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Facebook as soft infrastructure: producing and performing community in a mixed tenure housing development

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ABSTRACT

Place-based community networks provide a resource that can be drawn on to protect and promote the wellbeing of residents. We investigate the role of social networking sites (SNSs) in community formation in a new master-planned, mixed tenure, affordable housing estate in Auckland, Aotearoa/New Zealand. Waimahia Inlet was developed by a consortium of Māori organizations and community housing providers. Community formation was an explicit developer goal with public spaces to encourage face-to-face interaction designed into the development and social infrastructure nurtured on site. New residents were invited to join a closed Facebook group, created and moderated by a residents' association set up by the developer. In-depth interviews with 38 residents between 2017/18 revealed synergies between residents' use of online and offline interactional spaces for producing and performing an engaged and supportive community. Neighbourhood networks contributed to strengthened attachment to place and sense of security by residents.

Introduction

This paper examines the use and meaning of a place-based Facebook group for community formation at Waimahia Inlet, a new master-planned, mixed tenure, affordable housing development in Auckland, Aotearoa/New Zealand. The emergence of digital platforms has extended opportunities for the formation of place and non-place-based communities of interest. As a new housing development, designed by community housing providers to foster social interaction, Waimahia provides a unique opportunity to investigate the interplay of online and offline interactions between residents as a community takes shape. In this setting we examine the various ways the digital space is used by residents and their local association. This includes face-to-face interactions and collective actions facilitated by its use, and the process of community

learning to filter, manage and adapt to the immediacy of online neighbourhood observations and information. We question the potency of a place-based online group, as an adjunct to on-the-ground strategies, to develop place identity in a new estate, and in turn, enhance residents' attachment to place.

This paper begins with a review of literature on community formation and the use of social networking sites (SNSs) as participatory communal infrastructure. We canvass the potential for SNSs to support the community building actions and interactions of place-based communities and community groups and draw on the metaphor of an 'alloy' (Sessions, 2010) to argue that community ties can be strengthened when interwoven online and offline. Our analysis of the social media practices of Waimahia residents is then presented and discussed in light of this literature, drawing on interview data gathered in 2015 and 2017/18 in the course of documenting wider housing and neighbourhood experiences in the development (Fergusson et al, 2016); (Witten et al, 2018).

Community formation and digital networks

The nature of community, determinants of the development of different kinds of community, and the analytical value of the concept itself have generated considerable debate in the social sciences over a long period (Blokland-Potters, 2017; Fischer *et al.*, 1977; Knox, 1995). In 1990, Young went as far as calling the concept of community an unrealistic vision that generates exclusivity and privileges unity over difference. This viewpoint receives some support in the social capital literature that recognises the power of communities to be inclusive of some while simultaneously creating boundaries to exclude others (Blokland-Potters, 2017; Muntaner, 2004; Young, 1990).

Nevertheless, 'community' endures in the popular imagination and continues to have currency in the academic literature, where it is explored through a multitude of frameworks theories and constructs. Conventionally, community implies unity and collectiveness. In geographic communities, a shared attachment to place has been shown to generate social capital and mobilise the capacity for collective action (Brown *et al.*, 2003; Mihaylov & Perkins, 2004). Drawing on the environmental and community psychology literature, Manzo and Perkins (2006) argue that affective bonds to places motivate people to 'seek, stay in, protect, and improve places that are meaningful to them' (p. 347). However, place-based communities will often contain elements of aspatial communities (e.g., communities of practice or interest) and each can build upon and inform the other (Goldenberg & Haines, 1992). The massive growth in telecommunication technologies has given rise to networked online communities and a new alloy of community formation, 'network communities of place' (Cabitza *et al.*, 2016). These are cases where more traditional forms of place-based community formation involving social interactions, acts of neighbouring and the development of social capital are being augmented by digital networking on online platforms, such as SNSs.

Over the last two decades, developments in digital networks and an escalating democratisation of access to home-based and hand-held devices have hastened opportunities for digital networking within, and in tandem with, on-the-ground

communities. These developments have led to a new genre of collaboration (Mynatt *et al.*, 1998; Sessions, 2010). Cabitza *et al.* (2016) term these developments 'convivial tools', echoing Ivan Illich's (1973, reprinted 2000) advocacy of opportunities for the 're-conquest of practical knowledge by the average citizen'. Compared to other forms of participation, the portability of smartphones, for example, removes barriers of access (albeit while introducing others), allowing community participation 'on the go' (Kleinhans *et al.*, 2015). Equally, growing access to social networking sites (SNSs) worldwide provides an internet porthole through which the previously 'digitally excluded' socio-economically disadvantaged are afforded new opportunities for communication and connection (Micheli, 2016). Recent research has begun to consider networked communities of place, with on-the-ground communities connected by not only the hardwiring of conventional infrastructure such as plumbing and roads, but also the digital layers of online activity (Cabitza *et al.*, 2016). In other words, digital community activity can no longer be regarded as discrete from other (material and cultural) aspects of a locality, and its potency in supporting the development of enabling places (Duff, 2011) warrants investigation.

Digital networking enabled by SNSs have been likened to Granovetter's (1973) notion of 'the strength of weak ties' as both have the capacity to nurture social capital. Investigating how digital communication technologies such as blogging, online messaging, SNS and other forms of social media influence social networks, Hampton *et al.* (2011) found that users have more diverse social networks than non-users and that their online activities reinforce participation in traditional local settings. This observation led Hampton and colleagues to conclude that the 'pervasive awareness afforded by new technologies has more in common with a traditional village-like community than it does with individualised person-to-to contact' (p. 1046). Kotus and Hławka (2010) suggest the internet serves as a medium, a form of social infrastructure, that integrates the neighbourhood and stimulates place-based social networking. They argue that the impact of increasing online interactions are unlikely to threaten existing interpersonal contacts within a neighbourhood, but may help establish such contacts in the 'communication-shy communities' of new housing estates (p. 213). Metaphorical use of the term 'alloy' to describe the type of social capital that is embedded in relationships maintained both on-and offline suggests a diversification of communication modes affords strength and resilience to the community networks formed (Sessions, 2010).

Facebook has for some years been at the vanguard of social media and has the virtues of relative simplicity as well as ubiquity, with an estimated 2.32 billion monthly active users worldwide in 2018 (Facebook, 2018; VincosBlog, 2019; Wilson *et al.*, 2012). The near-universal access to SNSs has widened opportunities for individuals and agencies to facilitate sharing access to information and engaging with, at times, distant individuals (Mosconi *et al.*, 2017). SNSs were initially conceived as a way for linking those living far apart and enabling people with common interests to communicate, socialise and collaborate. They have since been shown to be widely used among friends, neighbours and colleagues who are close not only relationally but also spatially, and who might otherwise encounter each other regularly (Cheung *et al.*, 2011; Hampton & Wellman, 2003). In the words of Mosconi *et al.* (2017, p. 960)

'online social networking is … often a fundamentally local and situated practice'. Facebook usage is widespread in New Zealand. It is the most regularly accessed SNS, with 2.9 million New Zealand-based users (around 61% of the population) in 2017, 2.3 million of whom use it daily (Fyers & Cooke, 2017). Such widespread use is enabled by a high level of internet access. In the 2018 New Zealand Census, 86% of respondents indicated they had internet access at home (Stats NZ, 2018), a figure that would be higher again if access via a mobile phone was included. This mode of communication is increasingly embedded in people's lives to the point of banality, such that it can be a source of neighbourhood vitality. It is this contention we explore with respect to Waimahia Inlet, a new medium-density mixed-tenure housing development in Auckland, Aotearoa/New Zealand.

Facebook users engage not only with members of consciously chosen friendship networks, but also with other members of 'by-application-only' groups, which are often community-based. Engaging with a community group can occur at any time and from any place. This flexibility potentially overcomes the usual spatio-temporal constraints of meetings that, in the case of community organisations, invariably occur at times and in locations that do not suit all members of any particular interest group. Research into community-based Facebook groups has largely concerned their use in the interests of surveillance and engagement in planning. Kelly and Finlayson (2015), for instance, document how, in pursuit of the goal of safer communities, policing agencies increasingly use SNSs such as Facebook as an additive to long-established programmes such as Neighbourhood Watch. Afzalan and Evans-Cowley (2015) investigated the capacity of online neighbourhood forums in contributing to neighbourhood planning processes in Pittsburgh. They asked whether engagement in Facebook groups results in the creation of self-organising communities and how these forums encourage participation in real time-and-place 'on-the-ground' activities. The types of online interactions among neighbours have also been examined (Hampton & Wellman, 2003). Given neighbourhoods routinely encounter situations that provoke a response from residents, the capacity for platforms like Facebook to amplify the self-organising ability of communities and contribute to 'bottom up planning processes' has been of interest (Innes & Booher, 1999). Information sharing and the fostering of trust-building are seen to be desirable outcomes (Rhoads, 2010). An exception to the two foregoing themes has been an exploration of the co-production of an online archive as a form of community building. In Wester Hailes, a deprived community of Edinburgh, an assessment was made of the potential value of a Facebook-based site for challenging widespread stigmatised views (Matthews, 2015). Local residents were found to be more comfortable commenting via online posts than through conventional ways of archiving community knowledge, such as through interviews (Matthews, 2015).

While the potential of SNSs such as Facebook in generating new expressions of community engagement has been identified (Kostakis & Bauwens, 2014), there remains more speculation than empirical knowledge in terms of understanding digitally supported engagement within residential communities. What is known is that platforms like Facebook have introduced new 'layers of publicness' (Baym & Boyd, 2012), with the result that residents' engagement with civic life is evolving faster than research that provides adequate understanding (Wilson et al., 2012). To this extent

we follow Star and Bowker (2002) in speculating that increasingly, communities not only *have* infrastructure but, via such digital participation, *do* infrastructure. A goal of this paper is to move beyond the instrumentalism of exploring how Facebook can assist imperatives such as policing or planning. We rather seek to examine how, as participatory infrastructure, it is used in a new residential community and whether it contributes to the process of community formation – by enabling people of different ages, social and cultural backgrounds to co-mingle and experience conviviality and social support (Talen, 2006). Does it create the affective bonds that Manzo and Perkins (2006) argue motivate people to stay in places?

Residential stability and new neighbourhood environments

As Meeus and De Decker (2015) argue, discourses and practices of residential stability are an often-overlooked aspect in discussions of residential mobility and research relevant to residential stability has tended to focus on economic and life-cycle factors rather than environmental and social factors. This study contributes to this gap in the literature. However of relevance to Waimahia, research has indicated that for households with children, local kinship ties and social networks are a key factor in reducing inter-neighbourhood mobility (Mulder & Cooke, 2009), especially for low-income families (Dawkins, 2006). A lack of resources and social capital mean that low-income communities often face many barriers to improving their local residential environment (Clark et al, 2017). While the developers of new neighbourhoods can 'seed' contact between incoming residents through holding events or supporting the early establishment of community meeting places like cafes (Opit and Kearns, 2014), not all residents have the time or are otherwise able or inclined to avail themselves of such opportunities for in-person interaction.

Lastly, it is important to consider that Waimahia Inlet is a medium-density development. Research on compact city development approaches has struggled to find conclusive evidence that such environments lead to a greater sense of community, belonging or 'home' (Fincher & Gooder, 2007; Talen, 2002). Equally, developments aimed at fostering socially-diverse communities have been critiqued for failing to break down othering practices and existing geographic social stratification (Kupke et al., 2012; Ruming et al., 2004). In the U.S., the HOPE VI programme, which seeks to revitalise neighbourhoods, has tried to engage residents in implementation and community development, but analysis suggests residents' meaningful participation in community life has been limited (Lucio & Wolfersteig, 2012).

Arguably, new-build master-planned estates offer greater opportunities for targeted community-formation initiatives. Examples of developers promoting community as a marketing tool in new master-planned estates have also been suggestive of a commodification of 'community' in such developments (Gwyther, 2005) (Opit and Kearns, 2014). Nevertheless, Fincher and Gooder (2007, p. 181) argue that while there are multiple dimensions to housing satisfaction, medium-density housing, more so than detached or high-rise apartment housing, offers shared public space as well as domestic spaces of family privacy and 'a lived experience of belonging to an immediate community'. Bramley et al.'s (2009) analysis of social sustainability in several

British cities supports this argument, indicating that medium-density housing may induce greater levels of social interaction than either higher or lower density environments. Successful spatial integration of dwellings with proximate communal spaces may be a factor in helping support resident interactions (Raman, 2010). Hence, this paper examines the role of SNSs in neighbourhood community formation as a form of digital infrastructure that provides an online communal space for residents.

Context

Aotearoa/New Zealand has a shortage of affordable housing for both purchasers and renters. Rates of home ownership have declined from 73.8% in 1991 to 64.8% in 2013, with private rental tenure increasingly common (Statistics New Zealand, 2016). These changes in tenure are attributable in large part to increasing house prices and high rental costs relative to incomes. Households trying to enter the housing market have been particularly affected and although home ownership remains a strong aspiration for most New Zealanders, it is now beyond the reach of many households (Howden-Chapman, 2015; Witten *et al.*, 2017). In Aotearoa/New Zealand rental housing 'has always seemed like a second-rate option' (Eaqub & Eaqub, 2015, p. 10) and evidence confirms that owner occupied housing is not only generally in better condition than rental housing (Buckett *et al.*, 2011) but provides important securities (Dupuis & Thorns, 1998).

The unaffordability of housing in Aotearoa/New Zealand has been most severe in Auckland and the decline in home ownership most acute for Māori and Pacific people[1] (Joynt *et al.*, 2016). For people identifying with *both* Māori and Pacific ethnic groups, the proportion living in an owner-occupied dwelling dropped by 40.8% between 1991 and 2013. During this period, home ownership for those households identifying as only Pacific dropped 37.8%, and only Māori by 31.7%, while home ownership amongst European ethnic groups dropped by less than 10% (Statistics New Zealand, 2016).

The Waimahia Inlet development is a response to the undersupply of affordable housing in Auckland and the diminishing opportunities for home ownership, particularly for Māori and Pacific households. Built between 2014 and 2018 and comprising 295 dwellings, Waimahia is Aotearoa/New Zealand's largest third-sector (not-for-profit) affordable housing development (e.g., community housing provider). It is located on what was vacant land in an outer suburb of Auckland, 23 km south of the Central Business District. Auckland has a population of 1.5 million. Waimahia was developed by Tāmaki Makaurau Community Housing (TMCH), a consortium of Māori organisations and community housing providers. The consortium partners – the Tāmaki Collective, Te Tumu Kāinga, Community of Refuge Trust and the New Zealand Housing Foundation – shared a mission to provide affordable, good-quality housing for lower income families. Now complete, Waimahia is a mixed-tenure neighbourhood in which 70% of homes are either assisted homeownership (shared-equity and rent-to-buy)[2] or retained by the community housing providers as affordable rentals. The other 30% are privately owned. Fifty percent of households are Māori and 15% Pacific.

Fostering a supportive community at Waimahia was an explicit goal of the developer, TMCH, from the outset. The subdivision masterplan included public space features designed to encourage interaction between neighbours and TMCH established, and continues to support, the Waimahia Inlet Residents Association. Membership of the Association is specified on the title of the dwellings and its executive is drawn from the community. The Association meets regularly and organises barbecues and other community gatherings in collaboration with TMCH. A project manager, funded by the TMCH, remained on site during the construction process to provide advice and support to incoming residents and liaise with community housing provider partners who, in turn, offer ongoing support for rental tenants. On arrival, new residents are given a 'welcome pack' (e.g., information on who to contact for various eventualities) and invited to join the Waimahia Inlet residents' Facebook group, an online community page set up and administered by the Residents Association.

The Facebook group is 'private' in the sense that it is only accessible to those users who are residents and have been accepted by the administrators of the group page. The opening page states that the site's purpose is to enable residents of the 'new Waimahia Inlet Development to keep updated on any issues, concerns or events that may affect our community'. The following text appears under the heading 'Guidelines and Tips for Waimahia Inlet Residents Community Group': 'This Page is a place for our Residents. However, we do need to have certain rules. We reserve the right to remove any posting or other material that we find off-topic, derogatory, inappropriate or objectionable.'

The guidelines stipulate that comments must be courteous, respectful, supportive and non-judgemental; indicate individuals may advertise products or businesses; ask users to alert moderators of inappropriate content; and include a caution about copyright materials. This paper is based on an analysis of residents' narratives relating to the use and meaning of this Facebook group as they pertain to community formation.

Methods

We undertook in-depth interviews with 38 residents between August 2017 and March 2018. Among these were five residents first interviewed in 2015 who were re-interviewed in 2017/18. Interviews were conducted in English and ranged in duration from 10 to 70 minutes. Topics covered in the semi structured interviews were wide-ranging and included: how they came to be living at Waimahia; if relevant, financing for home ownership; expectations of the development and whether or not these had been met; experiences of, and satisfaction with, the design of their home and neighbourhood; social interaction and community formation; and future housing plans. Repeat participants were asked how their perceptions and experiences of living at Waimahia had evolved, and their reflections on the development of community over time. Participants were not asked directly about the Waimahia Facebook group, but rather comments concerning this community forum arose in the course of other responses. Data relating to managing and administering the site were provided by the Residents Association Chairperson.

A number of recruitment strategies were used to identify and invite participants to take part in the research. These included phoning and emailing those who had been interviewed in 2015 and had agreed to be recontacted (five were reinterviewed, four had moved and three were unavailable); referrals from the development's Sales and Project Manager; responses to an invitation to participate made at Residents Association meetings; invitations published on the Facebook page, and door knocking. Door knocking was an important additional strategy to ensure heterogeneity in the sample. In total, 38 residents of the development were interviewed, of whom 37 specified their tenure arrangements: nine were home owners in shared equity arrangements; four had initially been in shared equity arrangements but subsequently refinanced to take over the share held by the CHP; seven were in rent-to-buy arrangements; five were CHP tenants; and 12 had purchased their properties as open market sales.

All interviewees provided written consent to participate. Interviews were audio recorded and transcribed. The research team read a sample of the transcripts independently and then collectively developed coding frames that were used to structure the thematic analysis (Braun & Clarke, 2012). NVivo[3] was used to manage the data. The two interview datasets were analysed separately: new Waimahia residents and the longitudinal sample of Waimahia residents. The responses from the longitudinal sample were analysed in relation to the transcripts of the original interviews in order to identify any significant changes in participants' perceptions of the development.

Findings

In the following sections we explore residents' use of Facebook as an enabling participatory practice in the process of community formation. Despite no direct questioning on the matter, all but three of the 38 resident interviewees mentioned the Facebook page, suggesting it is a recognised part of the developments' social infrastructure.

Moving to Waimahia

Prior to moving in, only a few interviewees said they knew of the developers' aspirations for community formation at Waimahia, or the sense of community taking shape there. The prime motivation for moving to the development, across all tenures, was the relative affordability of living at Waimahia Inlet. Stable and secure housing was particularly important for community housing tenants and access to affordable home ownership was 'the opportunity of a lifetime' for many on a tenure programme towards home ownership. Scanning Facebook group posts was often the first encounter new residents had with the activities taking place within the development.

Connecting and sharing

The Facebook page has seemingly become integrated into everyday life and interactions within Waimahia, and is, for at least some residents, 'almost a daily connection' (*Kate*)[4] and for many it has been 'a huge contributor in terms of how we connect as a

community' (*Ngahuia*). It is used to announce, promote and plan community activities and to share information of broad interest to residents: 'people post various things … there is a rubbish collection and a sausage sizzle and ice blocks…' (*Serena*).

The page has also enabled 'online neighbourliness'. As the examples below illustrate, regular and intermittent offers of free or cheap goods are easily broadcast:

'There is a lot of sharing … like food, [or] if they have extra … things, like stuff in their garage that their kids have grown out of, like bikes … it is just a real nice kind of feeling' (Ata).

'So, whenever anyone has anything excess it always goes on the Facebook page. So I have managed to get myself a couch from two streets over and … [it] turned out to be that someone was giving it away and you could have easily sold it for several hundred dollars and it was, man, that is pretty cool … the first thing they think about is the community' (Blair).

These neighbourly gestures, initiated online, often led to face-to-face communication and exchanges of goods. In turn these interactions bestowed warmth on the affective atmosphere (Anderson, 2009) of the community. As Ata said, it created '… just a real nice kind of feeling'. Through these virtual and virtuous community-in-the-making encounters residents, were affecting, and being affected by others, thereby building trust and social capital.

Sharing tools was another expression of neighbourliness that was generative of trust and social capital. It occurred both online and in person. Sam relayed how he initially needed some tools to build a shed:

'When I built the garden shed … I didn't know I needed a pot rivet gun, so we just put it on the … page, "hey does anyone have a pot rivet gun I could borrow for the night" and … yeah, a guy lent me one and … dropped it back the next morning and we never met him", but we ended up having a huge talk to him about, he has got his kids at the local school…' (Sam).

Sam did not meet this neighbour physically but through the convenience and immediacy of SNS platforms (connected to smart phones and computers) the neighbourly exchange was made possible.

Although accounts of Facebook exchanges that generated a positive community atmosphere far outweighed those with a negative inflection, as Naina notes '…there are downsides, in that some people do use the Facebook forum to complain about things that could probably be sorted face to face'. Examples were given of disagreements between neighbours being aired online. Language was at times abusive and individuals identifiable, triggering the intervention of site administrators, members of the Residents Association Committee.

Notwithstanding such incidents that precipitated moderator intervention, other disagreements between neighbours were reported to have been raised, discussed and constructively resolved through a series of Facebook posts. Concerns about noise from parties and the behaviour of children were amongst the examples given. Referring to an incident over children misbehaving that was sorted out online, Heather said

'Parents will take responsibility and say sorry, that was my child … it's good … it was sorted in no time' (Heather).

Performed in this way the virtual infrastructuring practices of residents can increase community capacity for resolving emergent friction.

The Facebook page gave residents licence to opt into (or not) offline community engagement. Many residents valued the face-to-face interaction instigated through Facebook posts, whereas others appreciated the way online posts enabled them to keep in touch with community matters and become familiar with local people, albeit without meeting face-to-face. As April commented with reference to the page: 'even if you don't talk to the people on the other side of the street in person, you know the names and faces'. The page was also an alternative way for residents with busy lives, or who were housebound or working shifts to stay abreast of community matters and to discuss issues and problems at times of day that suited their schedules. For example, the page kept Mavis informed about what was going on in the community:

'[Through the] Waimahia Facebook page … we get to contact each other … which is quite good, because … we don't really go out much but we get to hear what is happening on the other streets' (Mavis).

Naomi used and valued the Facebook page and through it knew of the community aspects of Waimahia, but chose not to be part of it. She said

'I belong to different communities – my ethnic community and my family community, my professional community, my activist community … but I don't really have a desire to belong to this community and I explained that to one of the organisers and they don't get it' (Naomi).

Naomi did not have children and commented that many of the community activities were child-focussed. However, it was only via the Facebook page that she had learned a neighbour was dying of cancer and was therefore able to contribute to a support fund for them. In this instance, neighbourliness was enabled, albeit without a desire to identify or belong to a place-based community.

Overall the Facebook page was viewed very positively by interviewees, both first and second time interviewees. It kept them informed about local concerns, but the digital traffic on the site was also interpreted as tangible evidence that people were connected and interacting with each other and that Waimahia was a place to which you could belong:

As Serena stated

'Yes, the Facebook page is really good … for feeling as though you belong somewhere'.

'The shared tools, the tool sharing is a good idea with the street BBQs and it is all human things that are good about it. It is the people that makes a difference' (Vinnie).

The meaning of the Facebook page is seen in Vinnie's 'human things' – people relating to people. Residents' accounts of connections made, and relationships established, often referred to a mix of online communication and offline practices. As residents responded to virtual opportunities to communicate and instigated face-to-face 'meet ups' enabled by the online postings, they were actively performing and shaping a Waimahia community identity.

In the following section we report on the second major use of the Waimahia Facebook group – for surveillance and alerting others to crime.

Crime and surveillance

As an active social space where issues of concern are brought to the community's attention, the Facebook page has played an influential role in residents' perceptions of crime within the development and their responses to reported criminal activity. Car theft and vandalism have been of particular concern. Residents post information on incidents on the page, as well as proffering advice on how to try and avoid being a victim of crime. Sharing information in this way has increased residents' awareness of crime and instant messaging has aided setting up rapid surveillance activities and responses.

These online conversations initially increased feelings of unease amongst the new community and reactions to the perception of high crime included groups of residents arranging to walk the streets in the evenings to maintain surveillance. The Facebook group allowed residents to easily and immediately report 'suspicious' behaviour and activate a surveillance network, enacted through online reporting and a physical presence through the neighbourhood:

> 'When there was a lot of those posts coming up, what comes after is some more interest to [do] the walk-around. So, there will be some people volunteering to go around and say I will just walk around the block at night' (Donna).

The high level of surveillance and perception of threat from crime did foment negative feelings amongst the community and precipitated calls for CCTV cameras and gates at the development's entry points to be installed. For Serena, about to move to the development and having accessed the Waimahia group page for the first time, reading of incidents made her apprehensive:

> 'We looked at [the] Facebook page … the night before we moved in … and going through their … previous posts, there was a lot of posts about cars getting stolen and broken into and even some people's houses were getting broken into. We were reading them in bulk and going "oh my goodness"' (Serena).

However, it would seem that fear of crime has diminished over time as people, including Serena, recognised that the threat was possibly no different in Waimahia than in other areas, but became exaggerated in people's minds due to the rapid spread of information on Facebook, where ' … it just kind of spirals out of control' (Naina). Moana and Serena's comments indicate how their understanding of the crime-related Facebook posts changed over time.

> 'A lot of people think we get hit more often than other neighbourhoods but other neighbourhoods aren't sharing the information, so [then] you don't know what is happening within your neighbourhood. It is only because we post stuff and we are sharing information' (Moana).

> 'We came to the realisation that it was posted on that page, so normally you wouldn't hear about your three hundred neighbours' cars getting broken into all the time. It happens everywhere in Auckland' (Serena).

The interpretation conveyed in these quotes has been actively promoted by the Residents Association, including via the Facebook group. So, while fear of crime was

initially exacerbated by rapid and frequent reporting of incidents, fears were also allayed via subsequent discussions and community actions facilitated through the group.

Waimahia residents did not contemplate that crime incidents could have been perpetrated by residents in the development. Rather, they were attributed to outsiders and youth from neighbouring suburbs were often alluded to as likely culprits. This can be interpreted as a reflection of their trust in other community members, a cornerstone of social capital, whether generated through online or offline interactions.

While the Facebook posts largely concerned activities, events and relationships within the development, the following quote relates to a proposed change to a liquor licence in an adjacent suburb, which was regarded by a number of interviewees as potentially contributing to crime and fostering behaviours likely to impinge negatively on the wellbeing of residents. As Ngahuia recounted:

> 'There was a liquor outlet up here that was renewing their liquor license and they were wanting some conditions changed on how they sold the liquor that would have had an impact on our community … and so … I put that onto the Facebook page and wanted to know if anyone in the community was interested in opposing the application and we were overwhelmed by responses' (Ngahuia).

While community mobilisation for or against changes to a neighbourhood is not new, the use of a place-based Facebook page potentially allows communities to circulate information more quickly to raise awareness, engage members and coordinate responses.

Discussion

The potential for homeownership and, for community housing tenants, the chance of secure tenancy and warm and dry homes were the primary drivers of households seeking residency at Waimahia. In this young neighbourhood, how long residents stay and, in turn, the future social stability of the neighbourhood, are yet to be determined. Nevertheless, we speculate that the community ties that residents establish will aid the development of an attachment to place and a desire to remain in place. While various in-person expressions of community formation doubtless exist, we have explored a key online practice: engagement with, and through, a developer-encouraged community Facebook group.

Community formation was an explicit goal of the development consortium at Waimahia and means to enable it were purposefully integrated into the material and social infrastructure. The absence of front fences, traffic calming to reduce vehicle speeds and shared public spaces are among the material features incorporated into the development's master plan and designed to encourage interaction between residents. Establishing a residents' association, initially running and subsequently continuing to support community gatherings, and retaining a project manager on site throughout the construction phase were all initiatives designed to foster community formation. The project manager was housed in a temporary prefabricated office, which provided an important community gathering place before a dedicated community facility was built. Highly regarded, he prepared fertile ground within which new residents could form and nurture neighbourly relations and pick up the mantle of

community formation. The Facebook page was initiated in this context and grew in popularity to become central to the resident-led, social infrastructuring of Waimahia.

The Waimahia Facebook group has facilitated information sharing, reciprocity and social interaction between residents, and through these pathways has contributed to the place-based identity taking shape within the borders of the development. Almost all participants accessed the group page and valued the local knowledge and gestures of neighbourliness it conveyed. Digital communication threads flowed in response to local concerns such as party noise or children's disruptive behaviour as well as perceived threats to the security of the neighbourhood from 'outsiders' (those not considered part of the Waimahia Inlet community). These threads were read by residents as evidence that a community had formed at Waimahia and that they had membership status. Being able to access digital posts was adequate engagement to signify inclusion and community membership for some residents, evoking Granovetter's (1973) notion of the 'strength of weak ties' that can underpin a sense of community. Other residents also sought out face-to-face relationships, sometimes instigated through online contact, and these appeared to strengthen and sustain feelings of community membership and attachment to place. For the latter group of residents, the 'alloy' metaphor has some resonance as a melding of online and offline interactions increased opportunities for friendship and reciprocity that could conceivably increase 'resistance to corrosion' of their place attachment and sense of belonging (Sessions, 2010).

Wide use of social media at Waimahia facilitated a 'pervasive awareness' of local news (Hampton *et al.*, 2011). This awareness had both positive and negative effects. Actions and events initiated via the Facebook page, over time, built-up some confidence that a level of community social capital, or collective efficacy (Sampson *et al.*, 1997) had accumulated across the development that could be called on to address local concerns. Mobilisation of these communally-held resources was evident in community responses to Facebook-sourced calls to support individuals and households facing hardship, as well as to events such as environmental clean ups and the street patrols prompted by alerts posted concerning possible threats to community security. The Facebook site enabled the *doing* of social infrastructuring by residents in these examples. In other words, residents not only used types of 'hard' infrastructure commonly associated with housing (e.g., roads, drains electrical wiring); in the case of the Facebook page their regular and collective transactions through the platform amount to a co-creation of 'soft' community infrastructure.

The community response to postings about crime was informative. The use of Facebook for real-time reporting by residents of suspected criminal behaviour is of interest to police forces in Australia (Kelly & Finlayson, 2015) and elsewhere (e.g., Walkington *et al.*, 2018). Yet, our study suggests that caution is required when publishing residents' suspicions online. Early on, residents' sense of security was undermined when confronted with a barrage of posts about suspicious people, break-ins and thefts. Patrols were set up to walk the streets and CCTV cameras were installed. However, in time, many residents reasoned that immediate and comprehensive knowledge of these events did not necessarily equate with a higher incidence of crime in Waimahia compared to other areas where residents were not notified of incidents as rapidly and fulsomely. Individuals commented that they were no longer as alarmed

by crime-related posting as they had been initially. Although concern around crime remains, these narratives suggest that by reflecting on their own and wider neighbourhood responses to postings on the community Facebook page, individual residents, and the Residents Association, were learning from and adapting their social media practices.

As a counterpoint to our argument that SNS has been used as social infrastructure to build place identify and social capital within Waimahia, we need to consider whether it has been used to exclude as well as include. Site moderators, appointed by the Residents Association make judgements about when to close down discussion threads deemed to be derogatory or objectionable and inconsistent with the community-building intent of the site. This 'doing' of social infrastructuring delineates desirable community values and practices, but necessarily produces boundaries of belonging that hold the potential for exclusion both on- and offline (Blokland-Potters, 2017). At the time the interviews were conducted, the site moderators had barred one resident from the site for what was considered inappropriate posts and several commentary threads had been blocked when they were seen as undermining the intent of the Facebook group and contravening guidelines. Tracking the use of the mechanisms available to moderators to block people and opinions, and the nature of closed threads, will provide useful data on the means by which the inclusionary and exclusionary potential of SNSs are navigated and enacted in a place-based community context.

Our research did not set out explicitly to investigate the role of SNSs and social media in community formation at Waimahia Inlet. Rather, an examination of opportunistically-collected commentaries on the value of a community Facebook page has allowed us a 'window' into the role of digital infrastructure in facilitating community formation. This opportunism is, we believe, both a strength and a weakness of the paper. A content and frequency analysis of Facebook posts and more focused attention to the intra and inter-dynamics of online and offline interactions would be a useful extension to the current investigation. Given the proliferation of Facebook and its emergence as digital community infrastructure, comparing the uptake, regularity of use and social meaning of participation in community pages between neighbourhood types would be another useful extension of the research.

Notwithstanding these limitations and possible study extensions, we see considerable strength in the fact that participants' narrative data on their experiences of the Facebook site and its role in community formation was unprompted. The spontaneity of the data attests to the embedded and naturalised place of the site in the social life and practices of many residents in this new development and, collectively, is a finding in itself. As a qualitative inquiry, the efficacy of the Facebook site *vis a vis* other strategies for stimulating community formation cannot be teased apart, nor can we determine whether the level of expressed community belonging and attachment would have evolved in its absence. However, in keeping with Duff's (2011) notion of enabling places, we suggest there are likely synergies between the natural, built and social infrastructure (virtual and material places), the relationships forged between individual residents, and the affective atmosphere emerging of an engaged and supportive community. Given the ubiquitous use of SNS across nations and social groups, it is a

form of soft infrastructuring that housing organisations and residents elsewhere could readily advocate as complementary to on-the-ground events and activities. Waimahia provides useful lessons on establishing rules around the use of SNSs and the capacity of communities to learn-by-doing to ensure virtual interactions support and do not undermine community formation.

Conclusion

In conclusion, we see the value of the forgoing analysis as twofold. First, as a research exercise, it is a useful complement to other examinations of the use of neighbourhood-based Facebook groups. However, unlike the safety and surveillance emphasis of many such studies (e.g., Kelly & Finlayson, 2015), our investigation has considered its more generalist role in connecting, communicating and consolidating the experience of community-formation in a new housing development. Second, from a planning and development perspective, SNSs provide an accessible virtual space for place-based communities to participate in neighbouring activities, such as the sharing of knowledge and resources. Given the global ubiquity of social networking, the experiences at Waimahia may be useful elsewhere in seeding social ties in new developments aimed at accommodating low-income families. Facebook, it appears, enables a virtual form of elective belonging (Savage *et al.*, 2010) in which participation, at any time and from anywhere, can enable the building of bonds and social capital. Critically, our study finds that these virtual encounters and networks can meaningfully enhance physical, placed-based communities through providing a convenient platform for social engagement and communal action.

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Notes

1. Māori are the indigenous people of Aotearoa/New Zealand. Pacific people is a term describing migrants to New Zealand from the Pacific region and their descendants.
2. Shared equity broadly denotes home ownership schemes where the purchasing household shares the equity of the property with a third-party, e.g., a community housing provider. Rent-to-buy or rent-to-own schemes allow households to afford to rent while paying down debts and becoming financial able to afford a deposit for the house they live in.
3. Nvivo 11, QSR International. (2015). *NVivo qualitative data analysis Software* (Ver. 11 ed.) QSR International Pty Ltd.
4. Pseudonyms are used for all interview participants.

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