

ROAD SPACE REALLOCATION – EVIDENCE AND LEARNINGS

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ABSTRACT

In many countries, road space is often allocated primarily for motor vehicles. The negative health and well-being externalities of such an allocation are well known: social severance and alienation, diseases from sedentary lifestyles and pollution, deaths and serious injuries from motor vehicle crashes. For the past two decades, a movement to reallocate space for other uses (walking, cycling, public transport, and public space) has steadily grown – but not without strong pushback from some parts of the community. Projects often fail where there isn't political support and succeed where there is. While much has been written about the challenges and critical success factors, there have been few meta-analyses or collations of evidence on the impacts of reallocation. This paper and presentation will highlight New Zealand-specific findings of a broad literature review including North American, European, and Australasian cities.

INTRODUCTION

Driving is a complex task requiring focus. When things along the way — traffic lights, road conditions, weather — work to our advantage, all is well. When they get in our way, stress is the likely result. And when another (road user) is the source of that stress, it can turn to rage.

Paul Stenquist, NY Times, 10 July 2021

People are not inherently “bicyclists” or “motorists” or “transit riders”. They are simply making rational decisions about how to get around their cities based on criteria such as efficiency, cost and safety.

Dani Simons, Green Lane Project 2012

We begin with two quotes as these encapsulate the background to our project. We were commissioned by a New Zealand city to collate evidence from other cities who have successfully delivered cycling infrastructure using a focus on road space reallocation. This paper briefly summarises the (unpublished) research report produced by that study.¹

Reallocation contrasts with walking, cycling or public transport facilities built separate from existing carriageways e.g., shared paths through parks, waterways, and along road verges. Separate routes are generally costly and connected rights of way difficult to assemble. Reallocating existing road space can be cost-effective and help to “decarbonise” the transport system by reducing capacity for moving and parking motor vehicles. Reallocation is often seen as a win for some and a loss for others, leading to controversy and substantial project risks (Berentson-Shaw, 2020, MorrisonLow, 2016).

When the public is consulted on transportation investment, there is often strong support for better travel choices (Auckland Transport, 2019). However, when specific changes to road space allocation that support these outcomes are proposed, this high-level public support often reduces. This is particularly frequent where the removal of on-street parking is proposed (ibid).

The research found that many cities are addressing these issues by adopting ‘Roads and Streets Frameworks’ or similar modal priority assignments; developing new communications strategies; and considering or implementing tactical urbanism treatments to pilot changes.

The purpose of our research was to understand which jurisdictions have used road space reallocation as an effective strategy, what were the key enablers, and whether there were any negative or unforeseen consequences. The findings were intended to be inputs to business case development and organisational change management initiatives. The study focused on success factors, although in the course of the study the authors separately updated a designer’s toolkit of methods for making space within existing road cross-sections (Koorey and Lieswyn, 2016), available on request.

This paper begins with highlights from cities that have succeeded, then introduces the critical success factors and provides one of the key tables from the report on managing ‘bikelash’. While not covered here, the study identified public engagement as the most important success factor. A short section of this paper lists the main actions that need to be included in an engagement plan. The paper concludes with a description of resources for the practitioner’s professional development and further reading.

¹ The research outputs included a summary PowerPoint, 33 illustrated pages of highlights, 22 pages of technical supporting material and over 100 references.

CITIES THAT HAVE SUCCEEDED

Every city that has succeeded has also had failures along the way. However, some cities have achieved a reputation for success or are building one. The following table summarises key points from a selection of cities in no particular order.

<p>Wellington <i>Let's Get Wellington Moving cycleways</i></p>	<p>Three recent upgrades have 36% to 79% increases in cycling post-opening²</p>
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- Effective advocacy and a message focused on safety for everyone provides political support (Radio New Zealand, 2021, Wilke, 2021)
- Engagement materials with [innovative slider controls](#) show existing/proposed conditions and show emissions, safety and travel time benefits for non-car modes (Figure 1).

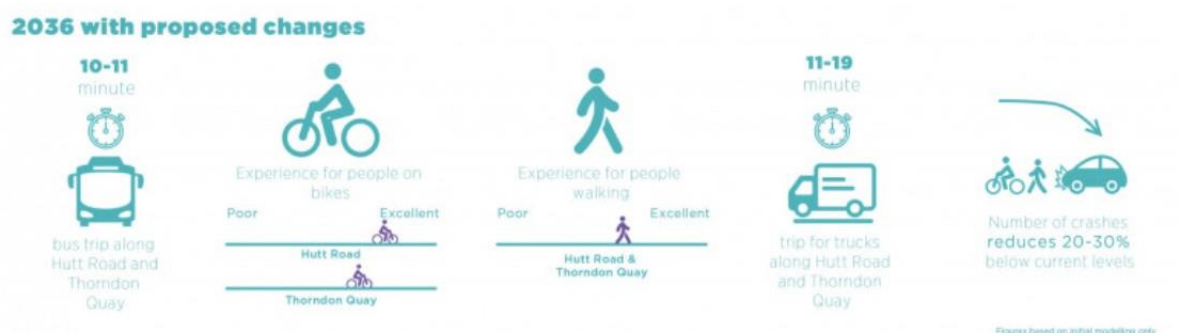


Figure 1: infographics (Wellington City Council)

<p>Christchurch <i>Major Cycle Routes (MCRs)</i></p>	<p>35% increase on MCRs and 18% increase on other cycle routes over the past three years (Koorey, 2021). Women are 46% of riders in 2021 compared to 32% in 2016 (ViaStrada, 2020).</p>
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- A network of separated cycleways enables mode shift and greater participation by women (Christchurch City Council, 2019a)
- Involve construction crews in the “Why?” (Landon-Lane and Cocking, 2018)
- Engaged advocates making deputations at council can dispel myths about “cyclists” and support strong political leadership (Templeton, 2021, Templeton, 2018)
- A Suburban Parking Policy helps set the conversation (Christchurch City Council, 2019b)

<p><i>Kilmore & Salisbury street cycle lanes (circa 2000)</i></p>	<p>People on bikes can now access the central city and congestion did not increase (Wilke, 2020)</p>
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- Perceived disbenefits to driving do not necessarily result from road space reallocation, even if this is forecast by intersection modelling (which does not predict traffic using alternate routes)

² Source: Wellington city automatic (machine) count data uploaded to Waka Kotahi database

Riccarton Road bus lanes PT system reliability improvements while parking retained on one side off-peak (Morahan, 2021, Christchurch City Council, 2020)

- Include streetscaping and sub-surface works at the same time
- Focus on the journey time reliability benefits for the many PT users

Workplace travel planning 31% drop in car commuting for participating organisations after moving into the central city (Brodie and McNaughton, 2019), supporting the reallocation of space from parking and cars to people and places.

- [Workplace travel planning](#) including “opt-out” one-on-one guidance is required to support mode shift.



Figure 2: Workplace travel planning (Christchurch City Council)

Auckland
Redoubt Road [dynamic lane allocation](#) Motorist time saving of up to six minutes per trip (Auckland Transport, 2020a)
 Safer pedestrian crossings

- Combining the capacity project with upgraded pedestrian crossing facilities helps get the community onboard (Auckland Transport, 2020b)
- Dynamic lanes help reduce congestion without having to widen the road (ibid)

Karangahape Road ([website](#)) Traffic lanes reallocated for separated cycle lanes and bus lanes
 26% increase in consumer spending after project opening (Auckland Council, 2021)

- Weekly contractor emails and quarterly monitoring reports following a [baseline perceptions survey](#) supported businesses during construction (Ahuja, 2021)
- Combining the cycleway project with streetscape upgrade achieved synergies (ibid)
- [Feedback](#) on the enhancement project collated in March 2017 was formatted into tables by topic area with illustrative quotes and project team responses



Figure 3: K-road enhancements (LandLab)

Dunedin

Better utilisation of kerbside space

Electronic parking signage

Electronic signage manages demand for buses and tour coaches but enables public parking outside peak times for mass transit (Koorey and Poulsen, 2018).



Figure 4: electronic dynamic parking signage (J. Lieswyn)

Whanganui

Hospitality venues are packed; sales rising; people are increasingly proud of their street and community

Drews Avenue Innovating Street

All lessons courtesy of Waka Kotahi Community of Practice (Whanganui District Council, 2021)

- Don't just focus on the loud and angry voices
- Build fast to minimise the duration of negativity – once the project is done, the community can see the benefits
- Quality design, interactive art: features that engage kids work best
- Ensure contractor buy-in (as spokespeople)

- Push boundaries of council land and private land
- Power of “meaning”: people forget about what is “lost” when stories about the environment are embedded in the streetscape
- Project managers separate from the council
- Awesome opening events and getting creative people involved

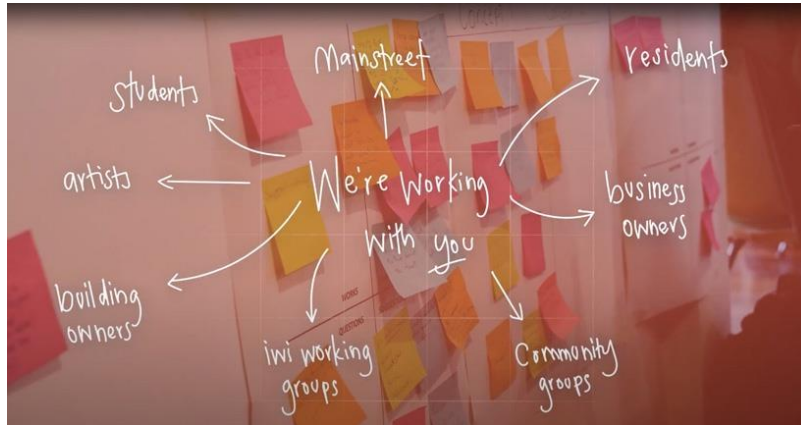


Figure 5: stakeholders engaged (Whanganui District Council)

Sydney

Making Sydney a Cycling City

7 km of new cycleways built in six months after previously averaging 2 km per year (Ticher, 2021)

- Boost government skills and expertise, including recruitment and professional development (Campbell, 2010)
- Leverage major external factors such as the pandemic to get infrastructure built quickly (Committee for Sydney, 2021)
- Start with gap-filling between existing routes to link employment centres (ibid)

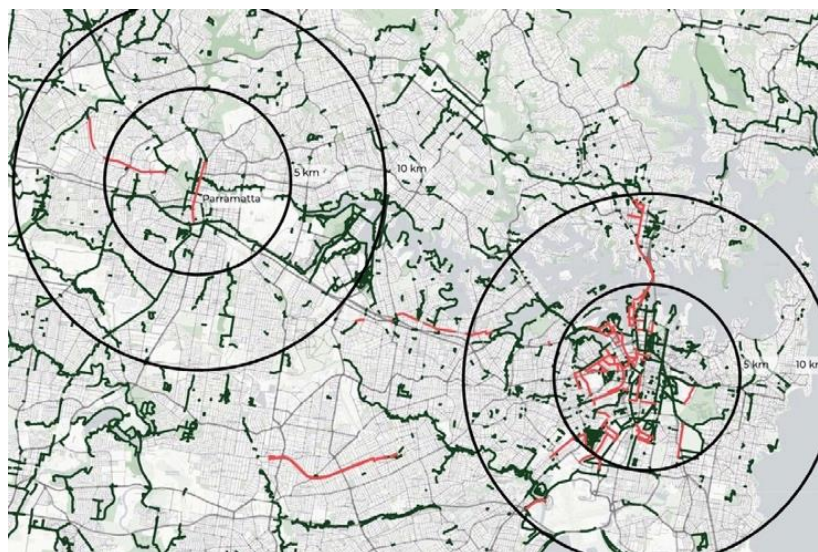


Figure 6: focus on new (pink) gaps to link existing (green) routes and connect employment centres (City of Sydney)

Portland

Reallocation of space on bridges

Between 1991 and 2011, a 322% increase in cycle traffic, a 12% increase in total traffic (bikes and motor vehicles) and a slight decline of 0.2% in motor vehicle traffic (Geller, 2012)

- Reallocating lanes from cars to bikes increases the people carrying capacity of the network at much less cost than building for cars but must be done as part of a network plan to succeed

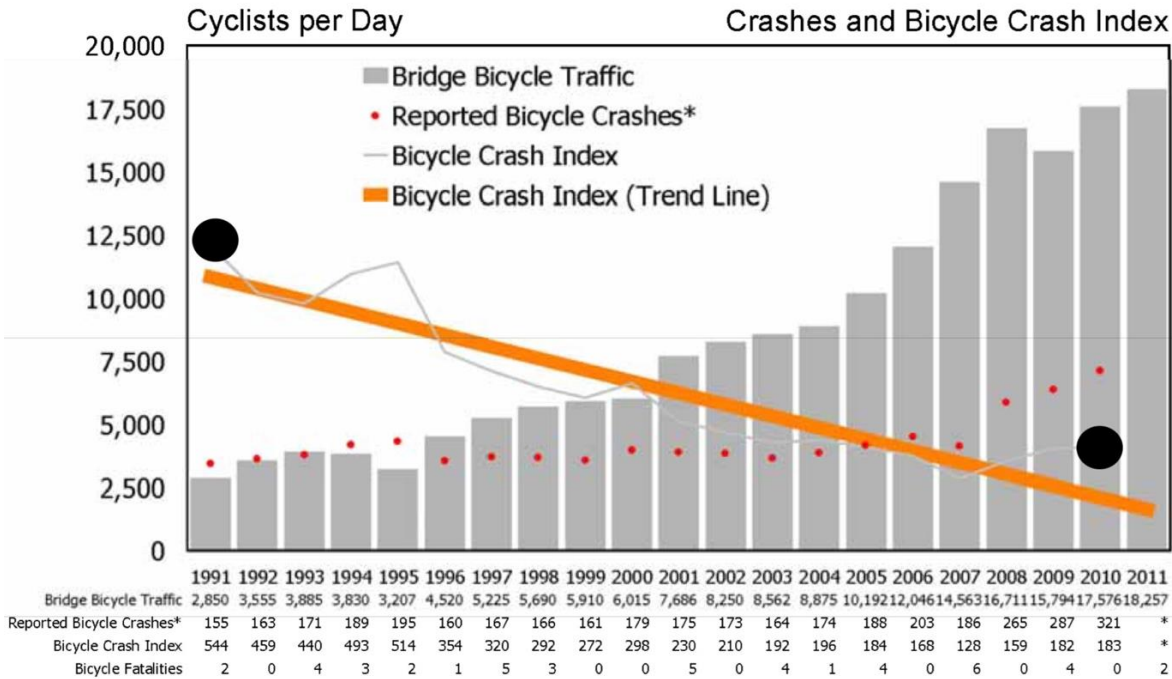


Figure 7: cycle traffic and safety index on four Portland bridges (Geller, 2012)

Neighbourhood greenways

Space for exercise and community food gardens; reduce illegal speeding; help people cross busy streets; improves property values; supporting bus & tram priority (Cohen, 2019)

- Telling the stories of greenways with relatable people and collecting data on the 160 km network and aids in asset management (Cohen, 2019)
- “People love living on a people busy street, not a car busy street” (ibid)



Figure 8: Neighbourhood greenways enable all ages to ride (S. Cohen)

New York*Leading with Vision Zero*

650 km of cycleways (200 km protected)

Cycling has increased 26% since 2014

Women cycling rose 147% during the pandemic (Goldbaum, 2020)

Substantial parts of the lessons learned are based on personal communications with NY DOT staff (Kite-Laidlaw, 2021) or published reports as cited:

- Data is at the heart of Vision Zero (Kite-Laidlaw, 2021), and using safety framing can build internal and political support (i.e., it isn't a cycleway project, it is a safety for everyone project)
- A focus on business vitality is critical and requires constant engagement with businesses
- Automated enforcement works (NY DOT, 2021, Sakashita et al., 2021)
- Diverse set of skills in the organisation supportive of Vision Zero, walking, cycling and public transport projects: staff from policy, communications (strategy, press, social media, graphic design), legal, safety education, planning and engineering
- A strong and ubiquitous bike sharing system
- An ecosystem of bike couriers and e-bike food delivery
- Strong connection to bike advocacy within communities (such as *Black Girls Do Bike*, a Hispanic cycling group).
- Strong and unwavering political support is crucial
- As changes relating to cycling and public transport reached into more car-dominated suburbs, undertaking [in-depth listening tours](#)
- Collaboration with advocacy groups has made a major difference as they tend to 'humanise bureaucratic processes'



Figure 9: Low cost temporary materials for access management (NY DOT)

Berlin

Low Traffic Neighbourhoods (LTNs)

Cycling mode share is between 6 and 21% depending on the borough
 Social licence for arterial road space reallocation developed after local streets made cycle-friendly

The case study and lessons learned are based on ViaStrada staff experience and research (Wilke et al., 2014, Koorey and Wilke, 2016):

- People took up cycling once the conditions were right (reduced traffic volumes and reduced speeds). Speeds were reduced not street by street but across whole areas.
- The measures that achieved cycle friendly local streets did not have increasing cycling as an objective, rather this was an unintended outcome.
- Based on the uptake of cycling on local streets and public desire to improve the arterial road network for cycling, a political mandate for road space reallocation along arterial roads to provide cycling infrastructure developed unaided.



Figure 10: Berlin’s LTNs built the demand to then reallocate arterial space (G. Koorey)

London

Cycling super highways

46% of the road users are moved in only 30% of the road space (Buczynski, 2018)
 Congestion on the network reducing despite reduced motor vehicle space (Bhuyan et al., 2020)

- Rider uptake increased rapidly when facilities were fully separated from traffic and junctions made cyclist-friendly (Buczynski, 2018)

Waltham Forest LTNs

52 streets closed to through traffic
 30 km/h speed limits on 1,062 streets
 700 trees & 16 pocket parks, 22 kms of cycleways, 8 cycle parking hubs, 500 residential bikehangers, 1,500 new cycle stands led to a doubling of cycling (Little and Loakes, 2021)

Lessons based on a presentation to Transportation Group Conference 2020 (Little and Loakes, 2021):

- Empower and support public proponents to offset negativity
- Stay the course of a trial
- Use business “Know Your Customer” perception surveys



Figure 11: Counter-protests in support of LTNs (J. Little)

CRITICAL SUCCESS FACTORS

Summarising the full research study report, the critical success factors (Figure 12) are:

1. Political support by mayors, influential leaders and empowered city officials in [London](#), [New York](#), [Sydney](#), [Paris](#), and Bogota (Jara-Moreno, 2012) has been decisive (Penalosa, 2016). Advocates have built political momentum for change in Auckland, Wellington and Christchurch.
2. Public engagement is key. The NZ guide *How to Talk About Urban Mobility and Transport Shift* is recommended (Berentson-Shaw, 2020).
3. Strategic alignment with high level objectives and network priorities. New York grounds all projects in [Vision Zero](#). Melbourne pioneered SmartRoads to set multimodal priorities (VicRoads, 2010). Christchurch has reflected what the public said they wanted in *An Accessible City* (Canterbury Earthquake Recovery Authority, 2013) and relies on a Suburban Parking Policy (Christchurch City Council, 2019b) to set priorities.
4. Planning and design needs to be methodical and collaborative. In Christchurch and Palmerston North, Multi-Criteria Analyses (MCAs) tailored to comparing long lists of potential projects provided the necessary robust, defensible process needed to address “not in my backyard” objections (Hopman et al., 2018, Lieswyn, 2020). Listening to the public helps identify existing problems that can be resolved through detailed design (Lightowler, 2018).
5. Programme governance needs to have the right people, skills, and continuity. In Adelaide, the East-West Bikeway failed in part due to turnover in the team (Boisvert, 2021). The Christchurch Major Cycle Routes programme has benefited from having the same directing staff and communications team support throughout (Landon-Lane and Cocking, 2018).

6. Resources are available through Waka Kotahi and others to equip practitioners with the skills to communicate difficult subjects with the public. With Innovating Streets and the original Urban Cycleways Programme, many failures were related to funding constraints dictating project timing (MorrisonLow, 2016).
7. Delivery needs to be fast: in Whanganui the public was able to see results before opposition could spread (as noted earlier in the success stories). In contrast, delayed features at Island Bay meant that the public was confused about using the layout (MorrisonLow, 2016). Oakland's [Slow Streets](#) were delivered "lighter, quicker, cheaper" so that if they failed, not much was lost (Logan, 2021). When a large investment in planning effort and infrastructure is made, it is harder to pull out and redirect attention and investment to areas where there is more support for change.
8. Community support builds with stories of success, including Portland's profiling of community members in [videos](#), New York's [Vision Zero View online map](#), and Auckland's [Active Modes Quarterly Snapshot](#).



Figure 12: key success factors, adapted from MorrisonLow (2016)

MANAGING ‘BIKELASH’

The study considered ‘bikelash’ and other forms of street space contestation in depth. Of particular relevance are the groups, concerns and mitigation strategies listed in Table 1.

Table 1: four groups of cycleway opponents (based on Wild, Woodward et al 2018)

Group	Concerns	Strategy
1. Business owners, particularly retailers	Economic consequences	Relatable stories about before and after feelings can be useful as well as data that shows people on bikes are customers and initiatives that attract people on bikes as customers.
2. Traditionalists	Us versus them; “cyclists” are law breakers and free-loaders; particularly angry in tone	Show that people who ride bikes are regular people and creating safe streets is for kids, seniors and families.
3. Marginalised communities	Opposed to gentrification; believe that cycleways are for the well-off and there are higher priorities; cannot see themselves cycling	Avoid labelling car use as backward thinking or critiquing the aspiration of car ownership. Grassroots initiatives are suggested to be the best way to engage with communities. Introducing the potential economic benefits can also be helpful.
4. Existing cyclists	Vehicular cyclists prefer faster, direct routes; worried about mandatory cycleway use legislation and motorist anger if they remain on the road Interested but concerned cyclists may feel the treatment isn’t good enough	Extensive ongoing consultation over design details: reiterate that the objective is to get more people cycling.

OTHER TOPICS COVERED IN THE STUDY

The study report covered a range of other topics that cannot be included here for reasons of space, including learning from unsuccessful initiatives, measures of success (particularly useful for business case development), and community engagement. For the latter topic, collating and distilling the extensive New Zealand literature and expertise is worthy of a standalone conference paper covering:

- Language and narratives; compelling imagery
- It’s hard to argue with data, especially when communicated by the right people (e.g., children!)
- Use personas so that people can identify with stories
- Address gentrification concerns
- Communicate that driving demand is not fixed (i.e., mode shift reduces congestion)
- Engage with the media, who have an important and positive role to play
- Use local resources and businesses
- Use a range of tools to communicate
- Responding to Frequently Asked Questions (FAQs) with simple word tracks – samples were developed based on the work of Simons (2012).

FURTHER RESOURCES FOR THE PRACTITIONER

In addition to [in-person training](#) such as the Waka Kotahi-approved *Urban Street Design and Planning and Design for Cycling* courses, practitioners can sign up for free online courses from Europe like [Designing the Cycling City](#) and [Unravelling the Cycling City](#). Relevant publications are listed in Table 2.

Table 2: selected resources for practitioners

Publication	Description
Explain your lane: lessons for cities, from cities on building green lanes (Simons, 2012)	Useful FAQs and positive responses including evidence (for those who are compelled by evidence)
The Shared Path: How low-traffic areas in Aotearoa's cities can decarbonise transport, save lives...(Walker, 2020)	Describes the importance of proactive listening to communities and has an excellent "Tika ³ Transition" Toolbox.
Bringing communities with you (Pascoe, 2015) Changing urban mobility systems: technical problem or adaptive challenge? (Pascoe, 2019)	Concept of "Social licence to operate"; risk management, more "pictures and marketing" earlier in project delivery; and elevated the role of public information staff.
Gear Change: A bold vision for cycling and walking in England (Department for Transport, 2020)	Focuses on the need for "Step Change" and integrating cycling into the heart of decision-making
How to Talk About Urban Mobility and Transport Shift: A Short Guide (Berentson-Shaw, 2020)	Systems thinking rather than individual behaviour; use the five building blocks (audience, vision, values, explanations, and storytelling) to communicate. Lists approaches to avoid and provides alternatives.
Curbing Traffic (Bruntlett and Bruntlett, 2021)	Help decision makers better understand and communicate the human impacts of low-car cities: lower anxiety and stress, increased independence, social autonomy, inclusion, and improved wellbeing.

CONCLUSIONS

Road space reallocation is often seen as a win for some and a loss for others, leading to controversy and substantial project risks. Many cities that have succeeded have also had failures along the way. The research shows that there are eight key success factors (Figure 12), with many of these related to how the benefits of reallocation are communicated. Projects often fail where there isn't political support and succeed where there is. This paper has outlined the means to build and retain that support. It can be a minefield to navigate all the different pitfalls, so the evidence and lessons collated in our research study is a useful resource that can be customised to particular situations.

ACKNOWLEDGEMENTS

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³ Tika, short for tikanga, means Māori customary practices or behaviours

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