōhanga reo	Māori language preschool
kotahitanga	unity
mana	prestige
mana whenua	territorial rights
manaakitanga	hospitality, kindness

manuhiri	visitor
Māori	the indigenous people of New Zealand
marae	gathering place
marae ātea	courtyard
Mātauranga Māori	Māori knowledge
mauri	life force
mauritanga	the act of maintaining or enhancing mauri
mihi	speech of greeting
moana	sea
moenga	bed, sleeping place
mokopuna	grandchild
ngā taonga tuku iho	heritage
Ngāi Te Rangi	tribal group of Matakana Island and north Tauranga area
Ngāti Whātua o Ōrakei	sub-tribe of the iwi Ngāti Whātua
nīkau	<i>rhopalostylis sapida</i> – a native palm
noa	ordinary
orangatanga	health and well-being
pā	fortified village
paepae	horizontal beam of a latrine
paetara	wall plates
Pākehā	New Zealander of European descent
Papa-tū-ā-nuku	Earth mother and wife of Rangi-nui
pātaka	storehouse raised upon posts
pātītī	<i>microlaena stipoides</i> – a native grass
ponga	silver tree fern, <i>cyathea dealbata</i>
poupou	wall slabs
poutahu and	support post
poutokomanawa	support post
pōwhiri	to welcome
pukakaho	toetoe reeds or shoots
pūkenga	repository
pūkio	bulrush, <i>carex secta</i> – a sedge which grows in raised tufts
puna	spring (of water)
rāhui	closed season

rangatahi	youth
rangatira	leadership
Rangi-nui	atua of the sky and husband of Papa-tū-ā-nuku
rara	raised bedding
raupatu	confiscation
raupō	<i>typha orientalis</i> – a tall, summer-green swamp plant
rohe	district
rongoā	medicine
tahuhu	ridgepoles
takiwā	region
takuahi	fire place
Tāmaki-makau-rau	Auckland
tangata	person
Tangata Whenua	indigenous people of the land
tangihanga	funeral
taonga	treasured possessions
tapu	be sacred
tatau	doors
te reo	Māori language
Te Whanganui-ā-Tara	Wellington
tikanga	correct procedure or customs
tipuna/tupuna	ancestor
toa	warrior
toetoe	<i>cortaderia</i> spp. – native plants with long, grassy leaves with a fine edge and saw-like teeth
tohunga	skilled person
tohungatanga	expertise
toki	stone adze
tūpāpaku	corpse
tupuni	external wall covering of raupō
Tūranganui-ā-Kiwa	Gisborne
tūrangawaewae	place where one has rights of residence
turihanga	support posts
tokorangi	scaffolding
tōtara	totara, <i>podocarpus totara</i>
tuahuri	insulating roof covering of raupō

tukutuku	decorative internal wall panels
tūrangawaewae	place where one has rights of residence
urupā	cemetery
wā kāinga	true home
wāhi tapu	sacred place
wairua	spirit
wairuatanga	spirituality
waka	canoe
wānanga	seminar, workshop
whakamahau	porch
whakapapa	genealogy
whānau	family
whanaungatanga	building and maintaining relationships
whanganga	measuring
whare	house
wharekai	dining hall
wharenuī	meeting house
whare awahina	emergency housing
whare puni	communal sleeping house
whare rau	round house
whāriki	floor covering
whata	elevated stage (for storing food, etc.)
whenua	land
whenua rangatira	noble or chiefly land
whenua tipu	ancestral land
whenua tupuna	ancestral land
wīwī	name for several species of native plant that grow in stiff, rush-like clumps with tall, shiny, unjointed, wire-like stems with a brownish, tiny, ball-like cluster of seeds near the top of the stem

Appendix 1

Attendees of a hui of Māori design and housing professionals held on 8 August 2007 at the Jet Park Hotel and Conference Centre in Mangere.

Jacob Scott – Architectural designer, artist – Ngāti Kahungunu – Heretaunga

Karl Wixon – Architectural designer, project manager – Ngāi Tahu – Heretaunga

Carin Wilson – Designer, artist – Ngāti Awa – Tāmaki-makau-rau

Robyn Rauna – Lawyer, iwi housing development consultant – Ngāi Tāmanuhiri – Tūranganui-ā-Kiwa

Ripeka Walker – Architectural graduate – Tāmaki-makau-rau

Kiri Waldegrave – Community psychologist, Whakatōhea, Tauranga City Council

Irene Kereama Royal – Lawyer, Papakāinga development consultant, Ngāti Raukawa, Te Whanganui-ā-Tara

Rihi Te Nana – Educationalist – Te Āti Haunui-a-Pāpārangī, Ngā Puhi, Tāmaki-makau-rau

Rau Hoskins (hui convenor) – Director design TRIBE Architects, Papakāinga development consultant – Ngā Puhi, Tāmaki-makau-rau.

Appendix 2

Attendees of a hui of Māori design and housing professionals held on 20–21 February at Te Rūnanga o Ngāi Tahu – Christchurch

Shaun Awatere	Manaaki Whenua
Rau Hoskins	Design Tribe
Dean Flavell	Tauranga City Council
Karl Wixon	Wiki Design
Antoine Coffin	Boffa Miskell
Julie Tangaere	Māori Land Court
Robyn Rauna	Robyn Rauna Limited
Rewi Thompson	University of Auckland
Craig Pauling	Te Rūnanga o Ngāi Tahu
Shad Rolleston	University of Auckland
Kepa Morgan	University of Auckland
Ngarimu Blair	Ngāti Whātua o Ōrākei
Te Marino Lenihan	Te Rūnanga o Ngāi Tahu

Appendix 3

Attendees of a hui of Māori design and housing professionals held on 15–16 May 2008 at Tamapahore marae – Tauranga

Shaun Awatere
Rau Hoskins
Dean Flavell
Mererina Murray
Karl Wixon
Antoine Coffin
Kiri Waldegrave
Craig Pauling
Shad Rolleston
Ngarimu Blair
Victoria Kingi
Rueben Keno

Manaaki Whenua
Design Tribe
Tauranga City Council
Tauranga City Council
Wiki Design
Boffa Miskell
Tauranga City Council
Te Rūnanga o Ngāi Tahu
University of Auckland
Ngāti Whātua o Ōrākei
Tamapahore marae
Te Puni Kokiri