Life in Medium Density Housing
in Tāmaki Makaurau / Auckland

Chapter 8

Carparking and vehicle storage

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Overview of the Life in Medium Density Housing in Tāmaki Makaurau / Auckland report

The *Life in Medium Density Housing in Tāmaki Makaurau / Auckland* study was undertaken by Auckland Council's Economic and Social Research and Evaluation team and Tāmaki Makaurau Design Ope (TMDO) in 2023.The primary purpose of the research was to investigate how Aucklanders are experiencing living in recently built medium density housing (MDH).

The results of this research will support everyone involved in the delivery of housing in Auckland (including Auckland Council, central government, developers) to improve future MDH, and ultimately the wellbeing of Aucklanders, through consenting processes, design guidance and land use planning. It will also enable better informed choices by Aucklanders looking to live in MDH.

This study involved a number of methods including a rapid literature review, geospatial analysis to identify recently developed MDH across the Auckland region, an online survey of 1337 participants living in MDH, analysis of the consented plans of 110 properties whose residents participated in the survey, and 20 in-depth in-home immersions which collectively provides a comprehensive view of how people experience their MDH.

This report is divided into 10 chapters and 13 appendices:

Main report:

- Chapter 1: Introduction
- Chapter 2: Legislation and policy context
- Chapter 3: Research method and sample
- Chapter 4: Indoor spaces for living
- Chapter 5: Storage, laundries and bathrooms
- Chapter 6: Outdoor living spaces
- Chapter 7: Indoor environment
- Chapter 8: Carparking and vehicle storage
- Chapter 9: Shared facilities
- Chapter 10: Discussion and recommendations

Appendices:

- 1: References
- 2: NPS-UD and Auckland Regional Policy Statement objectives and policies
- 3: Survey invitation letter and reminder postcard
- 4: Survey consent form
- 5: Survey questionnaire
- 6: Standalone houses excluded from the sample
- 7: Survey sample characteristics
- 8: In-home immersion screener survey
- 9: In-home immersion discussion guide
- 10: Design attributes for analysis of consented plans
- 11: Map of broad geographic study areas
- 12: Study limitations
- 13: Codes for open ended responses

Each chapter is provided as a separate PDF and can be accessed on the Knowledge Auckland website. A summary report with key findings is also available on the Knowledge Auckland website.

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Introduction to this chapter

This chapter discusses the storage of vehicles owned by households, including parking. Vehicles owned include cars, bikes (e-bikes, pushbikes and children's bikes), motorbikes and other types of vehicles. Section 1) focuses on cars and carparking, beginning with a description of regulations and best practice guidance before presenting results from the survey and in-home immersions. Section 2 discusses the storage of bikes, also starting with a description of regulations and best practice guidance followed by results from the survey and in-home immersions. Survey results about the storage of other vehicles (e.g. motorbikes, mobility scooters) are presented in Section 3. Finally, Section 4 contains a summary.

1 Cars and carparking

1.1 Regulation and best practice guidelines

1.1.1 Auckland Unitary Plan

From February 2022, councils were directed to remove any minimum carparking requirements (except accessible parking) from their district plans by Policy 11 of the National Policy Statement on Urban Development.[1] As the majority of dwellings included in this study would have been consented prior to this date, it is relevant to consider the parking standards in the AUP prior to this time, which are set out in Table 1 below.

Table 1: Auckland Unitary Plan carparking requirements prior to 20 February 2022

	Number of carparks					
	THAB		MHU		MHS	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Studio or 1-bedroom	0	1 per dwelling	0	No maximum	0.5 per dwelling (rounded down)	No maximum
2 or more bedrooms	0	2 per dwelling	1	No maximum	0.5 per dwelling (rounded down)	No maximum
Visitor parking	0	0.2 per dwelling	No minimum	No maximum	No minimum	No maximum

Source: *Auckland Unitary Plan*, Chapter E27 Transport, Standard E27.6.2 Number of parking and loading spaces, and Tables E27 6.2.3 and E27.6.2.4.

While the AUP no longer requires minimum carparking in the residential zones, this does not prevent developers from providing carparking. Where carparking is provided, it is subject to minimum standards relating to the dimension of the carparking space and manoeuvring from that space.[2] Lighting is also required for 10 or more parking spaces and associated manoeuvring areas and pedestrian routes, for the safety of users during the hours of darkness.[3]

[1] National Policy Statement on Urban Development (May 2022).
"Policy 11: in relation to carparking:
(a) The district plans of tier 1, 2 and 3 territorial authorities do not set minimum carparking rate requirements, other than for accessible car parks...".

[2] *Auckland Unitary Plan*, Chapter E27 Transport, Standard E27.6.3.4(a).

[3] *Auckland Unitary Plan*, Chapter E27 Transport, Standard E27.6.3.7.

1.1.2 Auckland Design Manual (ADM) and best practice guidance

The *Auckland Design Manual* (ADM) currently does not contain any guidance on carparking as it is under review to respond to the NPS-UD and Medium Density Residential Standards.

The Ministry of Housing and Urban Development's *Public Housing Design Guidance for Community Housing Providers and Developers* recommends that where a site is not located within walking distance of a local centre or rapid transport network, a carparking ratio of one carpark per dwelling is appropriate,[4] which is consistent with the Kāinga Ora *Ngā Paerewa Hoahoa Whare Design Requirement*s (hereafter referred to as the Kāinga Ora Design Requirements).[5] The Kāinga Ora Design Requirements also require that carparking provision for multi-unit developments aligns with the anticipated occupant numbers, household mix and proximity to public transport.[6] This means that more than one carpark per dwelling may be provided.

Both guidelines have minimum dimensions for garages, with the Public Housing Design Guidance requiring 3m width x 5m length excluding any laundry or storage facilities, to accommodate a medium to large sized vehicle,[7] whereas the Kāinga Ora Design Requirements require a 3.5m width and 5m length.[8] Provision for electric charging points is recommended to future-proof dwellings by the Public Housing Design Guidance.[9]

The National Medium Density Design Guide recommends supporting sustainable transport modes like walking, cycling and public transport. However, if carparking is provided, it is recommended that it is located away from the front yard and in a common location. If a garage is provided, then the distance between the garage and the street boundary or shared accessway is short enough to discourage vehicle parking across accessways or deep enough to fully accommodate a parked vehicle.[10] Future-proofing provision, including managing the fire risk, for electric vehicle charging is also recommended.[11]

The *Apartment Design Guidelines for Victoria* recommend that carparking is consolidated, with provision for pedestrian and cyclist access, as well as access for emergency and delivery vehicles.[12]

Both the New South Wales *Apartment Design Guide* and *Low Rise Housing Diversity Design Guide for complying development* acknowledge that parking should be determined in relation to the

[4] Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Section 2.3 Carparking need.
[5] Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirements*, Section A3.3.1A(i).
[6] Ibid, Section A3.3.1.B(i).
[7] Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Section 3.5.5 Garages.
[8] Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirements*, Section A3.3.1A(ii).
[9] Ministry of Housing and Urban Development. (2023). *Public Housing Design Guidance for Community Housing Providers and Developers* (Version 2_1 web), Section 3.5.4 Electric vehicle charging points.
[10] Ministry for the Environment. (2023). *National Medium Density Design Guide*, Section 2(G).
[11] Ibid, Section 3(H).
[12] State of Victoria Department of Environment, Land, Water and Planning. (2021). *Apartment Design Guidelines for Victoria,* Section 1 Guidance to access.

availability, frequency and convenience of public transport. [13, 14] In relation to apartments, provision for alternative forms of transport such as car share, motorcycles and bicycles should also be considered and that where less carparking is provided, councils should not provide on-street resident parking permits.

1.2 Section 35 (s35) monitoring

The s35 monitoring did not analyse the provision of carparking, but did consider the safety and functionality of site access and circulation for pedestrians and vehicles and observed that:[15]

- Only a quarter of developments that provided a footpath were separated from the driveway with a kerb or other barrier, and only half were designed to avoid the reverse space of cars.
- Some developments had front doors opening directly into the shared driveway.
- Some forms of parking such as centralised communal parking were not adequately designed for pedestrian safety.

1.3 Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

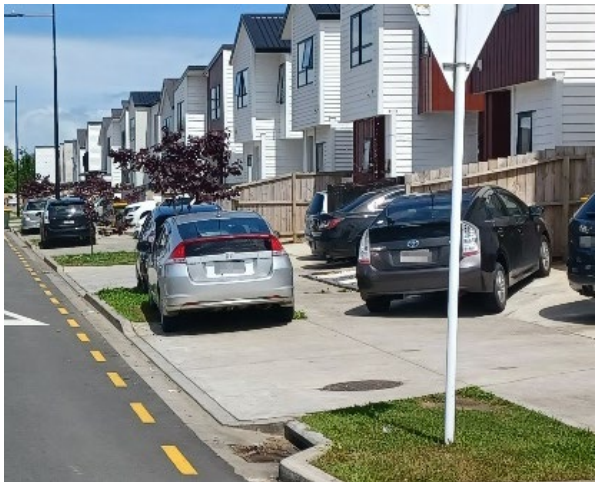
- There is an increased number of developments with no onsite carparking provided, resulting in a significant numbers of cars parking on public streets, and illegally parking over berms and footpaths (Figure 1 and Figure 2).
- Where onsite parking is provided, it is often insufficient for the number of vehicles per household, with unanticipated and 'creative' parking occurring within driveways (often blocking pedestrian access) or areas intended for landscaping or outdoor living space (Figure 3).
- There is an increasing use of communal carparking areas rather than individual garages due to site layout efficiencies and increased yield.
- Provision of visitor parking or loading spaces for delivery vehicles is uncommon.

[13] New South Wales Department of Planning and Environment. (2015). *Apartment Design Guide*, Section 3J Bicycle and car parking.
[14] New South Wales Department of Planning and Environment. (2020). *Low Rise Housing Diversity Design Guide for complying development*, Section 3N Car and bicycle parking.
[15] Auckland Council. (2022). *Auckland Unitary Plan Section 35 Monitoring*, B2.3 A quality built environment, pages x- xi.

Figure 1: Parking across public road berm and footpath

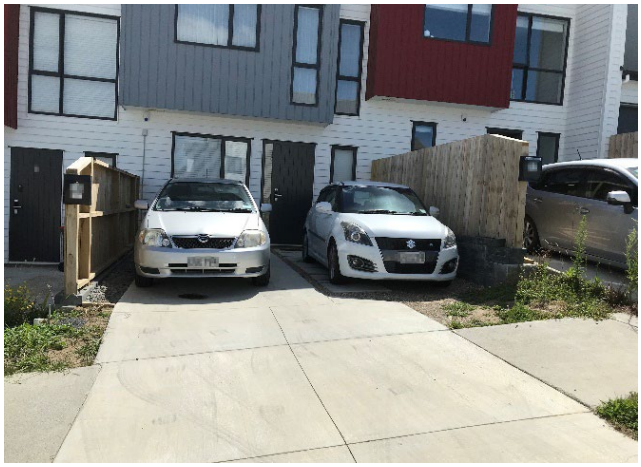
Source: TMDO, Auckland Council.

Figure 2: Parking over footpaths and berms



Source: TMDO, Auckland Council.

Figure 3: Footpath to front door and landscaped front yard being used as second parking space.



Source: TMDO, Auckland Council.

Figure 4: Front yard landscaping and outlook from living areas converted to concrete pad to allow for additional parking

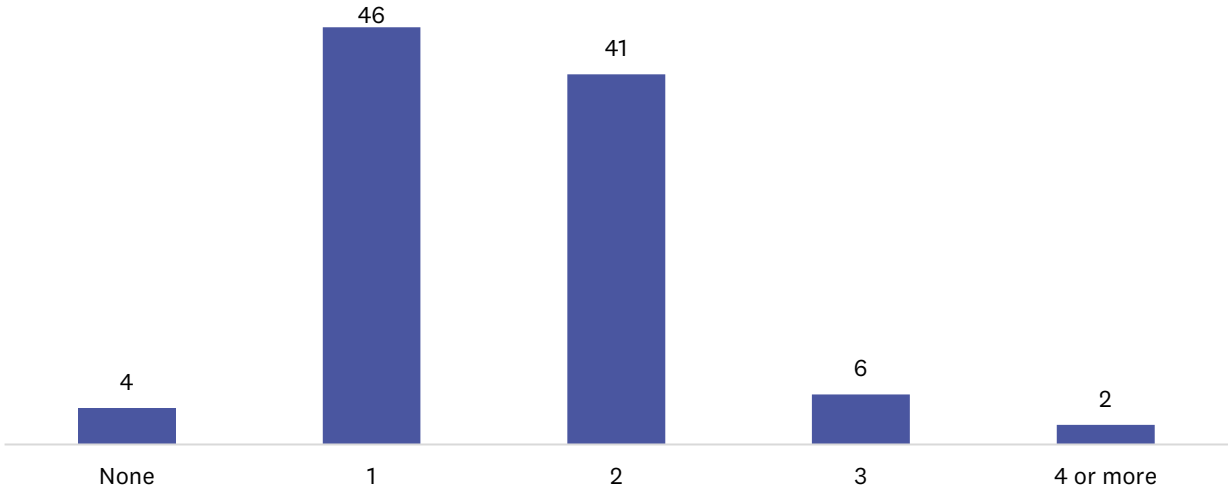
Source: TMDO, Auckland Council.

1.4 Survey results

1.4.1 Cars in the household

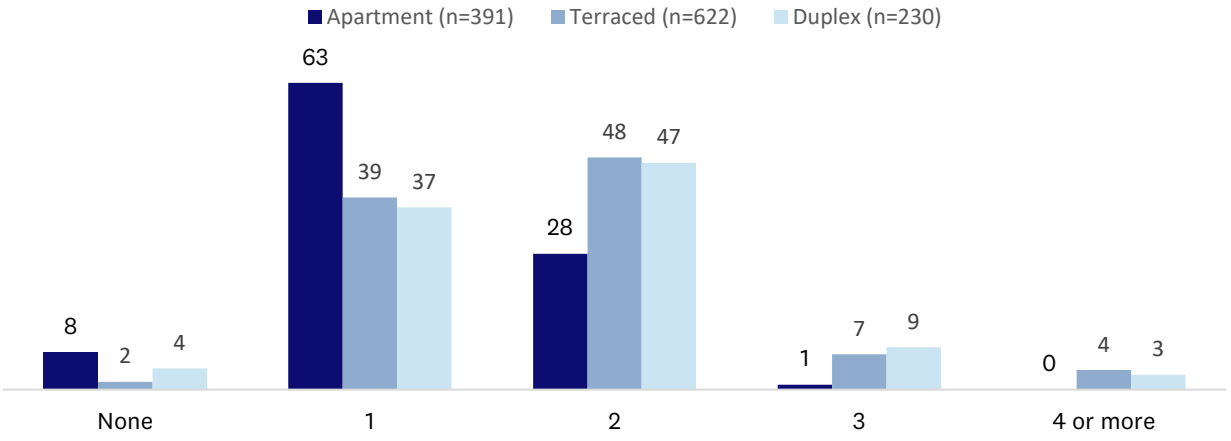
Most (96%) of the household reported having at least one car (could be petrol, diesel, hybrid or electric cars). Close to half (46%) had one car, 41 per cent had two cars, 6 per cent had three cars and the remaining 2 per cent had four or more cars.

Figure 5: Number of EV, petrol, diesel and/or hybrid cars in a household (n=1243) (%)



Those living in apartments were more likely to have no cars (8%) compared with those in a terraced house (2%), and those living in apartments were also more likely to have one car (63%) compared with those in a terraced house (39%) or a duplex (37%). Conversely, those living in terraced houses or duplexes were more likely to have two or three cars in the household compared with those living in an apartment.

Figure 6: Number of cars in the household, by typology (%)

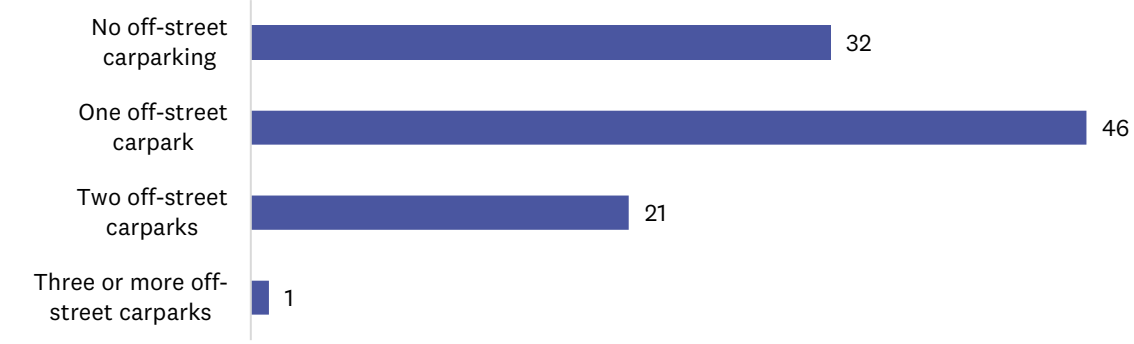


1.4.2 Amount of carparking

Auckland Council rating data shows that a third (32%) of the properties from whom we received a survey response have no off-street parking,[16] 46 per cent have one off-street carpark and 21 per cent have two off-street carparks.

[16] Off-street parking is defined as 'a garage or other permanent structure, or a permanent standing established specifically for parking. It excludes access ways to garages or carparks.' This definition is interpreted to include private garages for terraced homes/duplexes, basement garages in apartment buildings, outdoor carparking areas in terraced housing/duplex complexes, and parking pads outside terraced houses/duplexes which could be covered (i.e. carport).

Figure 7: Number of off-street carparks for each property (n=1243) (%)

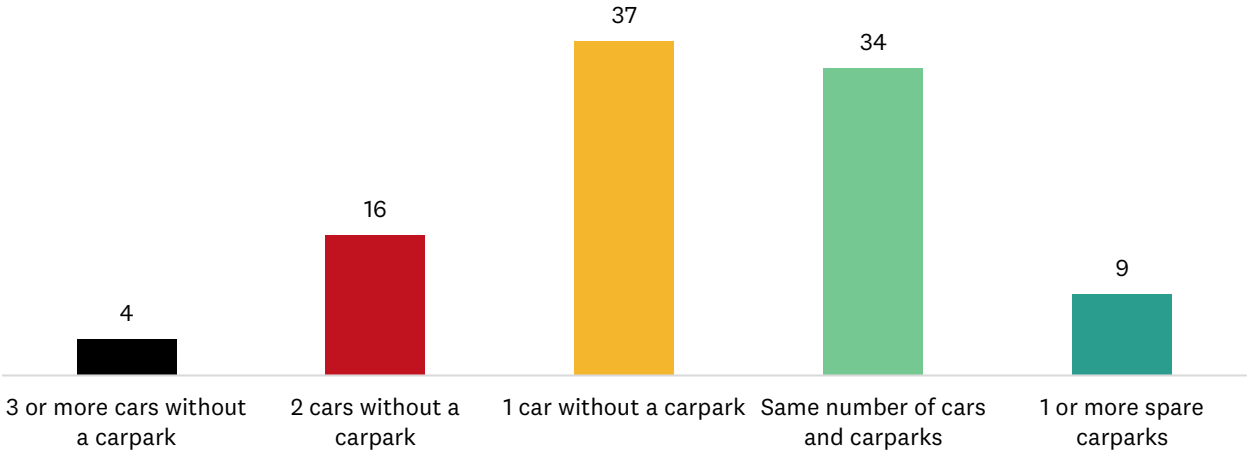


Note: Fourteen properties (1%) have no off-street carparking data and are not shown in the chart.

Source: Auckland Council rating data.

A comparison of the number of cars reported to be owned by the survey participants with the number of off-street carparks indicates that most properties have insufficient off-street parking for the number of cars in the household. As Figure 8 shows, 57 per cent of households had one or more cars but no off-street carpark, 34 per cent had the same number of cars and off-street carparks, and only a small proportion (9%) were calculated to have one or more spare carparks.

Figure 8: Comparing number of cars in the household with the number of off-street carparks (n=1179) (%)



Note: Base is all households with at least one car.

The participants living in apartments were more likely to have the same number of cars and carparks (43%) than those living in terraced houses (33%) or duplexes (29%). Conversely, the participants living in terraced houses (18%) or duplexes (20%) were more likely to have two cars without a carpark compared with those in apartments (9%). There are a variety of reasons that could explain these differences, including: the ability of garages compared with apartment basement carparking to be used for other purposes; the location of homes in proximity to public transport which tends to best serve locations near the city centre; and the life stage of participants in different typologies (e.g. those in apartments tend to be older and may not require cars for all members of the households).

1.4.3 Types of carparking

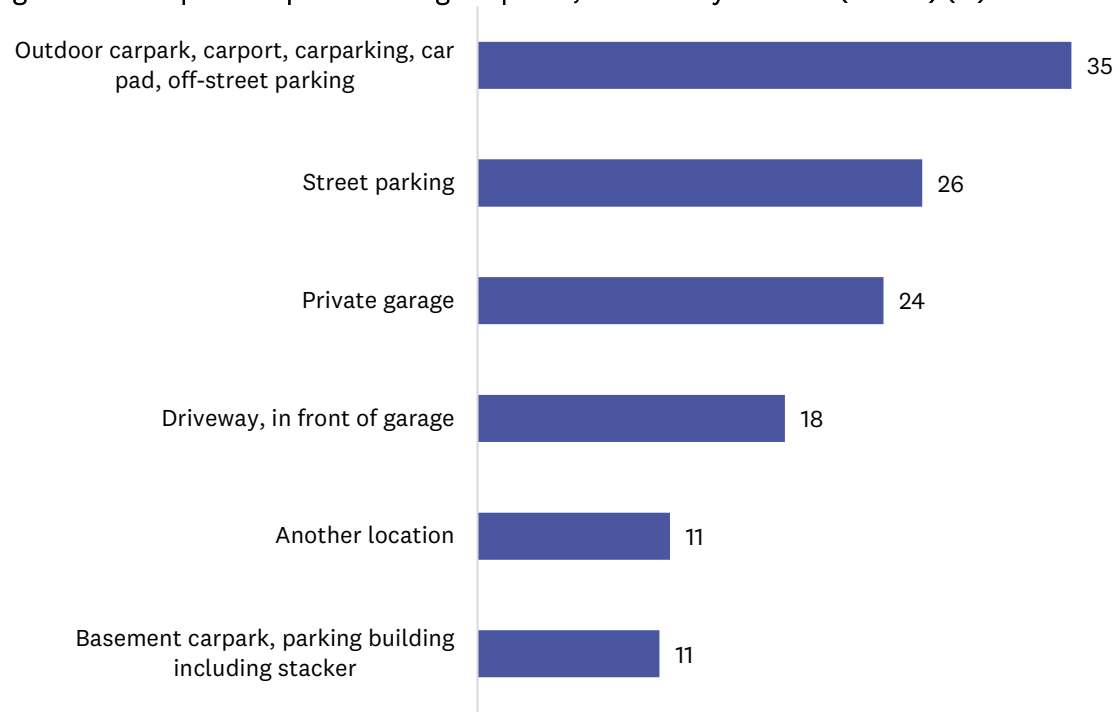
Participants were asked to describe (in an open ended response field) where they store the vehicles owned by themselves or others in their household.

Petrol, diesel or hybrid cars were reported to be stored in a range of locations (Figure 9). A third (35%) of participants stored their car in some form of outdoor off-street parking such as a carpark, carport or car pad; a quarter (24%) stored their car (or cars) in a private garage; and a quarter (26%) stored their car (or cars) on the street.

Some of the participants living in apartments and terraced houses/duplexes reported storing their cars in a 'private garage'. For those living in apartments, this garage is likely to be in the basement of their apartment building, whereas for those living in a terraced house or duplex, this is likely to be a garage as part of the ground floor of their home or a separate garage building at the rear of the property (e.g. off a rear accessway).

The small proportion of households who reported having and using a garage for their car supports the finding discussed in Chapter 4 on the uses of garages for purposes other than carparking, including storage (of items other than cars), laundry and indoor living activities (e.g. exercise, hobbies). (See also the following section for further information about the uses of garages for carparking.)

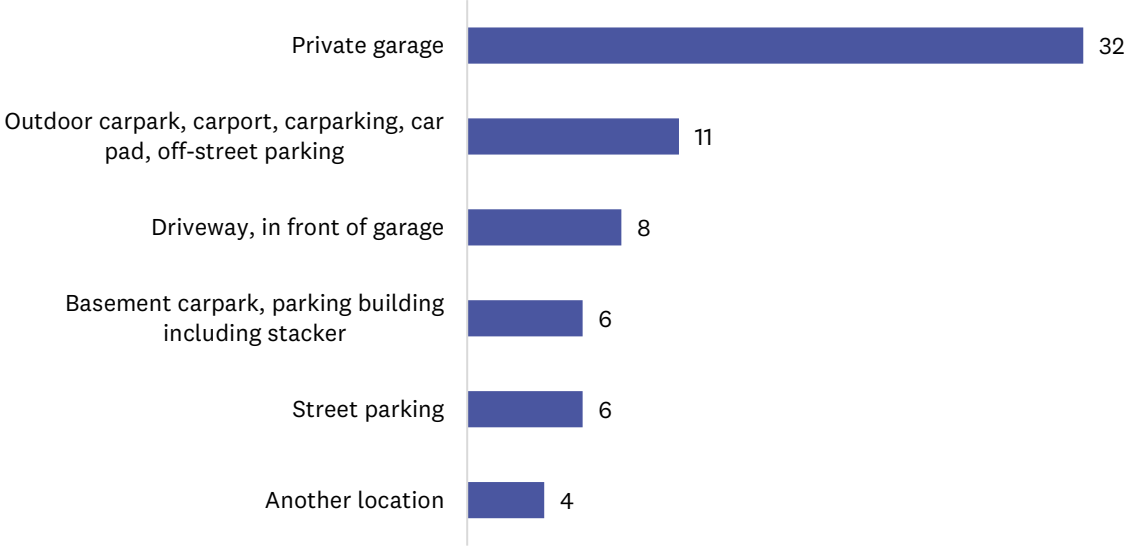
Figure 9: Participants' reported storage of petrol, diesel or hybrid cars (n=1152) (%)



Notes: 1. Base is all properties where the household owns at least one petrol, diesel or hybrid car.
2. Multiple responses allowed; therefore, total does not sum to 100.

Sixty-six households reported owning a plug-in electric car. Half (32) store this vehicle in a private garage (Figure 10). While this sample size is too small to draw firm conclusions, these findings suggest it is more common for EVs to be stored in a garage compared with petrol, diesel, or hybrid vehicles. This difference in parking practices may be influenced by charging EVs from power points within a garage.

Figure 10: Storage of plug-in electric cars (n=66) (counts)



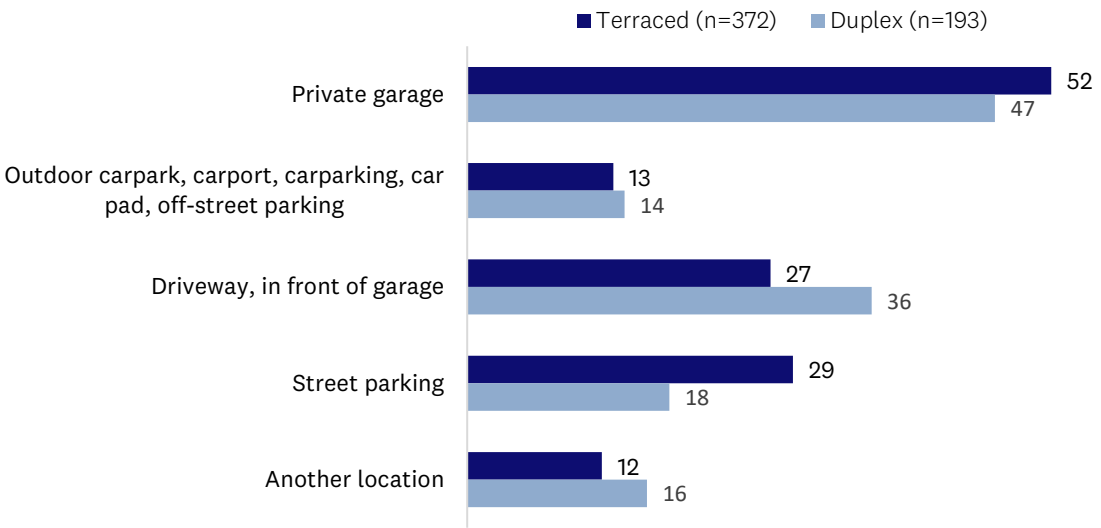
1.4.4 Uses of garages for carparking

In Chapter 4, Section 1.4.2 and Section 1.5.5 are descriptions of how the survey and in-home immersions participants with a garage use this space for a range of purposes, which sometimes includes carparking. This section describes how the survey participants in a terraced house or duplex with a garage, and who have one or more cars, store their cars.

Just over half (53%) of the participants living in a terraced house or duplex reported having a garage in their home. Garages were more common in duplexes (69% had a garage) than terraced houses (47%).

Of those who reported having a garage, only half (50%) reported parking a car in their garage (Figure 11). Close to a third (30%) park on the driveway or in front of their garage, and a quarter (25%) park on the street.

Figure 11: Participants reported storage of cars for homes with a garage, by typology (%)



Notes: 1. Base is all properties with a garage.
2. Multiple responses allowed; therefore, total does not sum to 100.

As Figure 6 showed, fifty-nine per cent of those living in a terraced house or duplex had two or more cars in the household. Of those living in a terraced house or duplex, 39 per cent have one car in the household, 47 per cent have two cars and 12 per cent have 3 or more cars.

When considering households with one car and a garage, 59 per cent reported storing their car in the garage. This means that 41 per cent of one-car households with a garage are not using their garage for carparking.

Half (51%) of the households with two cars and a garage report storing a car in their garage. Again, this means that half of these garages (49%) are not being used for carparking. Furthermore, if it is assumed that most of these garages can store only one car (based on the result of the consented plan analysis; see Section 1.5) then the second car is almost always parked elsewhere.

1.4.5 Satisfaction with carparking

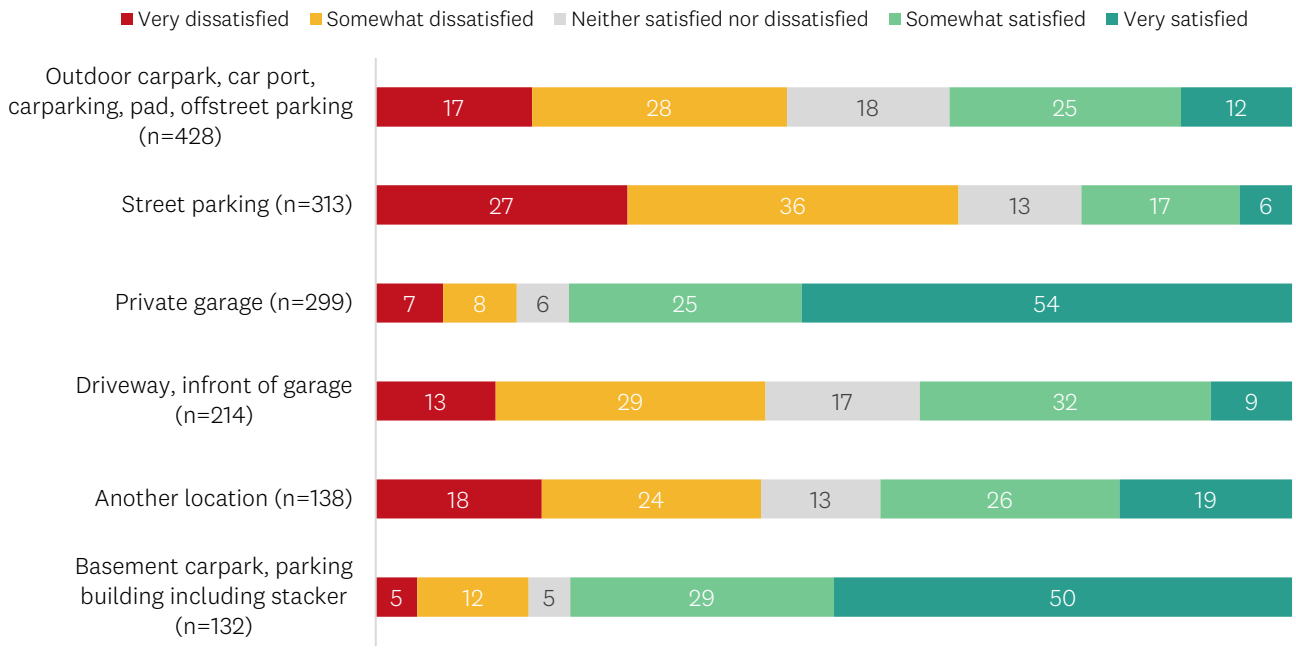
The survey participants were asked to rate their level of satisfaction with how they store their vehicles.[17]

As Figure 12 shows, there is a clear relationship between levels of satisfaction with the storage of their petrol, diesel or hybrid cars and the type of storage participants are using. For example, the participants who said they park their car in a private garage or basement carpark were significantly more likely to have reported being ‘somewhat’ or ‘very satisfied’ with their carparking (79% respectively), compared with those who park their car on the street (23%).

Two-thirds (63%) of those who park a car on the street reported being ‘very’ or ‘somewhat’ dissatisfied with this form of storage.

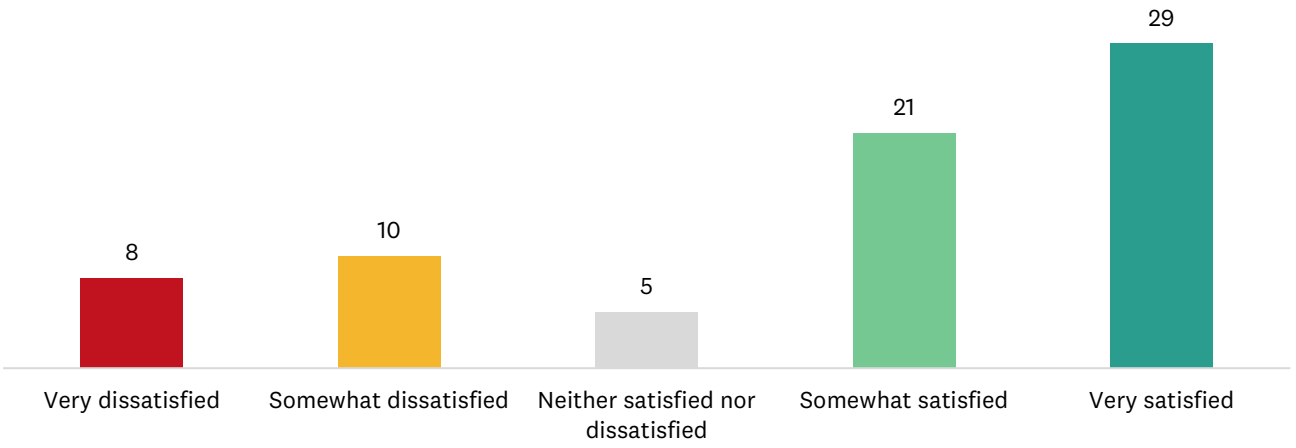
[17] Question 30 asked ‘Thinking about protection from the elements, security from theft or vandalism, proximity to your home or access to charging for electric vehicles, how satisfied are you with how you store your vehicle? The question was asked for the following vehicle types if participants indicated having this type of vehicle owned by members of their household: petrol, diesel or hybrid car; plug-in electric car; adult pushbike, e-bike or scooter; child bike or scooter; motor bike or moped/scooter; trailer boat or campervan; mobility scooter.

Figure 12: Participant satisfaction with storage of petrol, diesel or hybrid cars, by different storage locations (n=1234) (%)



The participants with EVs reported relatively high satisfaction with how their vehicle(s) is stored. As Figure 13 shows, most of the participants with an EV reported being 'somewhat' or 'very' satisfied.

Figure 13: Participant satisfaction with storage of EVs (counts)



As the following section discusses, these differences in satisfaction are in part due to security and proximity of garage/basement parking compared with street parking.

1.4.6 Participants' comments on carparking

When asked to describe what they like and dislike about their home, many participants commented on carparking.

A small proportion (3%) of participants mentioned carparking as something they like the most about their home; for example:

> *Plenty of space for parking.*

Secured and easily accessible carparking.

Many of these comments were about the existence/availability of carparking at their home or having a garage; for example:

I have a garage.

This study found that garages are often not used for carparking, and are an important, if unintended, place for 'living', as well as storage (See Chapter 4, Section 1.4.2). Half of those with a garage (which is half of those living in terraced houses or duplexes) reported using their garage for carparking. Also, as discussed further on, some participants could not fit their car or vehicle into the garage as the space was too small.

When asked what they dislike about their homes, carparking was the most frequently mentioned topic, with 20 per cent of the comments being about carparking issues within their building/complex/property, 6 per cent about street parking, and 3 per cent about visitor parking. Carparking issues were more likely to be mentioned by participants who live in a terraced house (24%) or duplex (25%), than by participants who live in an apartment (12%). Likewise, carparking issues were more likely to be mentioned by participants living in South/East (27%) or West (26%) Auckland than by participants living in Central Auckland (14%)[18]. These spatial differences may be impacted by the varied provision of public transport around the region.

The survey participants' comments are presented in the following broad themes: not enough parking space, impacts of on-street parking by residents, a lack of reliable and accessible public transport in their area, and while not directly about carparking, traffic and roading issues in the surrounding area were mentioned as things that participants did not like about living in their home, and so are mentioned here.

These issues are interrelated, and participants sometimes mentioned more than one issue in their comment.

Not enough parking space

Some commented that there was simply not enough parking space or suggested that there was an insufficient number of carparks for the number of cars in a home.

The lack of parking available.

One carpark per unit.

No off-street parking.

Others commented that their garage was too small for their car.

Parking space is a bit tight (or our car is too big😊).

[18] See Chapter 3, Section 3 which demonstrates the relationship between housing typologies and location.

The entrance into the garage, can't get a car in there and neither can the rest of the neighbours. Single garages have either the car in or used as storage space as the storage inside the house is limited.

Garage is too small to park car in so need to park in shared driveway.

Some described themselves, or observing their neighbours, using their garages for storage or other purposes (e.g. living space). This finding was reflected in the households with garages who participated in the in-home immersions.

Office, laundry, racking storage and guest bed are all in garage.

The fact that the neighbours have 2-3 cars [in] each household and DO NOT use their garages to store their cars, therefore all park on half of the shared driveway creating congestion.

The neighbours who park on the shared road [driveway] having repurposed their garages to be lounges and bedrooms because they want their vehicles to be 'safe', disregarding that it blocks the access of their neighbours from using their own garages across the drive and will make a huge problem if we ever have a fire call out here.

Figure 14: Cars parked on shared driveway in front of garages

Source: TMDO, Auckland Council.

Impacts of on-street parking

The lack of off-street dedicated parking is resulting in cars being parked on the street.

If I have more than one car in household or any visitors, they have to fight for on-street parking. Half the street outside our home is 120min limit, which means visitors have to move cars or get parking tickets.

The parking is not efficient – would be great if each apartment had two parks each as opposed to one. One of our cars has to park on the road along with lots of other cars from the area.

The lack of parking inside the complex and on the street. It is an unreasonable expectation for households to have only one car in Auckland.

Lack of parking, meaning the neighbours and their visitors park on the berm.

Figure 15: Cars parked on berm

Source: Google Maps.

The parking situation!!!!!!! Since moving in, this area has become more and more populated and there's not nearly enough parking for residents :(

Figure 16: Cars parked along street

Source: Google Maps.

On-street parking is resulting in several related issues.

Some participants are concerned about the security of their cars from theft and vandalism.

My partner's car has been stolen from that street carpark lot, so we're always nervous parking out there.

No off-street parking and having to park wherever a park can be found. No protection to keep an eye on the vehicles. Every time you leave, it's 'Will my car be there?'

Lots of cars get broken into around here.

The volume of residents' cars on the street is limiting the ability of visitors to park on street.

> *Lack of parking! Makes it so hard to invite friends and family over as hardly any parking around, meaning people have to park often very far away making it super inconvenient to visit. Also many houses (this one included) double park on driveway (as nowhere else to park second car) but this means footpaths are then blocked, making it trickier when walking/biking with the kids.*
>
> *No visitor parking for my visitors as street parking outside being used by nearby townhouse developments who use their garages as extra rooms.*
>
> *The lack of on-street parking can also be frustrating at times, especially when we have friends coming over. The trouble is that the rest of Manukau is paid parking so people going to jury service, working in Manukau or catching the train from Manukau use our area as [a] free parking lot. It would be great if we had a neighbourhood parking permit scheme like they have in suburbs close to the main city centre.*

In some cases, insufficient legal street parking is resulting in cars parking illegally (e.g. on footpaths and berms). As the comments below indicate, some participants feel that streets with many (legally and/or illegally) parked cars can create dangerous conditions for driving, walking and children playing.

> *Too many cars illegally parked which makes walking difficult without walking on the road.*
>
> *No place to park car safely and it's a busy area with dark streets, so I can't safely go out at night in my car.*
>
> *The extra cars parked out on the street which is causing a hazard when leaving the complex. Cars leaving can't see past the cars parked out on the street.*
>
> *Extremely poor parking set up. Inadequate parking spaces for residents, meaning people are parking illegally and obscuring driveways and footpaths and obscuring traffic flow. Turning facility into main complex unsafe, results in illegal driving, some near-miss car accidents occurring.*

Too many cars. Cars are parked everywhere in breach of the rules, all over the footpath. I wish council would come and police it. Attempts to curb this has meant massive blow ups, so the committee seems to have given up. Cars drive too fast. It should be 10kms/hr. There's no communal space. It was built for families but there's nowhere for kids to play. They have to play on the road, which is dangerous if a car goes fast.

Figure 17: Cars and wheelie bins blocking footpaths

Source: TMDO, Auckland Council.

Lack of public transport

The need for cars and carparking due to a lack of reliable public transport in their area was raised by some participants.

> *The houses were built with not enough parking space and my area is far away from train and bus. I get the point that council wants us to use public transport but it's a joke at the moment. Some houses own four cars and they only have one carpark driveway. Whoever designed this road/parking layout doesn't have much common sense of future-proofing.*
>
> *The fact that my apartment is one of the few that doesn't have a parking space with it. I walk to work and use public transport often, but I still need a car to get around Auckland. Public transport is not good enough to get rid of my car yet. This means, despite owning my apartment, I have to rent a carparking space from someone else and I am aware that I may not have this space forever.*

> *The complex doesn't reflect how majority of Auckland families require two cars, especially since our complex is far from many things and the main road to the complex is a highway that hasn't been upgraded to be used safely for people to walk or bike to the nearest transportation hub/train stations and shopping/dining area.*

Traffic and roading in general area

Traffic issues outside their home and in the local area were mentioned by 13 per cent of participants when they were asked what they dislike about their home. Traffic noise was a common comment in this theme:

> *The traffic noise as we live on a main road.*
>
> *Proximity to delivery entrance for supermarket next door. Loud trucks idle outside and often use their horns.*
>
> *Street noise due to close proximity to motorway. House was not built soundproof.*
>
> *The very noisy cargo train operates almost 24/7.*

General congestion or safety issues with surrounding public roads, including traffic speed, was also mentioned:

> *The roads are so narrow and sometimes this creates congestion.*
>
> *The speed of traffic on the road where the garage entrance to the apartment complex is located.*
>
> *We are on a busy street which is noisy from traffic and racing cars which needs to be controlled.*

Some mentioned a lack of footpaths:

> *Lack of footpaths – have to drive to go for a walk safely.*

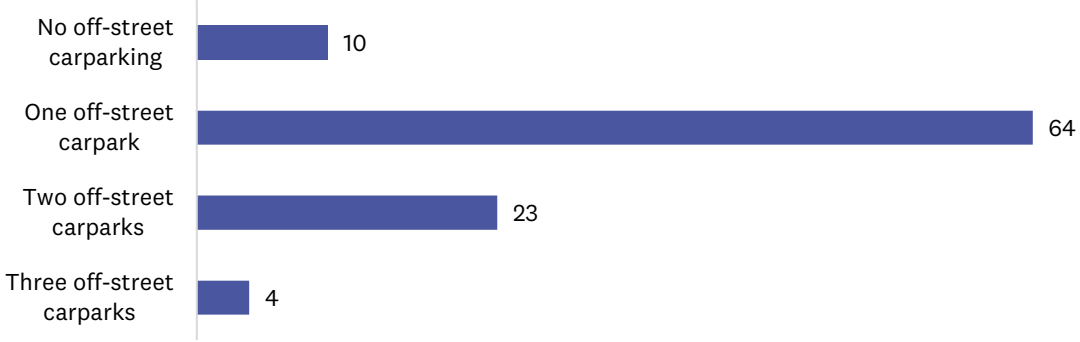
1.5 Consented plans

As described in Chapter 3, this study included analysis of the consented floor plans for 110 properties whose households had participated in the survey.

Analysis of the consented plans included the number and type of carparks for each property. Ninety per cent of plans analysed had one or more off-street carparks. Two-thirds (64%) had one off-street carpark, 23 per cent had two off-street carparks, and 4 per cent had 3 off-street carparks.

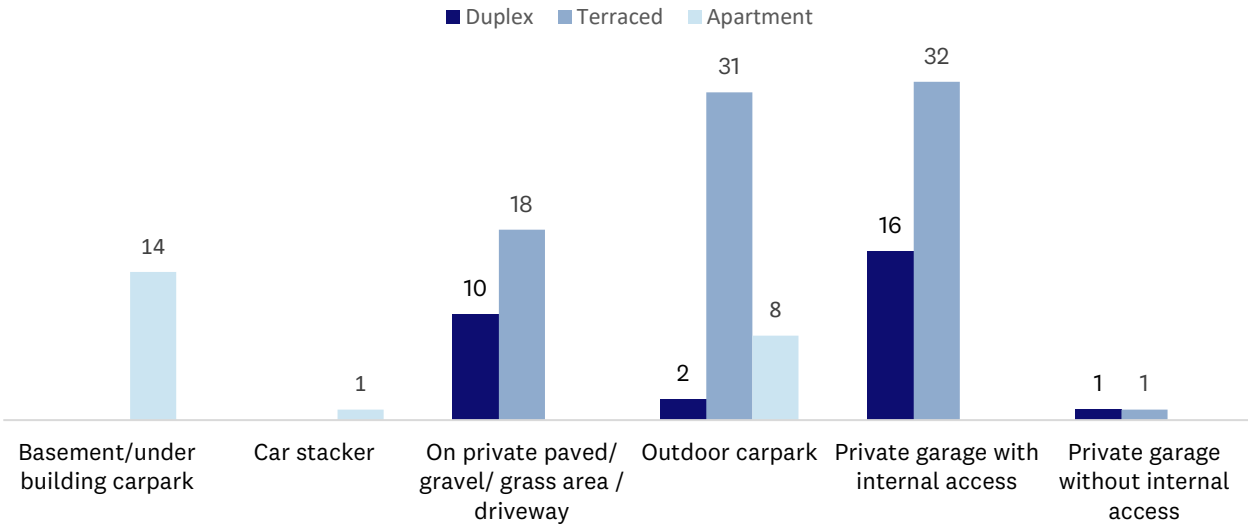
Apartments were more likely to have no off-street carparking (23%) than terraced houses (8%) and duplexes (0% – all had at least one carpark).

Figure 18: Number of off-street carparks (n=110) (%)



The type of carparking varies between apartments and terraced houses/duplexes. Carparking for apartments is more likely to be in a basement or otherwise underneath the apartment building (14 out of 23 apartment carparks). In contrast, attached houses tend to have outdoor carparks or private garages (Figure 19). All the private garages had space to park one car, except for one garage which was large enough to fit two cars.

Figure 19: Types of carparking, by typology (counts)



1.6 In-home immersions

As described in Chapter 3, Section 1.3, this study included 20 in-home immersions with participants who had completed a survey. (See Chapter 3, Section 7 for more details on the 20 properties and households who took part in the immersions).

There was a range of carparking options across the participating households. Six properties had a garage, although only two of these garages were used for carparking. Six properties had a car pad (i.e. a parking space often in front of their home) and five had a carpark (i.e. one carparking space in a basement or open-air carpark shared with their neighbours). Three homes did not have any off-street carparking.

Cars owned by the household that were not able to be parked on off-street carparking were parked on nearby public streets, driveways or in modified front yards Some households with a car pad in front of their home had modified the landscaping to accommodate more vehicles. Figure 20 shows a

grass lawn covered in bark to accommodate a third vehicle and the grass strips in Figure 21 have been replaced with stones to allow easier car access. A second car can be parked in front of the footpath to the front door, on top of the low curbed triangle planter space.

Figure 20: Parking for three cars was created at this duplex by placing bark over the lawn

Figure 21: Grass was replaced with stones to improve access to parked car, and second car parks across footpath and planter space (as indicated by dashed white box)

Some participants described parking in very precise ways to fit their car in front of their garage (which is used for other purposes; see Chapter 4: Indoor spaces for living).

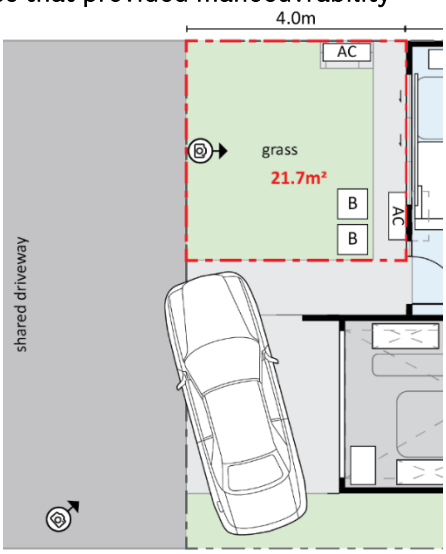
Figure 22: Cars parked at angles in front of garages along shared driveway

Figure 23: Car parked at precise angle and distance from garden bed and garage door to prevent blocking shared driveway

One household explained that their outdoor living space, which fronts a shared driveway, enables them to park their car in front of the garage as it provides space to undertake a three-point turn (Figure 24). While they had a garage, this was used for storage, laundry and storing their motorbikes. They would like to allow their daughter to play in the outdoor living space when she is older, but feel they will need to install a fence, which would then limit their ability to manoeuvre a car in front of the garage.

The resource consented plans for this home showed a deck, landscaped area and low wall in the outdoor living space, but this was not delivered, as Figure 24 shows.

Figure 24: Car parked at angle outside garage and outdoor living space that provided manoeuvrability



Some participants reported access issues if they parked their cars as intended in their carpark. For example, Figure 25 illustrates how the size of the carpark prevents these participants from opening their car doors.

Figure 25: Lack of space to open car door in carpark

Like the survey participants, some of the in-home immersion participants expressed concern at the lack of parking for visitors:

> *Parking! Parking is my biggest issue right!! … It's huge for me … as you can imagine, once you start inviting friends over, where are they parking?*
>
> *Getting parking … is really difficult. For [daughter's] first birthday, we had to use my dad's place rather than here because it's just too small and there's just not enough parking for the number of people we wanted to invite … the logistics of transport and stuff has been really interesting.*

2 Bikes and bike storage

2.1 Regulations and best practice guidelines

Auckland Unitary Plan (AUP)

Where a dwelling is not provided with a dedicated garage, one bicycle parking space is required per dwelling.[19] Visitor (short-stay) bicycle parking is also required at a rate of one visitor bicycle park per 20 dwellings.

Council released the Independent Hearings Panel's decision on Plan Change 79 – Transport on 9 August 2024[20]. This requires that long-stay bicycle parking is located and designed in a manner that is not part of a required outdoor living space, and is sheltered from the weather, lockable and secure.

Auckland Design Manual (ADM) and best practice guidance

The design guidance referred to in this report all recommend that bicycle parking is secure, dry/weatherproof, provide charging facilities (or future-proof for charging) and be easily accessible. The ADM recommends that bicycle parking is considered early in the design process and should be as easy to access as vehicle parking. [21]

The Kāinga Ora Design Requirements recommend that when bicycle parking is provided in apartment developments, that it is adequate for the number of occupants, is secure, weatherproof and easily accessible, is located as close as possible to the main entry, and includes a power outlet for charging. Short-term secure bicycle parking is also recommended at a ratio of one cycle park for every 10 dwellings.

Public Housing Design Guidance encourages provision for mobility scooter parking where the intended residents are likely to use mobility scooters. [22] The Kāinga Ora Design Requirements further recommends that parking for mobility scooters includes manoeuvring space to at least one side of the scooter.[23]

2.2 Section 35 (s35) monitoring

The council's s35 monitoring did not analyse the provision of bicycle parking.

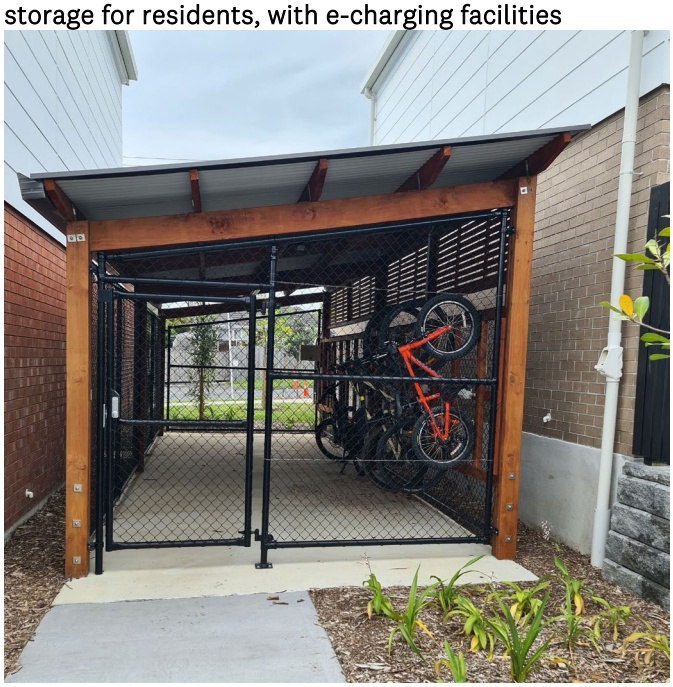
[19] *Auckland Unitary Plan*, Chapter E27 Transport, Standard E27.6.2(6).
[20] Source: https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/unitary-plan/auckland-unitary-plan-modifications/Pages/details.aspx?UnitaryPlanId=145
[21] *Auckland Design Manual*, Mixed Use Development Design, Section 5.9 Bicycle parking.
[22] Ministry of Housing and Urban Development. (2023). P*ublic Housing Design Guidance for Community Housing Providers and Developer* (Version 2_1 web), Section 3.5.6 Cycle and mobility scooter parking.
[23] Kāinga Ora Homes and Communities. (2024). *Ngā Paerewa Hoahoa Whare Design Requirement* (Version 1.1), Section A3.4.1.

2.3 Design observations

The following design matters have been observed by the council's Tāmaki Makaurau Design Ope (Urban Design Unit) in their technical review and monitoring of resource consent applications for MDH:

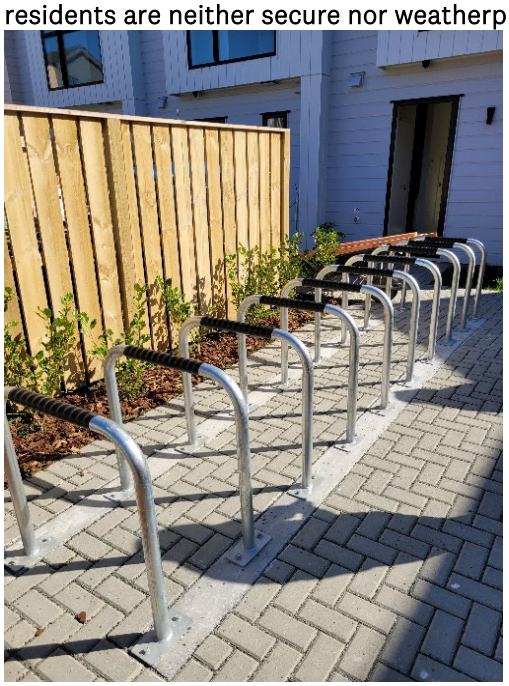
- Where bicycle parking is required for residents, it is often not secure or weatherproof (such as Figure 27 below), and is therefore not well used by residents.
- Bicycle parking can be provided in rear outdoor living areas, but this requires the bike to be moved through the dwelling.
- Bicycle parking is not well considered at site design stage and is often an afterthought, rather than being located and designed to be as accessible as carparking to support mode shift.

Figure 26: Secure and weatherproof communal bike storage for residents, with e-charging facilities



Source: TMDO, Auckland Council.

Figure 27: Communal Sheffield bike stands for residents are neither secure nor weatherproof



Source: TMDO, Auckland Council.

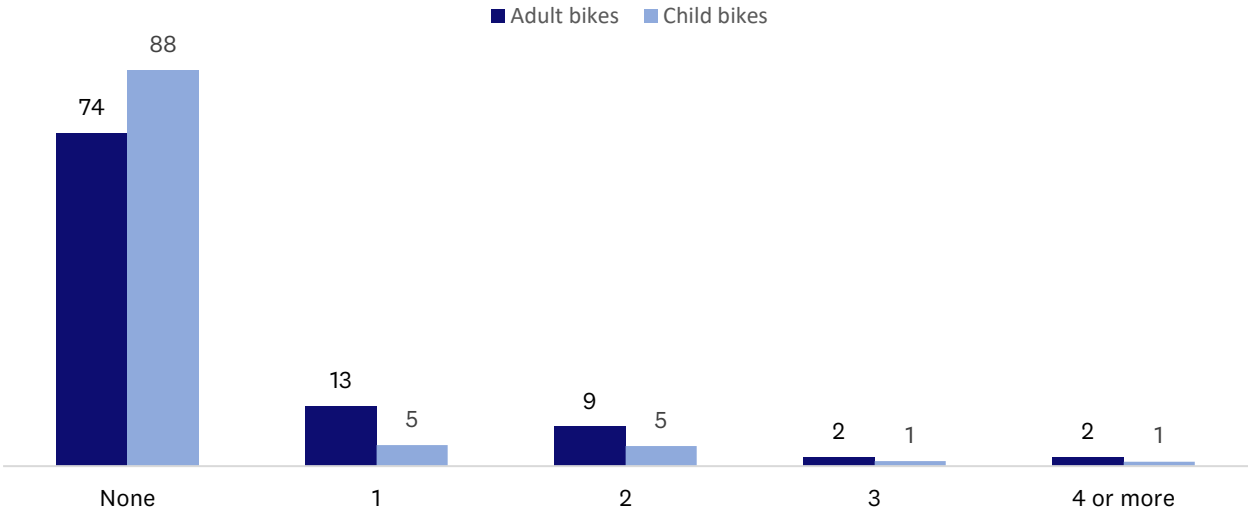
Figure 28: Communal resident bike parking room within an apartment building

Source: Google Maps.

2.4 Survey results

As Figure 29 shows, a quarter (26%) of the households reported owning at least one adult pushbike, e-bike or scooter and about one in ten (12%) own at least one child bike or scooter. The small proportion of households with child bikes is likely reflecting the relatively small proportion of households with children (25% of the participating households). Forty-one per cent of households with children have one or more child bikes.

Figure 29: Proportion of households with adult and child bikes or scooters (n=1243) (%)

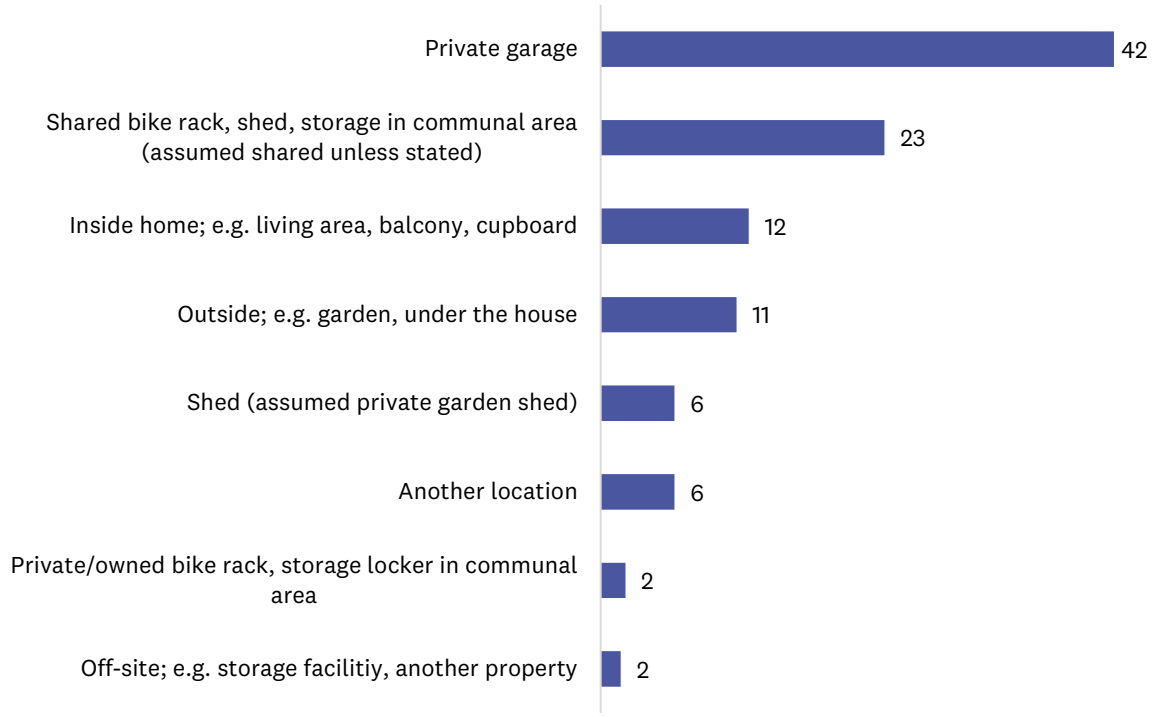


2.4.1 Bike storage

The survey participants were asked to describe where they store their pushbikes, e-bikes or scooters.

Forty-two per cent of households store their adult pushbikes, e-bikes or scooters in a private garage. Close to a quarter (23%) store their adult bike or scooter in a shared bike storage area (e.g. bike rack, shed). Close to 10 per cent of households store an adult bike inside their home (12%) or outside, such as in the garden or under their house (11%).

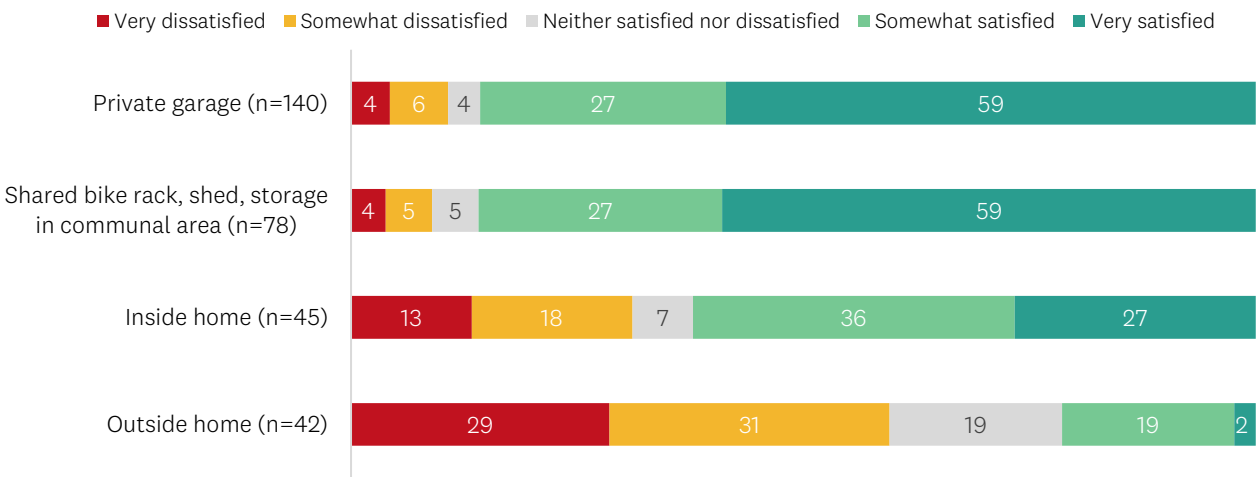
Figure 30: Storage for adult pushbikes, e-bikes or scooters (n=319) (%)



Notes: 1. Base is all properties where the household has at least one adult pushbike, e-bike or scooter.
2. Multiple responses allowed; therefore, total does not sum to 100.

Participants who store their adult pushbike, e-bike or scooter in a private garage or shared storage area tend to be satisfied with this storage solution (86% 'somewhat' or 'very' satisfied for both). Close to a third (31%) of participants who store their adult pushbike, e-bike or scooter inside their home are dissatisfied and the remaining two-thirds (63%) are satisfied. Those storing their adult pushbike, e-bike or scooter outside the home have the greatest dissatisfaction, with 60 per cent being 'very' or 'somewhat' dissatisfied.

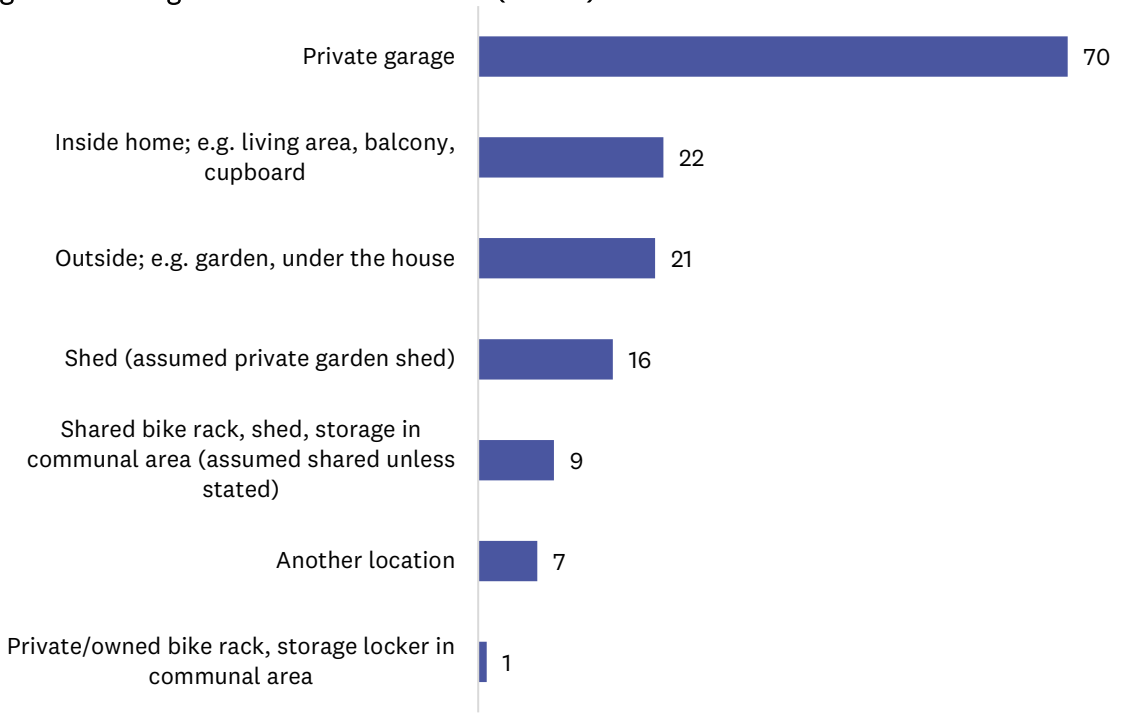
Figure 31: Participant satisfaction with adult pushbike, e-bike or scooter storage, by location (%)



Notes: 1. Base is all properties where the household has at least one adult pushbike, e-bike or scooter.
2. Chart shows storage locations with more than 40 responses.

The largest number of participants with a child bike or scooter store this in a private garage. Twenty-two households store a child bike or scooter inside their home (e.g. in a living area, balcony or cupboard) and 21 store these items outside (e.g. in the garden, under the house).

Figure 32: Storage for child bike or scooter (counts)



The participants with a child bike or scooter were asked about their satisfaction with the storing of their bike/scooter. Eight-four per cent of the participants who store their child bike/scooter in a private garage are ‘somewhat’ or ‘very’ satisfied, 9 per cent ‘somewhat’ or ‘very’ dissatisfied, and the remaining 7 per cent are ‘neither satisfied nor dissatisfied’ with this storage location.

As Figure 32 shows, small proportions of participants reported storing their children’s bikes or scooters in other locations, which limits the ability to assess satisfaction with these other locations.

2.5 In-home immersions

Seven of the 20 households who participated in the in-home immersions own an adult bike or scooter, and/or a child bike and/or scooter.

They store their bikes in a range of locations, including their outdoor living space, garage and facilities in their complex (e.g. Sheffield racks and basement garage hanging racks), as the images below show.

Figure 33: Bike stored against a fence in an outdoor living space

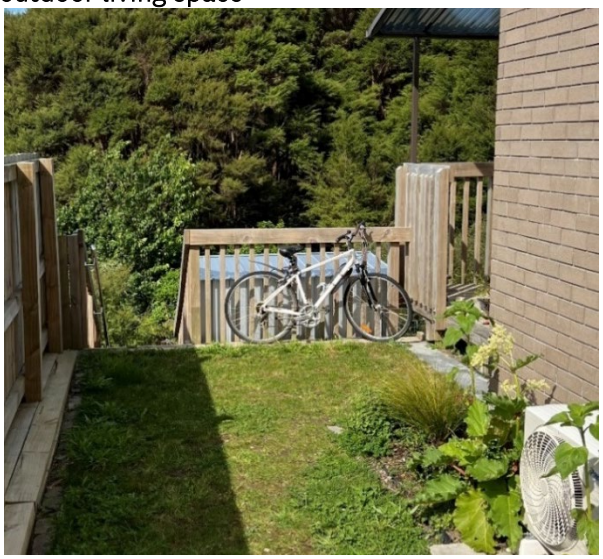


Figure 34: Bikes stored in garage on hanging racks and leaning against wall

Figure 35: Bikes and scooter stored by Sheffield racks in apartment building

Note: Bikes pictured not owned by the participant.

Figure 36: Bike storage in apartment building

Note: Bikes pictured owned by both participants and others in the apartment building.

3 Other vehicles

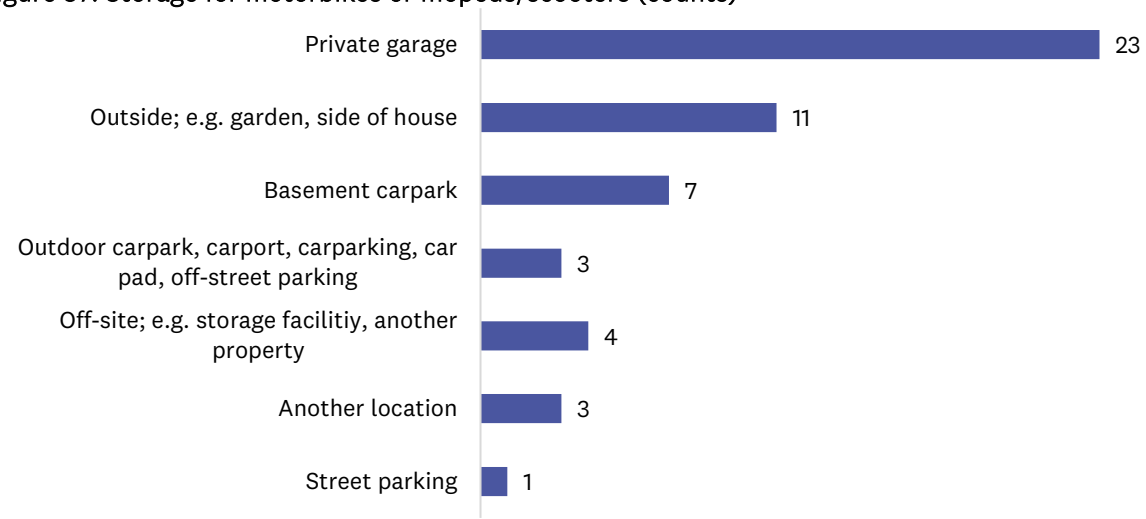
The survey asked participants whether they owned other vehicles, or others in the household did, how many they owned, and how they stored these vehicles. As Table 2 shows, 52 households owned at least one motorbike or moped/scooter, 17 owned at least one trailer, boat or campervan, and three households had a mobility scooter.

Table 2: Other types of vehicles owned, by household

Type of vehicle	Number who owned one	Number who owned two	Total
Motorbike or moped/scooter	46	6	52
Trailer, boat or campervan	12	5	17
Mobility scooter	2	1	3

The survey participants were asked to describe in an open ended response where they store these vehicles at their home. Almost half of the 52 who reported owning a motorbike or mopeds/scooters said they store them in their garage, and about a fifth store their other vehicles outside.

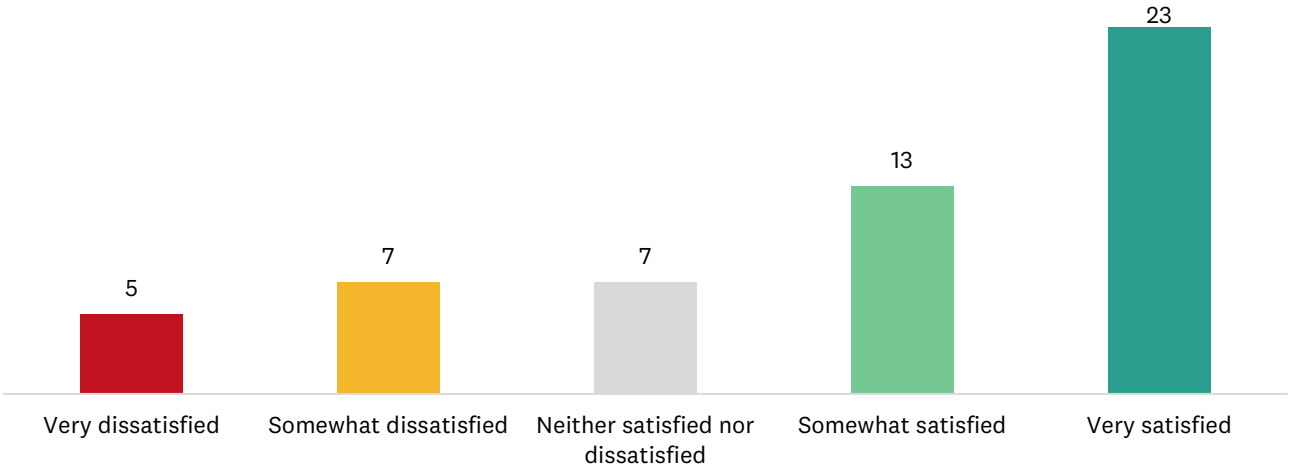
Figure 37: Storage for motorbikes or mopeds/scooters (counts)



Most of the households who own a trailer, boat or campervan reported storing this off-site, such as in a marina or storage facility. Two store their vehicle outside and two in a private garage. The three mobility scooters are stored in a basement carpark or private garage.

Participants were asked to rate their satisfaction with storage of their ‘other’ vehicles. Most of the participants who own a motorbike or moped/scooter are ‘somewhat’ or ‘very’ satisfied with how this is stored (Figure 38).

Figure 38: Participant satisfaction with storage for motorbike or moped/scooter (counts)



A similar pattern is seen with storage for trailers, boats, caravans and mobility scooters. Ten of the 17 participants who reported having a trailer, boat or caravan and all three participants with a mobility scooter are ‘somewhat’ or ‘very’ satisfied.

4 Summary

The research found that there is generally not enough off-street parking for the number of vehicles that the participants own. This results in 'created' carparks (e.g. on front yards) and renders on-street parking an issue for many, including visitors. When garages are part of a home, they can be too small to fit participants' cars and may be required for additional functions (e.g. laundry and storage), which can further limit the space for carparking.

Only a third of the surveyed households had the same number of cars and off-street carparks. Fifty-seven per cent of the households had more cars than off-street carparks, and 49 per cent had two or more cars. This results in cars being parked on public roads, shared driveways and front yards in unanticipated ways (i.e. parking on berms, footpaths, blocking shared driveways). Such parking has implications for the security of vehicles from theft and vandalism, the ability for visitors to park nearby, and the pedestrian experience (including safety) of the site and the neighbourhood. These challenges are compounded by the tendency for attached MDH (terraced homes and duplexes) to be on narrow public streets which are not designed to accommodate the same volume of parking as a wider suburban street.

Over a third (35%) reported parking a car in an outdoor carpark or car pad, a quarter (26%) used street parking, a quarter used a private garage (24%), and 18 per cent used their driveway or outside their garage. These relatively high proportions of outdoor parking (i.e. car pads, carparks, driveways) aligns with TMDO's observations of a shift towards these types of parking that enable greater intensification as less space is required for individual driveways and car manoeuvring areas. Reducing the floor area of a home by not including a garage or basement carpark, or reducing the number of carparks provided, enables land to be used for higher value purposes and removes a significant cost for higher density developments.[24]

The participants who park their petrol, diesel or hybrid car in a private garage or in an apartment building basement carpark are the most satisfied with their storage location (Figure 12). Those parking a car on the street are the least satisfied, and those parking in an outdoor carpark/car pad or on their driveway have an intermediate degree of satisfaction.

Half of the households living in terraced houses and duplexes reported having a garage, and half of those with a garage reported using their garage to park a car. The diverse uses of garages as spaces for living has been discussed in Chapter 4: Indoor Spaces for Living. Further to these non-carparking uses of garages, some participants said that the garage in their home is too small to comfortably fit their vehicle. Size limitations and use of garages as a space for living or to enable living (e.g. storage) limits the ability for garages to function as off-street carparking. Consequently, the number of properties that functionally have no off-street parking is greater than the third of properties reported in Figure 7.

[24] As is a purpose of the NPS-UD. Source: https://environment.govt.nz/assets/Publications/Files/car-parking-factsheet.pdf

Some participants mentioned needing a car due to a lack of public transport. Research undertaken by Auckland Council in 2023 found that small proportions of Auckland drivers enjoy driving and suggested that driving is a prevalent mode of transport only because it is ‘the least bad’ option (Ovenden & Allpress, 2024). A more efficient and reliable public transport system has potential to be a predominant transport mode for Aucklanders and would reduce the need for multiple private vehicles in each household. The recent removal of carparking minimums by the NPS-UD for all residential zones does not reflect the accessibility of those zones to public transport and can create challenges where households are reliant on private vehicle use, placing additional pressure on local streets to accommodate parking.

Most of the participating households did not own bikes, e-bikes or scooters at the time of the survey. Only a quarter of households had one or more adult bikes and 12 per cent had one or more child bikes. Private garages were the most reported location where participants stored both adult and child bikes. Close to a quarter of participants reported storing adult bikes in a shared storage area (e.g. bike cage, bike racks).