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**Transition Management – the key to accelerating the
decarbonisation of New Zealand’s transport system?**

A Dissertation
submitted in partial fulfilment
of the requirements for the Degree of
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by
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Abstract of a Dissertation submitted in partial fulfilment of the requirements for the Degree of Master of Planning.

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by

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Cities are facing complex, interdependent sustainability challenges that require a deep systemic transformation. In view of an apparent inability of the current urban planning system to bring about change fast enough, this dissertation explores the opportunity for urban planning to incorporate a transition management approach. Transition management, derived from the sustainability transitions research field, is a prescriptive, complexity-based governance framework that aims to create space outside of convention planning processes to enable the social production of solutions that break with the status quo (Nevens et al., 2013).

The dissertation takes the Te Ara Mua – Future Streets project in Auckland as a case study to investigate the main similarities and differences of planning approaches in practice compared transition management. The analysis is conceptualised on the basis of a process-oriented analytical framework which follows the guidance manual for transition management in the urban context (Roorda et al., 2014). The study identified four conflict lines that, for one, confirm previous research on this topic, and add an additional one to Peris and Bosch’s fields of tension (Peris & Bosch, 2020). The research illustrates the limitations for urban planning to incorporate a transition management approach, while also highlighting the potential to transform existing urban planning practices to enable system innovation.

Keywords: transition management, urban sustainability transitions, urban planning, sustainable development, Future Streets.

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Chapter 1

Introduction

Cities face many complex problems, from the dangerous impacts of climate change and rising levels of greenhouse gas emissions, biodiversity loss and environmental degradation to growing social disparity and declining health. Cities are at the forefront of experiencing these issues but are also ideal places for addressing challenges and shaping a sustainable and equitable future. However, the slow progress in the last decades of improving people's lives, restoring ecosystems or reducing greenhouse gas emissions raises the question of whether our current planning model – the 'business-as-usual' approach – is sufficient to tackle such persistent problems. For instance, to meet the greenhouse gas reduction targets by 2050, countries like New Zealand need to bring about a dramatic turn in the way people live and travel.

The current system does not appear to be capable of instigating this radical turn. In fact, global CO₂ emissions from the transport sector, for instance, continue to increase – emissions from passenger road vehicles have risen by 44% since 2000 (IEA, n.d.). In New Zealand, greenhouse gas emissions from the transport sector make up about 20% of total greenhouse gas emissions (Ministry for the Environment, 2020) and even over 50% in some of New Zealand's main cities (AECOM, 2017, 2018). Road transport accounts for over 90% of total transport emissions and has doubled to 15,071 kt CO₂ -e since 1990 (Ministry for the Environment, 2020). The rising trend is also reflected in the increased car ownership (from 647 to 803 light vehicles per 1000 people from 2000 to 2018 – one of the highest ratios in the world) and kilometres driven per year (from 34 billion km to 45 billion km travel) (Ministry of Transport, 2018). New Zealanders are driving more and further than ever before, and there is no turning point in sight.

The funding allocation in the Government Policy Statement (GPS) for Land Transport largely determines transport planning in New Zealand. When split into different transport modes, the GPS reveals a clear bias towards highway and local road infrastructure over more active modes of transport; only 25% of funding are used for other modes (Ministry of Transport, 2018b). Though the recent and the newly proposed GPS' have made a slight shift towards increased public transport and cycling infrastructure, the funding for passive modes remains

still high. A more decisive and radical transformation is necessary to address today's challenges of a changing climate, increased obesity, disconnected communities, air pollution and traffic congestion.

Today's urban challenges are complex, and when addressed in isolation have unintended consequences because the socio-technical systems are deeply interrelated and multifaceted. Applying linear solutions (e.g. building a new motorway to address traffic congestion) can result in more severe problems in other subsystems (e.g. growing demand in parking areas, more congestion in the city centre, unhealthy lifestyles and obesity, changing land-use patterns etc.).

“Persistent problems are as a matter of fact, the superlative form of what Rittel and Webber [...] refer to as ‘wicked problems’; their interrelationship to other societal problems and their entrenchment in our societal structures and institutions makes it impossible to analyse and solve them in isolation. Persistent problems could generally be considered to be symptoms of an unsustainable society.” (Rotmans, 2005, p. 8)

Persistent problems owing to the complexity require new modes of governance. As the numbers demonstrate above, the current system is unable to address urban challenges quickly and effectively enough to achieve sustainability. Existing policies may be necessary; they are certainly not sufficient and much more is needed (Frantzeskaki, Bach, et al., 2018).

One approach developed to enable this transition is transition management. Transition management is a planning and governance framework that facilitates the co-creation of innovative and creative solutions by developing a shared vision, the creation of transition pathways and social learning. The transition management method encourages the framing and envisioning a more sustainable future and produces real actions that help cities address persistent problems like climate change. Two decades into the research and application of transition management, a much debated question is how transition management fits within the current planning system and whether the two approaches can be integrated. Previous research has focused on the comparison of theories and principles of planning and sustainability transitions literature. This study introduces a new approach by applying a process-oriented analytical framework to a real-life planning project.

This dissertation aims to evaluate a planning process used in Māngere, Auckland in New Zealand – Future Streets – using an analytical framework based on the transition

management guidance manual developed by the Dutch Research Institute for Transitions (DRIFT). With its focus on building broad and diverse networks and social learning through experimentation, transition management occurs, in most parts, 'outside' the regular planning system. However, there is an opportunity for urban planning approaches to learn from the transition management process and to firmly establish and reinforce transition and systems thinking.

This study's specific objective is to answer how transitions thinking, and specifically the transitions management process, compares to planning processes in a New Zealand context. The underlying assumption of this study is that New Zealand may benefit from adopting the transitions management process to support and accelerate the transport mode shift over the next decades.

The specific research questions are:

- How does transition management compare to New Zealand's transport planning approaches currently employed in NZ to achieve sustainable development?
- Why and how could these current transport planning approaches incorporate elements of transition management?

This is the first study to apply the transition management theory in a New Zealand context and offer insight into the potential of incorporating a transition management process. The findings should also make an important contribution to the debate about the intersection of transition management and urban planning by applying an analytical framework that focuses on the step-by-step process of planning for transitions.

The paper begins by describing sustainability transitions and transition management. It will then review the emerging research about the relation of urban planning and transition management. The third chapter is concerned with the methodology used for this study. Chapter four develops the process-oriented framework, including indicator questions which are applied to a single case study in chapter five. The sixth chapter discusses the findings of the case study analysis focusing on the key differences and challenges of urban planning incorporating the transition management process.

Chapter 2

Literature Review

2.1 Sustainability transitions

Research into sustainability transitions emerged around the 2000s linking research areas of evolutionary economics, complex adaptive systems theory and innovation and technology studies (Khmara & Kronenberg, 2020). It arose as a response to acknowledging the need to theorise the transformative process towards sustainable development and develop an analytical framework to realise broad system innovation. An interdisciplinary Sustainability Transitions Research Network (STRN) was officially launched at the first European Conference on Sustainability Transitions in Amsterdam in 2009. To date, it has convened yearly International Sustainability Transitions conferences all over Europe and Canada¹. Since the STRN's first missions statement and research agenda in 2010, the studies on sustainability transitions have rapidly developed and diversified. The figure below shows the fast growth of new publications per year in the Scopus database. One reason for sparking such interest may be that "sustainability transitions research asks 'big picture' questions", as Köhler et al. put it (2019, p. 3).

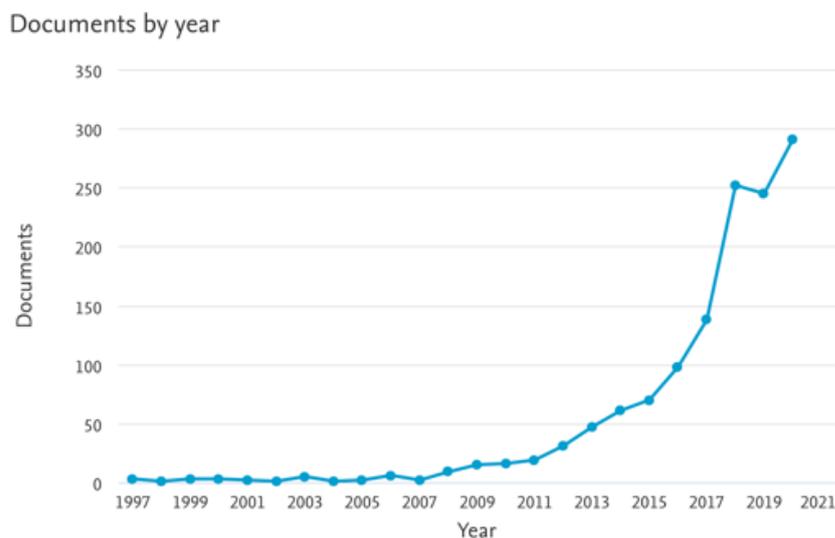


Figure 1 Scopus search results for "sustainability transitions" from 1997 to 2019.

¹ See www.transitionsnetwork.org

Sustainability transitions are concerned with the challenges that “are brought about by unsustainable production and consumption patterns in socio-technical systems such as electricity, heat, buildings, mobility and agro-food” (Köhler et al., 2019, p. 2). Incremental improvements and technological fixes cannot tackle these persistent problems, which is why a more radical, ‘whole-system’ approach is required (Grin et al., 2010). The unit of analysis of sustainability transitions research is located at the meso-level of socio-technical systems (Geels, 2004), while sustainability debates have usually focused on the macro-level analysis (e.g. capitalism or nature-society interaction), or the micro-level (e.g. individual practices and habits). The notion of socio-technical systems combines these two perspectives, as the socio-technical systems – “the linkages between elements necessary to fulfil societal functions” (e.g. technology, infrastructure, supply network) – are the outcome of human activity (micro-level) and form the broader societal systems such as shared cultural beliefs, values and symbols (macro-level) (Geels, 2004).

2.1.1 Key characteristics of sustainability transitions

The recently updated research agenda of the STRN lists the main characteristics of sustainability transitions that all approaches of this research field, like transition management, share (Köhler et al., 2019). They are the underlying premises that determine how the world and present-day challenges are perceived and analysed, and what kinds of solutions and processes are proposed to achieve sustainable development. Sustainability transitions, as understood in this field of research, have the following characteristics (adapted from Geels and Schot (2010) and Köhler et al. (2019)):

- **Multi-dimensionality and co-evolution:** Transitions are co-evolutionary processes that require a fundamental shift from one socio-technical system to another. Socio-technical systems consist of a range of elements: “technology, markets, user practices, cultural meanings, infrastructure, policies, industry structures, and supply and distribution chains” (Köhler et al., 2019, p. 2). Technical innovations require a change in the societal use and embedding of new technologies (markets, user practices, regulations, cultural symbols); these developments don’t evolve simultaneously but undergo separate, non-linear processes. This multi-

dimensionality and independent co-evolutionary processes make sustainability transitions exceptionally complicated.

- **Multi-actor process:** Transitions are multi-actor processes that rely on a range of actors and groups like local communities, policymakers, scientists, civil society and the private sector. A top-down, governmental approach alone cannot govern these transitions; a multitude of actors is required.
- **Stability and change:** Transitions research attempts to comprehend and take into account the dialectic relationship between change (new technologies and innovations) and stability (path dependency and locked-in production and consumption patterns).
- **Long-term process:** Transitions are long-term transformations, taking place over several decades (30-50 years). Sustainability transitions research acknowledges that it takes time to disrupt existing systems and for niche innovations and alternative practices to spread broadly.
- **Open-endedness and uncertainty:** Transition processes are characterised by uncertainty. It is impossible to predict how interventions will operate and evolve in an interdependent, multi-dimensional system. Multiple pathways to sustainability exist and it is important to remain flexible and adapt strategies over the course of a transition. The non-linear character of innovation processes, political processes and socio-cultural processes also add to the uncertainty of future developments.
- **Values, contestation and disagreement:** The idea of transformative change towards sustainability is, unquestionably, highly disputed. There are (powerful) actors that profit from the current system and resist change, and then there is the discussion of what sustainability exactly entails.
- **Normative directionality:** Sustainability transitions (research) explicitly aims for a transformation towards a sustainable future.
- **Radical, transformative shift:** Transitions are understood as a radical transformation from one system configuration to another. However, the term “radical” refers to the

scope of change, not the speed (Geels & Schot, 2010). Innovation can both occur rapidly or proceed slower in a step-by-step manner.

2.2 Transition management

Transition management is a method that translates the theory of sustainability transitions into a prescriptive, complexity-based governance framework (Loorbach, 2010). Its purpose is to promote a “radical transformation towards a sustainable society” (Grin et al., 2010, p. 1) through facilitation a co-creation arena that enables the social production of solutions that break with the status quo (Nevens et al., 2013)

The framework was developed in the Netherlands in 2001 to tackle the increasing complexity of societal and environmental issues and as a result of the inadequacies of traditional top-down governance and the free market approach to generate sustainable solutions (Loorbach, 2010).

Inspired by the Dutch transition theories, the transition management framework offers a prescriptive approach for governance derived from both systems theory as well as practical experiments and experience. By prescribing sustainable development as the long-term goal, it is explicitly a normative framework (Loorbach, 2010). Governance processes using the transition management approach create the space for short-term innovation and address long-term sustainability issues through a common vision. These processes establish and promote the work of broad innovation networks that include business leaders, government officials and members of the science community and civil society, which agree upon shared visions and agendas for social reform and increasingly influence regular policies (Loorbach, 2010). These networks, so-called transition arenas, provide the space for creative, innovative thinking and experimenting to uncover alternative ways of urban development and ultimately create fundamental systemic change. Shared ambitions, social learning and the co-production of solutions are central to transition management, making it stand out from common urban planning approaches such as strategic planning.

Transition management is still a young research field that is a ‘work in progress’ (Nagorny-Koring & Nochta, 2018) and has mostly been employed in a European context; though its application outside of Europe has increased noticeably in the last few years accompanied by a growing interest to managing low-carbon development in cities. Initially, transition

management was developed for the national governance level in the Fourth Dutch National Environmental Policy Plan in 2001 (Kemp & Loorbach, 2005). More recently, scholars have started to adapt the theory and its processes to better fit the urban planning settings to support and evaluate cities in their sustainability transitions (Nevens & Roorda, 2014; Roorda et al., 2014). The most prominent method is described in the following paragraphs.

Transition management is a process that can “facilitate the uptake, mainstreaming and even embedding of ‘governance experimentation’ to urban planning and governance practice” (Frantzeskaki, Hölscher, et al., 2018, p. 2). Contrary to its name, it proceeds on the assumption that transition processes cannot be managed or controlled due to the socio-technical systems’ inherent complexities and interdependencies. Instead, it enables a range of local actors to rally around a common goal and allowing collective searching and learning processes to unfold. Rather than coming up with a specific solution, ‘transition experiments’ take a societal challenge as a starting point to explore and learn about a certain context and the broader consequences of the experiment. These concrete short term projects should be aligned with a specific transition path, contribute to the overall sustainability vision and, if successful, can be scaled up over time. The application of transition management can be structured in different ways but it always incorporates the four phases of the transition management cycle proposed by Loorbach (2010), which includes *envisioning* long-term goals, *pathway creation* via backcasting from long-term visions to short and mid-term targets, *experimenting* with short-term actions and *monitoring* these experimentations to adapt goals, visions and pathways. Long-term visions and pathways assigning short-term actions are not rigid and can be adapted to incorporate newly discovered knowledge and changing circumstances, enabling a process of social learning. In the urban context, DRIFT (Dutch Research Institute for Transitions, Erasmus University Rotterdam) translated the transition management cycle in its guidance manual into a seven-step process incorporating and extending Loorbach’s four phases, illustrated in figure 2 (Roorda et al., 2014):

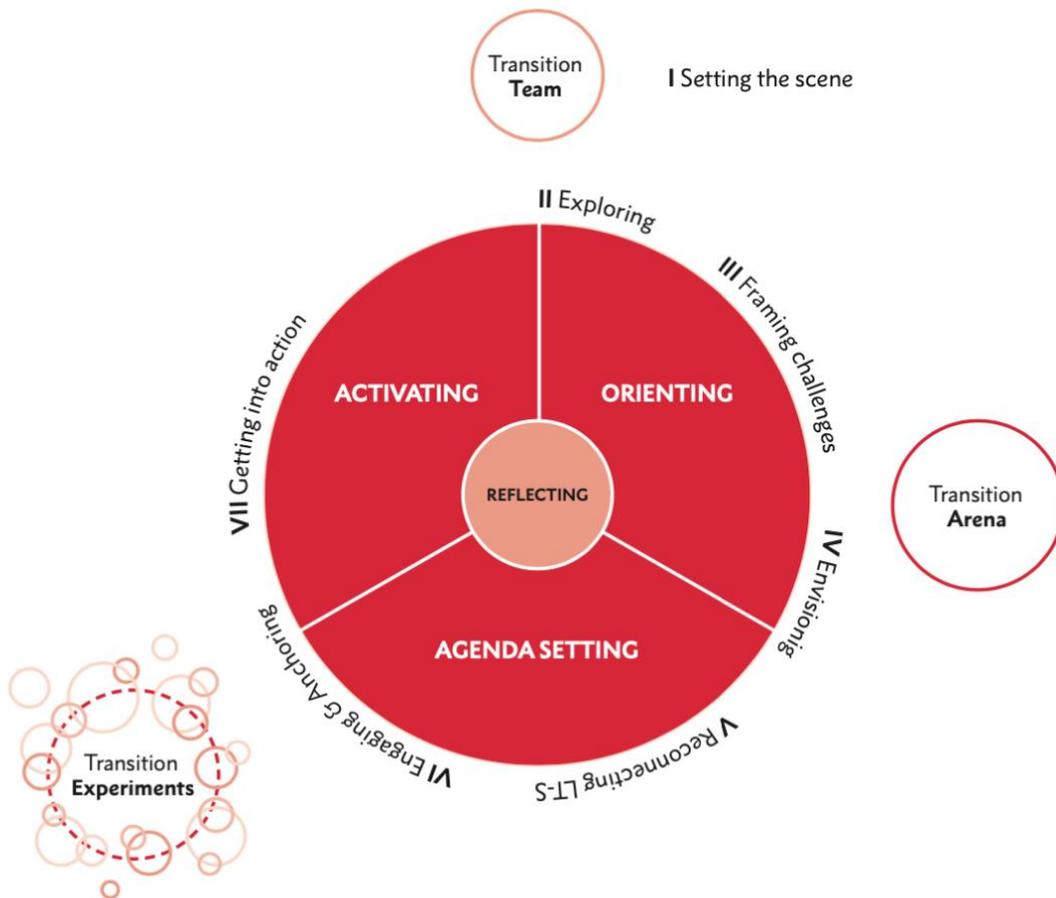


Figure 2 The transition management process in an urban context.

(Roorda et al., 2014)

I Setting the scene – the first step of the transition management process involves setting up a transition team and tailoring the approach to local priorities and opportunities. The transition team is a group of people that manages and facilitates the transition management process and, in the beginning, initiates it by drafting a process plan that details the focus, resource funding, responsibilities etc.

II Exploring local dynamics – the transition team explores the city’s dynamics and conducts a system and actor analysis. The system analysis provides an integrated overview of the issues at hand and seeks to uncover the underlying, rooted problems. The actors analysis maps out any relevant people or organisations that will later form the basis for selecting participants as change agents for the transition arena group. These include frontrunners (local leaders already involved in

sustainability initiatives), city administration, researchers, businesses, civil society organisations and residents.

III – Framing the transition challenge – through a series of discussions, the group of change agents explores the transition challenges and establishes a shared understanding of the issues.

IV – Envisioning a sustainable city – the group creates a coherent vision for the city that can later on serve as an anchor point for strategies and short-term actions.

V – Reconnecting long-term and short-term – the group of change agents come up with several transition pathways depicting a possible route to the envisioned future. They provide an insight into what is needed to create a sustainable city and transition experiments further operationalise them into actionable projects. Experiments are an essential part of transition management because they offer an opportunity to explore and learn about alternative structures, cultures and practices that help to transform the underlying system. Experiments are a great way to lowering the bar for trying out radically different actions to the status quo as they are temporary and focus on learning about new ways rather than permanently establishing them. A transition agenda summarising these strategies and actions is developed at the end of the transition arena process.

VI Engaging and anchoring – The phase of making the transition agenda public and consolidating it is crucial to increase its impact and mainstreaming its ideas about sustainability. Other people, businesses, organisations and policy-makers can get involved, adopt the agenda into their own context and have a chance to adapt it. The transition agenda is only as good as its ideas but the case studies of the MUSIC project showed that it inspired policy development, the creation of working groups within governmental departments, better collaboration between citizens and the council and even new policy plans (such as the Aberdeen Strategic Energy Action Plan).

VII Getting into action – in this final phase the transition experiments are initiated and adapted, and in the process attract more involvement from more actors. The aim is to test alternatives and innovative structures and practices. The new insights about

emerging challenges and solutions can then be taken to a more strategic level and fed back into the visions, pathways and experiments.

Transition Management has been applied and empirically tested through several EU-funded research projects, such as the Climate-KIC projects Pioneer Cities and Transitions Cities which attempted to introduce a more strategic, transition management inspired approach to governing the urban low-carbon transitions in eight cities from six European countries (including Birmingham, Frankfurt, Budapest, Bologna) (Nagorny-Koring & Nochta, 2018). The city of Ghent, Belgium established its own Climate Alliance (a network of businesses, organisations and citizens) to help develop a plan to guide the city towards climate neutrality (Nevens & Roorda, 2014). In its attempt to give structure and guidance to this network, it chose to adopt an approach based on the principles of transition management, complemented by DRIFT (the Dutch Research Institute for Transitions) within the framework of the Interreg MUSIC project (Mitigation in Urban areas and Solutions for Innovative Cities) (Roorda et al., 2014). Four other cities, Aberdeen, Ludwigsburg, Montreuil and Rotterdam, participated in the MUSIC project as well to take action for CO₂ reduction. The success of such projects in terms of realising carbon neutrality is difficult to measure in such a short time frame. Because these cities were still pioneering the concept, the projects tended to be relatively resource and time-intensive. It is known that transition management is not the silver bullet for a low-carbon transition; however, it is a “promising alternative to complement and accelerate the thus far observable yet fairly insufficient efforts and progress with regards to climate change in particular and sustainable development in general” (Nevens & Roorda, 2014, p. 120). In particular, transition management inspired techniques (e.g. network modelling, envisioning, backcasting) encourage system thinking and bring together a myriad of actors and organisations to co-create the desired future. The case of Ghent showed that dominant work cultures and administrative practices shifted as a result of the transition management approach and made room for experiments outside the established routines (Nevens & Roorda, 2014).

2.3 Relation of transition management and urban planning

The following section presents and critically evaluates the current discussion about where transition management, and, more broadly, sustainability transitions thinking, can be situated within the planning context. The research of the interface of sustainability transitions and urban spatial planning has emerged when transition management started to

be applied in an urban setting (for instance, Urban Transition Labs Nevens et al., 2013). Being two different academic fields, only since sustainability transitions research has grown and diversified in recent years has there been more methodical attempts to bring urban planning and sustainability transitions together. Most studies in this category have focused on comparing a variety of conceptual approaches (like multiple streams approach, strategic niche management, multi-level perspective, transformative adaptation) to analyse the respective advantages and interconnections (e.g. see Chang et al., 2017; Harlow et al., 2018; Malekpour et al., 2020; Patterson et al., 2017; J. M. Wittmayer et al., 2016). The studies examining transition management and urban planning, specifically, are discussed in the following section. The main question within this emerging debate is whether and how sustainability transitions and urban planning should be bridged or remain independent and separate approaches.

As discussed above, from the socio-technical standpoint, a transition to a more sustainable future necessitates a transformation of the system itself, thereby requiring new planning and governance approaches that can facilitate system innovation through collective experimentation and social learning (Carroli, 2018; Frantzeskaki, Hölscher, et al., 2018). Indeed, urban planning and transitions management share many commonalities; for example, the focus on the empowerment of communities in terms of collaborative planning processes or the longer term orientation of strategic plans. As cities are increasingly facing complex urban sustainability challenges and are searching for ways to achieve wider social, environmental and economic objectives for current and future generations, the rationales of planning agree with some of transitions thinking. Or as Walsh puts it, “[w]hile it may be commonly something very different to this, at its best *perhaps* city planning *is* transition management” (2018, p. 264).

The aspiration for a fundamentally better future for cities originates from visions such as Le Corbusier’s ‘contemporary city’ or Howard’s ‘garden city’ that conceived urban change as part of a radical change in thinking mode (Wolfram, 2018). They can be classified as the visionary mode of planning which contrasts planning as a regulatory and technocratic exercise carried out by experts and following spatial plans and analyses to manage urban change. Wolfram argues that interface of urban planning and transition management can be situated within this broader debate of planning theory about the conflicting approach of visionary and regulatory modes of planning (Wolfram, 2018). The regulatory mode has

evolved from and is still today deeply rooted in the incremental approach of planning which does not aspire to reach an ideal future state, but seeks to continually adapt when problems arise (Malekpour et al., 2015). This reactive approach to planning is in stark contrast to the proactive search for sustainable practices, structures and regimes of transition management.

2.3.1 Evolution of urban planning processes in relation to transition management

Wolfram was the first to systematically compare the rationalities and instruments of a range of planning theories to the transition management process (2018). He illustrated that the evolution of planning from rationalism and incrementalism to more participatory and strategic approaches reflect, in a way, an adaptation to key elements of transition management. Rationalist planning with its belief in a linear process of quantitative analysis and reason, whereby planning is understood as a scientific method to 'simply' implement the plan, directly contradicts the key orientations of transition management. The inherently technocratic character, the assumption of comprehensive knowledge, the lack of feedback mechanisms, and the blindness towards diverse values and actors' interests contribute to the incompatibility of rationalist planning and transition management (Wolfram, 2018, p. 107). Incrementalist planning emerged as a response to some of the shortcomings of rationalism in the 1950s and introduced new ideas to planning that would eventually be incorporated into transition management thinking like recognising the plurality of knowledge and interests and the importance of experimentation and learning-by-doing. Conversely, incrementalism contributes to the stabilisation of the existing system and prioritisation of current problems over future goals, reinforcing path dependencies and lacking the capacity to "move beyond short-term and piecemeal solutions" (Wolfram, 2018, p. 108), contravening sustainability transitions thinking.

Transition management shows resemblance to more recent approaches, specifically strategic, collaborative and metropolitan planning. Strategic planning and transition management share many planning principles such as a long-term vision that provides overall direction, short-term actions to help focus on reaching key goals, continuous adaptation through monitoring and feedback, and stakeholder engagement and empowerment through sharing knowledge resources. However, a key difference between strategic planning and transition management, is that the former is conceived "as an integral part of the public authorities' planning approach", while the latter actively seeks to separate, even shield them, from one another through the creation of a transition arena (Wolfram, 2018, p. 111).

The stakeholder selection process differs, too. Strategic management involves both key stakeholders as well as the broader public aiming for representation and involvement of those most interested and affected, whereas the participants of the transition arena are selected based on knowledge diversity and innovation potential.

Like strategic planning, collaborative planning has several similarities with transition management. Both processes acknowledge the social construction of knowledge and the diversity of values interests, seek to incorporate them into the process and actively encourage a dialogue between them. Collaborative planning attempts to make knowledge production (as well as the decision-making process) more democratic through processes that enable social learning, such as workshops, charrettes or community planning. The focus is on collective consensus building as opposed to competitive interest bargaining. Transition management has picked up on ideas such as “collective knowledge production, open processes, joint discourse development and social learning” of collaborative planning, but differs in terms of its orientation at socio-technical systems as opposed to *place*, a key component of collaborative planning, and for that matter, most other planning approaches as well (Wolfram, 2018, p. 210).

The gradual shift of planning theory and practice from government to governance in recent years, reflects some critical ideas of transition management:

- the importance of collective knowledge production,
- empowerment through social learning and co-creation, and
- the need for a long-term vision for deliberate transformative change.

However, Wolfram (2018) stresses that mainstream planning practices, despite the shift to more participation ultimately *stabilises* the current regime. The purpose of transition management, on the other hand, is to *destabilise* it by recognising that planning itself is part of the very problem that planning seeks to solve. Therefore, the transition management is based on the idea of a transition arena that takes place *outside* the traditional planning space and uses that outside perspective to shield innovative ideas from risk-averse forces within the established system (Walsh, 2018).

2.3.2 The planning for transition paradox

To better understand the potentials and limitations of urban planning to incorporate a transitions perspective and steer towards sustainable urban development pathways, Peris and Bosch (2020) analysed an integrated sustainable urban development (ISUD) strategy in València. They found that four main fields of tension emerged as particularly relevant.

(1) When translating the transition management perspective into the area of urban planning, one is confronted with the issue of which actors to involve to promote innovation while at the same time enable representation. Democratic processes focusing on inclusivity are inconsistent with the idea of a transition arena that involves selected forerunners with a capacity for innovation. The question remains how to overcome the *democratic representation versus involvement of innovators* controversy. Peris and Bosch note the importance of inclusive and open governance processes that enhance the capacity of transformative actors to contribute to the process. They found that proactive facilitation of the co-creation processes and discussions help reinforce the innovative potential of the residents and civil organisations involved (Peris & Bosch, 2020).

(2) Formal decision-making procedures can impede the processes of social learning and reflexivity. Societal transformation requires niche actors to unfold their innovative capacity and experiment with alternative practices and structures. The course of embedding niche innovation into the existing system to transform it, relies on approaches that enable collective learning and a space for various actors to exercise their agency. As the case study illustrated, administrative procedures constituted a massive burden; it took almost three years for the public administration (across multiple levels of the governance system) to initiate the first operations after the collaborative design phase with residents and organisations. The initially built up momentum within civil society was lost and confidence in the process and the ability to achieve the desired transformation had to be restored. Planning for transformation requires intangible results such as reflexivity, adaptability and social learning to be deliberately pursued and embedded into the formal criteria of project quality (ibid.)

(3) Similarly, administrative procedures which are based on a clearly defined sequential flow from design to implementation hinder more open iterative processes of searching and trialling alternatives to the status quo. The focus on delivering a pre-defined goal within a

specific budget clashes with the objective of innovation and experimentation to advance transformation. The standardisation and institutionalisation of administrative methods and instruments ultimately undermined the more disruptive initiatives of the ISUD Strategy in València. Regulatory procedures need to develop mechanisms that allow open processes of searching and experimentation (ibid.).

(4) The fourth challenge of incorporating a transition management perspective into urban planning is the importance of an integrated and multi-sectoral approach to sustainable development which often does not reflect the realities of the variety and complexity of administrative responsibilities. A lack of cohesion between departments, budget lines and policy agendas exacerbate the adoption of a system perspective that emphasises the interconnection and interdependencies of sustainability issues and their solutions. The authors propose to develop specific procedures that enable better integration and create an openness for compromise and cooperation across different departments (ibid.).

On the whole, Peris and Bosch conclude that the rationale of planning does not easily facilitate the inclusion of the transition management perspective into the currently dominant planning regime. Their study, along with previous research, has indicated a planning for transformation paradox (Peris & Bosch, 2020). On the one hand, planning is inherently rooted in the existing urban system's values and rules due to regulations and standardised procedures. On the other hand, planning has the potential to create space for niche innovations to occur and facilitate their up-scaling beyond the initial protected space.

These findings are consistent with previous research. A literature review by Carroli (2018) highlighted the tendency of planning to stabilise and maintain the existing system. Path-dependency and the cultural and historical inertia of planning hinder innovation and have proven to protect carbon-intensive infrastructure, overall demonstrating incapability of addressing today's system challenges. Carroli found the obstacles and limitations of planning to enable sustainability transitions include the incremental and hierarchical modes of planning, institutional and incumbent resistance, the reactionary approach as opposed to anticipating and responding to rapid technological developments, the lack of reflexivity, dialogue and experimentation of planning tools and the incremental, regime-bound and path dependent tendencies. All in all, planning is not very well equipped to direct and facilitate the necessary transitions towards a sustainable future. As planning is deeply

connected to the existing regime, system destabilisation through planning is difficult to achieve. At the same time the endogenous character gives it a distinct leverage point to accelerate system transformation from within (ibid.).

Given the conflicting roles of urban planning in enabling urban transformation, this study aims to explore this dialectic relation further by applying a process-oriented analytical framework to a case study of Future Streets in Auckland and explore the extent to which urban planning can, in practice, incorporate urban transitions.

Chapter 3

Methods

This dissertation set out to investigate how transitions thinking, and specifically the transition management approach compare to planning processes. It used a qualitative case study approach to identify opportunities and limitations of urban planning processes in a New Zealand context to incorporate elements of transition management. The research methodology is based on the analysis of a single case study (Yin, 2018) combined with a deductive approach using a process-oriented analytical framework of the transition management process. The single case study design allowed for an in-depth empirical evaluation of a planning process against the seven-phase process described in DRIFT's guidance manual of "Transition Management in the Urban Context" (Roorda et al., 2014).

The case selection was based on the following criteria: a) the case must, in some way, accelerate the decarbonisation of New Zealand's transport system, i.e. contribute to the broader transition from a car dependent, carbon emission intensive system to a system that promotes active modes of transport (walking, cycling and public transport). This allowed for a comparison of the transition management approach to a planning process that similarly seeks to contribute to today's sustainability challenge; b) the case must involve a regular planning authority in an ordinary planning context; hence typical barriers and drivers of the urban planning system to incorporate elements of the transition management process could be identified; and c) the case must be set in an urban context because one of the objectives of the study was to adapt the urban transition management approach (based on Roorda et al. (2014)) into a process-oriented analytical framework. The Te Ara Mua - Future Streets project in Māngere, Auckland fulfilled these criteria.

A combination of a literature review and a document analysis was used to collect information. As Future Streets was designed and closely monitored by a research team (it was essentially a research project), academic, peer-reviewed journal articles were abundantly available. According to Future Streets' website, scientists are currently investigating the change of travel patterns in Māngere following the street design intervention². However, the process of designing and implementing the infrastructure

² See: <https://www.futurestreets.org.nz/about/>

change which is relevant to this study, was completed in 2017. For the literature review on Future Streets, every available article covering the design and implementation process was used. A document analysis complemented the academic literature (Wharton, 2006). The documents analysed comprised newspaper articles, newsletters of the local school, reports and news items of involved authorities (Auckland Transport, the New Zealand Transport Agency (NZTA) and Auckland Council) and the Future Streets website.

The specific research strategy to analyse the data and study the research question included conceptualising the transition management process in an urban setting. An approach that highlighted the step-by-step process was used to identify challenges and potential of integrating transition management and urban planning. Previous studies dealing with this question have compared theoretical assumptions, key principles and general methods of transition management with different planning approaches (Raynor et al., 2017; Wolfram, 2018). Other research that conducted case studies of a specific case similar to this study, has based the analysis on a theoretical framework using a literature review (Peris & Bosch, 2020) or an analytical model developed for a specific case context (e.g. urban planning system reform (Walsh, 2018)). Therefore, the process-oriented framework developed for this case study is a novel approach to systematically evaluate and compare transition management with real-life planning procedures. The seven-phase process of transition management in an urban context was operationalised into guiding questions, which, if the answer was yes, indicated a close proximity to the transition management process (for more details refer to chapter 4).

The limitation of this research design is the limited possibility to generalise the findings for all urban planning processes. As urban planning consists of many different approaches and methods which are based on a variety of different planning theories and are context-dependent, an in-depth qualitative, case study cannot fulfil the expectation of transferring the findings to all planning processes. Rather, the case study used an exploratory approach to gain insights into the relation of urban planning and transition management in this specific context and test the developed evaluation criteria (Keddie, 2006). Nonetheless, as the findings relate to the work culture, work mode and established interests of planning authorities, the study reveals some interesting insights that are most likely relevant in other contexts, too.

Chapter 4

A process-oriented analytical framework for transition management

Loorbach (2010) developed a multilevel framework to translate the abstract governance principles based on the complexity of adaptive societal systems into a practice-oriented transition management process. He outlines four different types of governance activities with specific corresponding characteristics that this dissertation uses to categorise the indicators for the case study analysis; strategic, tactical, operational and reflexive (see table 1). The framework serves as an “analytical lens to assess how societal actors deal with complex societal issues at different levels” (Loorbach, 2010, p. 168) while also offering insight into what strategies are needed to steer governance processes towards transformation. This chapter introduces the four types of activities and assigns each phase of the transition management process described in chapter 2.2 to one of these four types. Together they constitute a process-oriented analytical framework that is used for the case study analysis in chapter 5. The analytical framework includes a set of questions that help ascertain if a given process resembles transition management. The chapter is organised in the following way. It first summarises the activities for each transition management type according to Loorbach (2010), then proceeds with a detailed description of each corresponding phase as outlined in the DRIFT guidance manual (Roorda et al., 2014) and, subsequently, offers a set of questions as evaluation criteria (see table 3).

Table 1 Transition management types and their focus.

	<i>Focus</i>	<i>Problem scope</i>	<i>Time scale</i>	<i>Level of activities</i>
Strategic	Culture	Abstract/ societal system	Long term (30 years)	System
Tactical	Structures	Institutions/ regime	Mid term (5-15 years)	Subsystem
Operational	Practices	Concrete/ project	Short term (0-5 years)	concrete

(Loorbach, 2007, 2010)

4.1 Strategic

Strategic activities comprise processes and discussions with a focus on the long-term time horizon encompassing an overall system approach (Loorbach, 2010). This level involves problem structuring, vision development, strategic discussions, long-term goal formulation and collective goal and norm setting. These activities help lay the foundation and overall direction for transformation and are concerned with the underlying culture of a societal system. They include societal and political examinations of norms, values, identity, ethics and sustainability. Because of political cycles and public pressure, strategic activities as understood by transition management are often not institutionalised in usual planning processes.

How to identify whether integrative strategic governance activities are present?

The outcomes of these activities are a long-term vision and an integrated understanding of the problem and underlying systemic issues. The process leading to these involves an organisational structure that fosters support and commitment within local government and beyond, an exchange of perspectives and views between change agents, strategic discussions and a shared understanding of the transition challenge.

4.1.1 Coordination of the process

Despite transition management comprising of temporary experiments and many opportunities for individuals and organisations to ‘just jump in’ and contribute on their own terms, the process requires a formal team that coordinates the activities and sets up the process. This transition team develops a plan that outlines the issues that are to be addressed and the intended outcomes (Roorda et al., 2014). It details who assumes responsibility for which tasks, which resources are required, what kind of funding is available, and sets the process into the local context by briefly summarising other relevant ongoing and planned activities. The team ideally consists of 3-5 employees from the initiating organisation (most often the local authority) with experts on the general topic and the process, and ideally a facilitator. Besides organising the process, the team’s role is to build links and generate commitment within local government to ensure a positive attitude and support for the project. This internal networking step is essential if the activities and insights from this collaborative exercise are translated into policy later on.

Questions: Is there one group of people that is responsible for initiating and driving the process? Are the expectations in terms of intended outcomes, required resources and participants' responsibilities for the process formally put on the record? Is an effort made to connect with local government officials to attract support for the project and gain internal commitment?

4.1.2 Understanding broader urban dynamics

The aim of transition management is not to just change certain individual behaviours but to question and address the context in which these practices occur. To gain an integrated overview and a systemic understanding of the present, within transition management, the transition team undertakes a system analysis to identify the connections between different components of the system and their (in-)direct effects. How do things influence one another? How has the status quo evolved over time? What are the key enablers and barriers of the current system? A system analysis distinguishes between symptoms (e.g. traffic congestion) and deeply rooted problems (e.g. urban form), and encourages a holistic and long-term perspective.

Likewise, the transition team also conducts an actor analysis to identify all significant local players and actors who have an interest in the topic. This evaluation will form the basis for selecting participants for the envisioning activity and who would be essential to connect to throughout the process. All in all, the initial team carries out interviews and desk research before getting the main collaborative process underway in order to set it up in the right direction, and gain a holistic understanding of how the current system works and who is already involved.

Question: Is an analysis undertaken to gain an integrated understanding of the present system and relevant actors in the field?

4.1.3 Developing a shared understanding among participants

The transition team sets up a (temporary) space that fosters trust among participants to go beyond business-as-usual, and enables a creative exploration of the sustainability challenge and mutual learning. The transition management approach refers to this space as a transition arena (Loorbach, 2010; Roorda et al., 2014). It consists of a series of informal meetings where participants engage themselves in defining the challenge, exchanging views

and perspectives on the desired future, and by doing so establishing a shared understanding of the sustainability problem. The transition team invites the participants for this process based on the actor analysis. It is a group of people who share a passion for the city's future and have a deep connection to the issue. They either hold innovative ideas (by envisioning or practising alternatives to the status quo) or are open to innovative ideas and could reinforce them. Participants must be willing to go beyond business-as-usual and are open to other perspectives. Generally, the group consists of 10 – 15 individuals with diverse backgrounds and a combination of different age groups, gender, experiences and skills. These change agents engage in the process as individuals, not as representatives which helps remove the institutional perspective which can hinder innovative potential.

Questions: Do participants share a passion for exploring alternatives to the status quo? Does the 'space' encourage open discussions, mutual learning and critical reflections? Do individuals 'come as themselves' (as opposed to representatives of their organisation)?

4.1.4 Developing a long-term vision

Through the exchange of views and collective exploration of the transition challenge, the transition arena participants develop a vision for the future of the city (Roorda et al., 2014). Loorbach defines visions as “qualitative, inspiring, challenging and imaginative pictures of the future that define a structurally different, and more sustainable, state of the system” (2007, p. 117); and “their over-arching goal is to stimulate a sense of shared direction and ambition amongst a variety of actors” (ibid., p. 117). Developing a long-term vision is an iterative process.

Participants are encouraged to think in new and creative ways to envision a sustainable future for their city. The process involves formulating guiding sustainability principles (such as “complete independence from fossil fuels”) and creating visionary images and a storyline that illustrate these key sustainability principles in richer detail. To achieve this vision, a fundamental system change would be required, instead of incremental change that continues the status quo. The vision provides a sense of direction and aspiration. The envisioning process is just as important as the vision itself, as the group needs to feel open to challenge present-day perspectives and think beyond what is currently possible. It should create momentum and inspire participants.

*Questions: Is the long-term vision for the desired future a result of a collaborative process?
Does the vision challenge the status quo and go beyond what is currently possible?*

4.2 Tactical

Activities at the tactical governance level are concerned with the societal system's dominant structures, including "rules and regulations, institutions, organisations and networks, infrastructure and routines" (Loorbach, 2010, p. 170). Actors that operate at this level develop "programs, financial and institutional regulation and frameworks, and organise networks and coalitions" (ibid.). Tactical activities are about achieving goals in a specific context (less concerned with the overall development of the system) with a mid-term horizon. Such steering activities are interest-driven and include negotiations, collaborations, agenda-setting and coalition forming. The vision and collective goals developed at the strategic stage are translated into more refined pathways and concrete agendas, connecting the long-term vision with shorter-term and specific targets.

The two main activities involve developing an agenda that connects the long-term with the short-term, and coalition forming.

4.2.1 Agenda setting

This phase of the transition management process is about bridging the long-term vision of a sustainable future and the present through transition pathways and developing more tangible and concrete ideas of how to reach the desired future. Transition pathways describe a possible route from the present toward the envisioned future (Roorda et al., 2014). A "from – to" exercise can help to kick start the process (e.g. "from owning to using" or "from centralised to decentralised energy production"). Backcasting is then used to picturing the achievability of the long-term goals while ensuring that the strategies and projects developed are future-oriented. Backcasting takes the envisioned future as a starting point and goes step-by-step back in time. Typical questions to elaborate on these pathways include (Roorda et al., 2014, p. 31):

- What changes are needed to bring about the vision?
- What were milestones starting at 2050 (or whatever far-off date was chosen)?
- What corresponding interventions and actions were needed?

- What drivers and stepping-stones have been supportive of realising these changes, and what barriers have been encountered?
- Which actors were important for reaching these milestones?

Working groups can further operationalise these pathways into specific ideas for actions and short term projects. These – pathways, short-term actions, the transition challenge and visionary images – are summarised in a transition agenda. It's important to note that this agenda is a temporary snapshot; it can always be rewritten, revised and improved. Another essential aspect of a transition agenda is that it is perceived not as an end (predicting the future), but a means (influencing the future). The agenda's ultimate goal is to open up opportunities, provide direction and concrete strategies to achieve desired future, and align short term actions. The agenda is not supposed to be mandatory or even fully realised; it's about influencing the agenda of others and letting others reshape and adopt it. As the guidance manual puts it: "it has to deserve its influence by the strength of the ideas included" (Roorda et al., 2014, p. 33).

Does the 'translation' of the vision to shorter-term actions involve backcasting? Is an agenda (in various forms) developed that provides a strategic direction and ideas for short-term action (i.e. does it reveal what is needed to transform specific aspects of existing structures, cultures and practices)? Is the agenda challenging and at the same time motivating and desirable enough to get participants and others into action? Is the agenda designed to evolve? Is the agenda seen as a means to influence the actions of other people, including those previously not involved (as opposed to an end in itself that 'only' needs implementation)?

4.2.2 Coalition forming

The transition agenda, developed by the participants in the transition arena, is only as effective as it is able to engage a wider group of people, organisations and initiatives to adopt ambitions and contribute to the city's sustainable future. The transition management approach explicitly encourages others not previously involved to adopt and adapt the agenda and relate it to their own agendas and practices. It is essential that more and more actors take up the transition agenda to truly increase the impact and challenge the status quo. "The aim is now to keep up the momentum, by continuing to make space for emerging

paradigms and practices, while exploring new roles and relationships”; and “[the agenda] comes alive through links to ongoing development” (Roorda et al., 2014, p. 35). At this stage of the process, the focus is on creating a network of engaged people and organisations from different fields to generate support for the transition, raise public awareness and accelerate broader societal change.

The transition management guidance manual lists four types of activities to form this broader coalition. Ideally, a (new) coordinator or coordinating team emerges to facilitate and expand the network, keep track of the transition agenda and organise the space for ongoing reflection and inspiration. Previous projects have shown that to allocate sufficient funds and support for such a facilitation role, it helps frame it as a project (e.g. formulating deadlines and events). This also helps to acknowledge the relevancy and urgency of this role.

The four activities include organising networking events, seeking publicity, plugging the agenda to businesses and organisations, and challenging the municipality.

Organising networking events – to celebrate successes, to launch the agenda, to reveal and support promising ideas and initiatives (low-profile meetings like mobility cafes, crowdsourcing events, competitions etc.), to contribute to existing events;

Seeking publicity – to promote the transition agenda in the media, promotional materials to spread the new ideas, to use high profile events to connect people that do not yet have anything to do with sustainability;

Plugging the agenda (encouraging businesses, organisations and individuals to identify and develop their role in the transition agenda, making them adapt their own initiatives) – through conventions, creating a platform like a climate network, backcasting sessions with key stakeholders, issue-specific working groups

Change the council – involving policy officers from relevant departments in working groups, creating forums for policy officers to exchange ideas, creating forums for politicians to discuss the agenda, translating ideas into ‘regular’ projects (e.g. the Aberdeen city council developed a Strategic energy Action Plan)

Questions: Does the process actively encourage new actors to adopt and adapt the transition agenda? Does it use a wide variety of activities (events, publicity, council etc.) to generate support and accelerate societal change?

4.3 Operational

Operational activities encompass the implementation of specific short-term projects and actions. This governance level is concerned with everyday decisions made in the field, often “driven by individual ambitions, entrepreneurial skills or promising innovations”. Operational activities are generally referred to as “innovation”, a broad term that includes “all societal, technological, institutional and behavioural practices that introduce or operationalise new structures, culture, routines or actors” (Loorbach, 2010, p. 170). They offer the space for experimentation. It is often left to chance whether these innovations lead to system innovations and transitions (Bertolini, 2020).

4.3.1 Experiments

Rather than projects, transition management refers to transition experiments. They aim to pilot alternatives or innovative structures, cultures and practices and are less focused on achieving immediate project goals. “A transition experiment takes a societal challenge as a starting point for learning aimed at contributing to a transition rather than a specific solution” (Wittmayer et al., 2018, p. 97). Transition experiments can contribute to sustainability transitions in three ways: by deepening – learning about an experiment in a specific context; by broadening – repeating the experiment in a different context; and scaling up – moving from a niche level to regime level. Experiments tend to be costly in time and money, as they often have a high level of risk, require monitoring and adopt a “learn by doing” approach. The table below lists the distinct characteristics of transition experiments and contrasts them with more classical innovation experiments.

Table 2 Distinctive characteristics of transition experiments

	<i>Classical Innovation Experiment</i>	<i>Transition Experiment</i>
Starting point	Possible solution (to make innovation ready for market)	Societal challenge (to solve persistent societal problem)
Nature of problem	A priori defined and well-structured	Uncertain and complex
Objective	Identifying satisfactory solution (innovation)	Contributing to a transition (fundamental change in structure, culture, practices)
Perspective	Short- and medium-term	Medium- and long-term
Method	Testing and demonstration	Exploring, searching and learning
Learning	1 st order, single domain and individual	2 nd order (reflexive), multiple domains (broad) and collective (social learning)
Actors	Specialised staff (researchers, engineers, professionals, etc.)	Multi-actors alliance (across society)
Experiment context	(partly) controlled context	Real-life societal context
Management context	Classical project management (focused on project goals)	Transition management (focused on societal transition goals)

(Van den Bosch, 2010, p. 63)

The key activities at this stage are about implementing transition experiments, policies and projects. Nevertheless, sufficient effort also needs to be made to link the experiments back to the broader vision and reflect on what they teach about alternative practices and barriers to change.

It helps to set up working groups for specific initiatives, as well as a coordinating team that provides support and can act as a facilitator. Its role also includes creating a network of supportive actors within the council, the business sector and other organisations.

Question: Are the initiatives linked to the broader vision? Is the aim to learn about alternatives (or only to realise the project)? Are the experiments challenging the status quo in some way?

4.4 Reflexive

Reflexive activities are all about learning from specific projects, monitoring, assessing and evaluating ongoing policies and societal change. Reflexive activities occur partly within existing institutions with the task to monitor and evaluate, and partly within society, for example, through (social) media that help shape public opinions. Researchers also play a role by analysing societal processes and dynamics. Regular reassessing and re-evaluating are necessary to prevent stagnation and assist in searching for new ideas and alternative pathways. Ideally, reflexive activities are integrated into the other three types of governance, particularly during and after transition experiments. Because it does not include its distinct phase in transition management, it is not separately listed in the analytical framework (see table 3). Questions like ‘Is the main goal to learn about alternatives?’ (experiments) and ‘Is the agenda designed to evolve?’ (agenda setting) incorporate reflexive governance activities.

Table 3 The process-oriented analytical framework

<i>Process phase</i>	<i>Questions to determine the extent of how similar the urban planning process is to the transition management approach</i>
Strategic	
I Coordination of the process	<p>Is there one group of people that is responsible for initiating and driving the process?</p> <p>Are the expectations in terms of intended outcomes, required resources and participants’ responsibilities for the process formally put on record?</p> <p>Is an effort made to connect with local government officials to attract support for the project and gain internal commitment?</p>
II Understanding broader urban dynamics	<p>Is an analysis undertaken to gain an integrated understanding of the present system and relevant actors in the field?</p>
III Developing a shared understanding among participants	<p>Do participants share a passion for exploring alternatives to the status quo?</p> <p>Does the ‘space’ encourage open discussions, mutual learning and critical reflections?</p> <p>Do individuals ‘come as themselves’ (as opposed to as representatives of their organisation)?</p>
IV Developing a long-term vision	<p>Does the project have a long-term vision?</p>

	<p>Is the long-term vision for a desired future a result of a collaborative process?</p> <p>Does the vision challenge the status quo and go beyond what is currently possible?</p>
Tactical	
V Agenda setting	<p>Does the 'translation' of the vision to shorter-term actions involve backcasting?</p> <p>Is an agenda (in various forms) developed that provides a strategic direction as well as ideas for short-term action (i.e. does it reveal what is needed to transform specific aspects of existing structures, cultures and practices)?</p> <p>Is the agenda challenging and at the same time motivating and desirable enough to participants and others to get into action? Is the agenda seen as a means to influence the actions of other people including those previously not involved (as opposed to an end in itself that 'only' needs implementation)?</p> <p>Is the agenda designed to evolve?</p>
VI Coalition forming	<p>Does the process actively encourage new actors to adopt and adapt the transition agenda?</p> <p>Does it use a wide variety of activities (events, publicity, council etc.) to generate support and accelerate societal change?</p>
Operational	
VII Experiments	<p>Is the main goal to learn about alternatives (or only to realise the project)?</p> <p>Are the experiments challenging the status quo in some way?</p>

In the next chapter, this analytical framework of the transition management process is applied to a local transport project in Māngere, Auckland, to identify key similarities and differences between transition management and planning and to gain a better understanding of the challenges of incorporating transition management into the urban planning context.

Chapter 5

Case study analysis – Te Ara Mua Future Streets

Te Ara Mua Future Streets is a controlled before-after study of neighbourhood scale infrastructure improvements to facilitate active modes of travel in Māngere Central, Auckland (Mackie et al., 2018; Macmillan et al., 2018; Te Ara Mua - Future Streets, n.d.). It is selected as a case study of a multi-sectoral collaborative process between a team of researchers and regulatory authorities. A community participatory process accompanied the project. The infrastructure changes were completed in 2017 (ibid.).

The project's idea was developed by an interdisciplinary group of researchers who sought to study the effects of transport infrastructure changes on human health and wellbeing. Auckland Transport (and at later stage NZTA) was approached to enter a project partnership as the authority is responsible for transport infrastructure in the Auckland region. The research was funded by MBIE, while Auckland Transport committed to funding the implementation of the interventions. The local community board was approached to facilitate the consultation process between the residents and the researchers to learn about the residents' travel behaviour, their needs and wishes in regards to mobility, and the barriers to cycling, walking and using public transport. The project design informed by these real-life experiences and science-based concepts, was discussed with Auckland Transport who, in the end, made the final decisions, and provided and installed the street infrastructure. All in all, Future Streets constitutes a somewhat novel approach when it comes to urban transport planning in terms of “the way information was gathered to inform the design, the design process and even the infrastructure that is typically implemented” (Mackie et al., 2018, p. 210), hence why it was selected for this case study. The project fulfils the case selection criteria as set out in chapter 3: It is innovative in terms of its approach and aspirational in terms of its wider vision; it is set in the ‘typical’ planning context, i.e. it involves the usual planning authorities; and it is located in an urban area to serve as an exemplar for urban planning approaches. The analysis of this case helps highlight the opportunities and challenges for transition management to be implemented in a New Zealand planning context.

The division into strategic, tactical and operational activities which is used in the transition management cycle as described in chapter 4 is used to structure the comparison of the different stages of Future Streets and the transition management theory even though the New Zealand project lacked concepts like a transition arena and agendas. Naturally, developing and implementing the Future Streets project differed from the seven transition management phases. Nevertheless, the process resembles, to a certain degree, most elements of transition management, whether directly (e.g. shared problem understanding and experimenting) or more indirectly (e.g. long-term vision):

- The *strategic* activities of Future Streets comprise the researchers defining the initial problem (relatively low levels of human health/wellbeing, high accident rates, higher risks for pedestrians and cyclists) and developing the idea for Future Streets (improving the street design using the self-explaining street concept). The initial project development is followed by strategic discussions with the regional transport authority and funding partners about project management and responsibilities.
- The development of the street layout can be considered as a *tactical* activity. It is concerned with (changing) the dominant transport infrastructure in a particular location, Māngere Central. The collaboration with the local community and the negotiations with Auckland Transport about specific design and infrastructure elements are part of this process of connecting the longer-term vision (improving walkability and cycling) with short-term action.
- Finally, the delivery of specific street interventions by Auckland Transport can be categorised as an *operational* activity. These technological innovations (pedestrian crossings, bike lanes) aim to introduce new structures and routines in terms of mobility within the neighbourhood.

This chapter answers the questions set out in the analytical framework in chapter four regarding the Future Streets project in Auckland.

5.1 Strategic

5.1.1 Coordination of the process

Transition management presupposes a comprehensive understanding of the current system, its inherent complexity and interdependencies, and the actors operating in it. Thus, it

requires a team of people responsible for the coordination of the process and can undertake the system analysis. Having someone organise and drive the process is fairly common for government-funded programmes, but cannot be taken for granted for networks operating independently, without financial support from (local) government. Transition management can be initiated both ways; hence this step is included.

Is there one group of people that is responsible for initiating and driving the process?

The Future Streets research team initiated the street redesign. The project was developed collaboratively by the researchers, Auckland Transport, the Māngere Local Board and the local community, and funded and implemented by Auckland Transport (Mackie et al., 2018).

The research team received funding from the Ministry of Business Innovation and Employment (MBIE) to undertake the study in 2012. Before this, Auckland Transport had already committed to the collaboration and funding and implementing the project (Witten et al., 2018). The Future Streets research team (comprising transport, human factor and public health researchers) developed the initial design of the process and made the connections to MBIE and Auckland Transport. Although ultimately Auckland Transport is responsible for transport infrastructure in the Auckland Region, the researchers initiated the concept and project design of Future Streets. In answer to the question, yes, a group of people was responsible for initiating and driving the process. This is not surprising given that Future Streets is a formally introduced and funded project with the goal to carry out an infrastructure intervention.

Are the expectations in terms of intended outcomes, required resources and participants' responsibilities for the process (formally) put on the record?

Auckland Transport provided a letter of support (which included a nominal funding commitment of NZD 1 million) before the research team submitted its funding application to MBIE (Witten et al., 2018). A Memorandum of Understanding was drafted but never ratified which may have slowed down progress and intensified competing priorities (Witten et al., 2018, p. 38). After funding was approved the research team, Auckland Transport and NZTA established a steering committee to set out project principles and values, and manage the research, design and implementation (Mackie et al., 2018, p. 212; Witten et al., 2018, p. 38). The researchers and transport officials agreed on the objectives of the project, though they appeared to have entered it with slightly different priorities and expectations (Witten et al., 2018). Auckland Transport and NZTA aimed for better outcomes for the transport networks.

At the same time, the research team focused on gaining new knowledge about the wider societal benefits through a street change intervention, with specific objectives for community involvement and the street design (self-explaining road concept).

Roles and responsibilities were set out: the research team led the community consultation process, then negotiated the street design solutions with Auckland Transport, which would then deliver the intervention. Timeline and funding issues were a problem in the collaboration as the research study was funded for four years while Auckland Transport needed 6 to 7 years to implement a project of this scale. Initially, the project's costs were estimated to be NZD 4-5 million; the intervention ended up costing NZD 9 million (Mackie et al., 2018, p. 214).

Despite experiencing some difficulties in terms of funding and timing, the responsibilities were clearly defined and allocated.

Is an effort made to connect with local government officials to attract support for the project and gain internal commitment?

The researchers approached Auckland Transport early on in the project development before the funding was received to carry out the study. Auckland Transport committed to funding and implementing the street design intervention (Mackie et al., 2018).

Interviews with transport agency staff members and researchers pre- and post-construction illustrated the differences in work culture and expectations (Witten et al., 2018). Engineers focused on delivering the project; the researchers' approach to experimenting and trialling new ideas were foreign to them (Witten et al., 2018, p. 39). Hence, Auckland Transport supported the project's delivery but did not share the researchers' iterative approach to designing and testing innovative solutions.

On the whole, the process of Future Streets in terms of coordination and involvement of (local) government agencies resembles the first phase of transition management. The researchers managed to procure funds, allocate responsibilities and gather support from the responsible transport agencies.

5.1.2 Understanding broader urban dynamics

As transition management pursues an integrated, holistic system approach, the second step of the process involves gaining an in-depth understanding of the present system.

Is an analysis undertaken to gain an integrated understanding of the present system and relevant actors in the field?

The project's scope is relatively narrow, in that it focuses on designing and retrofitting transport infrastructure that improves walking and cycling around the neighbourhood. Increasing the broader benefits of active travel (health, social and environmental outcomes) was the goal of this street intervention. However, these effects were the dependent variable, i.e. the outcomes of the street design. A more systematic analysis of these broader problems was not undertaken; the solution (to be tested) was pre-defined from the outset, i.e. a change of the street design.

Individual local actors were not identified. However, key organisations (Auckland Transport, NZTA and the local community board) were approached for collaboration. All in all, despite the recognition of the broader benefits of active modes of travel, a system or actor analysis was not carried out.

5.1.3 Developing a shared understanding among participants

According to the transition management method, a group of 'frontrunners' or change agents meet in the so-called transition arena and discuss the transition challenge. At this point in the process, the goal is to develop a shared understanding among the participants to facilitate the envisioning and solution finding at a later stage. Mutual trust and a willingness to learn from one another are critical elements of creating a space that gives rise original ideas that break with the status quo.

Do participants share a passion for exploring alternatives to the status quo?

Interviews showed that Auckland Transport staff found the 'not-business-as-usual' approach of the project challenging to work with (Witten et al., 2018, p. 39). Whereas Auckland Transport employees were used to a relatively inflexible, traditional and phased planning cycle focusing on delivering the final intervention, the research group was more open to test and redesign different options. The researchers will to explore and learn from different street design interventions was hampered by Auckland Transport's "apparent reluctance to trial street change using temporary measures" (Witten et al., 2018, p. 39).

Both groups shared "a desire to make the transport system better for future generations, reflecting a system that was not working well for active transport modes" (Mackie et al., 2018, p. 212).

The research project hypothesised that “the wider societal benefits of healthier mobility [...] exceed the outcomes that currently result from business as usual streets and other spaces that heavily priorities private motor vehicle travel” (Mackie et al., 2018, p. 210). So, arguably, exploring alternative street design to the status quo was the project’s goal, especially because a before-after study and a case-control study are only undertaken when they are distinctly different (Witten et al., 2018, p. 40). Auckland Transport committed to this goal of improving streets for active transport (an alternative to the status quo) but seem to try to achieve it through business-as-usual planning practices (focus on delivery as opposed to exploration). Auckland Transport is bound by prescribed processes, budget constraints and ratepayers’ expectations. Since Auckland Transport has the final word (as illustrated in the pedestrian crossing intervention below), Future Streets may not have been as explorative and innovative as the project developers originally intended.

Does the ‘space’ encourage open discussions, mutual learning and critical reflections?

The collaboration between the researchers and practitioners was respectful. It was described in Witten et al. (2018, p. 40) that it came as a surprise when a report outlining the results from the first set of interviews with various project partners revealed a level of frustrations on both sides. The report was taken as an opportunity for reflection and helped researchers and transport officials to understand each other’s perspectives better.

The fact that the report was “‘a bit of a revelation’” indicates that the “space”, i.e. the steering committee, did not especially encourage open discussions, mutual learning and critical reflections (Witten et al., 2018, p. 40). However, the new mutual understanding improved the collaboration between the project partners after that.

Do individuals ‘come as themselves’ or represent their organisation?

Both the team of researchers and transport practitioners participated through their respective roles, i.e. as a scientist or Auckland Transport employee.

5.1.4 Developing a long-term vision

This phase is all about developing a vision of a sustainable future for the city that challenges the status-quo and aspires system innovation. A fundamental change, like a shift from fossil fuels to renewables can only be achieved if society as a whole, from businesses, civil society to governmental organisations, works together. Visionary images and a storyline help to inspire and mobilise actors and create a common narrative and direction.

Does the project have a long-term vision?

The goal of the project was to improve the street design to encourage active modes of transport. This objective was not embedded in a more elaborate, longer-term vision as transition management would propose.

Though the project is focused only on street design and the connection of mobility and wellbeing, hence follows a narrow approach to a broader sustainability issue, the changes to the transport system of Māngere Central are rather aspirational. The European approach to transport planning inspired Future Streets through a research trip to Europe by the project team. Future Streets has a vision – from car dependency to a neighbourhood where people choose to walk and cycle – but it is not as comprehensive, detailed or long-term as within a transition management approach. Loorbach describes strategic vision development of having a time scale of roughly 30+ years (Loorbach, 2007). It is not particularly important how many years the vision extends into the future (be it 20 or 40 years). The longer time scale merely demonstrates that a broad system change that involves a shift in everyday practices, institutional structures and a cultural transformation takes time. Hence, a vision that illustrates this kind of transition should take this into account. The aspirations of Future Streets does not seem to reflect that decades-long, continuous effort would be required to reach it.

Is the long-term vision for the desired future a result of a collaborative process?

The initial research team created the vision to reduce car dependency and increase walking, cycling and public transport in Māngere Central before funding and collaborative partnerships with transport authorities were sought. The vision was the reason for starting the project in the first place, instead of the co-creation of a collective vision. Merely the street design was put up for a debate (with the community and transport authorities) (Mackie et al., 2018). As the team of researchers itself comprises a wide range of backgrounds, a degree of collaboration between diverse actors as proposed by transition management is given. However, collaboration in transition management would require the active participation of a more diverse group of people (e.g. residents, activists, students, people with knowledge of the transport sector etc.).

Does the vision challenge the status quo and go beyond what is currently possible?

A scientist has been cited in a newspaper article: “The big challenge is to bridge a vast gap between this progressive way of thinking and the established ways of doing things here” (Fernandes, 2017). An attempt to change the mindset and attitude towards cars and car use certainly challenges the status quo.

5.2 Tactical

5.2.1 Agenda setting – Developing street design interventions

The agenda setting stage connects the previously developed vision with short-term interventions through backcasting techniques. The transition agenda is used to communicate the transition challenge and potential pathways to actors previously not involved.

Does the ‘translation’ of the vision to shorter-term actions involve backcasting?

A backcasting technique was not employed to ‘translate’ the vision into shorter-term actions. The Future Streets vision was too narrow, not specifically long-term and not elaborate enough (see above under 5.1.4). The project was designed so that it would only require a one-time intervention – a street design change – and not, as transition management would envisage, a more extended pathway of lots of different interventions over time.

Nonetheless, the researchers did not use forecasting as a method either, which transport planners often do. The project’s objective was to create (and change) the demand for active transport, as opposed to simply providing for what was expected to be required in the future.

Is an agenda (in various forms) developed that provides a strategic direction and ideas for short-term action (i.e. does it reveal what is needed to transform specific aspects of existing structures, cultures and practices)?

Future Streets is focused on transforming the neighbourhood environment and existing transport infrastructure. An agenda with a more strategic direction is not needed because the project’s goals (despite its vision) is to design and implement an improved street layout.

Is the agenda challenging and at the same time motivating and desirable enough to participants and others to get into action? Is the agenda seen as a means to influence the

actions of others (and the participants) as opposed to an end in itself that ‘only’ needs implementation?

The street design intervention was not elaborated or communicated to motivate external actors (other than Auckland Transport) to get into action and contribute. Though the design process differed from Auckland Transport’s usual practices (e.g. partnership with research team and extensive consultation with the local community), the delivery of the project itself was not particularly challenging (e.g. traffic control devices such as cycle lanes, pedestrian crossings, speed control etc.). The project goals were not communicated to the public in a way that would have invite more participants to adopt the agenda and contribute to it. Actors who were keen to get involved, like the local bike-enthusiast Teau Aiturai, have so far been met with many (regulatory) challenges to contribute to the Future Streets’ vision in their own way (see below).

Is the agenda designed to evolve?

While the design of certain street infrastructure initiatives allowed for some flexibility (as discussed below), Auckland Transport had no intention to monitor and improve a street design intervention, once a decision was made and the new street intervention was put in place (Opit & Witten, 2018). In an online news article, Ben Ross (not directly involved in the project), was cited “there is no follow-up and the community don’t have that place to give that ongoing feedback” (Latif, 2020). Researchers keep are continuing to measure various indicators but it does not seem to be an opportunity to improve elements of the project if required (Te Ara Mua - Future Streets, n.d.).

5.2.2 Coalition forming

Does the process actively encourage new actors to adopt and adapt the transition agenda?

The need to “building up local champions” was recognised in a 2020 online news article (Latif, 2020). A researcher is cited expressing further process to involve change agents: “The biggest lesson from all of this is that more support is needed to ensure there are positive voices who can articulate in their own way the importance of walking and cycling” (Latif, 2020). Although Future Streets appeared to have tried to allow new actors to contribute in their own right, so far the project has not been successful at that, as the challenge to set up a local bike hub has illustrated (ibid.)

Resident Teau Aiturai “was identified early on as a potential community leader in activating the cycleways, but [...] more could have been done to support Aiturai in his role” (Latif,

2020). Known as bike fanatic, Aiturai voluntarily ran bike clubs for kids and adults in Māngere and had hoped to create a bike hub. The Council has given him access to a large workshop” to support cyclists in Māngere. However, the facility is 1.5km away from the Future Streets cycle lanes and lacks visibility to attract people. Another initiative from a local crime protection officer to build a container with electricity for Aiturai to fix and store bikes at Central Park near a busy pool appeared to have been delayed by Auckland Council due to health and safety concerns. Although Auckland Council, Auckland Transport and NZTA all seemed keen to help build a bike hub, the initiative has not been realised yet. Despite people wanting to be involved the planning procedures appear to discourage action from residents. All responsible parties agreed that this step is essential to increase active travel behaviour within the neighbourhood, but it somehow does not get off the ground. As the case of the bike hub demonstrated, Council processes complicated initiatives by residents. Also, a lack of dedicated funding was likely making it difficult, as well as insufficient commitment to address this issue. One of the researchers observed: “If we want real change to happen, there needs to be much more investment in the right way” (Latif, 2020). Similarly, a Manukau ward councillor criticised the project of not having involved the community sufficiently: “Future Streets is just one example where people in my ward feel like big changes are just being done to them, without a real understanding of why or how they can input” (ibid.).

Other initiatives that involve the local community were initiated by the Future Streets team and seemed to have required this form of organisation to continue. For example, a group of students from the local primary school, Ngā Iwi Primary School, helped design the new Windrush Reserve playground (Hiranga, 2016). However, no evidence was found that the school used the project as an opportunity to develop own ideas to encourage students to cycle and walk (e.g. bike training).

Does it use a wide variety of activities (events, publicity, council etc.) to generate support and accelerate societal change?

In the online news article, an Auckland Transport spokesperson was cited explaining:

“[Through] planning and delivery of cycling activations, including guided rides, community events and cycle training for the community, including adult bike skills and children’s learn-to-ride sessions – all of which help encourage uptake of cycling.” This quote indicates that transport authorities recognise the need for more actors to get involved and work towards

the envisioned future for the neighbourhood. However, I was unable to establish if any actions mentioned in the quote took place. If they had, they were not well communicated to the community.

5.3 Operational

Experiments are understood as the short-term actions taken to explore alternative practices. In transition management, experiments are usually only temporary until they are taken up by the system and turned into longer-term projects, policies or plans.

5.3.1 Experiments

Is the aim to learn about alternatives (or only to realise the project)?

The lack of a shared problem framing (as discussed above) led to a discrepancy between the researchers and the project implementation team of Auckland Transport and NZTA in terms of their expectations and intentions for the project. The conflict can partly be explained through the different roles of the respective groups. As the research team was responsible for concept design and collaboration it was relatively more focused on learning, while the transport practitioners from Auckland Transport and NZTA were more focused on delivering the street design solutions due to their role of implementing the infrastructure. Nonetheless, the lack of a mutual understanding and recognition for the different perspectives resulted in a challenging arrangement for cooperation. The design and ultimate rejection of a new pedestrian crossing design for Massey Road illustrate the contrast between the participants' approaches and why the trialling of alternatives never occurred (Opit & Witten, 2018).

The research team's intention for Future Street was to experiment with different design solutions and learn from these tests. However, the desire to learn about alternatives and trial new to New Zealand designs was impeded by the transport agencies' 'problems over solutions' rhetoric, the preference for existing solutions, existing sociotechnical relationships and the inherent conservatism within transport decision-making (Opit & Witten, 2018).

These qualities of the transport system appear to prevent innovation and new ideas, and substantially reduce the preparedness of transport officials to conduct experiments, though the research team's aim was to learn about alternatives, like the transition management theory proposes. In the end, the transport agency was more focused on realising the project

and ended up building a pedestrian crossing which was substantially more expensive than what the researchers proposed but was more compatible with the agency's rationale.

Are the experiments challenging the status quo in some way?

Challenging the status quo, in transition management, means to disrupt current structures, practices and human behaviours and reinvent and remake the status-quo. The Future Streets project itself aimed to contribute to a broader societal change – the vision of a neighbourhood where people walk and cycle to their destinations as opposed to driving does indeed challenge the status quo. However, the experiments, i.e. the single interventions, do not seem likewise to follow this approach. Despite the fact that some of these street design solutions were new to Māngere, the particular street design was already common throughout New Zealand (Opit & Witten, 2018). The pedestrian crossing described above again serves as an example for the transport agencies' resistance to trial a new crossing type despite robust evidence for its efficacy. In the end, business-as-usual types of pedestrian crossings in the New Zealand context (e.g. augmented pedestrian crossings and signalled pedestrian crossings) were installed.

5.4 Summary

Overall, these results indicate that some parts of urban planning procedures are similar to the transition management process steps, but, for the most part, Future Streets followed a different rationale. The diagram below visually illustrates the wide range of resemblance between the project and the analytical framework.

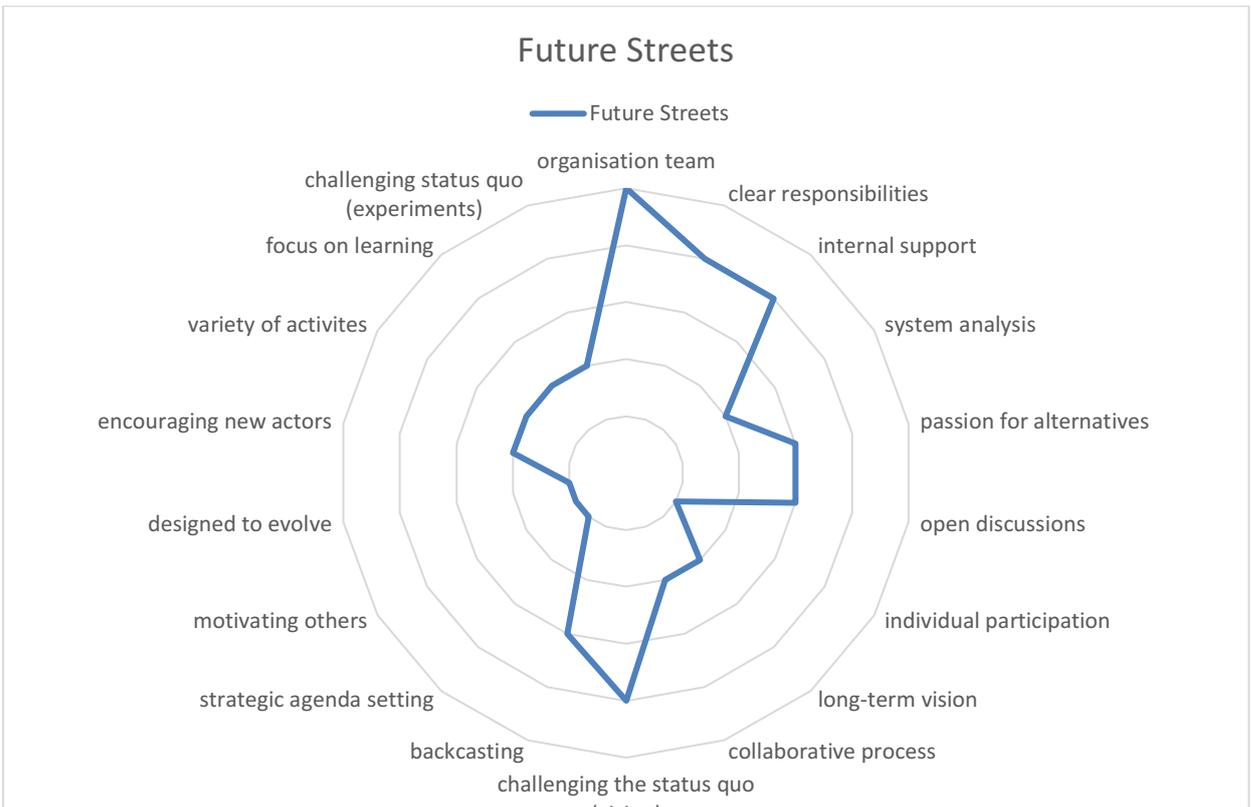


Figure 3 Comparison between Future Streets and transition management.

Chapter 6

Discussion

This study compared the theory and phases of transition management to a real-life project that attempted to promote a transition to more active modes of transport in a suburb in Auckland. It began by reviewing and evaluating the literature that analysed the relationship of urban planning and transition management, and then proposed a set of indicators based on the transition management guidance manual to inform the case study analysis. In the previous chapter, I applied the analytical framework to Auckland's Future Street project. The findings confirm the dialectic relation between urban planning and transition management as proposed by previous research.

6.1 Key similarities and differences between transition management and Future Streets

The following section discusses each step of the transition management process separately and, in a second step, relates the key differences between Future Streets and transition management to the planning for transformation paradox.

6.1.1 Strategic

Process coordination

The first phase of the transition management process is the only stage that closely resembles one of Future Streets. The project set out a formal structure for the roles and responsibilities of the different parties involved and the budget and a rough timeline. The research team also defined the objectives and aspirations for Future Streets right from the start. For a publicly funded project of this scale, this finding was expected. In order to receive the required financial support from MBIE and Auckland Transport, the research team had to outline the details and intended process for the project. While this indicator may seem irrelevant or too obvious for this particular case study, the transition management approach highlights the importance of the initial scoping and preparation phase because clear coordination is required if the process is to be successful. Typically, transition management and urban planning processes are initiated and funded by the administration. Therefore a project process is usually specified to some degree, but sustainability transitions can also occur outside the regular planning system without a facilitator to coordinate the process.

Aside from developing a project process, another important aspect of the *Setting the Scene* phase is building new connections and commitment inside the authority across departments to foster a positive attitude towards the outputs of the process and ensure policy officers are willing to contribute their expertise and resources. Again, support from Auckland Transport was warranted; they agreed to fund and deliver the street interventions. Nonetheless, the case study emphasises the need for broad support within the municipality, and raises the question whether it might have been beneficial to involve Auckland Council to gain support for the project beyond the instalment of transport infrastructure. The complication of building a bike hub near the local pool stresses this point.

Exploring broader urban dynamics

In undertaking a system and actor analysis of Future Streets, the findings suggest that a broader understanding of the dynamics in Māngere regarding how and why people travel a certain way were gained by the research team through the public consultation processes. The interviews helped to understand how certain infrastructure elements, or the lack thereof, may have prevented residents from walking and cycling within the neighbourhood. However, this system analysis was limited by the relatively narrow project scope. Though the intended outcomes were wide-ranging (health and wellbeing of the community in addition to reduced energy demand and greenhouse gas emissions) the solution (street design) was pre-defined right from the outset, and the analysis, therefore, focused on this aspect. Other potential solutions for a mode shift were not explored because the study of travel patterns did not include other variables.

Shared problem understanding

Envisioning a future that is vastly different from the present starts with the willingness to think beyond the status quo (Roorda et al., 2014). Often ingrained roles, responsibilities and formal work processes can get in the way of allowing oneself to explore alternative options. Future Streets demonstrated the challenge of moving beyond the institutional perspective. Auckland Transport officials focused on allocating the required resources and deliver specific interventions. The collaboration between the research team and the transport agency appeared to mostly aim to deliver the project and less at creating a space for open discussion, critical reflection and mutual learning and developing a shared problem understanding. However, creating a collective framing of the transition challenge is an

essential step in envisioning and eventually planning for the desired future according to the transition management approach.

Long-term vision

The findings illustrate that the ambitions for these kinds of projects can be as aspirational and bold as the long-term vision of phase IV of transition management. Future Streets intends to contribute to the system change from car use to active transport modes. The mode shift would be transformational and challenge that status. The case study analysis points to a number of differences between Future Streets and the transition arena process. The “vision” for Future Streets was the result of comprehensive research by a group of academic scholars and a broader societal recognition of the benefits of active transport modes identified in the city’s transport plan. Although the local community provided valuable feedback on what type of street design was desirable, it did not contribute own ideas of what future transport should look like or develop a broader vision for Māngere beyond transport. Whereas, transition management views it as a collaborative effort between a diverse group of change agents and the process of envisioning as important as the vision itself. The idea of a more walkable and cycle-friendly neighbourhood of Future Streets lacked, compared to the vision of transition management, guiding sustainability principles, rich visionary images and a coherent storyline. An elaborate vision may not be necessary to implement a clearly defined, one-off project like Future Streets but necessary in the attempt to reach the far-reaching aspirations of a mode shift. There is an opportunity for projects like Future Streets to develop a broader vision, or link to an existing long-term vision, to better communicate with the public what the project aims for and guide actions within the scope of the project and also outside it.

6.1.2 Tactical

Agenda-setting

Phase five (the agenda-setting process) is contrasted with the design stage of Future Streets. Though the project did not have an agenda or a similar kind of plan with goals and ideas that exemplify what is needed to reach the envisioned future, the project design process connects the aspiration for Māngere Central and the short-term actions, i.e. the infrastructure needed to improve the street design. It therefore resembles the broader scope of phase five, reconnecting long term and short term. Still, the comparison did not yield many noteworthy findings. As Future Streets’ focus was to implement street design

interventions and understand their effect, and less on reaching a long-term vision, the project did not develop transition pathways nor use the foresight techniques to formulate future-oriented strategies. The comparative analysis indicates that this set of indicators may only be relevant and practical if a comprehensive vision of the future is the driver of the project or programme. Besides identifying milestones and developing short-term action ideas, the main benefit of a transition agenda is the ability to convey the transition challenge to a wider audience and to thus “serve as a compass for future strategies and actions”, not only for the participants directly involved but also external actors (Roorda et al., 2014, p. 30). As Future Streets experienced difficulties in getting the community and social organisations involved and contributing to the transport mode shift, a single document summarising the challenge, visionary images, a range of strategies and short-term action ideas may have been useful as an engaging form of communication. Transition pathways may be an unusual tool for collaborative planning approaches like Future Streets but are used more regularly in strategic planning where long-term objectives and strategies are more common.

Coalition forming

Engaging a broader network and anchoring the transition agenda is an important step in keeping up the momentum built in the transition arena and increasing its impact by allowing more and more actors to contribute. A sort of “mainstreaming” of the agenda and sustainability practices is needed to accelerate societal change. Network events, public forums and discussions, publicity, conventions and issue-specific working groups are ways to encourage more and more actors to adopt, adapt and further develop the transition agenda. In terms of the case study, the local community board, residents and school children were invited to contribute their experiences and ideas during the design process of Future Streets (collaboration), but their involvement beyond the street design process has been negligible. There have been instances where local authorities have even discouraged to take action due to complicated consenting processes. Recent articles and interviews suggest that the Future Streets team, researchers, as well as Auckland Transport, recognise the need to get more actors involved in order for residents to shift their travel behaviour. It seems more support is needed for more actors to take up the task.

These findings reflect the challenges raised in the literature. Even when it is a priority in the transition management process, broadening the network and empowering people has often

been described as difficult without extensive support from either the transition team or local authorities (Hölscher et al., 2019).

6.1.3 Operational

Experimenting

The implementation phase of Future Streets demonstrates the challenges transition management faces when developing and carrying out transition experiments. The street design interventions of Future Streets do not meet the criteria of transition experiments in terms of time scale (experiments are usually temporary) and radicality but similarly attempt to challenge the status quo of a car-oriented neighbourhood. The researchers' approach to the interventions resembles that of transition management. They emphasised the opportunity and importance to trial and learn about different design options before making a final decision on which design to deliver. However, Future Streets also demonstrated the barriers for transport authorities to follow through with the street experiments and test alternative options. Due to established work ethics, an inherent tendency towards conservatism and already existing solutions, Auckland Transport reverted to implementing the business-as-usual street design.

6.2 Four main conflict lines between planning approaches and transition management

In summary, these four main conflict lines can be inferred from the analysis of the Future Streets project in Auckland to illustrate the tension between current planning approaches and the transition management process:

1. *Narrow project scope versus wide system analysis*: The central aspects of collective problem framing and experimentation as part of the transition management approach rest on the willingness to think broadly and explore ideas entirely different from the status quo. An initial system analysis that aims to study the existing system as widely and exclusively as possible enables actors to so.

The early decision to focus exclusively on street design as the independent variable, i.e. the 'solution to a transport mode shift, limited the potential pathways towards a 'passive to active transport' transition in Māngere. This finding cannot be understood as a criticism of the Future Street project design and its research goal to measure the

effects of the implementation of a self-explanatory street design. However, according to the transition management approach, the prioritisation of pre-defined 'solutions' may distract and even prevent from achieving the true goal of the project – enhancing the community's health and wellbeing through a mode shift. Ultimately, an infrastructure alteration alone without a change of human behaviour cannot accomplish the desired future. A wider project scope could have drawn attention to other potential ways of increasing walking and biking alongside the construction of pedestrian crossings and bike lanes.

2. *Fragmentation versus shared problem framing*: The distinct separation between research design (research team) and implementation (transport authority) allowed for a division between 'the means and the end'. While the research team gained comprehensive knowledge about the use of transport in Māngere, the transport authority made the final decisions in terms of which infrastructure project to realise and in which form. Because the different groups of actors did not fully develop a shared understanding of the sustainability problem, it constrained the collaborative process and subsequent experimentation attempts.
3. *Separation of the long-term vision and short-term action versus a coherent transition agenda*: The separation of the different roles and the prioritisation of infrastructure installation over long-term transformation leads to a disconnection between the actions taken and the ultimate goal of system innovation. The transition management process starts with formulating a long-term vision of a sustainable city and uses backcasting techniques to develop future-oriented strategies that go beyond business-as-usual solutions (Roorda et al., 2014). A variety of pathways towards the envisioned future are identified and used as a compass to develop ideas for short-term actions. The difference to urban planning is that transition management takes the future as the starting point and then goes back in time. In contrast, Future Streets began the process with the short-term actions and the hypothesis they will lead to the desired change in the future without providing a clear idea of the progress needed over time.
4. *Lack of willingness or ambition to involve new actors versus broadening the network*: System transformation can only occur if niche experiments are taken up by a much

larger group of society than the initial actors of the transition arena. Without scaling up and broadening the initiatives, the transformative potential of transition management is confined to the niches. The sustainability vision and possible pathways to it, therefore, need to be formulated in a way that encourages new actors to get involved, contribute in their own way and develop the transition agenda further. Urban planning due to its standardisation and institutionalisation struggles to design projects that can take on a life on their own beyond the close supervision and guidance of authorities. The lack of ambition or willingness to open up the process to new, external actors slows down the momentum of transitions.

6.2.1 The planning for transformation paradox

The literature on the convergence between transition management and urban planning established the inherent conceptual incompatibility between the two approaches. Having observed the Future Streets project as an exemplar for planning approaches employed in New Zealand from a process-oriented perspective, this study further elaborated on the challenges and limitations of incorporating a transition management approach into the planning context. Strategic activities, particularly the process coordination and the collaboration between authorities and external actors (in this case researchers) were most familiar and unproblematic to perform by the municipal organisation. The tactical and operational activities of transition management, on the other hand, are unusual and the most challenging to take on by authorities. Being open to alternative solutions and using backcasting techniques to develop them, encouraging external actors to play their part, and exploring and experimenting with fundamentally different structures and practices are at odds with the current work culture and self-perception of public departments. These findings support the hypothesis of a dialectic relation between urban planning and transition management. As Wolfram has pointed out, open-ended processes of collective searching, experimenting and learning are not readily taken up by planning authorities (Wolfram, 2018) which means they cannot 'simply' perform a transition management process without undergoing a transition themselves (Nevens et al., 2013).

The results reflect those of Peris and Bosch (2020) and Carroli (2018) who found fundamental tensions between urban planning and transition management but also see opportunities for urban planning to assist transitions. In regard to the four tension fields (Peris & Bosch, 2020), the findings highlight the relevance of three conflicts in particular: the

discrepancy between formal decision-making procedures versus reflexivity and social learning, standardisation versus open processes of searching and experimentation, and fragmented policy-agendas and budget lines versus integrated and multi-sectoral interventions (Peris & Bosch, 2020). The findings of the present study identified a fifth field of tension between urban planning and transition management. While urban planning processes increasingly consult residents and stakeholders during the design phase of projects, the implementation remains to be the sole responsibility of the planning authority. However, transition challenges are too great and complex to be solved by public authorities alone. Civil society, businesses and individual actors are needed to contribute considerably to create a lasting impact. Urban planning needs to acknowledge the critical role of external actors and empower them through clear communication (transition agenda), financial support and networking events to establish new alliances. The planning authority can assume a coordinating role to ensure a continuation of these 'mainstreaming' processes.

Consistent with the planning for transformation paradox (Peris & Bosch, 2020), the case study demonstrated that urban planning is deeply ingrained in current planning practices and rules which constrain it from fully embracing transitions thinking and deploy transition management techniques. However, it is also well placed to enable and drive transitions experiments and create windows of opportunities for innovations to occur.

6.2.2 What can transition management learn from Future Streets?

Despite some similarities, the analysis showed that it would not be a straightforward exercise to implement a transition management approach in a New Zealand planning context. Current urban planning practices exhibit many obstacles for integrating the transition management approach, emphasising the need to 'transitionise' planning practices to achieve sustainable urban development (J. Wittmayer et al., 2014). But it also highlights the challenges of applying transition management in New Zealand. Taking on transition management processes of co-creating, experimenting and social learning can only succeed if the planning authority starts to actively question its role in the persistence of unsustainable practices and structures and accomplish a change in planning culture (Nevens et al., 2013). As Wittmayer and Loorbach have pointed out, institutions are as much the subject and the object of transition governance (Julia M. Wittmayer & Loorbach, 2016).

6.2.3 What does the transition management approach offer to projects like Future Streets?

Since a transition management process has been criticised for its high resource demands (time, skill, knowledge, budget, human) (Nagorny-Koring & Nochta, 2018), it is unlikely that the transition management process can be undertaken widely enough to bring about the transformation it aims for. Instead, 'transitionising' some existing planning processes may be more feasible and effective. The findings of this study suggest focusing on developing processes of allowing and encouraging external actors to contribute to the design of projects and their implementation. A comprehensive system analysis would help the municipality authority better understand the sustainability challenge and its complexity and interdependencies. At the same time, it is important that policy officers and planners who design projects and those who implement them are well connected and comprehend the opportunities and challenges of each other's mandate. Lastly, urban planning processes need to be more open to alternative solutions and establish a 'problem before solution rhetoric' (through a system analysis). A range of backcasting techniques can help develop transition pathways that connect the long-term vision with short to medium-term actions. At the same time, the transition management approach, especially the particular framing of experiments, may help to overcome some of the resistance of planning authorities to trial alternatives by testing temporary measures first before implementing permanent solutions.

One of the most interesting findings is that certain elements of transition management are already considered or used in the current planning system. However, most of these elements were not successfully realised within the case study, e.g. experimentation of an alternative pedestrian crossing or the involvement of a change agent that could have significantly accelerated the neighbourhood's transformation. The real strength of the transition management approach may be the ability to communicate the importance of such processes to policy officers and planners, and ultimately trigger a transition of the planning system itself.

6.3 Usefulness of a process-oriented analytical framework

The process-oriented analytical framework helped identify additional tensions and opportunities for urban planning to incorporate the transition management process. On the other hand, the case study showed the limitations of this approach of analysing processes against a set of indicators that are not present in the urban planning process. While that is

an important finding in itself (e.g. the absence of a transition agenda), subsequent questions were challenging and ineffectual to answer. For further development of a process-oriented analytical framework, I would suggest the possibility of a two-tier approach that 'activates' specific indicators only if others are present in the case study. This requires further research.

6.4 Limitations of this study

A limitation of this study was the limited access to information regarding the development and completion of the Future Streets project as only secondary data was utilised. This may have resulted in an inaccurate representation of certain aspects. For example, the available literature focused on the challenges of trialling alternative street design instead of the successful implementation of other infrastructure interventions. As this study aimed to identify and highlight these kinds of challenges, I do not believe that the analysis of secondary data only significantly distorted the findings. Beyond that, the most critical limitation of this study lies in the fact that the findings cannot be generalised for urban planning processes as a whole due to the diversity of urban planning processes in practice. Despite the single case study design, this study offers insight into the challenges and barriers one would face integrating the transition management approach into established urban planning procedures.

6.5 Summary

Along with Peris and Bosch (2020) and Wolfram (2018), I argue that inherent tensions between transition management and urban planning exist. Four conflict lines are particularly relevant considering the opportunity for urban planning to incorporate transition management processes, which are: a) narrow project approach versus wide system analysis, b) fragmentation versus shared problem framing, c) separation of the long-term vision and short-term action versus a coherent transition agenda, and d) lack of willingness or ambition to involve new actors versus broadening the network.

Transition management as a comprehensive governance approach may not be able to be performed by the existing planning regime. However, specific techniques and methods like backcasting, collective experimenting and developing transition agendas would help achieve the sustainability transitions if embedded into the established system. Future Streets showed that some of these elements were proposed by the researchers, but the resistance by the planning authority to implement them was too great. In my opinion, this highlights

two things: (1) a specific transition management approach does not necessarily need to be followed to incorporate more transitions thinking into current planning culture; and (2) however, giving this business-as-unusual process a name with a step-by-step guide may help to communicate the rationality and importance of elements like experimentation and co-creation arenas. It may assist in shifting the dominant mindset from 'delivery' to 'trailing alternatives' to facilitate transformative change in the long run. I argue that the current urban planning system can incorporate transition management; perhaps less so to achieve the transition, but more to help evolve the urban planning practice to tackle current challenges.

Chapter 7

Conclusion

The main goal of this dissertation was to explore the relation of urban planning and transition management using a case study analysis of Auckland's Future Streets project. This study has shown that there are many differences between an urban planning approach and the transition management process. In particular, the study identified four conflict lines that, for one, confirmed previous research on this topic, and added an additional one to Peris and Bosch's fields of tension (Peris & Bosch, 2020). Taken together, the findings suggest that there are significant barriers in combining the two approaches which will not cease to exist in the future. However, the results indicate ways in which New Zealand transport planning processes can incorporate some elements of transition management, in particular developing a transition agenda that connects the long-term vision with short-term actions, involving external actors in the implementation of projects and undertaking a comprehensive system analysis before any solutions to a sustainability problem are proposed. More research is needed on how these elements of transition management can be translated into a deeply institutionalised system which is, in fact, the opposite of what transition management constitutes. Navigating the narrow path of exploring radically different ideas that can, eventually, be embedded into the current system to achieve transformation, and reverting to business-as-usual approaches that perpetuate a planning culture of incrementalism will require further work.

References

- AECOM. (2017). *Community Carbon Footprint. Tauranga City 2015/16*.
- AECOM. (2018). *Christchurch Community Carbon Footprint 2016/17* (p. 25).
- Bertolini, L. (2020). From “streets for traffic” to “streets for people”: Can street experiments transform urban mobility? *Transport Reviews*, *0*(0), 1–20.
<https://doi.org/10.1080/01441647.2020.1761907>
- Carroli, L. (2018). Planning roles in infrastructure system transitions: A review of research bridging socio-technical transitions and planning. *Environmental Innovation and Societal Transitions*, *29*, 81–89. <https://doi.org/10.1016/j.eist.2018.06.001>
- Chang, R., Zuo, J., Zhao, Z., Soebarto, V., Zillante, G., & Gan, X. (2017). Approaches for Transitions Towards Sustainable Development: Status Quo and Challenges. *Sustainable Development*, *25*(5), 359–371. <https://doi.org/10.1002/sd.1661>
- Fernandes, K. (2017, August 17). Local board chair hopes South Auckland can adopt European cycling ‘lifestyle’. *Stuff*. <https://www.stuff.co.nz/auckland/local-news/manukau-courier/95834925/local-board-chair-hopes-south-auckland-can-adopt-european-cycling-lifestyle>
- Frantzeskaki, N., Bach, M., & Mguni, P. (2018). Understanding the Urban Context and Its Challenges. In N. Frantzeskaki, K. Hölscher, F. Avelino, & M. Bach (Eds.), *Co--creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities* (Vol. 11). Springer International Publishing. DOI: 10.1007/978-3-319-69273-2
- Frantzeskaki, N., Hölscher, K., Wittmayer, J. M., Avelino, F., & Bach, M. (2018). Transition Management in and for Cities: Introducing a New Governance Approach to Address Urban Challenges. In N. Frantzeskaki, K. Hölscher, M. Bach, & F. Avelino (Eds.), *Co--creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities* (pp. 1–40). Springer International Publishing.
- Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research Policy*, *33*(6), 897–920.
<https://doi.org/10.1016/j.respol.2004.01.015>
- Geels, F. W., & Schot, J. (2010). The Dynamics of Transitions. A Socio-Technical Perspective. In J. Grin, J. Rotmans, & J. Schot, *Transitions to Sustainable Development: New Directions in the Study of Long Term Transformative Change*. Taylor & Francis Group.
- Grin, J., Rotmans, J., & Schot, J. (2010). *Transitions to Sustainable Development: New Directions in the Study of Long Term Transformative Change*. Taylor & Francis Group.
<http://ebookcentral.proquest.com/lib/lincoln-ebooks/detail.action?docID=481022>
- Harlow, J., Johnston, E., Hekler, E., & Yeh, Z. (2018). Fostering Sustainability Transitions by Designing for the Convergence of Policy Windows and Transition Arenas. *Sustainability*, *10*(9), 2975.
<https://doi.org/10.3390/su10092975>
- Hiranga, N. P. (2016). *Nga Iwi Primary School, Term 2 Week 9 2016*.
<http://www.ngaiwi.school.nz/asset/downloadasset?id=0a2f0ce0-d5e3-4394-8396-92b04ed67bf0>

- Hölscher, K., Wittmayer, J. M., Avelino, F., & Giezen, M. (2019). Opening up the transition arena: An analysis of (dis)empowerment of civil society actors in transition management in cities. *Technological Forecasting and Social Change*, *145*, 176–185. <https://doi.org/10.1016/j.techfore.2017.05.004>
- IEA. (n.d.). *Global CO2 emissions by sector, 2018 – Charts – Data & Statistics*. IEA. Retrieved 1 August 2020, from <https://www.iea.org/data-and-statistics/charts/global-co2-emissions-by-sector-2018>
- Keddie, V. (2006). Case study method. In V. Jupp (Ed.), *The SAGE dictionary of social research* (pp. 20–21).
- Kemp, R., & Loorbach, D. (2005). Dutch Policies to Manage the Transition to Sustainable Energy. In F. Beckenbach, U. Hampicke, C. Leipert, G. Meran, J. Minsch, H. Nutzinger, R. Pfriem, F. Wirl, & U. Witt (Eds.), *Jahrbuch Ökologische Ökonomik: Innovationen und Transformation* (Vol. 4, pp. 123–150). Metropolis.
- Khmara, Y., & Kronenberg, J. (2020). Degrowth in the context of sustainability transitions: In search of a common ground. *Journal of Cleaner Production*, *267*, 122072. <https://doi.org/10.1016/j.jclepro.2020.122072>
- Köhler, J., Geels, F. W., Kern, F., Markard, J., Onsongo, E., Wieczorek, A., Alkemade, F., Avelino, F., Bergek, A., Boons, F., Fünfschilling, L., Hess, D., Holtz, G., Hyysalo, S., Jenkins, K., Kivimaa, P., Martiskainen, M., McMeekin, A., Mühlemeier, M. S., ... Wells, P. (2019). An agenda for sustainability transitions research: State of the art and future directions. *Environmental Innovation and Societal Transitions*, *31*, 1–32. <https://doi.org/10.1016/j.eist.2019.01.004>
- Latif, J. (2020, June 26). Beyond the hype: Why is no one riding Māngere's award-winning cycleways? *The Spinoff*. <https://thespinoff.co.nz/society/26-06-2020/beyond-the-hype-why-is-no-one-riding-mangeres-award-winning-cycleways/>
- Loorbach, D. (2007). *Transition management: New mode of governance for sustainable development: nieuwe vorm van governance voor duurzame ontwikkeling = Transitiemanagement*. Internat. Books.
- Loorbach, D. (2010). Transition Management for Sustainable Development: A Prescriptive, Complexity-Based Governance Framework. *Governance*, *23*(1), 161–183. <https://doi.org/10.1111/j.1468-0491.2009.01471.x>
- Mackie, H., Macmillan, A., Witten, K., Baas, P., Field, A., Smith, M., Hosking, J., King, K., Sosene, L., & Woodward, A. (2018). Te Ara Mua - Future Streets suburban street retrofit: A researcher-community-government co-design process and intervention outcomes. *Journal of Transport & Health*, *11*, 209–220. <https://doi.org/10.1016/j.jth.2018.08.014>
- Macmillan, A. K., Mackie, H., Hosking, J. E., Witten, K., Smith, M., Field, A., Woodward, A., Hoskins, R., Stewart, J., van der Werf, B., & Baas, P. (2018). Controlled before-after intervention study of suburb-wide street changes to increase walking and cycling: Te Ara Mua-Future Streets study design. *BMC Public Health*, *18*(1), 850. <https://doi.org/10.1186/s12889-018-5758-1>
- Malekpour, S., Brown, R. R., & de Haan, F. J. (2015). Strategic planning of urban infrastructure for environmental sustainability: Understanding the past to intervene for the future. *Cities*, *46*, 67–75. <https://doi.org/10.1016/j.cities.2015.05.003>
- Malekpour, S., Walker, W. E., de Haan, F. J., Frantzeskaki, N., & Marchau, V. A. W. J. (2020). Bridging Decision Making under Deep Uncertainty (DMDU) and Transition Management (TM) to improve strategic planning for sustainable development. *Environmental Science & Policy*, *107*, 158–167. <https://doi.org/10.1016/j.envsci.2020.03.002>

Ministry for the Environment. (2020). *New Zealand's Greenhouse Gas Inventory 1990-2018*.

Nagorny-Koring, N. C., & Nocht, T. (2018). Managing urban transitions in theory and practice—The case of the Pioneer Cities and Transition Cities projects. *Journal of Cleaner Production*, 175, 60–69. <https://doi.org/10.1016/j.jclepro.2017.11.072>

Nevens, F., Frantzeskaki, N., Gorissen, L., & Loorbach, D. (2013). Urban Transition Labs: Co-creating transformative action for sustainable cities. *Journal of Cleaner Production*, 50, 111–122. <https://doi.org/10.1016/j.jclepro.2012.12.001>

Nevens, F., & Roorda, C. (2014). A climate of change: A transition approach for climate neutrality in the city of Ghent (Belgium). *Sustainable Cities and Society*, 10, 112–121. <https://doi.org/10.1016/j.scs.2013.06.001>

Opit, S., & Witten, K. (2018). *Unlocking Transport Innovation: A Sociotechnical Perspective of the Logics of Transport Planning Decision-Making within the Trial of a New Type of Pedestrian Crossing*. 48.

Patterson, J., Schulz, K., Vervoort, J., van der Hel, S., Widerberg, O., Adler, C., Hurlbert, M., Anderton, K., Sethi, M., & Barau, A. (2017). Exploring the governance and politics of transformations towards sustainability. *Environmental Innovation and Societal Transitions*, 24, 1–16. <https://doi.org/10.1016/j.eist.2016.09.001>

Peris, J., & Bosch, M. (2020). The paradox of planning for transformation: The case of the integrated sustainable urban development strategy in València (Spain). *Urban Transformations*, 2(1), 7. <https://doi.org/10.1186/s42854-020-00011-z>

Raynor, K. E., Doyon, A., & Beer, T. (2017). Collaborative planning, transitions management and design thinking: Evaluating three participatory approaches to urban planning. *Australian Planner*, 54(4), 215–224. <https://doi.org/10.1080/07293682.2018.1477812>

Roorda, C., Wittmayer, J., Henneman, P., Steenbergen, F., Frantzeskaki, N., & Loorbach, D. (2014). *Transition management in the urban context: Guidance manual*. DRIFT, Erasmus University Rotterdam.

Rotmans, J. (2005). *Societal Innovation: Between Dream and Reality Lies Complexity* (SSRN Scholarly Paper ID 878564). Social Science Research Network. <https://papers.ssrn.com/abstract=878564>

Te Ara Mua - Future Streets. (n.d.). *Future Streets Te Ara Mua*. <https://www.futurestreets.org.nz>

Van den Bosch, S. (2010). *Transition experiments: Exploring societal changes towards sustainability*. Erasmus Univ.

Walsh, P. (2018). Translating Transitions Thinking and Transition Management into the City Planning World. In N. Frantzeskaki, M. Bach, F. Avelino, & K. Hölscher (Eds.), *Co-creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities* (pp. 262–285). Springer International Publishing.

Wharton, C. (2006). Document analysis. In V. Jupp (Ed.), *The SAGE dictionary of social research methods* (pp. 80–82).

- Witten, K., Carroll, P., Calder-Dawe, O., Smith, M., Field, A., & Hosking, J. (2018). Te Ara Mua –Future Streets: Knowledge exchange and the highs and lows of researcher-practitioner collaboration to design active travel infrastructure. *Journal of Transport & Health, 9*, 34–44. <https://doi.org/10.1016/j.jth.2018.03.001>
- Wittmayer, J. M., Steenbergen, F. van, Rok, A., & Roorda, C. (2016). Governing sustainability: A dialogue between Local Agenda 21 and transition management. *Local Environment, 21*(8), 939–955. <https://doi.org/10.1080/13549839.2015.1050658>
- Wittmayer, J., Roorda, C., & van Steenbergen, F. (2014). *Governing Urban Sustainability Transitions – Inspiring examples*. 90.
- Wittmayer, Julia M., & Loorbach, D. (2016). Governing Transitions in Cities: Fostering Alternative Ideas, Practices, and Social Relations Through Transition Management. In D. Loorbach, J. M. Wittmayer, H. Shiroyama, J. Fujino, & S. Mizuguchi (Eds.), *Governance of Urban Sustainability Transitions* (pp. 13–32). Springer Japan. https://doi.org/10.1007/978-4-431-55426-4_2
- Wittmayer, Julia M., Steenbergen, F., Frantzeskaki, N., & Bach, M. (2018). Transition Management: Guiding Principles and Applications. In N. Frantzeskaki, K. Hölscher, M. Bach, & F. Avelino (Eds.), *Co-creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities* (pp. 81–101). Springer International Publishing.
- Wolfram, M. (2018). Urban Planning and Transition Management: Rationalities, Instruments and Dialectics. In N. Frantzeskaki, K. Hölscher, M. Bach, & F. Avelino (Eds.), *Co-creating Sustainable Urban Futures: A Primer on Applying Transition Management in Cities* (pp. 103–125). Springer International Publishing.
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE.