

Ngā hua papakāinga: Habitation design principles

Shadrach Rolleston and Shaun Awatere

Abstract: This paper seeks to address the growing desire among Māori to be more active in developing sustainable habitation (papakāinga) within urban environments. Urban design is the practice and process of shaping physical environments in which modern societies and people can live. To understand contemporary papakāinga therefore we should have some in-depth understanding of the role of modern urban design. This paper uses a case study approach and a literature review to identify nine key design principles for Māori sustainable development. It is concluded that Māori need not accept the current trends and styles of urban design. Through improved articulation and incorporation of Māori values, concepts and design principles, Māori can change their living environments.

Keywords: habitation; mātauranga Māori; papakāinga; urban design

Papakāinga

Papakāinga development is a process of design (Awatere, Pauling, Hoskin & Rolleston, 2008). 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.

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 (Ministry for the Environment, 2005a, 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, Feeney & Heslop, 2005; Harmsworth, 2004). 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 with traditional resources, landscapes, and other sites of significance (Awatere et al., 2008; 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 overlie 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.

This paper describes the set of key Māori principles and values for papakāinga design plans, documented from our study including one Auckland based case study (Awatere et al., 2008). These Māori principles demonstrate how mātauranga Māori can be integrated into contemporary urban design with respect to papakāinga. We examine this by first considering mātauranga Māori within the context of the New Zealand Urban Design Protocol. We then present one case study to explore this further, outlining the aspirations and underlying design principles for a proposed papakāinga completed by the Māori organisation – Ngāti Whātua o Ōrakei Māori Trust Board in 2007 (Ngāti Whātua o Ōrakei, 2007a).

Urban design principles

The New Zealand Urban Design Protocol identifies seven essential design qualities that form the basis of 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 (context, character, choice, connections, creativity, custodianship, and collaboration) apply to Māori settlement patterns. However, quality urban design principles that serve to reflect good design seldom reflect anything intrinsically Māori. Indeed, the Urban Design Protocol does not address Māori issues directly. The following section attempts to anticipate how early Māori settlement patterns could be applied to the seven mainstream Urban Design principles (Ministry for the Environment, 2005b).

‘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 (Best, 2005; Te Rangi Hiroa, 1952).

‘Character’ refers to reflecting and enhancing the distinctive character, heritage and identity of a settlement. The character of early Māori 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 (Best, 2005; Marsden & Royal, 2003; Te Rangi Hiroa, 1952).

‘Choice’ refers to ensuring diversity and choice for people. The design of Māori 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; Best, 2005; Davidson, 1987).

‘Connections’ refer to enhancing how different networks link together for people. Early Māori design features were reliable and consistent between spaces, buildings and resources. 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; Marshall, Paama, Samuels, Sutton & Taikato, 1994; Matheson, 1975).

‘Creativity’ refers to encouraging innovative and imaginative solutions. The design and materials used in early Māori 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 (Best, 1974, 2005; Cook & Beaglehole, 1955; Davidson, 1987).

‘Custodianship’ refers to ensuring design is environmentally sustainable, safe and healthy. Māori 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 (Kawharu, 2000; Marsden & Henare, 2003; Minhinnick, 1989; Roberts, Minhinnick, Wihongi, & Kirkwood, 1995).

‘Collaboration’ refers to communicating and sharing knowledge across sectors and professions, and with communities. Leadership, expertise, knowledge, and experience from the whānau/hapū/iwi 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 (Ember & Ember, 2004; McKay, 2004; Marsden, 1975).

Māori urban design principles

Like an archaeological site, spaces contain layers of history, landscapes, place names and sites of meaning and significance, deeply embedded in the memory of their traditional owners and inhabitants. Each archaeological layer contains meaning and value that enables us to understand and interpret the past. However, it is the creation and manipulation of space that has shaped new social and cultural identities, new landscapes, new monuments, new histories and new sites of significance (Matunga, 2006). Concurrently, the interests of Māori are required by legislation to be accounted for within current development processes. Mātauranga Māori may be described as knowledge that is based on a Māori world view and the following section describes nine cultural design qualities that are based on that view (Awatere et al., 2008). The section considers these principles within the context of good urban design and development.

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; Te Rangi Hiroa, 1952). Relationships and connections reflect the importance of the social interactions between 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. 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 recognise 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

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 establish 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 and the inter-connection between the natural environment and people is a key tenet of kaitiakitanga (Harmsworth, 1997; Minhinnick, 1989). 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 (Te Rangi Hiroa, 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.

The following section describes how one Māori organisation has identified 6 out of the 9 Māori urban design principles as the basis for its papakāinga development aspirations. A brief history of Ngāti Whātua o Ōrakei is provided first, followed by the presentation of papakāinga principles and the types of potential design responses.

Case-Study: 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, 2007b). According to Ngāti Whātua traditions, the hapū originated in the far north, and migrated over time south toward the Kaipara Harbour. During this period, Waiohua 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 Waiohua. 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 seen as possible. 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 unsuccessfully 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. 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 police and the army to evict the protesters for trespassing on Crown land – 222 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. The government 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, 2007b).

Today, Ōrakei is strategically placed in the heart of the Auckland isthmus. The site is approximately 80 hectares in size and relatively flat, with panoramic views across the Waitemata harbour to Devonport, Rangitoto and Waiheke Islands. Ngāti Whātua o Ōrakei is one of the biggest landowners in the Eastern Bays region of Auckland (Ngāti Whātua o Ōrakei, 2007b). The land is held and governed under a number of statutes and regulations, particularly the Ōrakei Act 1991, the Reserves Act 1997, and Te Ture Whenua Māori Act 1993.

According to the 2001 census, the medium income of people in the Ōrakei 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 tend 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, 2007). The next section discusses Ngāti Whātua's review of their housing aspirations that led to the development of six principles that form the basis of any future papakāinga plans.

Ōrakei community development plan

Home ownership rates for Māori have reduced significantly over the past 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 Māori affiliated to certain tribes in main centres to maintain their connections with ancestral lands. While many iwi/hapū/whānau Māori have significant land resources available to them to help provide affordable housing for their tribal members, there is a current lack of affordable housing to accommodate a growing tribal population. In 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 Whātua o Ōrakei, 2007b). 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; and promote social and cultural well-being.

A special purpose activity zone in the Auckland District Plan includes land owned by Ngāti Whātua o Ōrakei that facilitates their re-establishment on their ancestral land and the 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. In addition 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 Auckland District 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.

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 25 hui, wānanga, and workshops with hapū members to establish a process to assess the potential papakāinga development options for Ōrakei. The wānanga were held at Ōrakei marae and were facilitated by representatives of the Trust Board; an architect from Auckland University and a planning consultant was also in attendance. Participants in the wānanga were given the opportunity to design their ideal papakāinga for the Ōrakei site with the facilitators providing some broad guidance on issues relevant to Ōrakei for consideration. The ideas from the participants were developed into a series of conceptual designs with the assistance of the architect. 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 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

Six out of the nine principles that had been identified by Awatere et al. (2008) had also been determined by participants of the series of hui and wānanga held by Ngāti Whātua o Ōrakei, which suggests that mātauranga Māori is part of everyday life within communities such as Ōrakei.

Feedback from participants at the wānanga have been summarised below in Table 1. A description of the principle is given, along with its purpose, and the types of potential design responses. The workshops were useful forums for whānau and hapū members to share their

visions and the purpose of the proposed papakāinga. Design responses were developed by participants of the wānanga with assistance from the technical specialists present.

Table 1: Ōrakei papakāinga principles and design responses

Principle	Description	Purpose	Response
Kotahitanga	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	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)	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 CPTUD principles – Crime Prevention Through Urban Design; and use traditional palisade style structures to enhance community security
Whanaungatanga	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	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	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 development principles, the Trust Board decided to develop a master plan for the Ōrakei papakāinga. The main features of the master plan are: whenua rangatira (Māori reservation land) 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; there is potential for 6000 whānau to live on the papakāinga; and the 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.

Three additional principles (mauritanga, matauranga and orangatanga) identified by Awatere et al. (2008) are also included along with examples of practical application. Mauritanga is the life-force or essence of a natural environment (Barlow, 1991; Mead, 2003). Its purpose in the context of Ōrakei’s papakāinga plan is to identify and promote the maintenance or restoration

of mauri. A potential design response could involve community monitoring of the natural environment and the installation of products such as swales, rain-tanks, grey-water recyclers, and passive solar design systems. Orangatanga refers to maintaining the health and wellbeing of the community. Its purpose is to promote environmental protection and a safe community. In practice this could involve the following design initiatives: restoration projects; maintenance of community access to natural resources (flax, eels, waterways, etc.); use of indigenous flora in public and private space; encouragement of walking and cycling by linking spaces; traffic calming measures; CPTED principles; and reliable and available public transport. The principle of Mātauranga is concerned with understanding community history, identity and character. Through the papakāinga design process its purpose is to encourage community understanding and pride through shared knowledge. Mātauranga can be implemented in design through initiatives such as education promotions, interpretation boards, heritage markers (pou), and heritage trails.

Conclusions

The purpose of this article is to promote the practical application of mātauranga Māori within urban design, using an example of papakāinga in an urban setting. Through this we have demonstrated that meaningful papakāinga design can not only provide useful utilitarian benefits to hapū and iwi but can also help strengthen iwi and hapū identity.

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 the 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 paper has developed a set of nine Māori principles and values that could be incorporated into papakāinga design plans. A papakāinga case study has been used to illustrate the integration of Māori concepts, values and in the design and development of papakāinga.

The nine design principles are important for Māori sustainable development. Moreover, they are available for wider application in urban design. Their aim and use is to increase participation of Māori in all facets of urban planning and activity, include mātauranga Māori and Māori values in urban design, assist and support the preservation of culturally significant resources and landscapes, and build and strengthen Māori community identity and social cohesion. The Ngāti Whātua case study has provided an opportunity for Māori to set their own agenda for their papakāinga based on cultural knowledge and perceptions of what constitutes good urban design. For Māori to determine the shape and form of their own living environments is a step towards achieving many Māori development aspirations. The process of reflecting mātauranga Māori within urban design and papakāinga development must occur in a manner that acknowledges kaupapa Māori processes and considers the indelible link between Māori values, whenua and whānau, hapū and iwi.

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Shadrach Rolleston (Ngai Te Rangi) is a PhD Candidate with the School of Architecture and planning, Auckland University and Shaun Awatere (Ngāti Porou) is a Researcher at Manaaki Whenua Landcare Research in Hamilton.

E-mail: awateres@landcareresearch.co.nz