Auckland Unitary Plan Monitoring report

E27 Transport and E38 Subdivision Urban: Rear site accessways report

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APPENDICES

Abbreviations

Abbreviation	Meaning
Accessway	**Used for the access and servicing of sites within a development, also known as driveways, Jointly Owned Access Lots (JOALs), private ways**
AUP	**Auckland Unitary Plan Operative in Part**
LINZ	**Land Information New Zealand**
MDRS	**Medium Density Residential Standards**
MHS	**Residential – Mixed Housing Suburban (zone)**
MHU	**Residential – Mixed Housing Urban (zone)**
NPS-UD	**National Policy Statement: Urban Development**
RIMU	**Research and Evaluation Unit**
RMA	**Resource Management Act 1991**
RPS	**Regional Policy Statement**
THAB	**Residential – Terrace Housing and Apartment Building (zone)**
UDU	**Urban Design Unit**

1 INTRODUCTION

Auckland Council (Council) has compiled an Issues Register since 2016, which records issues arising from the implementation of the Auckland Unitary Plan (AUP). Several issues were raised regarding the performance and usability of the residential accessway provisions in the E27 Transport chapter of the AUP.

A review of residential issues, identified in the Issues Register in 2019, led to the establishment of the Residential Issues project which investigated a wide range of issues associated with specific residential activities and poor development outcomes.

This monitoring report on rear site accessways was commissioned as part of this wider project. It should be read in conjunction with Auckland Unitary Plan Section 35 Monitoring: B2.3 A quality built environment July 2022 Technical report (s35 B2.3 A quality Built Environment monitoring report), which also investigates pedestrian safety.

1.1 Purpose of the report

This monitoring report was prepared to contribute to our knowledge base and will help inform future plan changes to the AUP transport provisions in chapters E24 Lighting, 27 Transport, E38 Subdivision – Urban.

The monitoring focuses on the quality of accessways in the more intensive residential zones - Mixed Housing Suburban (MHS), Mixed Housing Urban (MHU) and Terrace Housing and Apartment (THAB) zones.

These represent zones where rapid growth is occurring and will enable a robust assessment of the type of accessway outcomes occurring. The overall emerging trends and potential issues are assessed in this report.

We note that the data analysed in this report was collected prior to the NPS-UD and Medium Density Residential Standards (as part of the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill).

1.2 Key issues

The key issues previously identified with residential site access include:

- Risks to pedestrian safety (especially for children) from the lack of dedicated separated footpaths and inadequate speed management measures.
- Pedestrian accessibility challenges with developments having steep gradients, cross falls and steps.
- Access and manoeuvring difficulties for vehicles, particularly emergency vehicles and large service vehicles such as waste collection trucks.

- Difficulties in providing sufficient space for waste collection, letter boxes, lighting, installation and maintenance of utilities, trees and landscaping, and vehicle parking (including accessible parking and loading spaces) that does not obstruct or compromise pedestrian access.
- Poor connectivity to the wider road network and neighbourhood.
- Likelihood that the removal of parking from future developments will place additional pressure for vehicle parking in private accessways.
- A lack of awareness by property owners that they are responsible for operations and maintenance and the ongoing costs involved. There is a risk that in the future, landowners may seek to transfer private accessways into public ownership, which have not been built to public road standards.

2 KEY OBJECTIVES AND POLICIES FOR PRIVATE ACCESS WAYS

2.1 Key AUP RPS objectives and policies

The key regional policy statements related to E27 Transport and E38 Urban Subdivision are:

- B2.3. A quality built environment
- B2.4. Residential growth
- B3.3. Transport

Each of the above policy statement objectives and policies are summarised in the sections that follow to inform key areas to be analysed in this report.

2.1.1 B2.3. A quality built environment

Objectives:

(1) A quality built environment where subdivision, use and development do all of the following:

- *(a) respond to the intrinsic qualities and physical characteristics of the site and area, including its setting;*
- *(b) reinforce the hierarchy of centres and corridors;*
- *(c) contribute to a diverse mix of choice and opportunity for people and communities;*
- *(d) maximise resource and infrastructure efficiency;*
- *(e) are capable of adapting to changing needs; and*
- *(f) respond and adapt to the effects of climate change.*

(3) The health and safety of people and communities are promoted.

Policies:

(1) Manage the form and design of subdivision, use and development so that it does all of the following:

- *(g) supports the planned future environment, including its shape, landform, outlook, location and relationship to its surroundings, including landscape and heritage;*
- *(h) contributes to the safety of the site, street and neighbourhood;*
- *(i) develops street networks and block patterns that provide good access and enable a range of travel options;*
- *(j) achieves a high level of amenity and safety for pedestrians and cyclists;*
- *(k) meets the functional, and operational needs of the intended use; and*
- *(l) allows for change and enables innovative design and adaptive re-use*

(2) Encourage subdivision, use and development to be designed to promote the health, safety and well-being of people and communities by all of the following:

- *(a) providing access for people of all ages and abilities;*

(b) enabling walking, cycling and public transport and minimising vehicle movements; and

(c) minimising the adverse effects of discharges of contaminants from land use activities (including transport effects) and subdivision.

2.1.2 B2.4. Residential growth

Objectives:

(2) Residential areas are attractive, healthy and safe with quality development that is in keeping with the planned built character of the area.

Policies:

(9) Manage built form, design and development to achieve an attractive, healthy and safe environment that is in keeping with the descriptions set out in place-based plan provisions.

2.1.3 B3.3. Transport

Objectives:

(1) Effective, efficient and safe transport that:

(a) supports the movement of people, goods and services;

(b) integrates with and supports a quality compact urban form;

(c) enables growth;

(d) avoids, remedies or mitigates adverse effects on the quality of the environment and amenity values and the health and safety of people and communities; and

(e) facilitates transport choices, recognises different trip characteristics and enables accessibility and mobility for all sectors of the community.

Policies:

(5) Improve the integration of land use and transport by:

(a) ensuring transport infrastructure is planned, funded and staged to integrate with urban growth;

(b) encouraging land use development and patterns that reduce the rate of growth in demand for private vehicle trips, especially during peak periods;

(c) locating high trip-generating activities so that they can be efficiently served by key public transport services and routes and complement surrounding activities by supporting accessibility to a range of transport modes;

(d) requiring proposals for high trip-generating activities which are not located in centres or on corridors or at public transport nodes to avoid, remedy or mitigate adverse effects on the transport network;

(e) enabling the supply of parking and associated activities to reflect the demand while taking into account any adverse effects on the transport system; and

(f) requiring activities adjacent to transport infrastructure to avoid, remedy or mitigate effects which may compromise the efficient and safe operation of such infrastructure.

2.2 Key Chapter E27 access provisions for residential development

The key Standards of E27 Transport for access, parking and loading for residential development are:

- E27.6.4 Access.
- E27.6.3.7. Lighting.

A copy of these provisions is provided in Appendix A.

Rule E27.6.3.7. Lighting states that:

(1) Lighting is required where there are 10 or more parking spaces which are likely to be used during the hours of darkness. The parking and manoeuvring areas and associated pedestrian routes must be adequately lit during use in a manner that complies with the rules in Section E24 Lighting.

The rules in Section E24 Lighting address the control of the adverse effects of spill and glare to windows of the site/development dwellings. Therefore, lighting is a key area to be analysed in this report.

2.3 Key Chapter E38 access provisions for residential development

The key Standards of E38 Subdivision - Urban for access for residential development are:

- E38.8.1.2 Access to rear sites.

A copy of these provisions is provided in Appendix A.

3 MONITORING METHODOLOGY

Approved resource consents were assessed and sampled based on a set of requirements (discussed in Section 4.1) to produce specific information about aspects of the consented developments that would help understand the scale and extent of the issues relating to private accessways.

Assessing granted resource consents provides an indication of the outcomes resulting from the implementation of the AUP and assists in assessing the effectiveness of the relevant policies, rules, and standards.

Indicators and measures have been developed, with input from several Council teams including RIMU, UDU and Consents. The indicators and measures were sued to assess the extent to which developments are achieving the E27 Transport and E38 Subdivision - Urban chapter objectives, and to quantify the extent of the issues relating to access to rear sites.

- An **indicator** (for the purpose of this report) is a quantitative or qualitative question being asked to determine how the AUP standards are aligning with the outcomes and how these outcomes are affecting the issues which are arising.
- A **measure** is the selected information that enables evaluation of the indicator. Methods of measurement will differ depending on the indicator and the information trying to be understood (i.e. yes or no answers or more specific values being required). A quantitative approach was taken where possible as it provides more clearly defined measures for analysis.

38 Indicators were derived from issues recorded in the Issues Register by various Council departments and Council Controlled Organisations. These were incorporated with indicators which have been used in the s35 B2.3 monitoring to provide standardisation and enable comparisons to be made.

The indicators and measures used for the assessment are provided in Appendix B.

3.1 Monitoring Themes

The indicators and respective standards have been grouped into overarching themes as follows, and are further analysed in this report:

- Theme 1 – General Accessway information
- Theme 2 - Accessway design standards
- Theme 3 - Pedestrian accessways
- Theme 4 – Lighting
- Theme 5 – Parking
- Theme 6 – Waste management, collection and servicing
- Theme 7 – Ongoing management

We note that other indicators were used but the information collected has not been analysed in this report. Other teams within Council will be analysing this data and responding to the NPS:UD directions on residential zones. These indicators include

- Number of building levels
- AUP Precinct and Overlays
- Landscaping provision
- Overlook from dwellings
- Location of letter boxes
- Impervious area, and stormwater management devices.

4 DATA AND INFORMATION

4.1 Sample data selection criteria

The AUP was made operative in part in 2016 and fully operative in April 2018. Approved residential developments on rear sites between April 2018 to October 2020 were therefore considered in the monitoring sample for this report.

Residential developments that conformed to the following parameters were selected for analysis:

- **Residential zones** – the monitoring sample for this report included approved resource consents from the AUP's high and medium intensity residential zones, namely – Terrace Housing and Apartment Buildings zone (THAB), Mixed Housing Urban zone (MHU) and Mixed Housing Suburban zone (MHS). There are no density controls in these zones and the AUP anticipates these zones will make a substantial contribution to Auckland's housing capacity. These zones have no maximum density requirements unlike the Rural and Coastal Settlement, Single House, and Large Lot zones which permit one dwelling per site.
- **Scale of development** – the monitoring sample for this report was limited to residential developments where accessways on rear sites served 10 or more rear sites or dwellings. This aligns with the upper threshold for rear sites specified in E38.8.1.2, as well as a number of the legacy District Plans, and responded to the Issues register that had identified concerns with larger developments on rear sites.
- Developments that could be affected by **precinct provisions**. Any developments subject to precinct provisions were excluded from the monitoring sample, as precinct provisions may influence different outcomes compared to developments consented under the Auckland Wide rules for subdivision and transport.

Accessways accommodating 10 or less residential sites are generally considered to create effects that are anticipated and considered acceptable within the receiving environment and have therefore not been included in this monitoring. A minimum threshold of ten sites is considered appropriate as these consents may create potential adverse effects that were not anticipated to occur under the AUP.

4.2 Data sources

The resource consent sample data was provided by two council sources:

- Consented developments data set - LINZ
- Consented developments data set - Urban Design Unit (UDU).

The data sources used in this monitoring report and their limitations are summarised in the sections that follow.

4.2.1 LINZ

Council obtained the data from Land Information New Zealand (LINZ) for parcel titles issued between November 2016 and October 2020. The LINZ data set provides an accurate and precise method to

identify parcels associated with a accessway as it identifies parcel titles that are likely to have a share in an access lot. The output parcel titles were then linked to a relevant resource consent granted under the AUP and the corresponding medium or high-density zone.

In terms of limitations, the data only shows resource consents that:

- were involved a subdivision consent under s11 of the Resource Management Act 1991 (RMA); and
- have been issued a new parcel title[1].

Plans and Places has also compiled a full record of all approved resource consents and this is the primary data source for the s35 monitoring work. However, this data source was not suitable for the rear sites monitoring sample as the provision of an accessway within a residential development does not trigger a resource consent in itself and relevant developments could not be identified.

Standard E38.8.1.2(1) limits the number of rear sites served by an accessway to ten. An infringement to this standard is a discretionary activity under rule E38.4.2(A31). However, Rule E38.4.2(A31) also captures infringements to other standards applying to subdivision in residential zones. Therefore, an application does not always include the provision of an accessway when a resource consent is required under E38.4.2(A31). The Plans and Places resource consent database will be used at a higher level to understand the scale of resource consents involving ten or more dwellings and is not considered in more detail in this report.

4.2.2 UDU Consented developments data set

To include more recently consented examples of rear site accessways in the sample data, a data set from the Urban Design Unit (UDU) was also utilised. UDU provides specialist urban design input into resource consents where an application is for ten or more new dwellings. The threshold for ten or more new dwellings is set as part of the service level agreement (SLA) with the Resource Consents department and represents more complex residential consent application. Each consent is recorded alongside the property address, number of dwellings, building typology and whether an accessway serving more than 10 dwellings was proposed. The extract period for the UDU data set was from April 2018 to May 2021.

UDU's SLA of ten or more dwellings is consistent with the scale of development selection criteria, and records of whether an accessway was proposed will allow the relevant consents to be located. This sample therefore recognises the consented outcomes under the AUP that may not have been captured under the LINZ data.

In terms of limitations, the UDU data set does not identify whether the resource consent was granted, and this was manually confirmed within Council's internal recording system (SAP).

[1] This limitation was included as Council staff intended to undertake site visits, and wanted to reduce the likelihood of undertaking site visits where a consent had not been progressed. However, only a limited number of site visits were subsequently undertaken due to Covid-19 interruptions.

4.3 Data selection methodology

4.3.1 Sample size and selection

Combined, the data from LINZ and UDU generated 173 resource consent decisions in the THAB zone and 425 in the MHU and MHS zones. Following advice from RIMU, a sample size was determined using a relative standard error of 10, representing 10% uncertainty. This resulted in a requirement to analyse 145 resource consent decisions, comprising 3,897 dwellings, with the residential zones of the samples collected as follows:

- 29 developments were in the MHS zone (20 per cent of the sample);
- 52 developments were in the MHU zone (36 per cent of the sample); and
- 64 developments were in the THAB zone (44 per cent of the sample).

The selected sample data included 4 resource consents from the LINZ dataset with the remaining 141 resource consents being from the UDU dataset.

Each zone was sampled separately, to ensure that trends for parking and building typologies within each zone could be captured under a sample that was representative of the relevant zone.

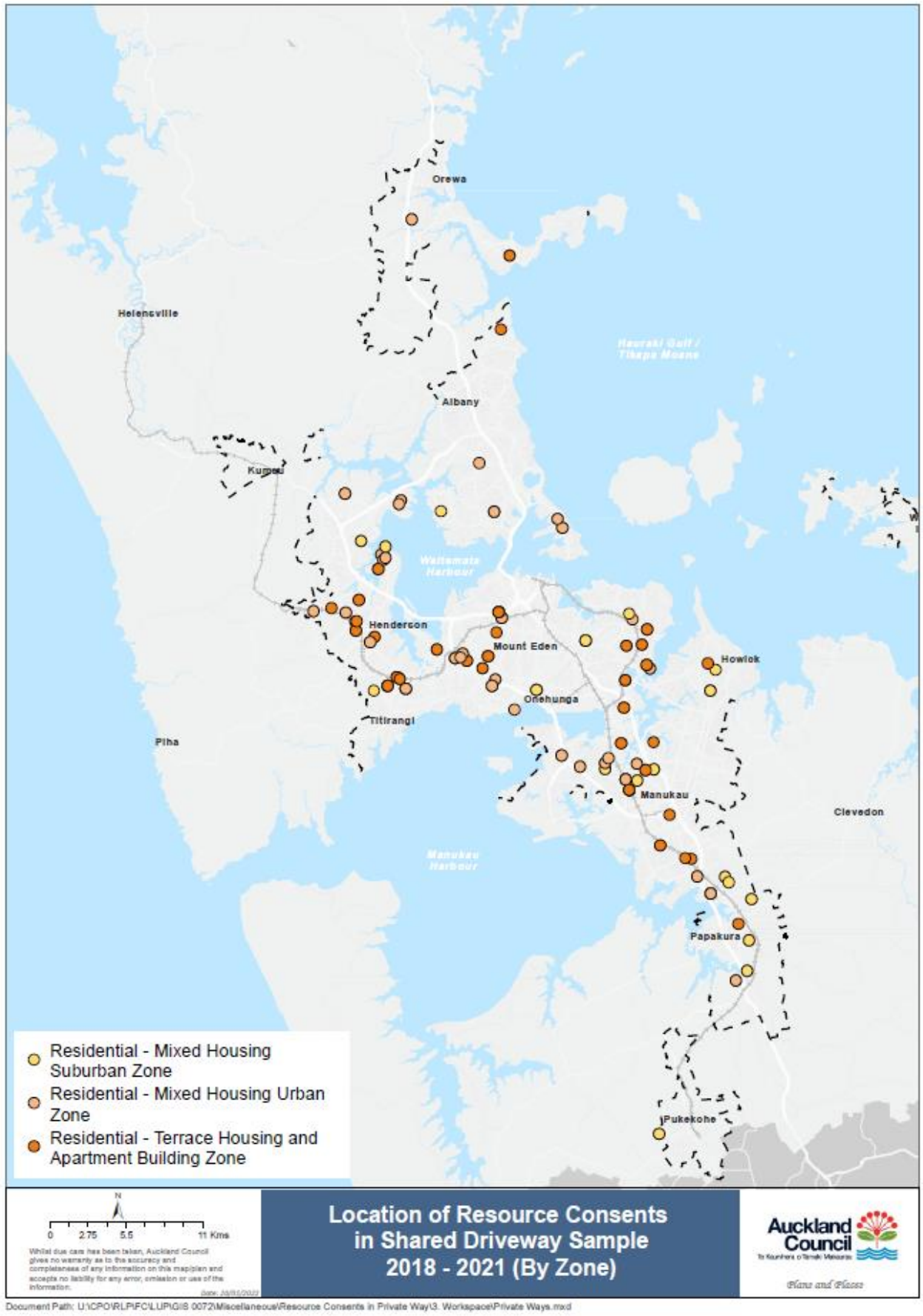
Figure 1 shows a map of the locations of the selected developments within their residential zones.

The data for each sample was randomised, with the required sample size taken from the start of the randomised list. This list was worked through to identify developments which met the required parameters until the sample size was met. Where a resource consent decision was not considered suitable for analysis, it was discarded. This did not affect the total sample size or reduce it in proportion with the resource consent decisions that were suitable for analysis.

A resource consent decision was not considered suitable for analysis when:

- The resource consent decision was granted prior to April 2018;
- The resource consent had not yet been granted;
- The resource consent did not include an accessway way consented under the AUP that served more than 10 dwellings or sites;
- The resource consent was a s127 variation to an approved consent which did not change the number of dwellings; and
- The sole function of the accessway was vehicular access to basement parking.

Figure 1: Map showing location of resource consents analysed by zone



4.3.2 Data collection method

Data for the analysis was obtained from the resource consent documents of each chosen development. This included the decision report, planner's report and approved plans. These documents were subsequently analysed, and recorded in an Excel spreadsheet through data entry processes by the Plans and Places department.

The data recorded in the spreadsheet included the values and measurements required to assess the indicators outlined in Appendix B. These included details on the developments' accessways, in terms of design and construction, user safety and amenity, parking, lighting, mail, waste collection methods, site connectivity and stormwater management. In instances where there were a lot of similarities involved, data was recorded from prescribed "drop-down" menus (e.g. when determining whether footpaths were provided, types of lighting, location of parking), for the purposes of clarity and identifying data trends.

5 LIMITATIONS AND CAVEATS

Due to the small sample size, the data is not meant to be statistically significant, rather to provide a qualitative insight to the aspects of residential accessways which are relevant to this report.

Other matters to note in this report:

- All references to 'residential development' or 'development' refer only to the samples obtained, unless otherwise stated
- All references to 'residential zones' refer to the Residential MHS, MHU or THAB Zones, unless otherwise stated
- Where statistical findings are represented as percentages, these are rounded up or down to the nearest percent. The rounding up or down of percentages has meant results may total more or less than 100 percent
- Limitations of the monitoring analysis include human error, due to the manual analysis of resource consent documents, including approved plans and decisions reports (notification and decision)
- It is unknown whether the resource consents analysed have been implemented, and whether buildings have been constructed. However, the decisions themselves indicate the outcomes that can be consented under the current AUP provisions.

6 FINDINGS AND ANALYSIS

This section summarises the monitoring findings for each of the themes identified in Section 3.1. Key issues associated with each theme have been identified and consideration is given to how effective the relevant AUP objectives, policies or standards have been to address these key issues.

The findings for each of the themes are presented in the sections that follow.

6.1 Theme 1 – General accessway information

The general accessway information provides an overview of the types of developments that are being consented. An analysis of this data is important to inform the tiered approach to accessway requirements and establishing suitable dwelling-based trigger levels for AUP rules.

The measures analysed under this theme include:

- Number of dwellings per development;
- Number of dwellings vs building typology;
- Number of dwellings vs year consent granted;
- Number of dwellings vs accessway length; and
- Reason for subdivision consent.

6.1.1 AUP analysis

The analysis of the number of dwellings consented in each development will inform the overall understanding of the size of developments that use accessways, and how those accessways are being used.

In terms of accessway Standards in the AUP, these are dictated by:

- Standard E27.6.4.3.2 Vehicle crossing and vehicle access widths, which has triggers based on the number of parking spaces served per site ; and
- E38.8.1.2.1. Access to rear sites, which has triggers based on the number of rear sites.

6.1.2 Findings

6.1.2.1 Number of dwellings per development

The findings showed that

- approximately 60% of developments have between 10 and 19 dwellings (considered to be medium scale development).
- approximately 40% of developments have 20 or more dwellings (considered to be large scale development)
- approximately 15% of developments have 40 or more dwellings.

Table 1 summarises the percentage split of the number of dwellings per development for the monitoring data.

Table 1: Percentage of developments consented by number of dwellings per development

No. of dwellings per development	Number of developments consented	Percentage of consented developments
10 – 14	48	33.1 %
15 – 19	37	25.5 %
20 – 29	24	16.6 %
30 – 39	14	9.7 %
40 – 49	8	5.5 %
50 – 59	2	1.4 %
60 – 69	4	2.8 %
70 – 79	4	2.8 %
80 +	4	2.8 %
Total	145	100 %

6.1.2.2 Number of dwellings by building typology

The number of dwellings per building typology was assessed to determine if any trends exist. The data is summarised in Figure 2 and Figure 3. We note that

- developments with less than 20 dwellings per development are dominated by townhouses
- as the number of dwellings per development start to increase, apartments become more prominent. This is expected due to the nature of apartment buildings being able to provide more units on a small site whereas the large amounts of land needed to provide large terraced-housing developments would restrict the ability to provide such developments, making them less common
- Detached dwellings are not prominent amongst all development sizes.

Figure 2: Number of building typologies by dwellings per development

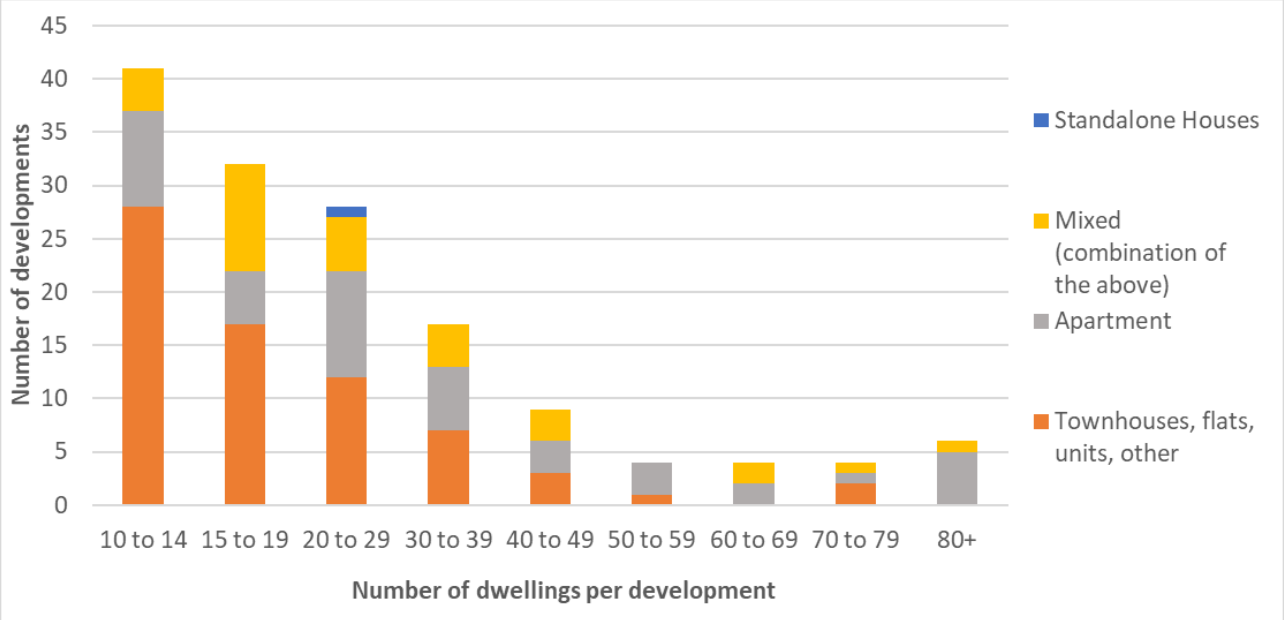
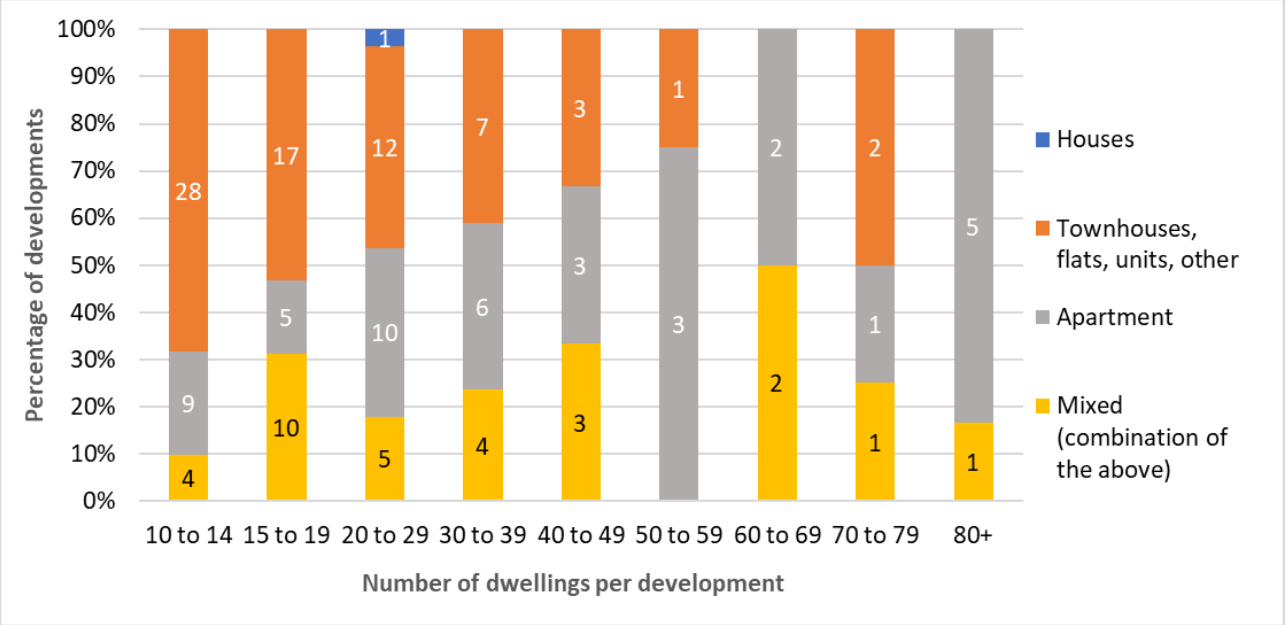


Figure 3: Percentage of building typologies by dwellings per development



6.1.2.3 Number of dwellings by year consent granted

Figure 4 shows the number of developments consented in each of the monitoring period years, and Figure 5 shows the percentage breakdown of the development sizes for each year.

The data shows that

- 2020 was the most prominent year of consent approval across all development sizes with medium sized developments (between 10 and 19 dwellings per development) being the most prominent development size for all years
- more than 50 % of the developments consisted of medium sized developments for 2018 and 2021, with more than 50% of consented developments having more than 20 dwellings for 2019 and 2020
- no clear trends are visible over the monitoring period other than the split of developments above and below 20 dwellings per development being consistently within 10 % of 50 %.

Figure 4: Number of developments consented per year by development size.

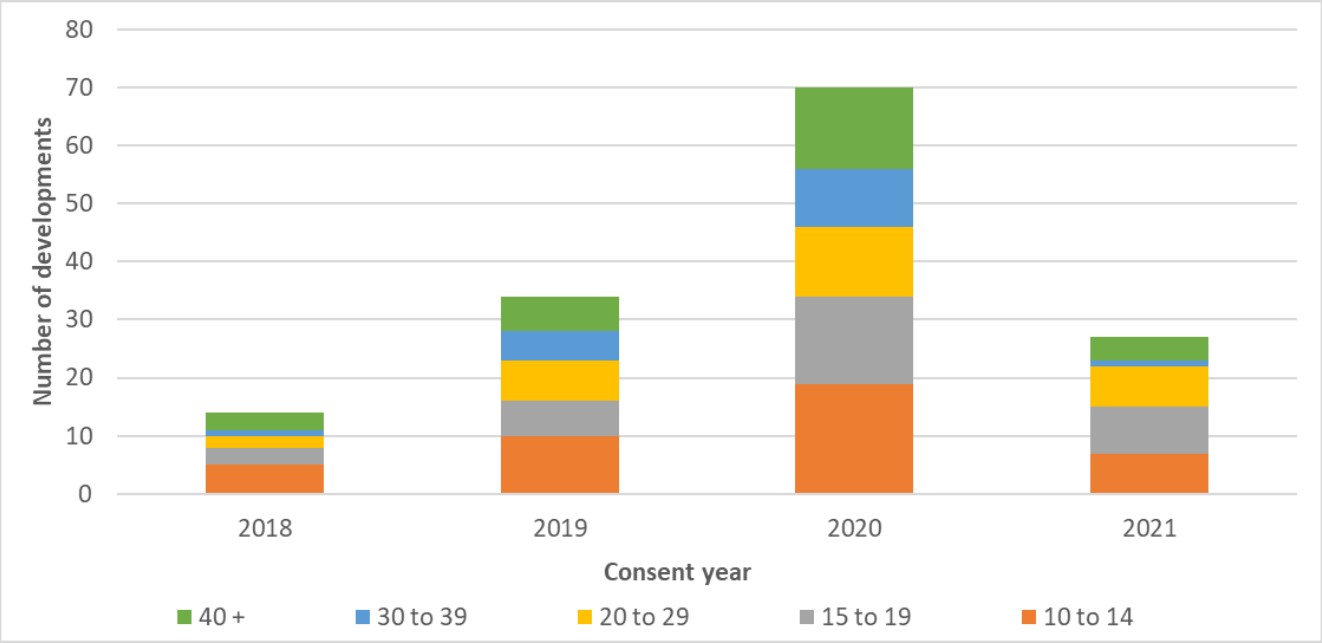
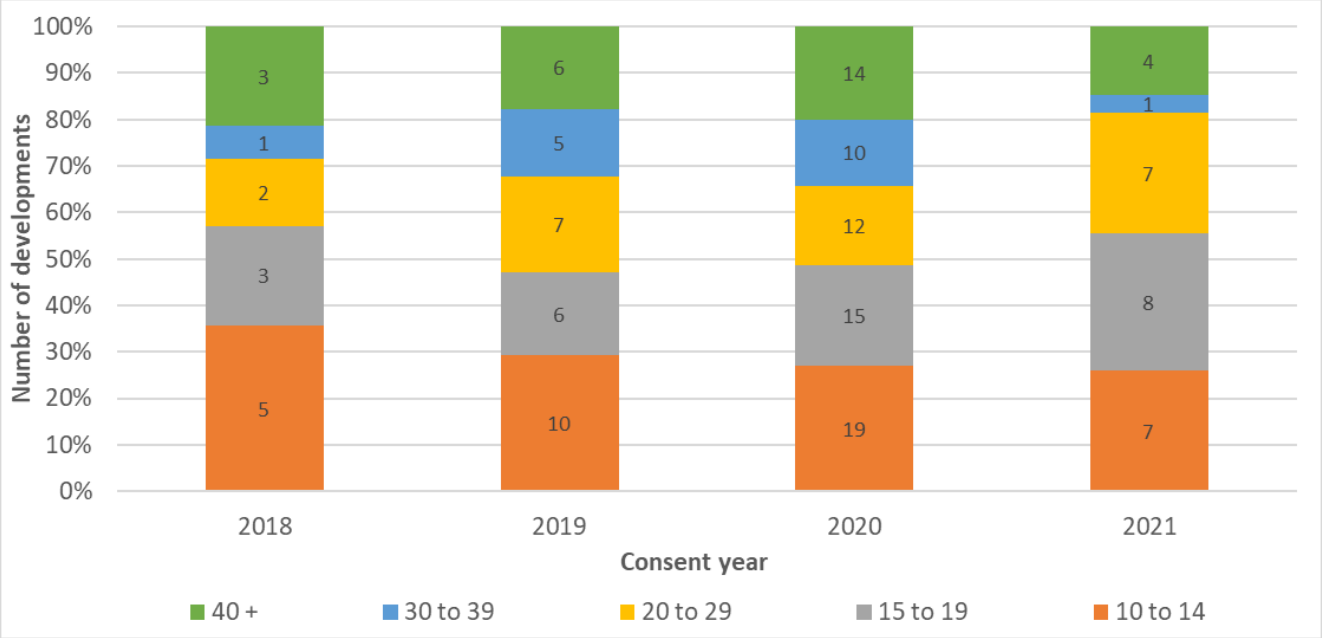


Figure 5: Percentage split of development sizes per monitoring year.



6.1.2.4

Accessway lengths over 40 m typically are a mixed or townhouse typology

6.1.2.5 Number of dwellings - accessway lengths

Accessway lengths over 40 m typically have a mixed or townhouse typologies

- Accessways lengths under 40 m are more prominent for apartment typologies.

Figure 6Figure 6, Figure 7, and Figure 8 show the number of consented developments for different accessway lengths, the percentage split of accessway lengths for different size developments, and the percentage split of accessway lengths for different building typologies respectively.

The data shows

- an increase in accessway length as the number of dwellings per development increases. This is to be expected as larger developments will often need longer accessways to serve each dwelling
- Accessway lengths under 60 m tend to be more prominent in developments with less than 20 dwellings while accessway lengths above 100 m tend to be more prominent in developments with more than 30 dwellings
- Accessway lengths between 60m and 100m have a roughly equal prominence amongst all development sizes
- Accessway lengths over 40 m typically have a mixed or townhouse typologies
- Accessways lengths under 40 m are more prominent for apartment typologies.

Figure 6: Number of developments by accessway length

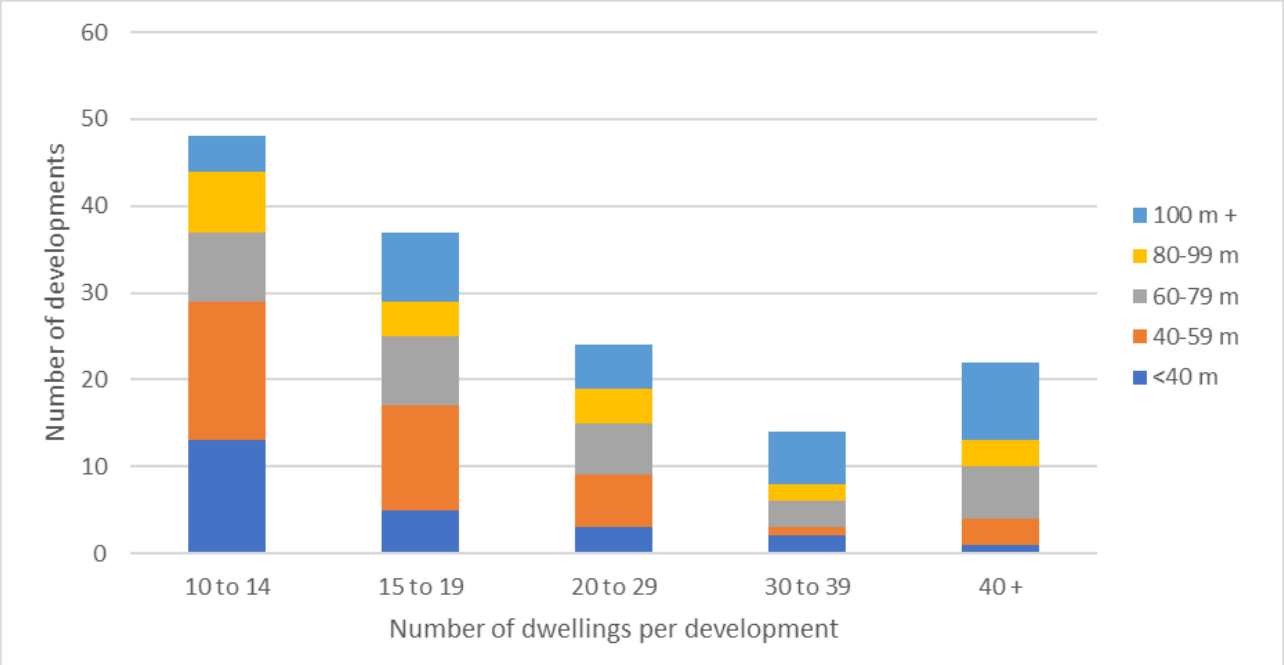


Figure 7: Percentage of accessway lengths by dwellings per development

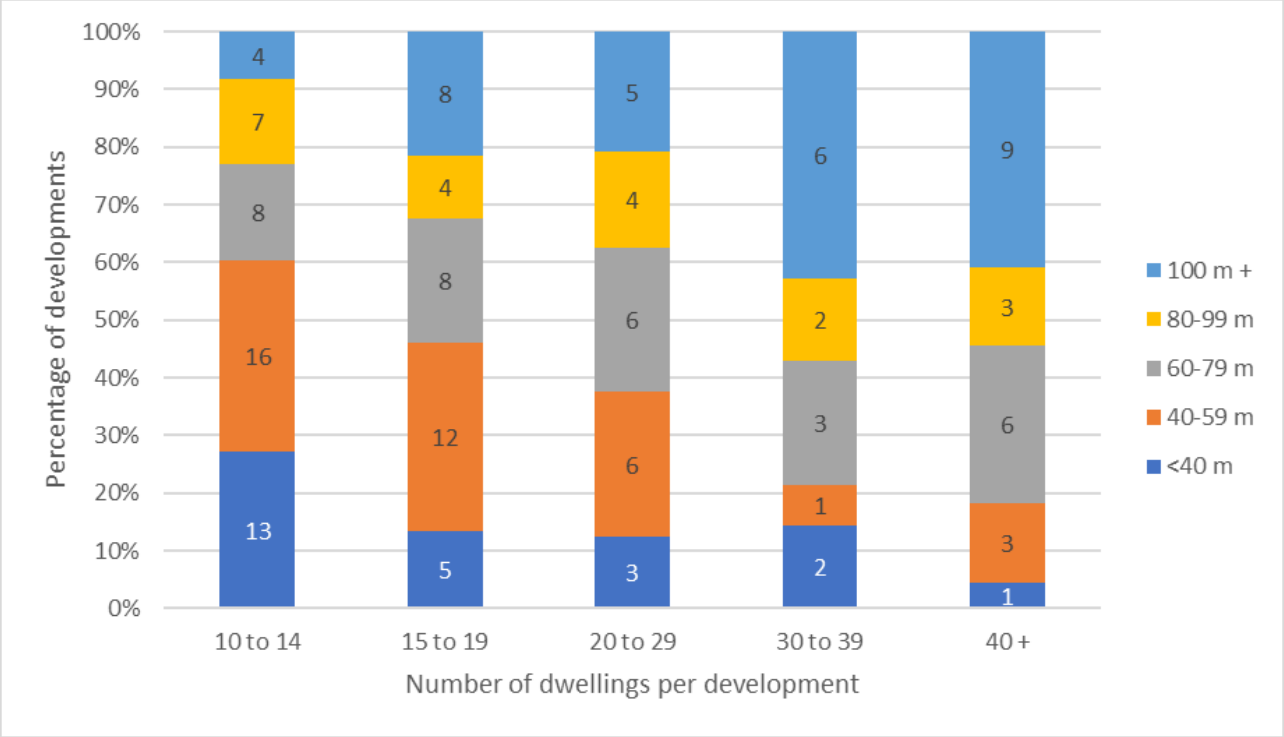
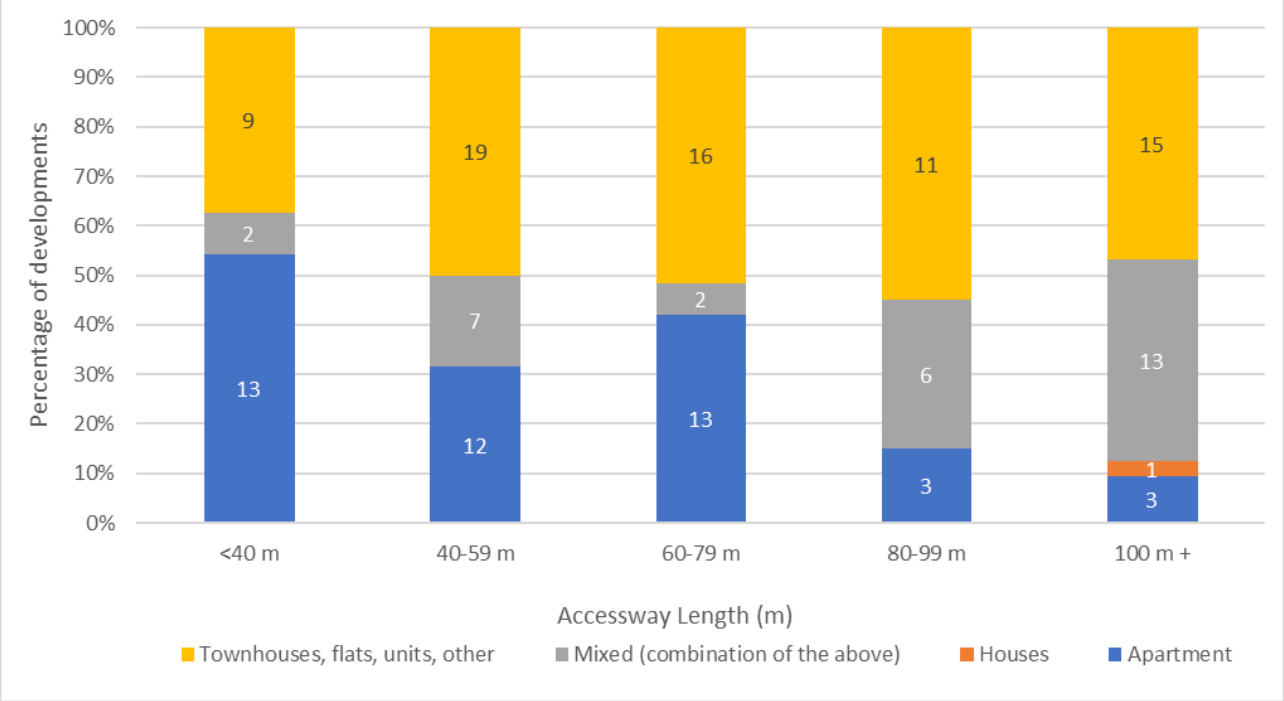


Figure 8: Percentage of accessway lengths by building typology

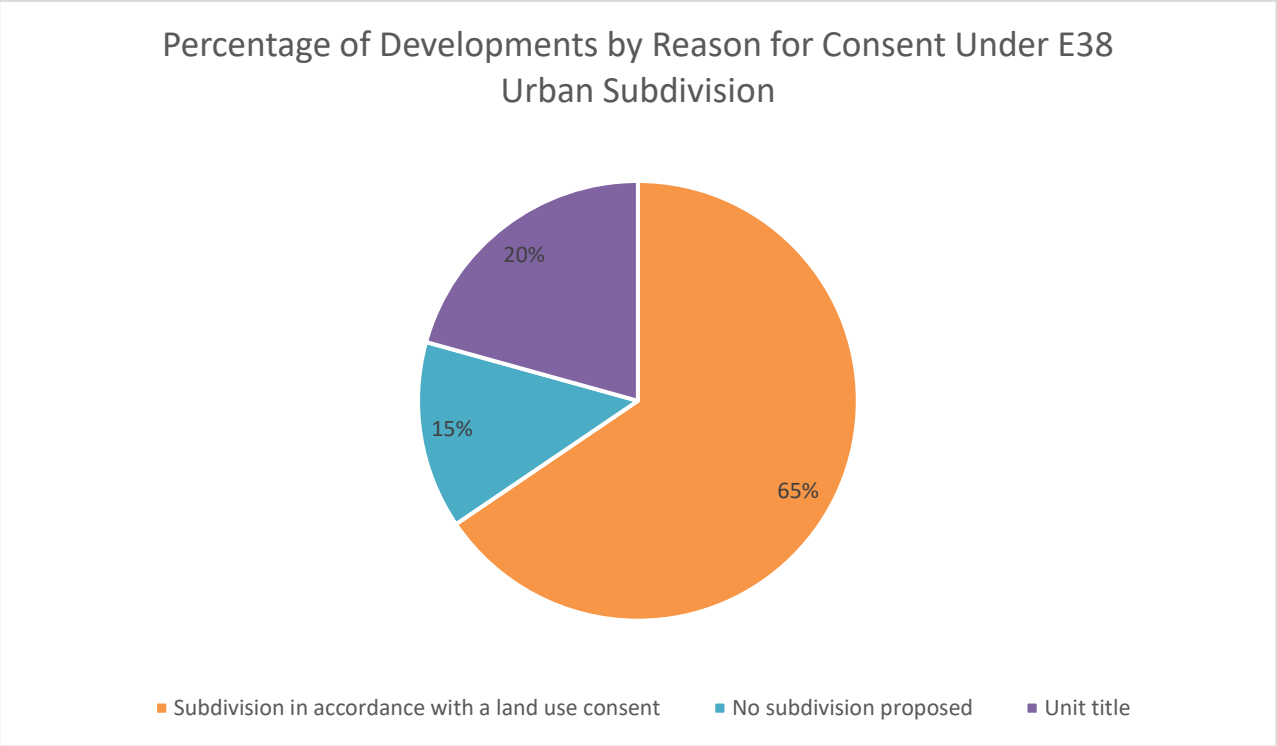


6.1.2.6 Reason for subdivision consent

The analysis showed that the majority of developments (65%) applied for a subdivision consent in accordance with a land use consent. 20% provided unit titles and a remaining 15% did not propose any subdivision. This reveals that all developments have valid reasons for subdivision under rule E38.7.2.3,

including having existing use rights (such as a unit title) or being in accordance with an approved land use consent.

Figure 9: Percentage of developments by reasons for consent under E38 Subdivision.



6.1.3 Conclusions and recommendations

The monitoring data shows that approximately 40 % of consented developments have more than 20 dwellings per development over the monitoring period.

6.2 Theme 2 – Accessway design standards

An accessway can encompass multiple uses including vehicle access, pedestrian access, parking, lighting, landscaping, and stormwater management. A vehicle carriageway is defined by the space that vehicles can occupy to move through the site or the kerb-to-kerb measurement.

Four key measures were used to analyse accessway design outcomes of consented developments:

- Accessway width: otherwise known as the legal width, is the boundary to boundary width of the accessway.
- Carriageway width: A kerb to kerb measure of the width used by a vehicle.
- Manoeuvring and turning circles: The ability for an emergency and service vehicle to turn-around within the site.
- Gradient: The steepness of vehicle access (Note the gradient of pedestrian access is covered in the Pedestrian Accessway section).

These measures are assessed in the sections that follow to determine how effective the AUP standards are in achieving desirable accessway outcomes.

6.2.1 Accessway and carriageway widths

6.2.1.1 AUP Analysis

The AUP chapters E27 Transport and E38 Subdivision – Urban both provide provisions for carriageways and accessways. A comparison of table E27.6.4.3.2 and table E38.8.1.2.1 is in Figure 10 below, with the green highlighted text identifying where the two chapters are not consistent. Further, E38 identifies a maximum of 10 rear sites, whereas E27 does not place any controls on the number of sites or dwellings served by an accessway.

Figure 10: Comparison of E27 and E38 standards for accessways

	E27 Transport Access width	**E38 Subdivision Access and entrance strips**
	Serves 1-2 parking spaces	Serves 1 rear site
Formed access width	2.5m	2.5m
Corridor/legal width within which the formed access must be contained	3m	3m (includes requirement for a minimum 0.5m service strip)
	Serves 3-9 parking spaces	Serves 2-5 rear sites
Formed access width	3m	3m
Corridor/legal width within which the formed access must be contained	3.5m	3.5m (includes requirement for a minimum 0.5m service strip)
	Serves 10 or more parking spaces	Serves 6-10 rear sites
Formed access width	5.5m (providing for two-way movements)	5.5m
Corridor/legal width within which the formed access must be contained	5.5m (providing for two-way movements)	6.5m (includes requirement for a minimum 1m service strip)

It is important to note that the majority of developments in the urban environment are land use led, as identified in Section 6.1.2.6 (rather than subdivision led), meaning that consent relies on the E27 Transport chapter over the E38 Subdivision chapter.

6.2.1.2 Findings

A breakdown of the accessway and carriageway widths for the resource consent monitoring sample are summarised in Table 2 and Table 3.

The sections that follow further assess trends relating to the accessway and carriageway widths for different development sizes and building typologies.

Table 2: Breakdown of sampled resource consent accessway widths

Accessway width	Number of developments consented	Percentage of consented developments
Less than 5.5 m	13	9 %
5.5 – 5.9 m	14	10 %
6 – 6.9 m	31	21 %
7 m or greater	35	24 %
N/A	52	36 %
Total	145	100 %

Table 3: Breakdown of sampled resource consent carriageway widths

Accessway width	Number of developments consented	Percentage of consented developments
Less than 4 m	18	12 %
4.0 – 4.4 m	3	2 %
4.5 – 5.4 m	18	12 %
5.5 – 6.4 m	75	52 %
6.5 m or greater	30	21 %
N/A	1	1 %
Total	145	100 %

6.2.1.2.1 Number of Dwellings by Accessway widths

Accessway width is also known as the legal width, while a legal width is defined by its own lot. In cases where ownership of the accessway is in the form of a unit title there will be no defined lot and therefore no defined legal width, resulting in the accessway width being recorded as N/A in the monitoring dataset.

Figure 11 shows the number of developments versus the scale of development, broken down by different access way widths.

An expectation of the data was that as the scale of development increased, the width of the accessway would also increase to provide for improved access. The monitoring data confirmed this trend and shows that the width of accessways generally increase as the scale of development increase (refer to Figure 12 which has the N/A values removed to clearly identify trends). The data shows that

- more than 60 % of all development sizes have accessway widths greater than 6 m. This aligns well with the current AUP Chapter E27 standards
- a significant proportion of accessways developments serving less than 15 dwellings per development had accessways widths less than 5.5 m wide.

Figure 11: Accessway widths by scale of development

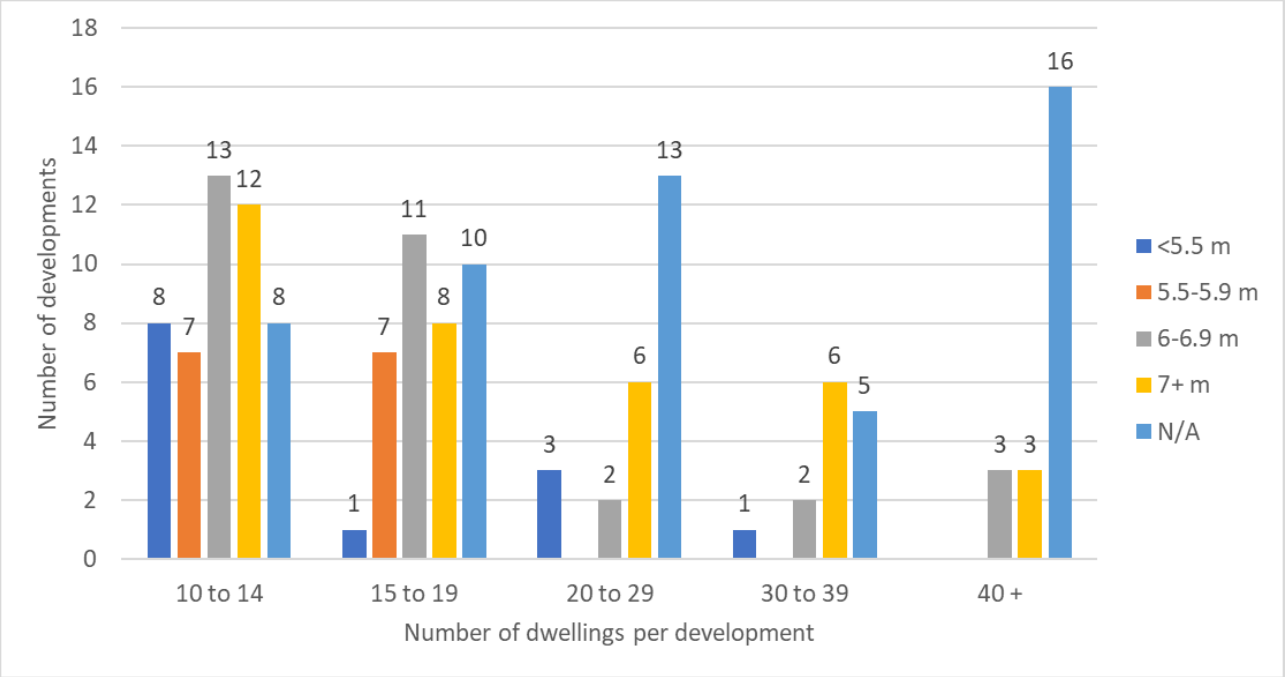
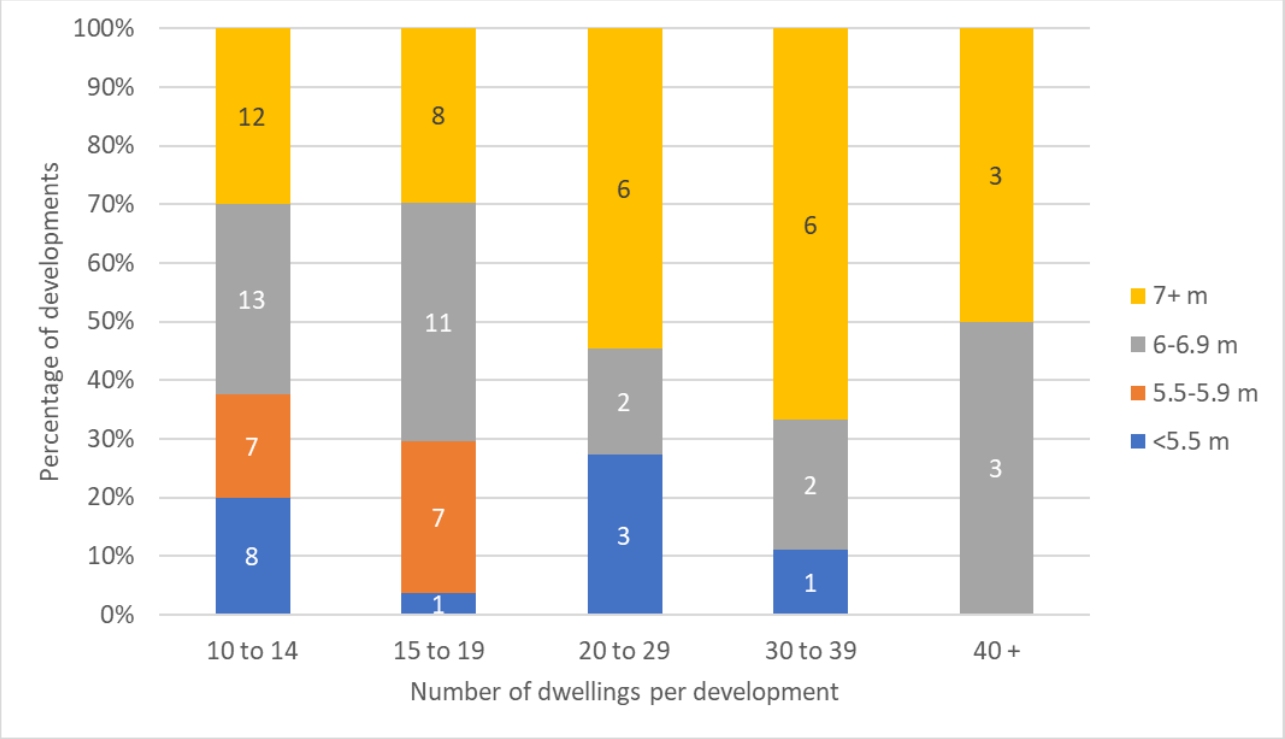


Figure 12: Percentage of accessway widths by scale of development



6.2.1.2.2 Building Typology – Accessway widths

Figure 13 and Figure 14 show the access widths for different building typologies. The N/A values have been removed from Figure 14 to see the trends more clearly.

The monitoring data shows that

- apartments have a high percentage of accessway widths less than 5.5 m, which is the minimum requirement for two-way movements for developments with more than 10 parking spaces. Apartments also have the highest percentage of parking provisions with less than 10 carparks, which consequently result in less onerous requirements for accessway widths in the AUP (Refer to **Section 6.5 Parking**).

  Figure 15 shows that more than 50 % of accessway width less than 5.5 m has an accessway length less than 50 m and the apartment typology accounts for more than 50 % of accessway lengths below 40 m. Considering that the AUP allows for formed accessway widths lower than 5.5 m where the length is less than 50 m and clear sight lines are provided, this further explains the prominence of narrow accessway widths for the apartment typology.

- Developments in the *Townhouses, Flats, Units, others* typology category shows that most developments have an accessway width greater than 6m

- The *Mixed* typology also shows a similar trend with an even higher percentage of developments having an accessway width greater than 6 m and a low percentage of developments having accessways less than 5 m wide.

Noting that there was only one development in this data for the *Detached Housing* typology, this typology is not statistically diverse enough to provide analysis.

Figure 13: Accessway widths by building typology

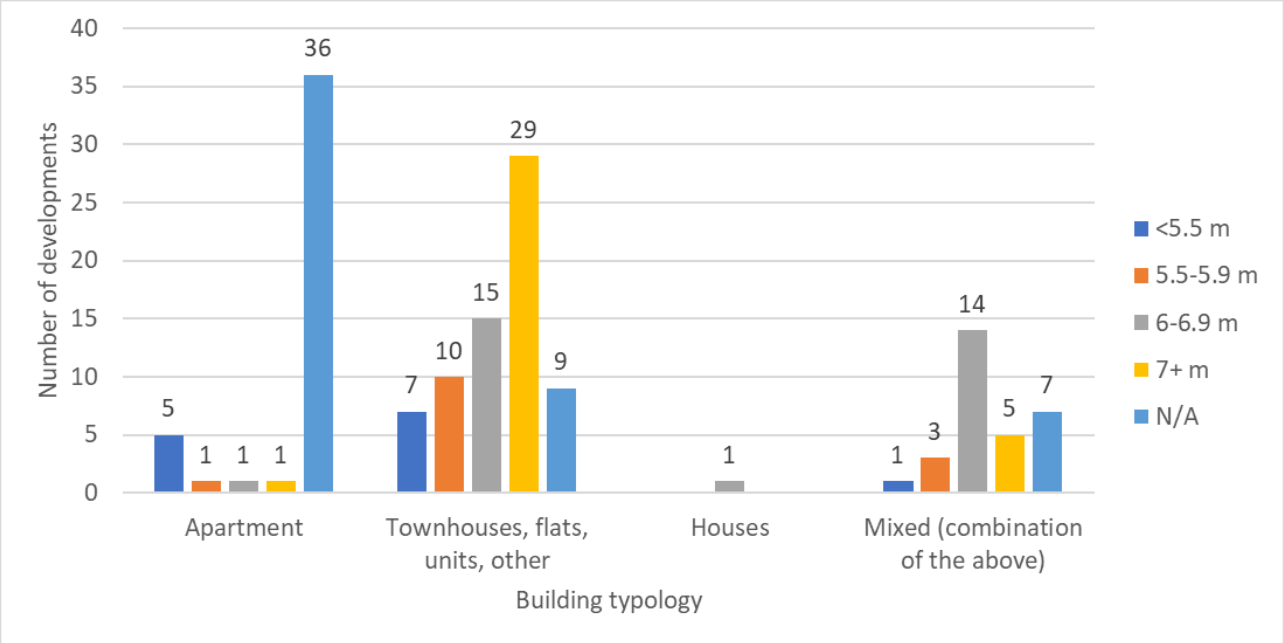


Figure 14: Percentage of accessway widths by building typology

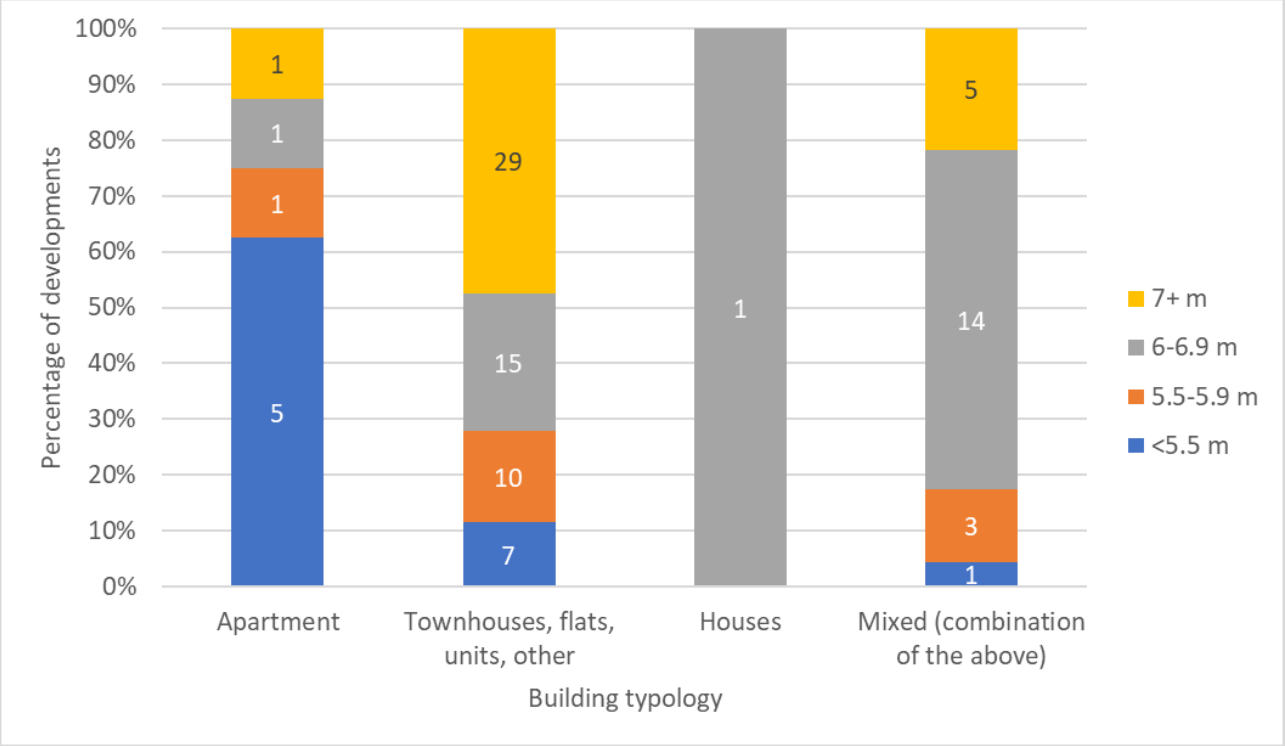
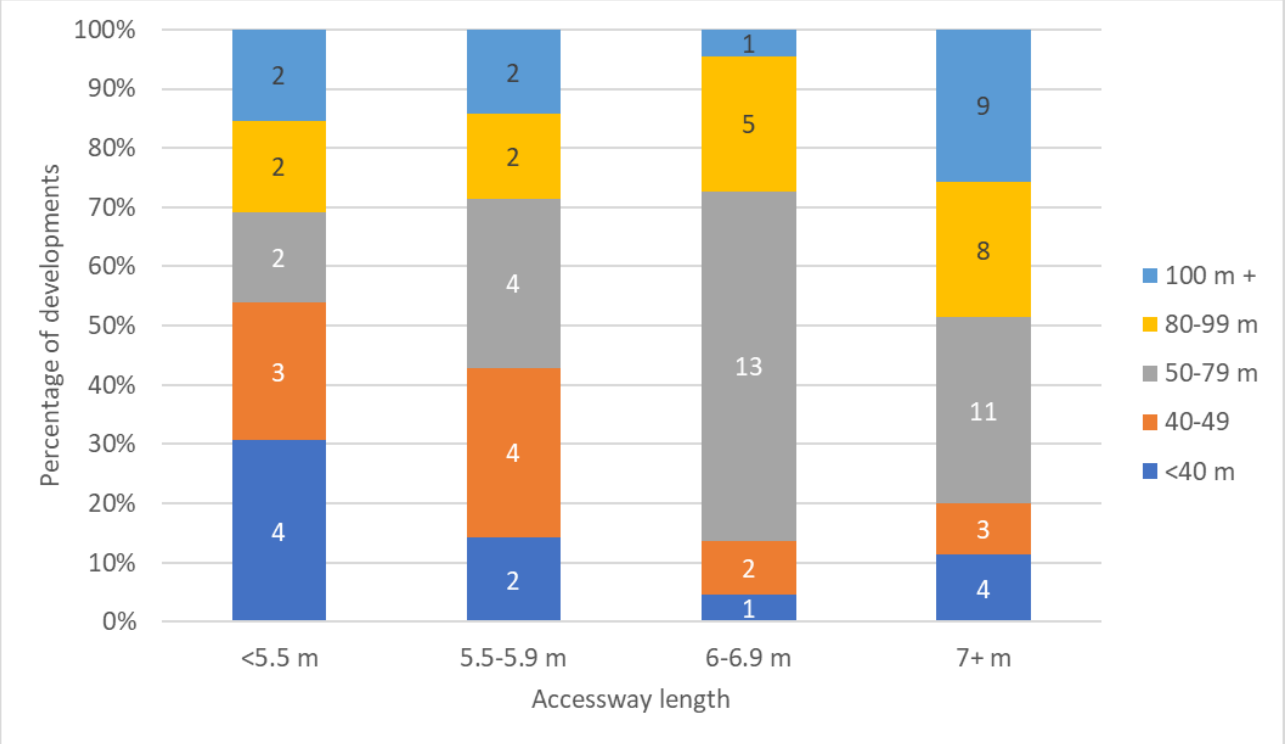


Figure 15: Percentage of accessway widths by accessway length



6.2.1.2.3 Number of Dwellings – Carriageway widths

This analysis looked at how the total number of dwellings in a development influences the carriageway width of the accessway. Figure 16 and Figure 17 show the carriageway widths for different scales of development.

The analysis indicates that

- the carriageway widths generally increase as the number of dwellings served by the accessway increases
- there are instances where larger developments with greater than 20 dwellings per development have carriageway widths less than 4 m, which is insufficient to allow two-way vehicle movement.
- across all development scales, more than 60 % of carriageway widths are greater than 5.5 m. This is in line with the current AUP provisions with E27 and E38 both requiring a minimum formed width of 5.5 m.

Figure 16: Carriageway widths by scale of development

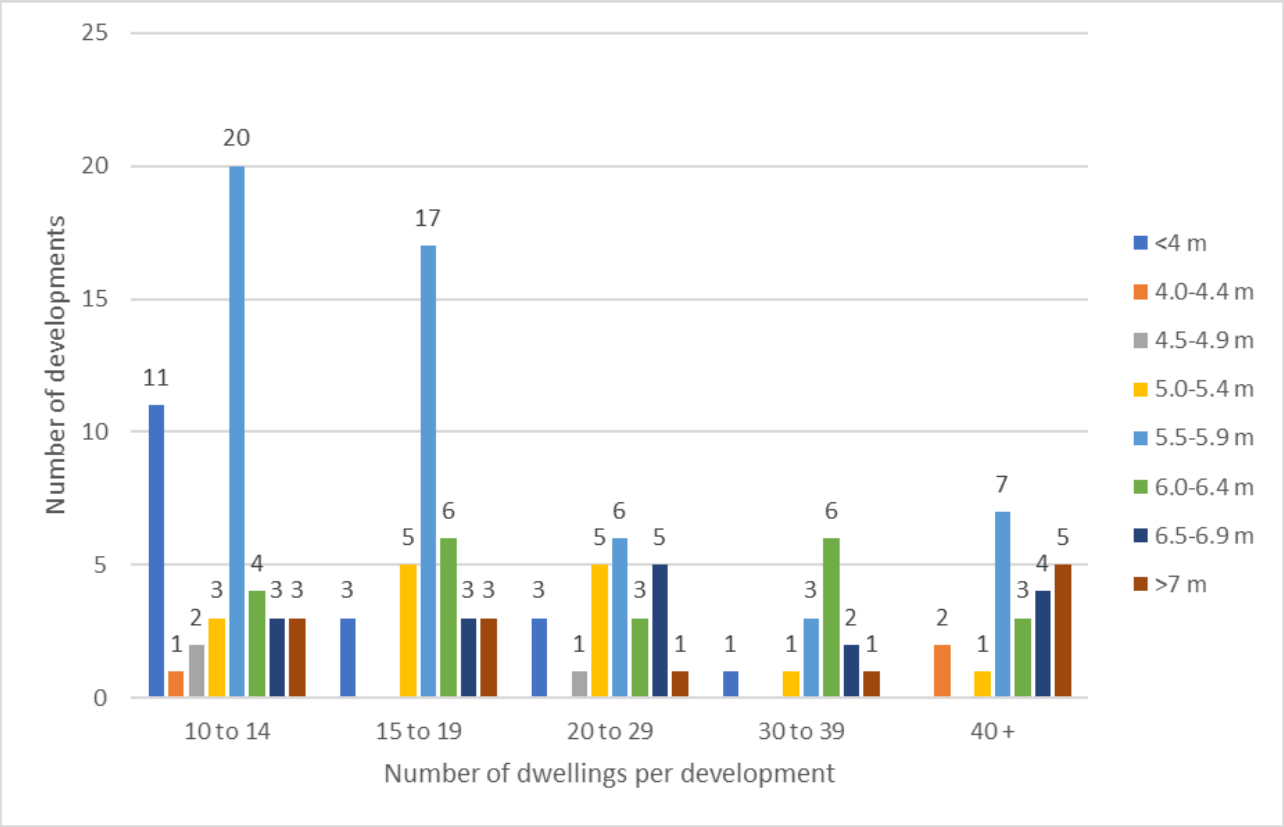
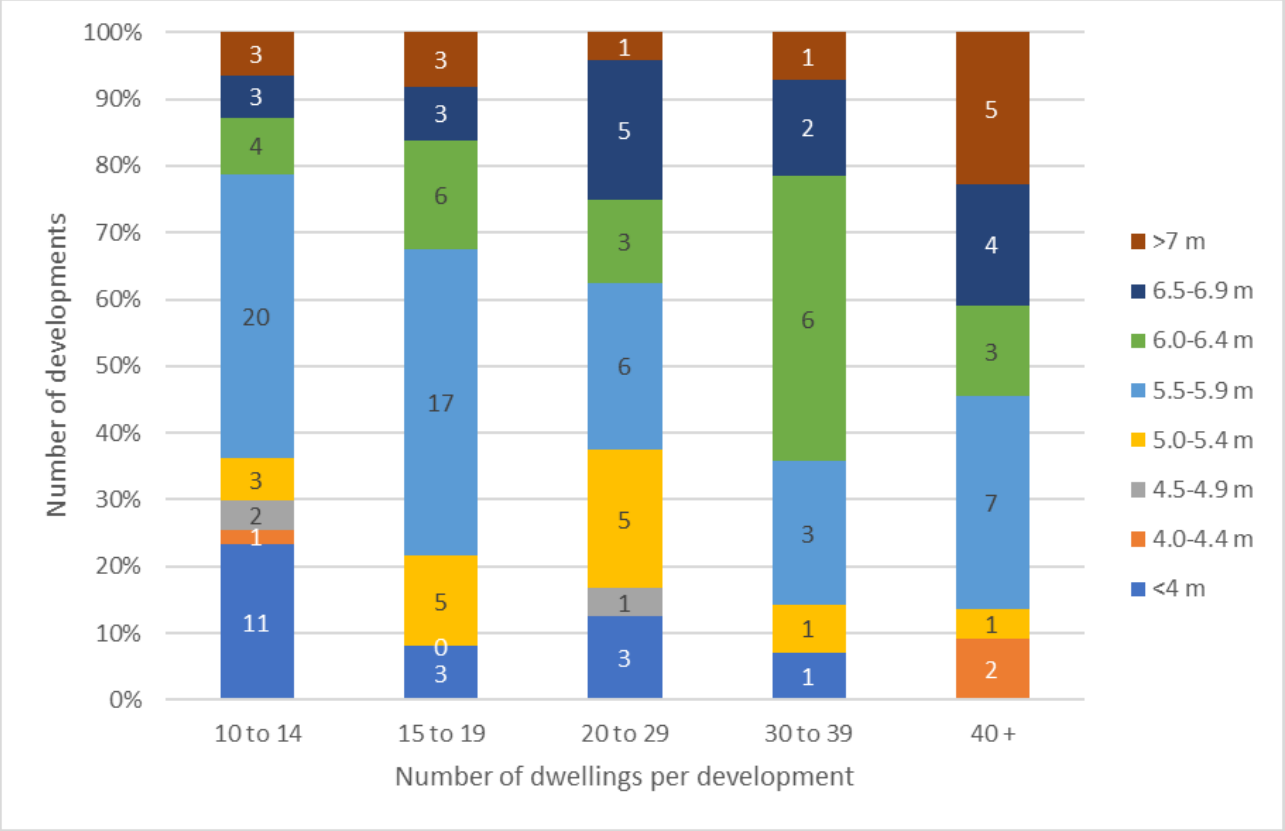


Figure 17: Percentage of carriageway widths by scale of development



6.2.1.2.4 Building Typology – Carriageway width

Figure 18 and Figure 19 show the carriageway width trends for different building typologies. The analysis indicates that

- *Apartment* typology shows a greater trend toward narrower carriageway widths, less than 4m wide, which is in line with the accessway width analysis which indicated that apartment typologies generally have narrower accessways.
- Developments in the *Townhouses, Flats, Units, others* typology showed that 86% of developments have carriageway widths greater than 5 m
- Developments in the as *Mixed* typology showed that 90% of developments have carriageway widths greater than 5 m.

As noted earlier, the sample of standalone houses was not large enough to identify any trends in the carriageway widths.

Overall, the monitoring data shows that most developments are providing adequate carriageway widths, however, very few developments are providing carriageway widths wider than required by the provisions.

Figure 18: Carriageway widths by building typologies

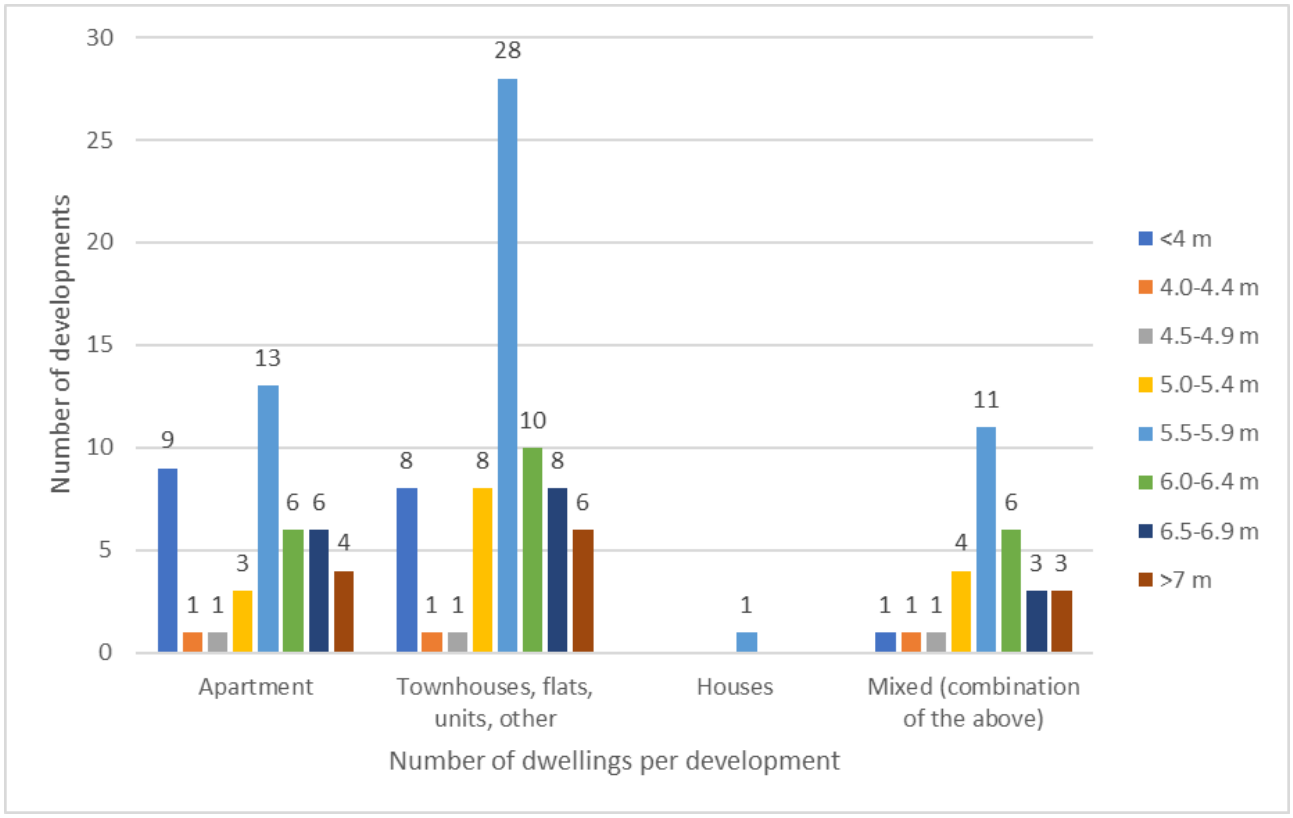
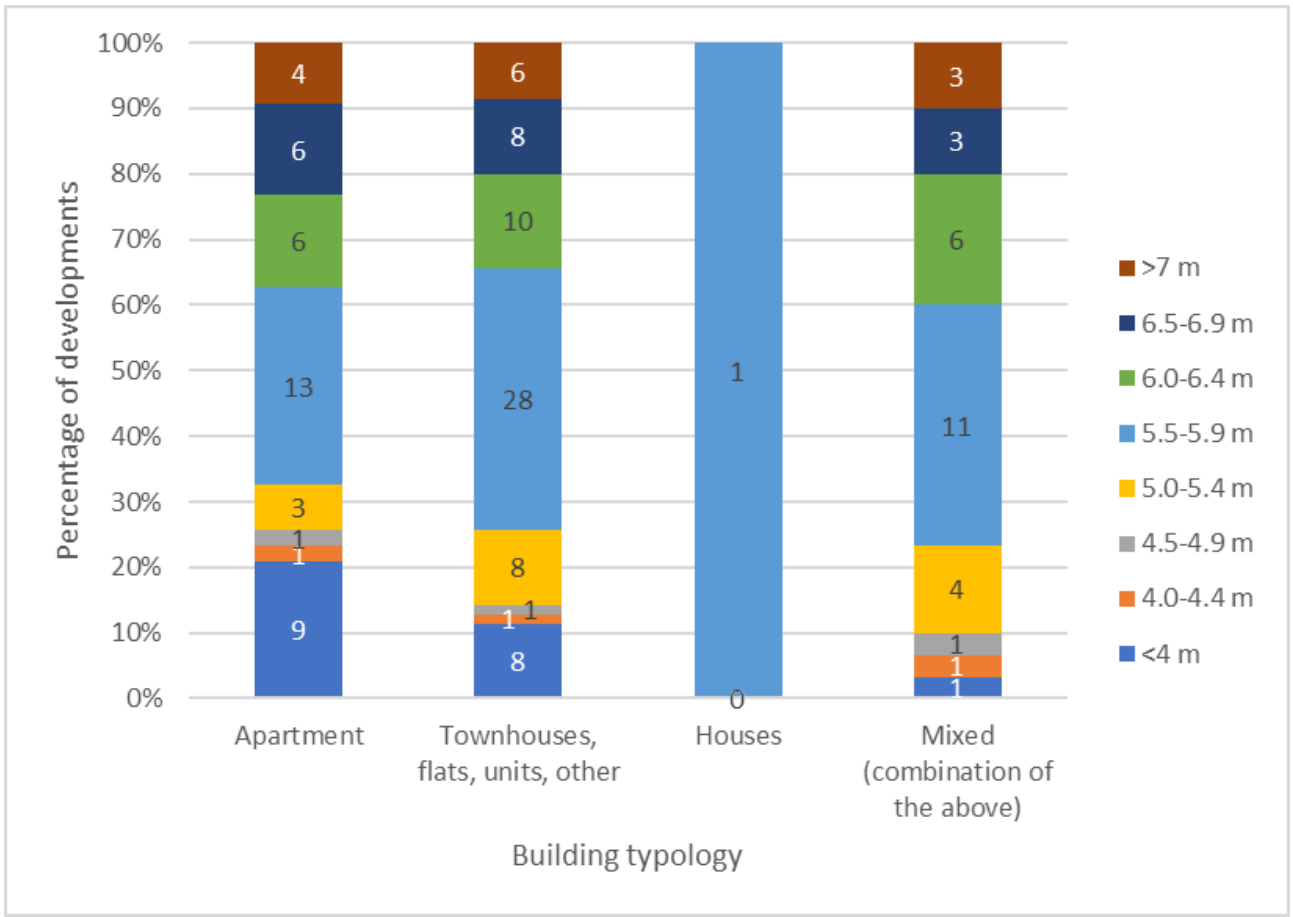


Figure 19: Percentage of carriageway widths via building typologies



6.2.2 Manoeuvring and turning circles

6.2.2.1 AUP Analysis

Manoeuvring requirements are provided for in the E27 Transport chapter of the AUP.

Standard E27.6.3.3. *Access and manoeuvring* requires that onsite vehicle access must accommodate the 85 percentile car tracking curves and where loading spaces are provided must accommodate heavy vehicles complying with NZTA guidelines: RTS 18: NZ on-road tracking curves (2007).

Standard *E27.6.3.4*. Reverse manoeuvring, requires that sufficient space must be provided on site so that vehicles do not need to reverse off the site when any of the following apply:

- Four or more parking spaces are served by a single accessway;
- More than 30m between the parking spaces and the road boundary;
- Access onto an arterial road or where a Vehicle Access Restriction applies.

A key aspect of this analysis is to consider the movement of medium and larger size vehicles associated with fire and emergency, courier vans, moving trucks and waste collection. Many of these vehicles would not be catered for within the current provisions and may therefore not be able to safely navigate the accessways.

6.2.2.2 Findings

The monitoring looked at the ability of a vehicle to enter and exit the site in a forward moving direction, without the need to reverse along the accessway back onto the public road network. Vehicle reversing, especially for larger vehicles, is a known safety hazard given the reduced visibility and should be avoided where possible.

Three types of accessway layouts were identified in the dataset:

- turning circles, such as that found at the end of a cul-de-sac
- three-point turn manoeuvring space
- thoroughfares where there is a separate entrance and exit.

The consented developments were assessed to identify any development trends where the above measures are implemented to assist safe manoeuvring on site. A breakdown of the provision of turning heads for the sample data is summarised in Table 4.

Table 4: Breakdown of sampled resource consent turning head provision

Provision of turning head	Number of developments consented	Percentage of consented developments
Turning head provided	67	46%
No turning head provision	78	54%
Total	145	100 %

6.2.2.2.1 Number of Dwellings – manoeuvring and turning circles

Figure 20 and Figure 21 show the carriageway width trends for different building typologies. The figures show that

- most accessways serving between 10 to 40 dwellings have similar trends for the provision of manoeuvring space, being less than 50 % of developments
- as the number of dwellings accessed by the accessway exceeds 40, an increase in the provision of manoeuvring space can be seen.

Figure 20: Provision for manoeuvring and/or turning circles vs % Development scale

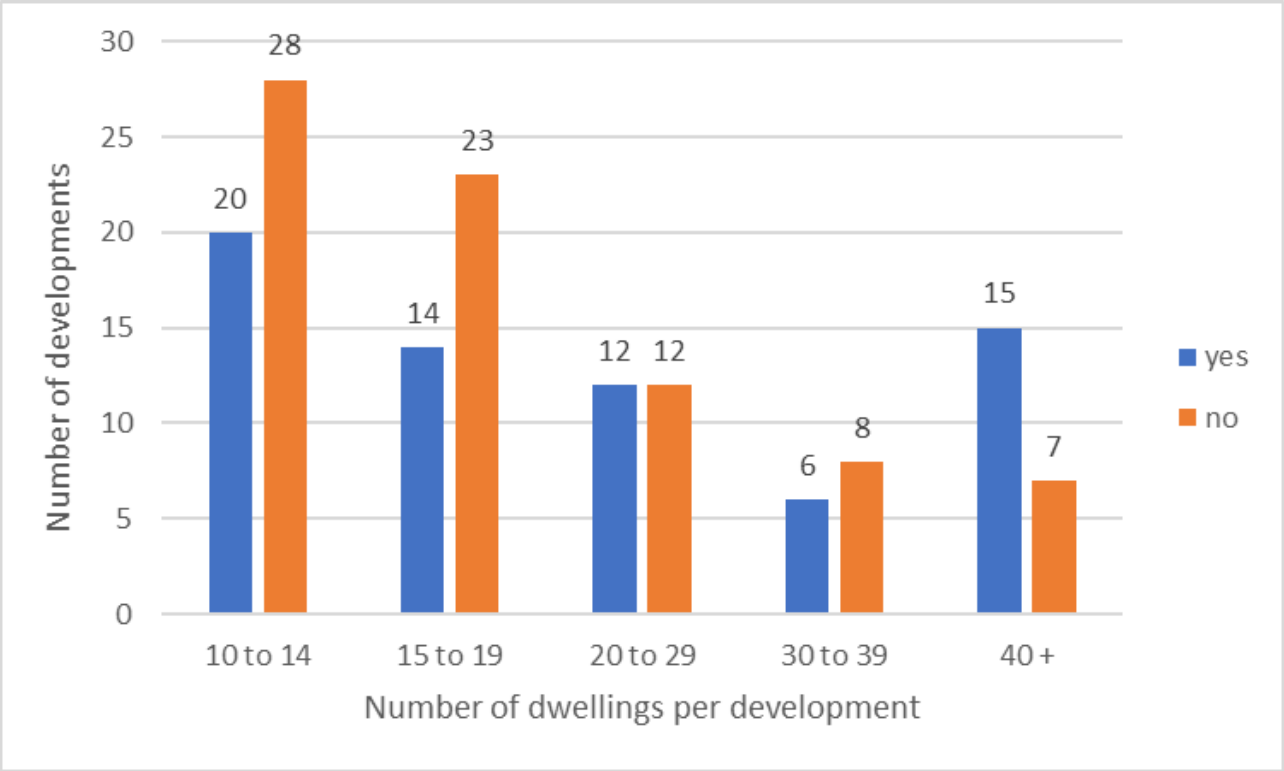
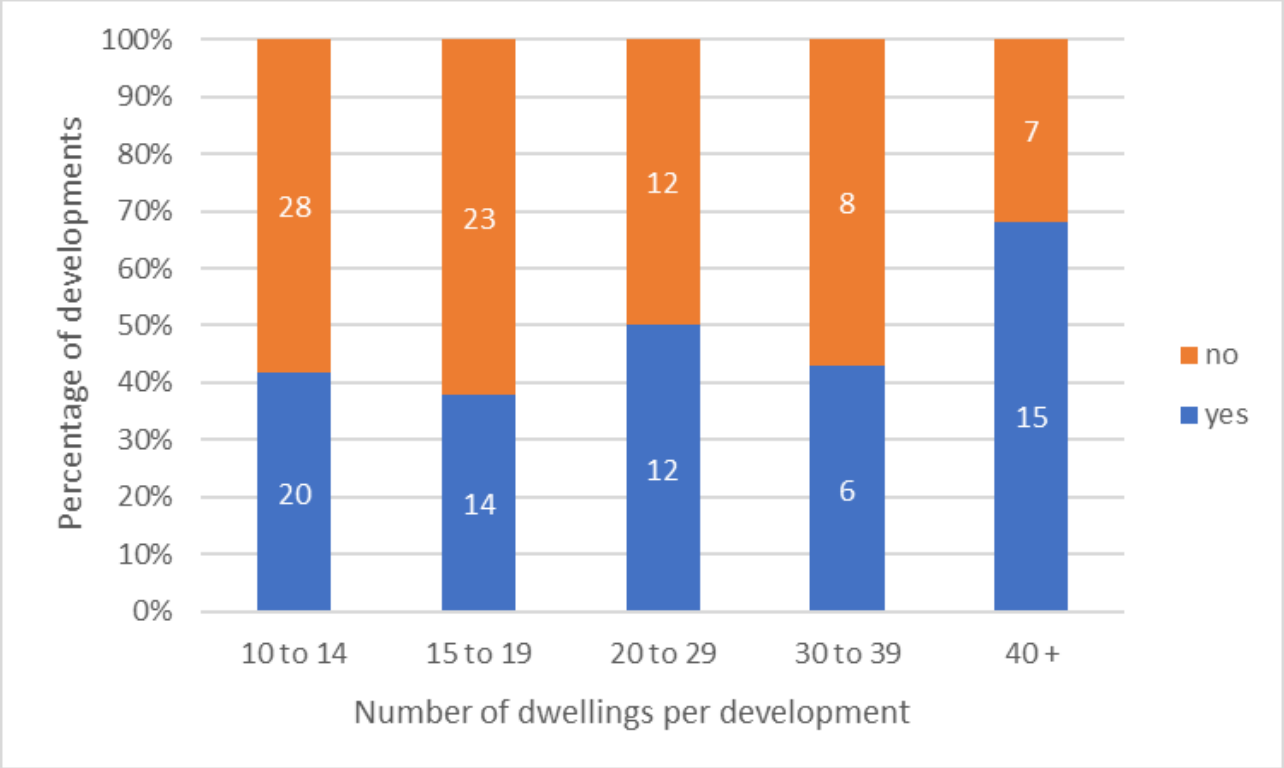


Figure 21: Percentage of Provision for manoeuvring and/or turning circles vs % Development scale



6.2.2.2.2 Building Typology - manoeuvring and turning circles

Figure 22 and Figure 23 show the carriageway width trends for different building typologies. The figures show

- There is no discernable trend between the development typology and the provision for manoeuvring with approximately 50% +/- 10% of all typologies (apart from Detached Housing) providing the ability to turn around on site.
- In contrast to the accessway and carriageway width provisions for *Apartments* being lower than other development typologies (refer to Section 6.2.1.2.4), assumably to cater for a premium of space on the sites, there seems to be better compliance with manoeuvring provisions compared to other typologies.

Figure 22: Provision for manoeuvring and/or turning circles by building typology (Number of developments)

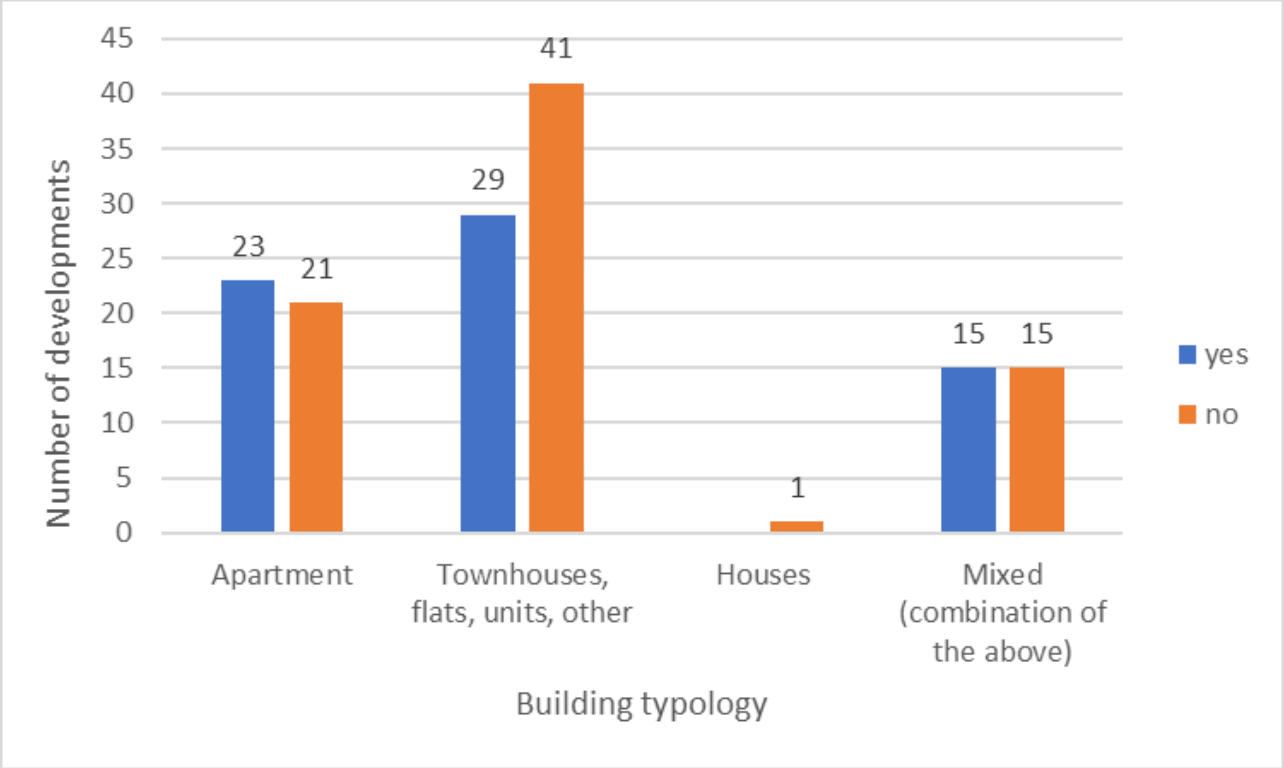
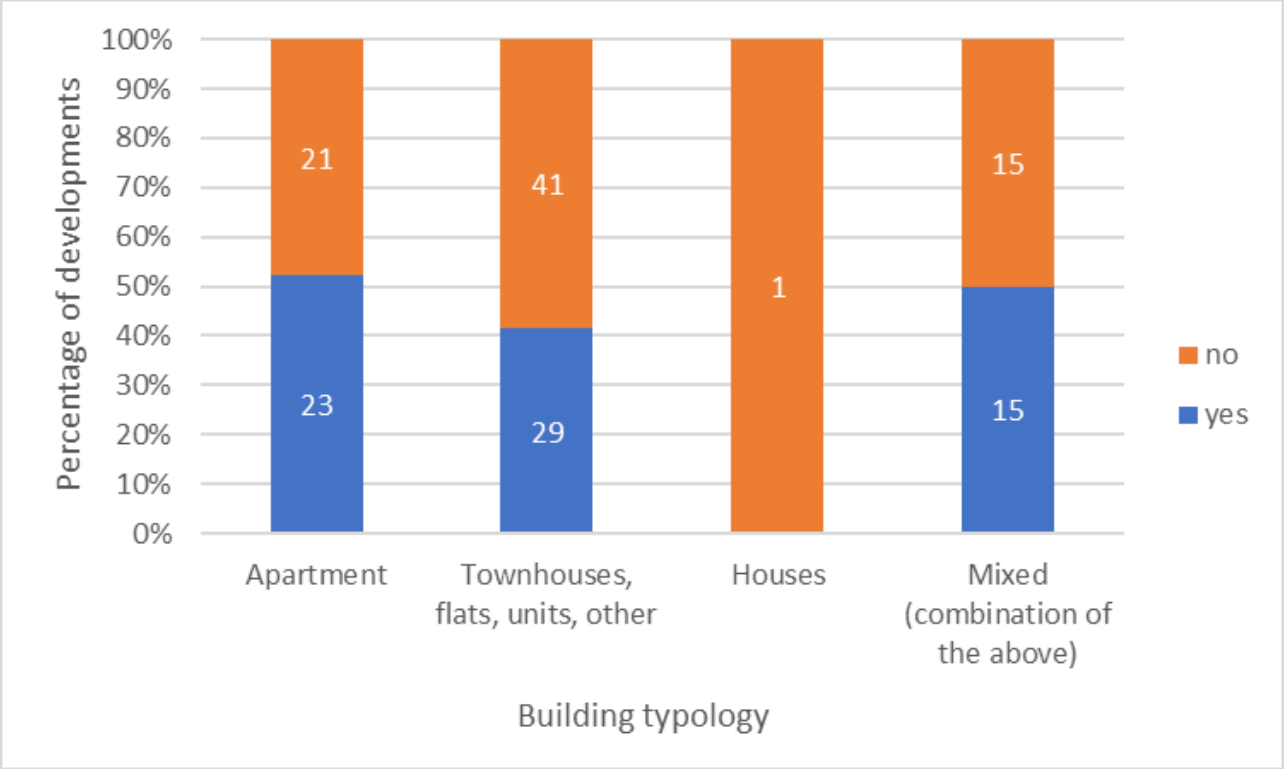


Figure 23: Provision for manoeuvring and/or turning circles by building typology (Percentage of developments)



6.2.2.2.3 Accessway length - manoeuvring and turning circles

Figure 24 and Figure 25 show the provision of manoeuvring space for different accessway lengths. The data shows that

- less than 40 % of developments with accessway lengths under 100 m have manoeuvring or turning provisions to avoid reversing off the site
- more than 80 % of developments with accessway lengths over 100 m have manoeuvring or turning provisions to avoid reversing off the site.

Figure 24: Provision for manoeuvring and/or turning circles by accessway length (Number of developments)

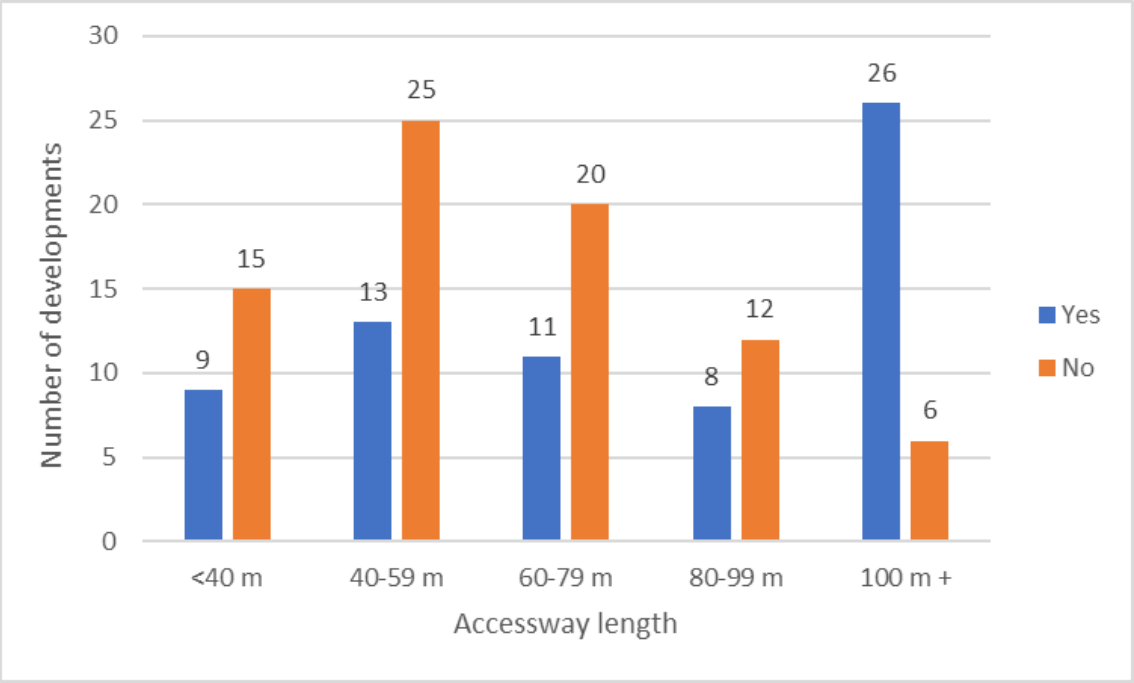
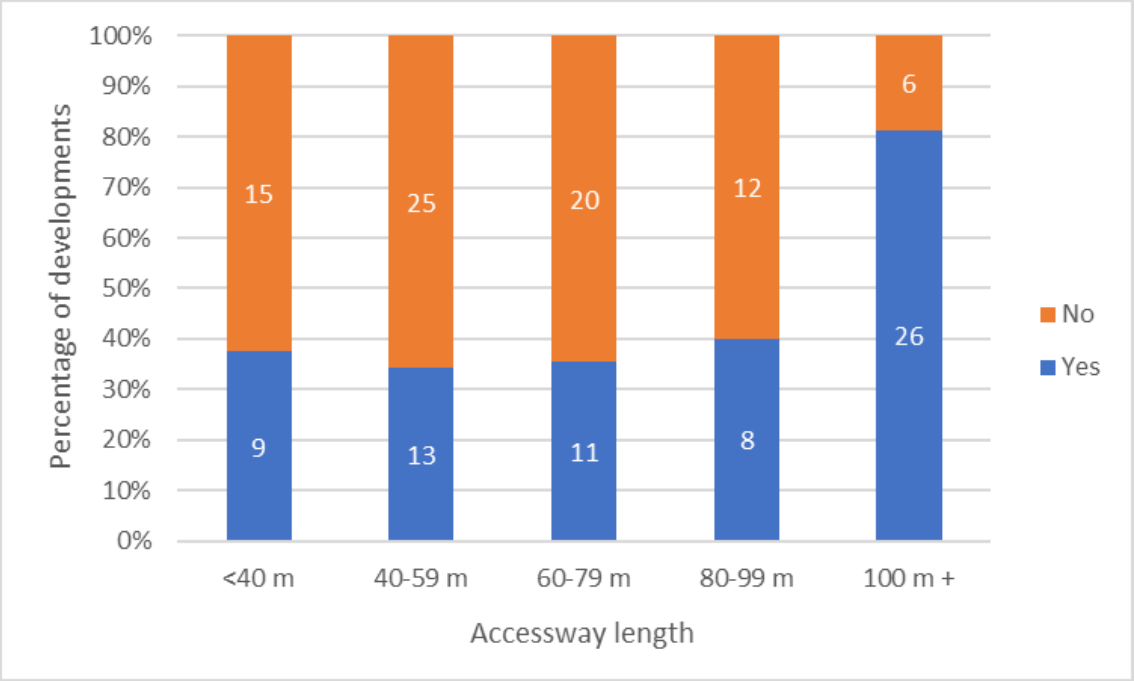


Figure 25: Provision for manoeuvring and/or turning circles by accessway length (Percentage of developments)



6.2.3 Gradient

6.2.3.1 AUP Analysis

Gradient requirements are provided for in E27 Transport chapter of the AUP.

Standard *E27.6.4.4. Gradient of vehicle access* requires that accessways must not be steeper than those specified in *Table E27.6.4.4.1 Gradient of vehicle access*. As set out in the table accessways serving more than one rear dwelling must not exceed a gradient of 1 in 5 (or 20%), though where vehicle access is used by heavy vehicles this must not exceed 1 in 8 (or 12.5%).

6.2.3.2 Findings

Accessway gradients were assessed based on a qualitative indicator, with a yes, no or unknown options to indicate whether any part of the accessway exceeds a gradient of 1:5 (or 20 %). Figure 26 and Figure 27 show the number and percentage of developments that meet the maximum gradient requirements for light vehicle access. Gradients for heavy vehicles (1:8) was not included in the indicators and is a limitation of this monitoring dataset.

Out of the data set of 145 developments, none of the vehicle access gradients were identified to exceed 1:5. 11 of the developments were unable to determine whether the accessway gradient meets the gradient requirements.

Figure 26: Number of developments meeting the gradient requirements

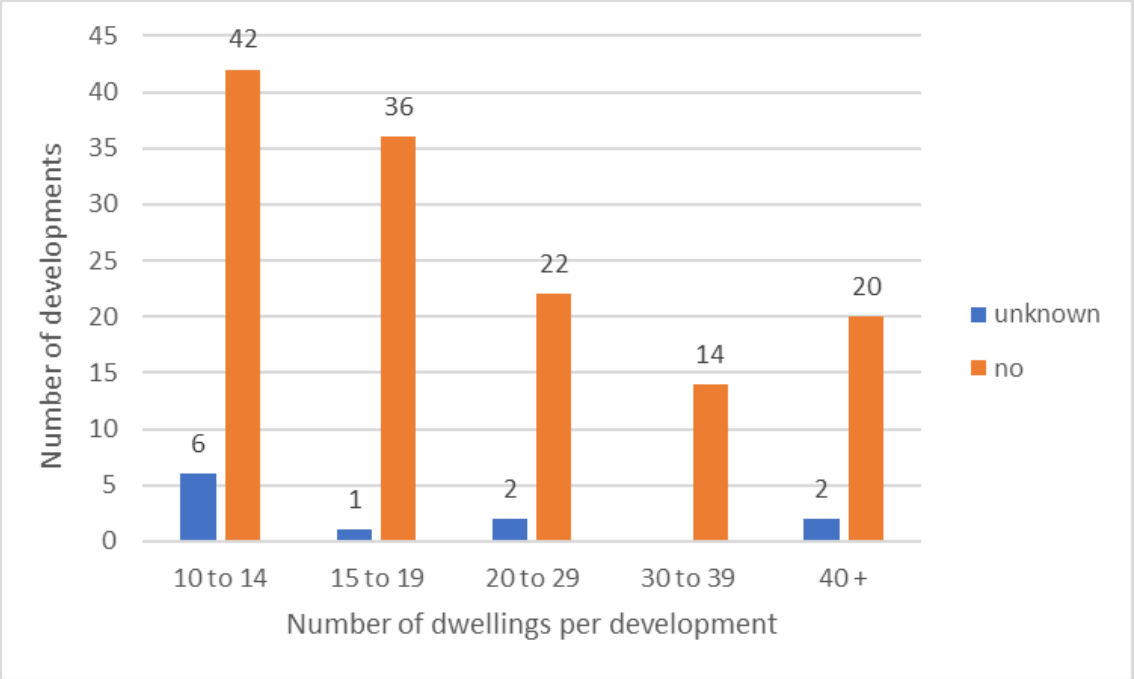
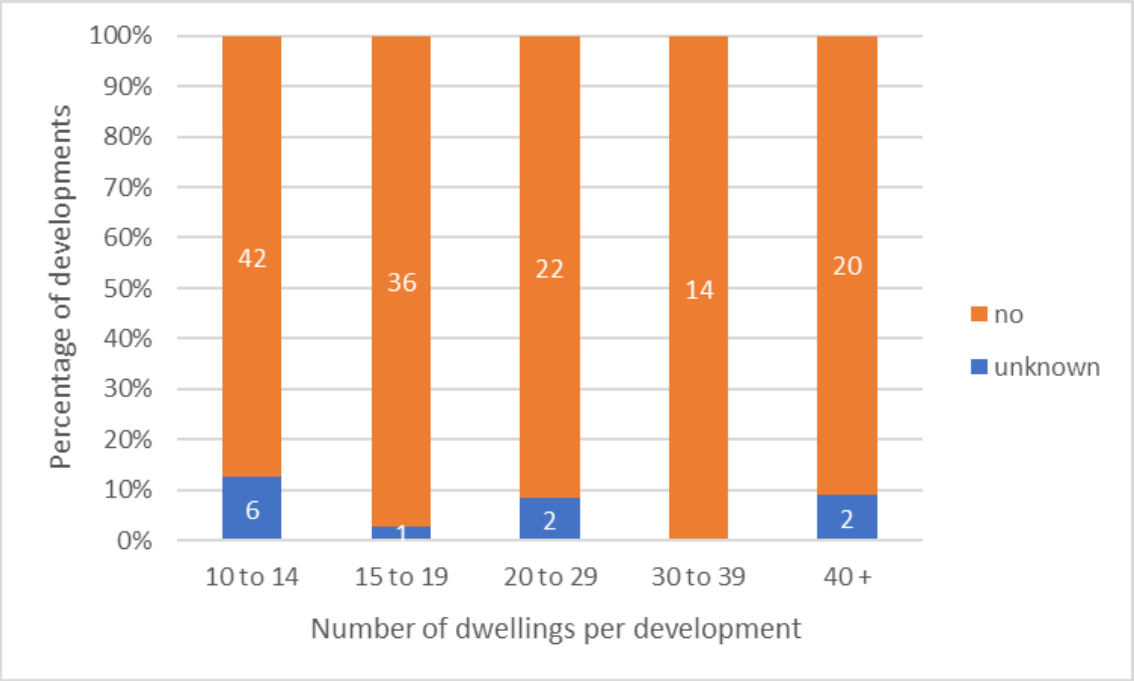


Figure 27: Percentage of developments meeting the gradient requirements



6.2.4 Theme 2 conclusion and recommendations

The monitoring data shows that

- there is need for further provisions as developments increase in scale. Currently a development with 10 dwellings relies on the same provisions as a development with 100 dwellings.
- The conflicting provisions in the AUP chapters E27 and E38 should be addressed as these differences result in varying outcomes.

A summary of each of the Theme 2 topic conclusions and recommendations is provided below.

6.2.4.1 Accessway and carriageway width

The data for accessway and carriageway widths both showed that

- the majority of developments complied with the AUP E27 standards for formed accessway width
- there is a large proportion of developments with 10-15 dwellings per development that have accessway widths less than 5.5 m wide (specified as the minimum formed width for two-way traffic in E27)
- More than 50 % of accessway widths less than 5.5 m have accessways lengths under 40 m
- More than 50 % of accessway width less than 5.5 m wide are for apartment typologies.

It is recommended that the AUP provisions on accessway and carriageway widths are reviewed to ensure that all development sizes have appropriate accessway widths to provide for consistent and safe outcomes for all users.

6.2.4.2 Manoeuvring

An analysis of the manoeuvring data showed that

- Less tha 50% of accessways serving 10 – 40 dwellings only provided manoeuvring space to avoid the reversing of vehicles from the site
- developments with more than 40 dwellings per development with accessway lengths greater than 100 m are more likely to provide on-site manoeuvring space to avoid the reversing of vehicles from the site.
- less than 40 % of developments with accessway lengths between 40 m and 100 m have provisions for manoeuvring on site.

A lack of onsite manoeuvring space means that vehicles will most likely need to reverse off the site. This not only poses safety risks to the accessway users but also where the accessway connects to the public road. This raises concerns on the compliance and effectiveness of the AUP provisions in controlling unsafe reversing manoeuvring from sites.

The safety concerns are further emphasised by the high number of developments providing private waste collection, which often requires heavy vehicles to pick up waste within the site and requiring manoeuvring space to avoid unsafe reverse manoeuvring (refer to our further discussion of waste collection in Section 6.6).

It is recommended that the AUP provisions are reviewed to provide robust provisions which enable safer outcomes for all development scales with more than 10 dwellings per development.

6.2.4.3 Accessway gradients

The monitoring data indicated that

- the AUP provisions are effective in achieving consistent outcomes for accessway gradients that are compliant with the AUP standards for light vehicles.
- a limitation of the dataset was that no information on the compliance for the gradients suitable for heavy vehicle access was available and therefore an assessment into the effectiveness of the AUP provision in ensuring good outcomes for heavy vehicle access was not possible.

Given that accessway gradients for heavy vehicles was an identified issue, it is recommended that further research is done to identify any trends in compliance and limitations in the existing AUP provisions.

6.3 Theme 3 - Pedestrian accessways

Pedestrian accessways can be defined as footpaths that provide pedestrian access to dwellings within private sites. These are provided for under Standards E27.6.4.3.2 and E38.8.1.2 of the AUP.

It is noted that both these standards take a tiered approach to their requirements, with pedestrian accessways required at the higher thresholds for higher intensity developments.

Pedestrian accessways were measured in terms of the following:

- The location of footpaths within the site;
- Footpath widths; and
- Footpath separation within the shared driveway.

The data for each of the above categories were broken down by the scale of development, building typologies served, and shared accessway lengths.

6.3.1 AUP Analysis

The AUP chapters E27 Transport and E38 Subdivision – Urban both provide provisions for pedestrian access. A comparison of table E27.6.4.3.2 and table E38.8.1.2.1 is shown in Figure 28 below. Further, E38 identifies a maximum of 10 rear sites, whereas E27 does not place any controls on the number of sites or dwellings served by an accessway.

Figure 28: Comparison of E27 and E38 standards for pedestrian accessways

E27 Transport Pedestrian access	E38 Subdivision Pedestrian access
Serves 1-2 parking spaces	Serves 1 rear sites
Not required	Not required
Serves 3-9 parking spaces	Serves 2-5 rear sites
Not required	Not required
Serves 10 or more parking spaces	Sreves 6 -10 rear sites
1.0 m pedestrian access for rear sites which may be located within the formed driveway	Pedestrian acces is required and must meet all of the below: a) have a minimum width of 1 m b) can include the service strip; and c) be distinguished from the vehicle carriageway through the sue of a raised curb or different surface treatment

In addition to the above, there are no standards within the AUP's operative provisions that relate to footpath gradient and/ or the provision of clear corridors for pedestrian accessways. This has resulted in the construction of footpaths that are too steep for users (exceeding 1:5 gradient), and/ or the location of obstructions to pedestrian movements (such as lighting poles, letter boxes, and utility boxes) sometimes located within the footpath.

Separate to the AUP, Auckland Transport's *'Transport Design Manual – Engineering Design Code'*, the Waka Kotahi Pedestrian Network Guidance (2021) and the Auckland Design Manual set out non-statutory design standards for pedestrian access, including minimum widths for pedestrian accesses to accommodate a range of users. These documents have also recommended widths that differ from those set by the AUP, and range between 1.35-1.8m.

A literature review has also been undertaken by Council staff, with this review finding that New Zealand has the highest rate of vehicle-related child pedestrian accidents in the developed world and are the leading cause of paediatric death and serious injury in New Zealand. This review also found that built

environment factors found to be significant contributors to driveway run over incidents in a range of residential settings.

Both the documents noted above and the literature review are key drivers into the review on whether the AUP's operative provisions in relation to pedestrian accessways are fit for purpose, in terms of pedestrian safety. The following safety issues in relation to pedestrian accessways have also been highlighted:

- Inadequacy of footpath widths and gradients to accommodate all users;
- Lack of footpath separation from trafficable areas, due to footpaths being constructed within the shared accessway; and
- Location of obstructions within the footpath, resulting in the obstruction of pedestrian movements.

In light of these key issues, the monitoring analysis looked at how footpaths in relation to shared driveways have been designed, in terms of:

- The location of footpaths within the site;
- Footpath widths; and
- Footpath separation within the shared driveway.

The monitoring data breaks down this information by analysing how these relate to the scale of development, building typologies served, and accessway lengths.

6.3.2 Findings

A breakdown of the footpath characteristics of the resource consent monitoring sample are summarised in Table 5 to Table 8.

The sections that follow provide a more detailed summary of each of the footpath design aspects.

Table 5: Breakdown of sampled resource consent footpath provision

Footpath provision	Number of developments consented	Percentage of consented developments
No footpath	10	7%
Footpath on one side	65	45%
Footpath on both sides	12	8%
Separated footpath	55	38%
Pedestrian only access	3	2%
Total	145	100 %

Table 6: Breakdown of sampled resource consent location of footpaths within site

Where is footpath located in relation to carriageway	Number of developments consented	Percentage of consented developments
N/A	5	3%
Fully located in carriageway	41	28%
Partially located in carriageway	78	54%
Located outside of carriageway	19	13%
No footpath provided	2	1%
Total	145	100 %

Table 7: Breakdown of sampled resource consent footpath widths

Footpath width	Number of developments consented	Percentage of consented developments
0.5-0.9 m	2	1%
1.0-1.4 m	87	60%
1.5-1.9 m	36	25%
2.0-2.4 m	4	3%
2.5-2.9 m	3	2%
3.0+ m	1	1%
Unknown	1	1%
N/A	11	8%
Total	145	100 %

Table 8: Breakdown of sampled resource consent footpath separation from carriageway

How is footpath differentiated	Number of developments consented	Percentage of consented developments
N/A	35	24%
Different surface material	76	52%
Railing or balustrade	2	1%
Raised kerbing	17	12%
Paint marking	1	1%
Landscaping	10	7%
Combination (including different surface material)	2	1%
Unknown	1	1%
No footpath	1	1%
Total	145	100 %

6.3.2.1 Location of pedestrian accessways

The monitoring data looked at the location of footpaths in relation to the shared accessway and how the number of dwellings accessed by the accessway influences the footpath provisions. Figure 29 and Figure 30 show the trends observed for different development sizes. The following key findings were noted

- Developments with less than 20 dwellings accessed by an accessway have a higher tendency to not have any footpath, or footpaths limited to one side of the carriageway and not separated from trafficable areas
- As the development size increases, the percentage of separated footpaths increases.
- Developments with more than 40 dwellings per development with no footpaths have been consented.

With regard to footpath location, the AUP's operative provisions do not specify where these should be located in relation to shared driveways, or whether these should be provided on one or two sides of the accessway. The AUP's provisions only require the provision of a footpath, with this able to be located within the formed driveway.

Figure 29: Breakdown of location of footpaths in relation to accessways by development size.

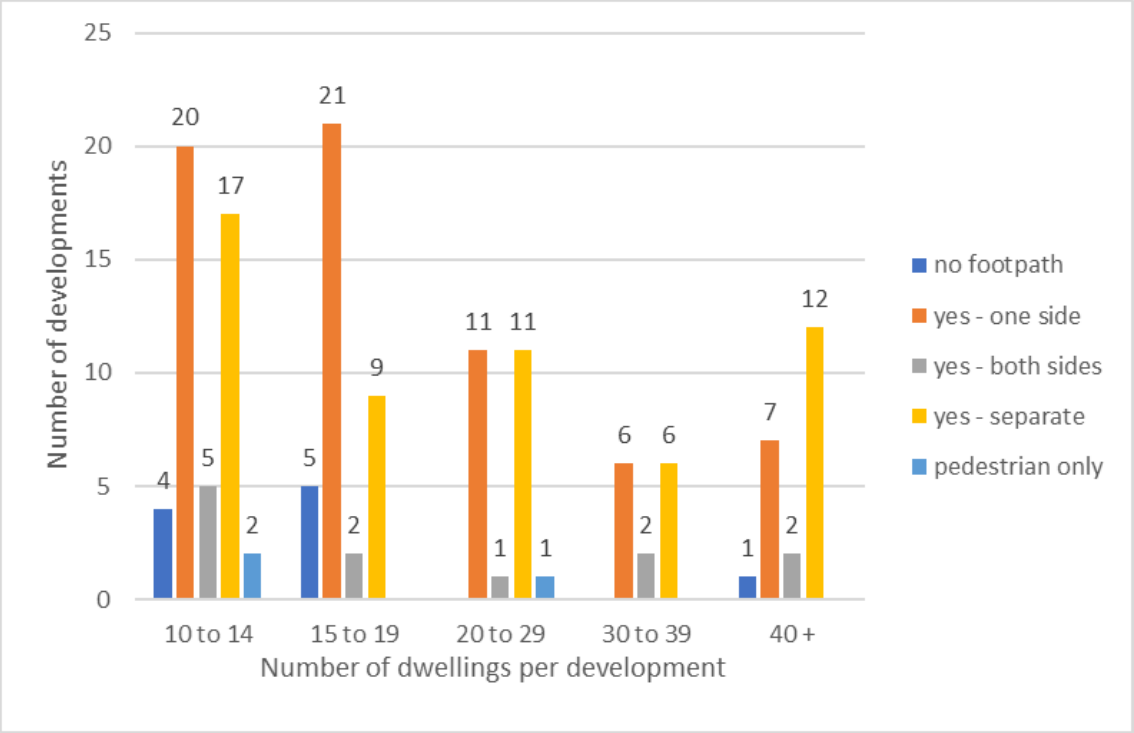
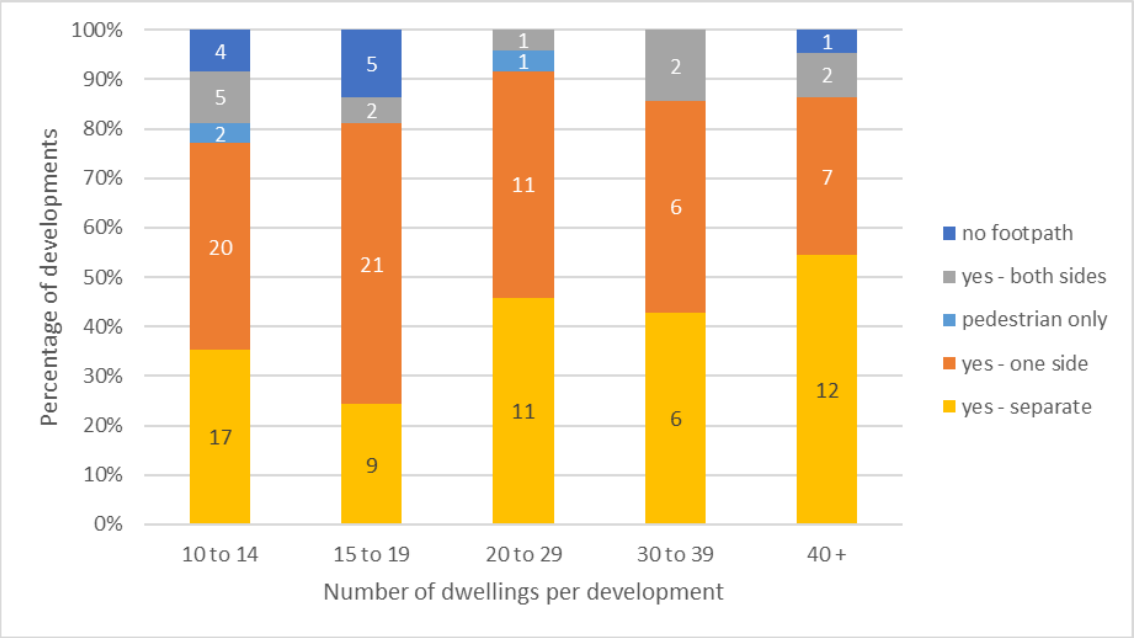


Figure 30: Breakdown of location of footpaths in relation to accessways.



6.3.3 Footpath widths

6.3.3.1 Development scale

Figure 24 and Figure 25 show the width of footpaths for different development scales. The data shows

- that where footpaths are provided, footpaths generally increase in width as the development scale increases
- Developments with between 10 to 39 dwellings predominantly had footpath widths between 1.0 – 1.4 m
- Developments with 40 or more dwellings predominantly had footpath widths between 1.5-1.9 m with more than 80 % of footpaths being wider than 1.5 m.
- 2 developments had footpath widths under 1 m wide. Of these developments, only one is accessible from the street with the other three accessed via the vehicle accessway, with the footpath located within the formed access and separated by different materiality.

Figure 31: Footpath Width (m) by Number of Dwellings per Development (Number of developments)

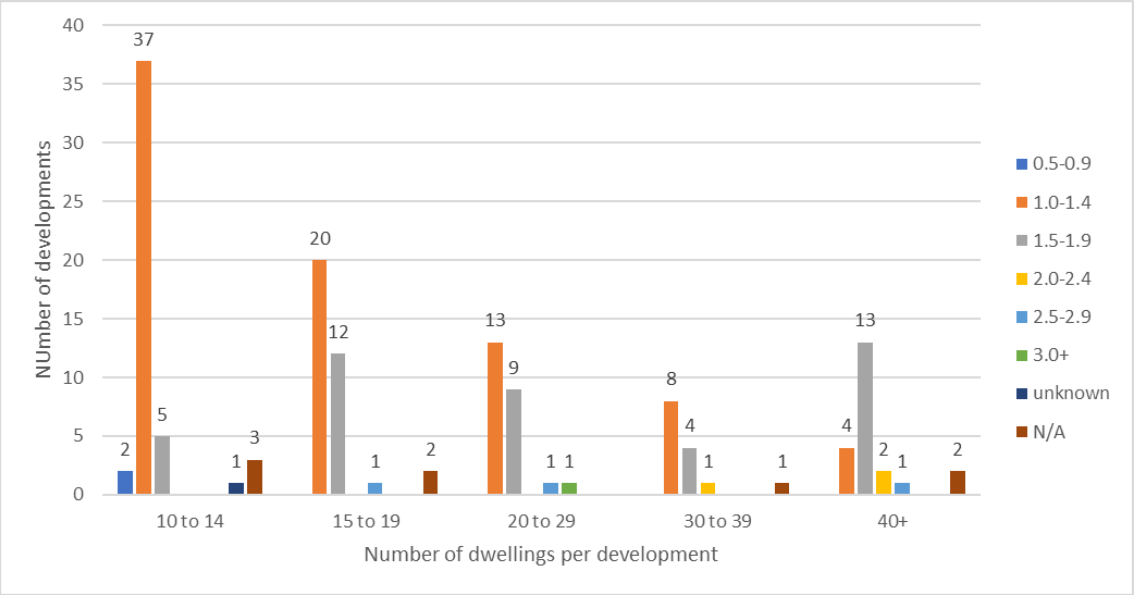
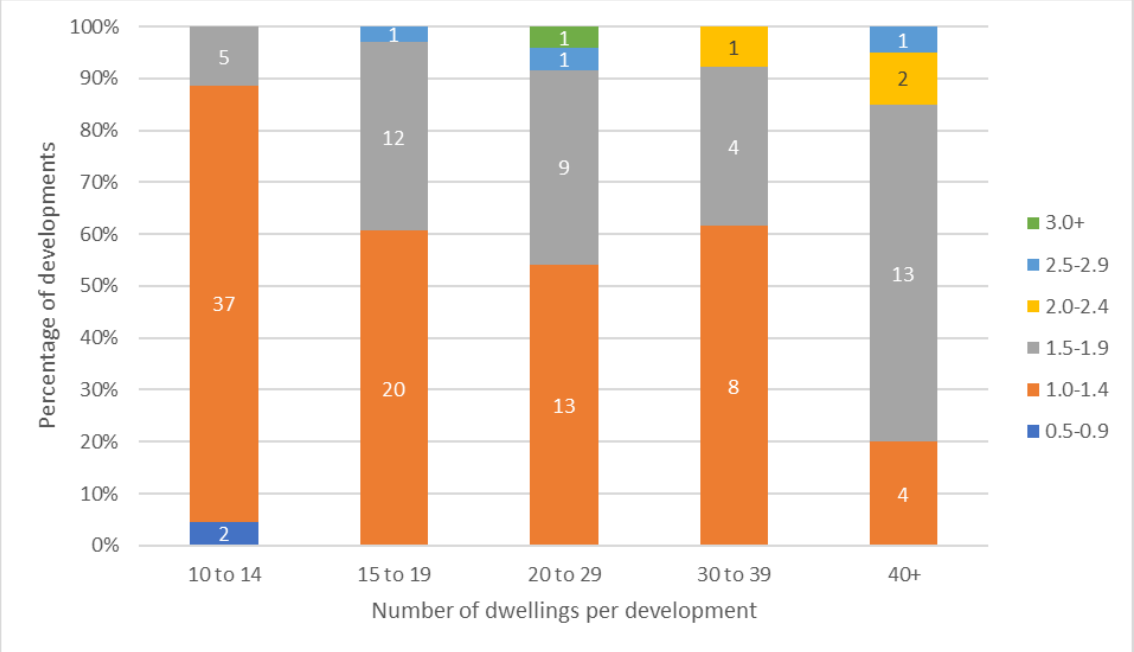


Figure 32: Footpath Width (m) by Number of Dwellings per Development (Percentage of developments)



6.3.3.2 Building typology

The findings showed that in relation to building typology, pedestrian accessway widths between 1.0-1.4 m were relatively high across all typologies with Apartments having the highest percentage of footpaths greater than 1.5 m wide.

Footpaths between 1.5-1.9 m were also relatively high across the Apartment and *Townhouse, flats, units and other* typologies, whilst footpaths greater than 1.9 m were highest amongst the Apartment typology. This is likely designed to accommodate a larger number of users within the development.

The developments where footpaths less than 1 metre were provided all had *Townhouse, flats, units and other* typology.

Figure 33: Number of Developments by Typology by Footpath Width.

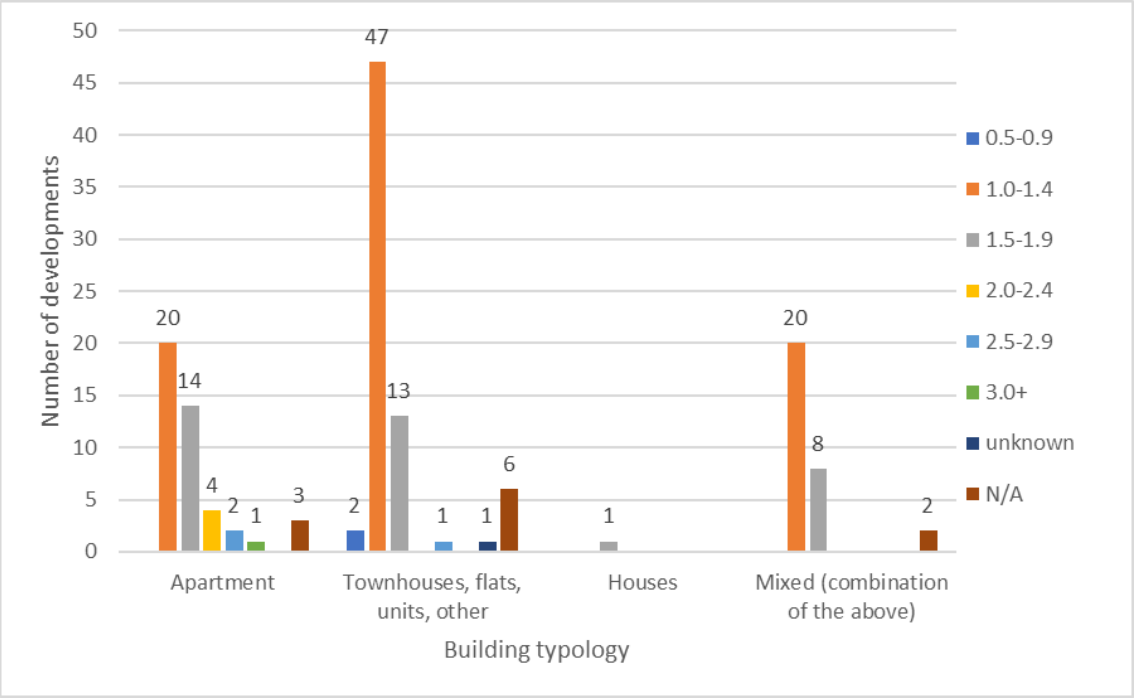
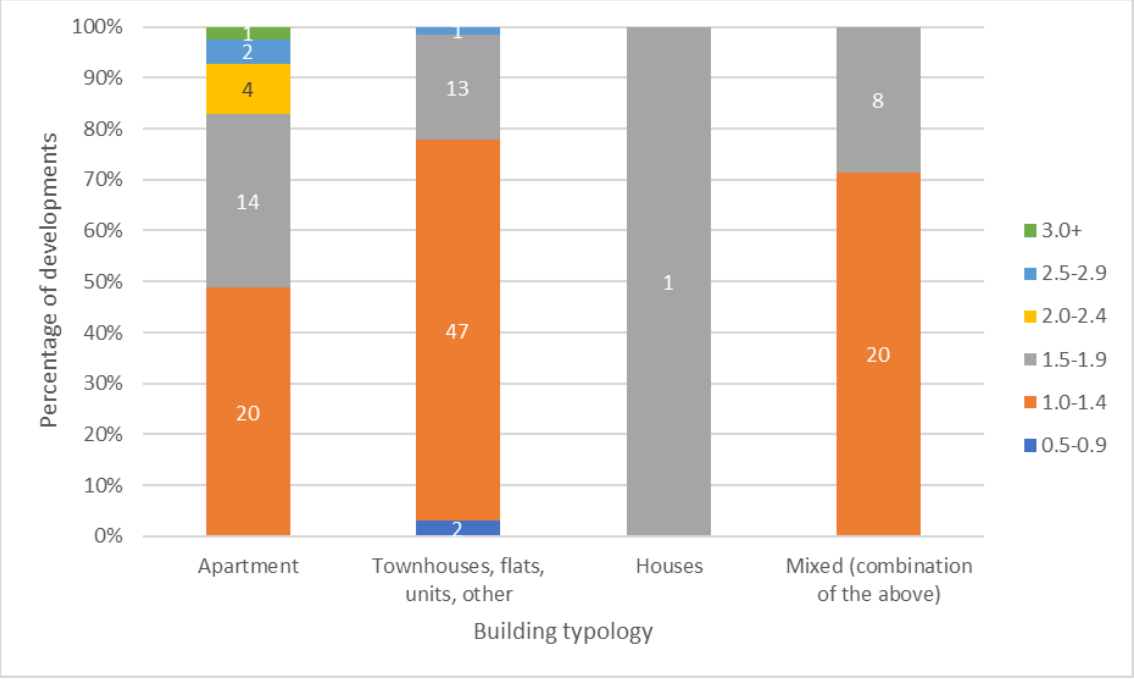


Figure 34: Percentage of Developments by Typology by Footpath Width.



6.3.3.3 Formed accessway width

Under Table E27.6.4.3.2 (T151) Vehicle crossing and vehicle access widths, the provision of a 1.0 m footpath is required for sites that serve 10 or more parking spaces. This vehicle access should have a minimum formed width of 5.5 m to serve two-way vehicle movements, but may be narrowed to 2.75 m if there are clear sight lines along the entire access and passing bays at 50 m intervals are provided.

This analysis looked at the correlation between the width of footpaths and the formed accessway widths. The key findings noted:

- 73 % of developments where footpaths were provided had formed accessway widths greater than 5.5 m;
- 60 % of footpaths for developments with accessway widths greater than 5.5 m were between 1.0-1.4 m wide;
- 34 % footpaths for developments with accessway widths greater than 5.5 m were between 1.5-1.9 m;
- 86 % of developments with less than 5.5 m formed access widths had footpath widths less than 1.5 m wide.

Two developments were identified with footpaths less than 1.0m wide. One of these developments had a formed accessway width between 5.5-5.9 m and the other between 5.0-5.4 m. Both developments had 12 dwellings accessed from the accessway with accessway lengths between 60 m – 100 m.

The findings showed that although the width of carriageways and accessways across the developments increased as the scale of developments increased, this did not impact on footpath widths with no clear trends in footpath width observed in the monitoring data.

Although the operative transport provisions provide for a 1.0 m footpath, the key documents outlined in Section 6.3.1 (AUP analysis) noted that a minimum width of 1.8m is required, to provide sufficient space for different users (e.g. people with prams and young children, people in wheelchairs, people with bulky goods/items people passing each other).

Given the high percentage of footpaths less than 1.5 m wide, a gap in the AUP provisions to provide safe pedestrian access for all users is apparent.

Figure 35: Widths of footpaths in relation to formed accessway widths.

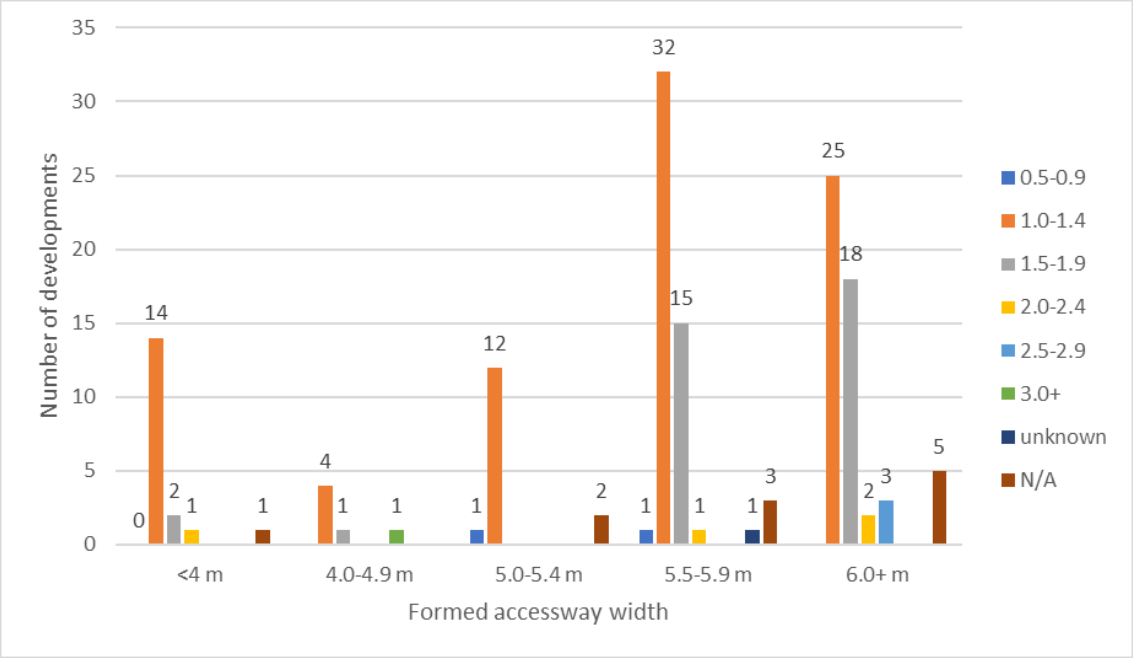
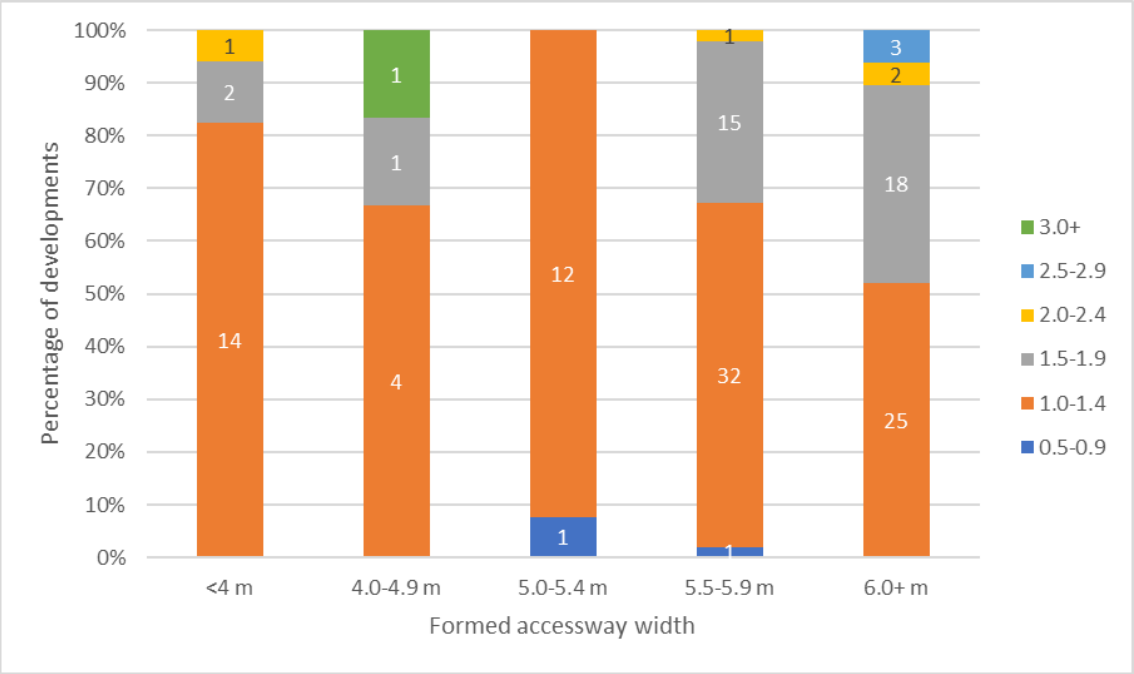


Figure 36: Percentage of footpath widths in relation to formed accessway width.



6.3.3.4 Accessway lengths

The assessment of footpath width for different accessway widths showed that

- footpaths between 1.0-1.4 m were common across all accessway lengths.
- where footpaths were provided, more than 60 % of footpaths had a width between 1.0-1.4 m across all accessway lengths.
- no clear trend was observed in footpath widths as the accessway increased in length. The two data points that had footpath widths less than 1.0 m wide had accessway lengths between 60 - 100 m.

The AUP's transport provisions do not specify any requirements for pedestrian accessways in relation to the length of driveways, however, it does anticipate that accessways may exceed 50m, with Table E27.6.4.3.1 requiring the provision of passing bays for vehicles where the vehicle access exceeds 50m.

Figure 37: Footpath widths by accessway length.

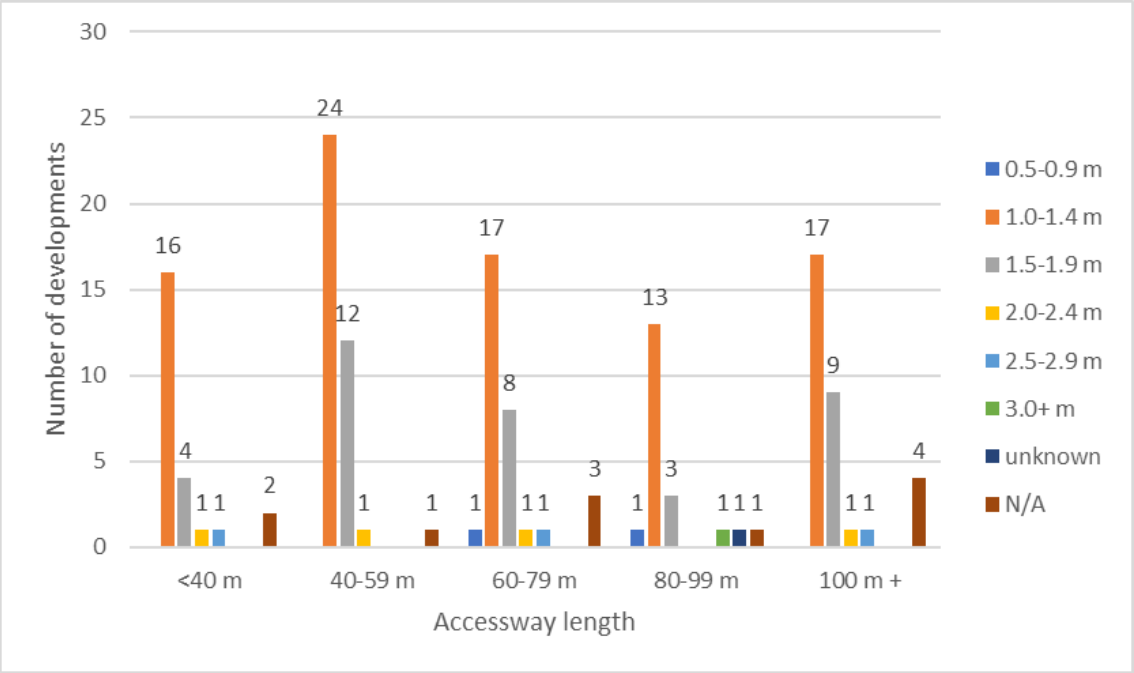
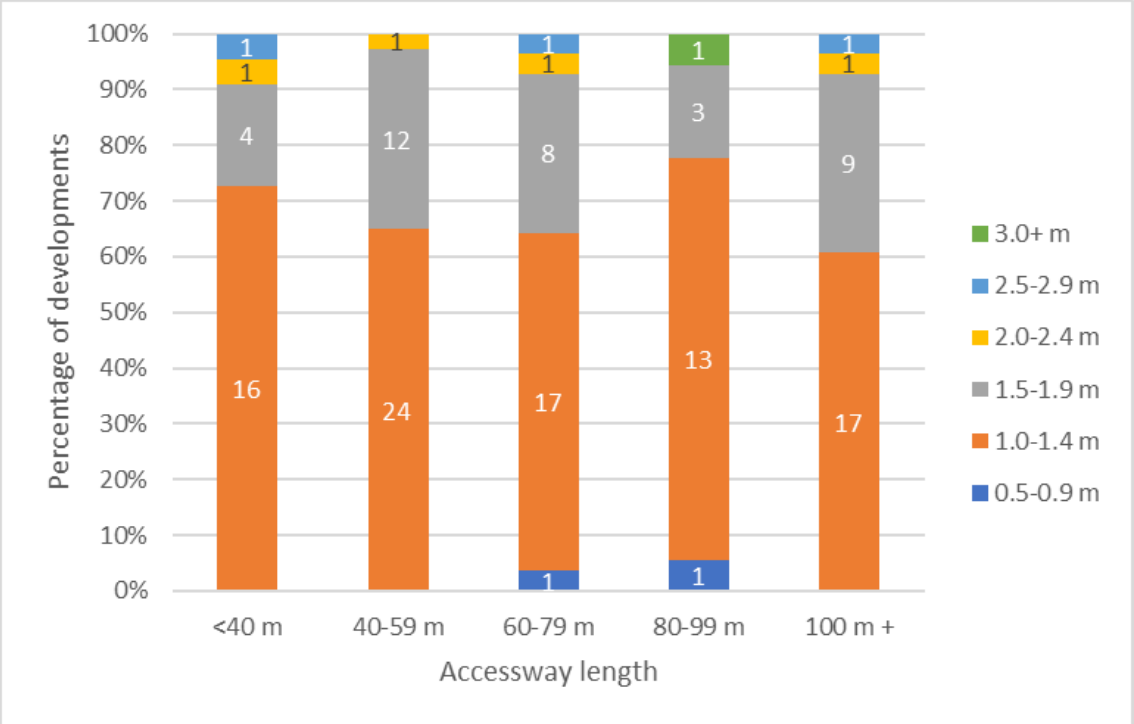


Figure 38: Percentage of footpath widths by accessway length.



6.3.4 Footpath separation

The AUP enables for the provision of pedestrian accessways within the formed driveway, under both Table E27.6.4.3.2 (T151) and Standard E38.8.1.2(3). Standard E38.8.1.2(3) states that footpaths may be located within the formed driveway but should be distinguished from the vehicle carriageway through

the use of a raised curb or different surface treatment. E27 does not provide any requirements to distinguish footpaths from the carriageway.

An analysis of the location and separation method of footpaths for consented developments showed the following, where footpaths were provided:

- 70 % of developments analysed provided separation via different surface materials;
- 16 % of developments analysed provided separation via raised kerbing;
- 9 % of developments analysed provided separation via landscaping;
- 2% of developments analysed provided separation via railing or balustrade;
- 2 % of developments analysed provided separation via a combination of methods;
- 1% of developments analysed provided separation via paint markings;

The sections that follow summarise the findings and trends of the footpath separation method broken down by the scale of development, building typology and access way lengths and width characteristics.

6.3.4.1 Pedestrian access separation by development scale

Figure 39 and Figure 40 show the footpath separation type broken down by the scale of development. In order to get an understanding of the footpath separation trends, the data where footpaths were not provided and where the separation method was specified as N/A was removed from the percentage breakdown of separation methods in Figure 40.

The analysis showed that

- where development sizes increase above 40 dwellings, footpath separation is more likely to be provided by physical separation methods such as raised kerbing, landscaping and railings or balustrades.
- approximately 40 % of the footpaths for developments with more than 40 dwellings accessed by one accessway has separation provided using different surface material.
- 75 % of developments between 10 to 39 dwellings provide footpath separation through different surface materials.

The AUP does not require the physical separation of footpaths based on the scale of developments, with footpaths able to be constructed in the formed driveway. This is reflected in the findings, where 75 % of footpaths were separated by different surface material. The lack of physical separation from vehicles has the potential to result in conflict between vehicles and pedestrians and an increase in risk of driveway runovers.

Figure 39: Footpath separation types by number of dwellings per development (Number of developments)

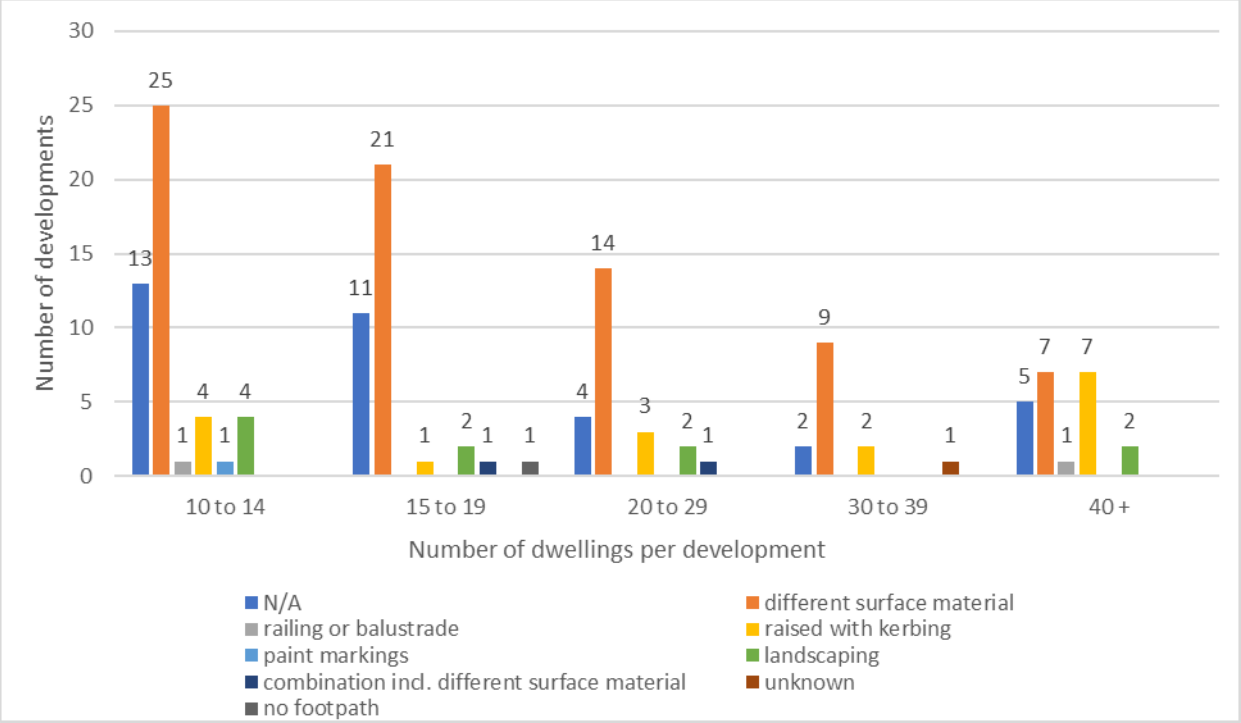
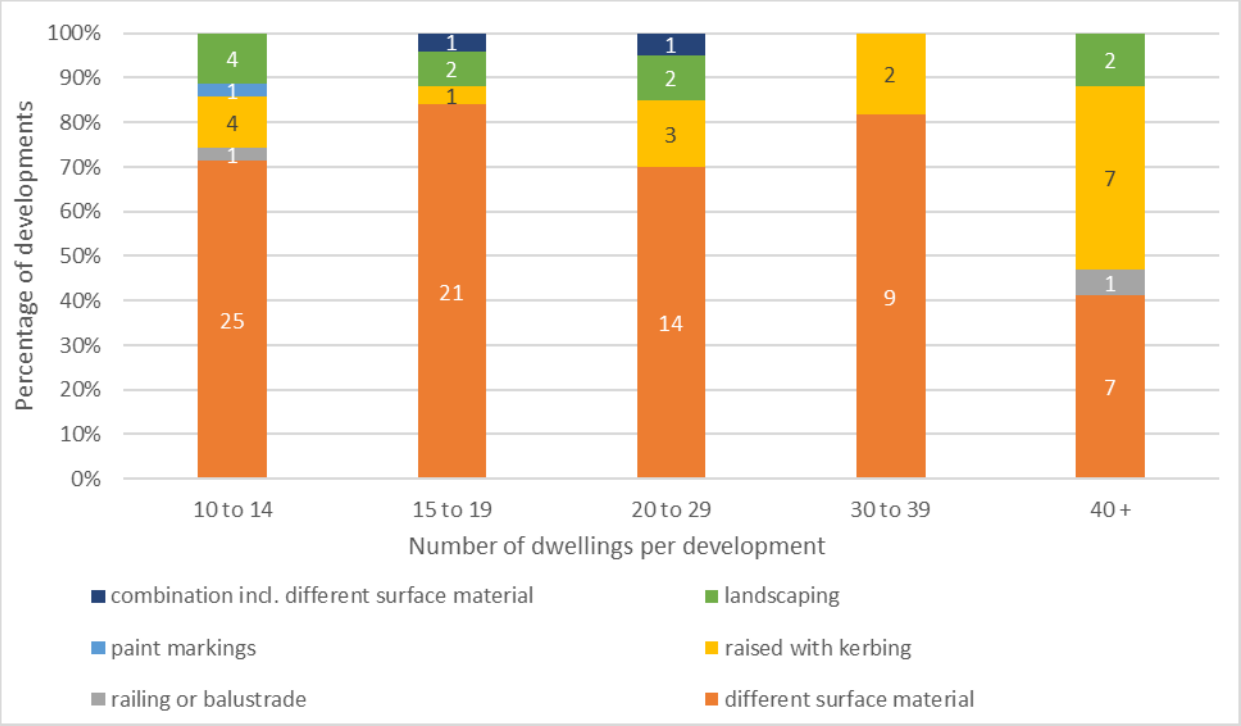


Figure 40: Footpath separation types by number of dwellings per development (Percentage of developments)



6.3.4.2 Building typology

Figure 41 and Figure 42 summarise the different footpath separation methods for different building typologies.

The analysis showed that the dominant separation method by different surface material occurred across all typologies.

The data further indicated that apartment typologies had a larger percentage of physically separated footpaths with more separation methods utilised compared to other typologies.

Figure 41: Footpath separation by building typologies (Number of developments)

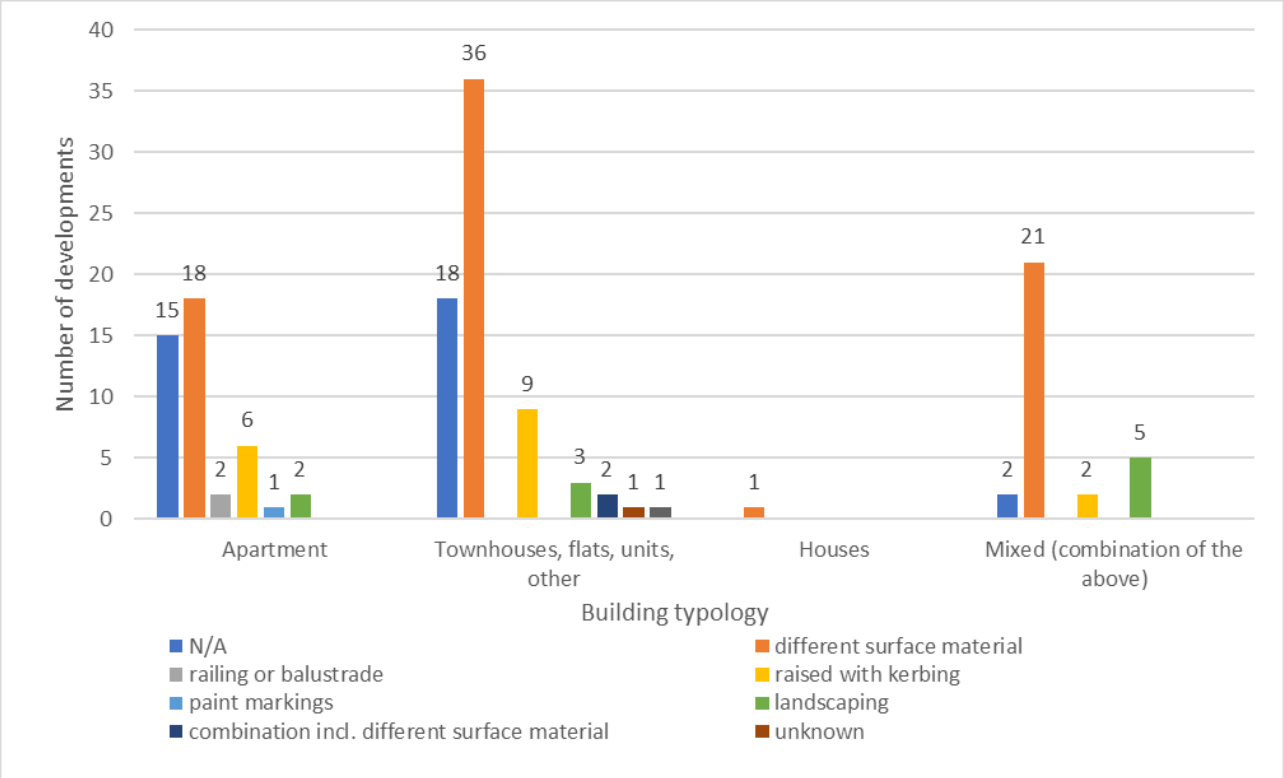
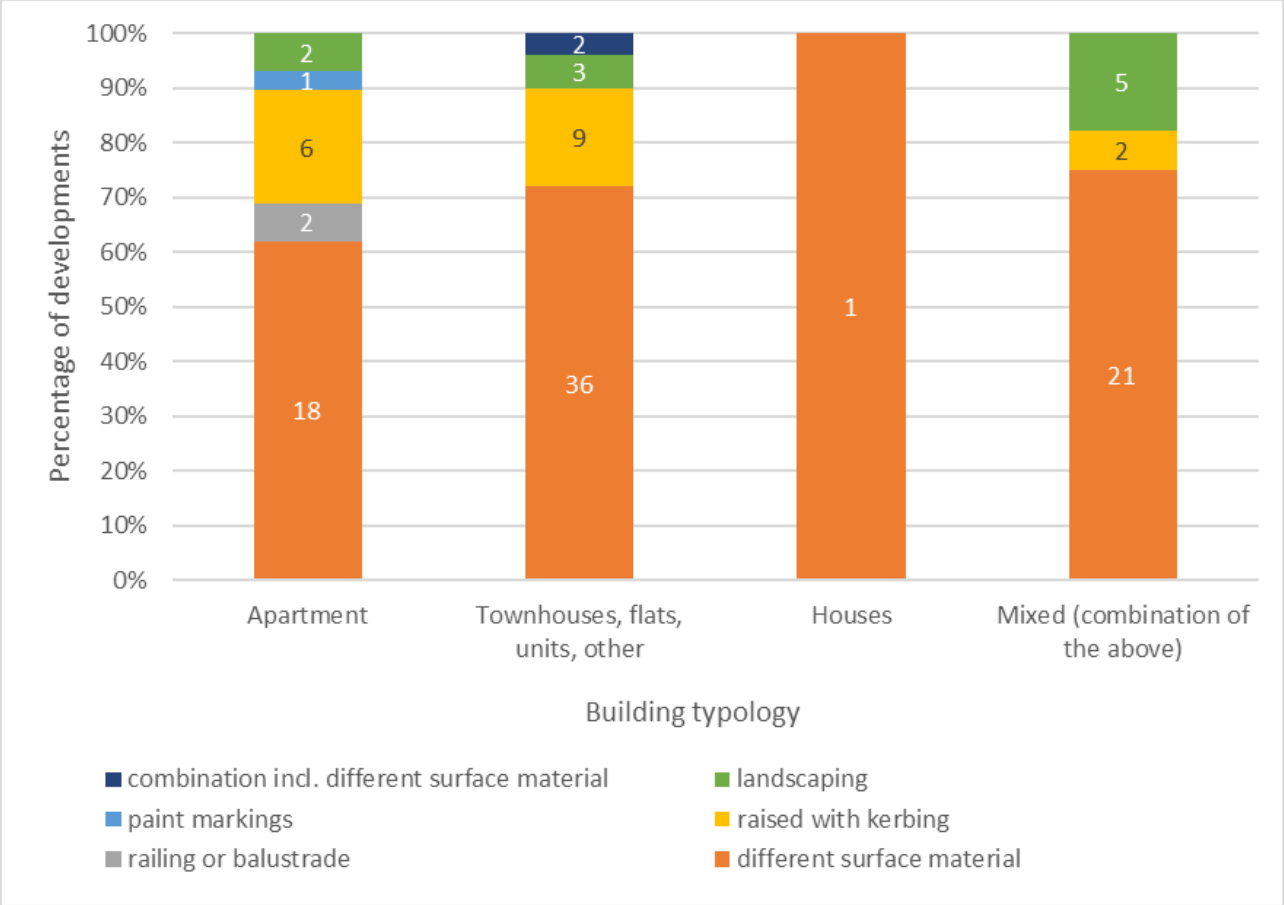


Figure 42: Footpath separation by building typologies (Percentage of developments)



6.3.4.3 Accessway length

The AUP does not provide any guidance on footpaths in relation to accessway lengths.

The findings showed that in accordance with Standard E38.8.1.2(3), the use of different surface materials to separate pedestrian accessways is dominant across all accessway lengths. This indicates a lack of physical separation between pedestrians and trafficable areas along longer accessways. The lack of physical separation increases the risk of vehicle and pedestrian conflicts and has the potential to create safety issues related to vehicle reverse manoeuvring and parking over footpaths within the accessway.

Figure 43: Footpath separation by Accessway length

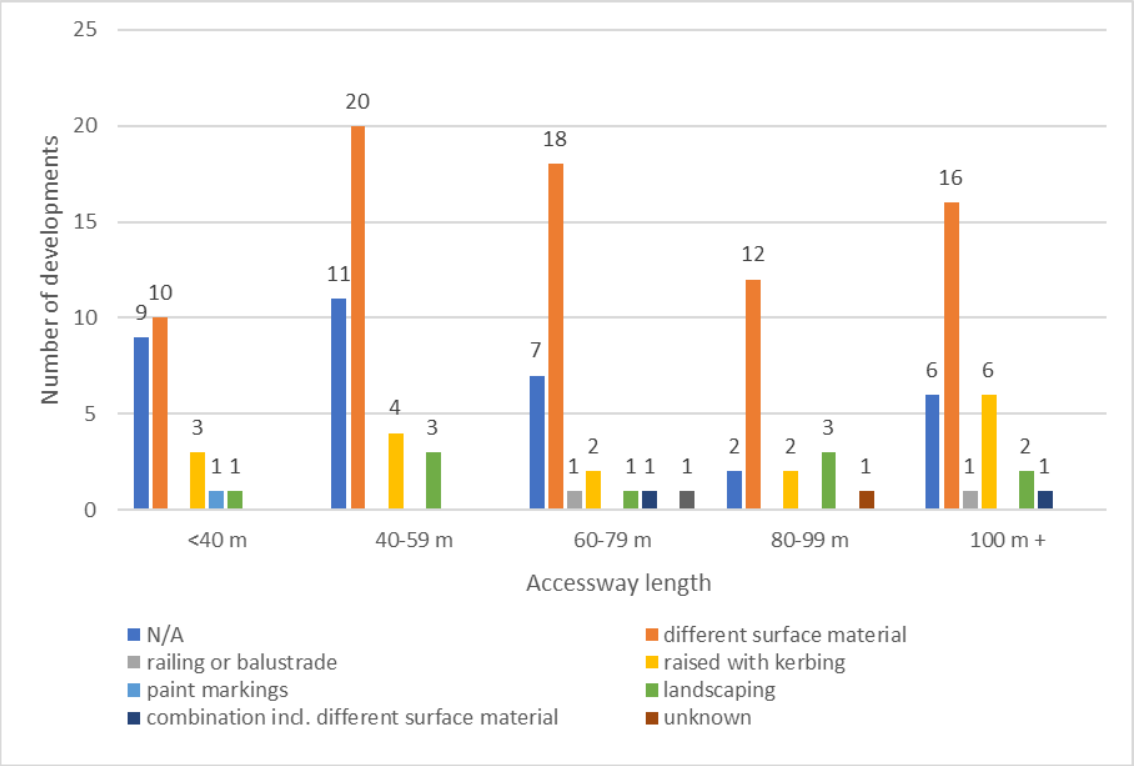
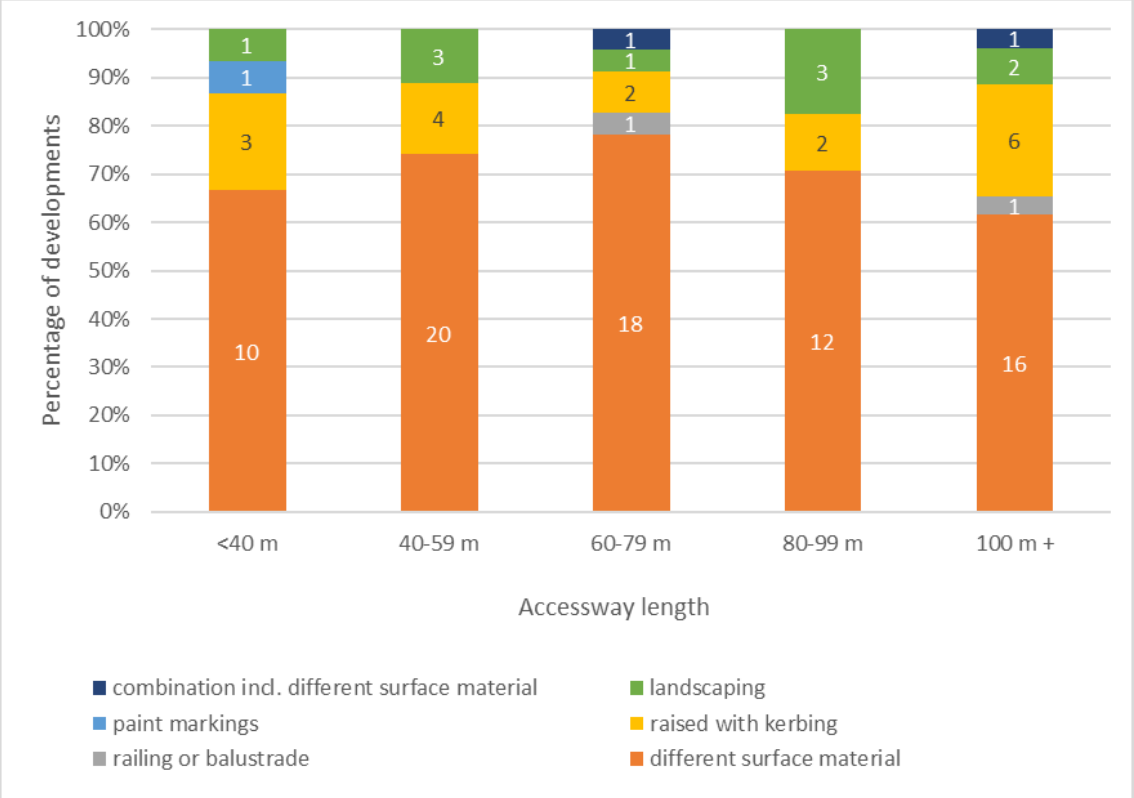


Figure 44: Percentage of footpath separation by Accessway length



6.3.4.4 Footpath separation from carriageways

Standards E38.8.1.2(3) and E27.6.4.3(1) allow for pedestrian accesses to be located within the formed driveway. This can result in shared zones that are unsafe for pedestrians where the scale of residential development (and vehicles) increases beyond 10 rear sites.

Figure 45 and Figure 46 shows the breakdown of footpath location in relation to the carriageway for different accessway lengths.

The key findings noted are summarised below:

- 57 % of footpaths provided within the accessway were not located within the carriageway;
- 30 % of footpaths provided within the accessway were located within the carriageway;
- 14 % of footpaths provided within the accessway were partially separated from the carriageway.
- The percentage of footpaths located within the carriageway increases as the accessway length increases.

The location of pedestrian accessways within the formed vehicle access/carriageway, especially for longer accessway lengths, and the lack of separation identified in earlier sections raises concerns in relation to pedestrian safety.

Figure 45: Footpath location within the carriageway by accessway length (number of developments)

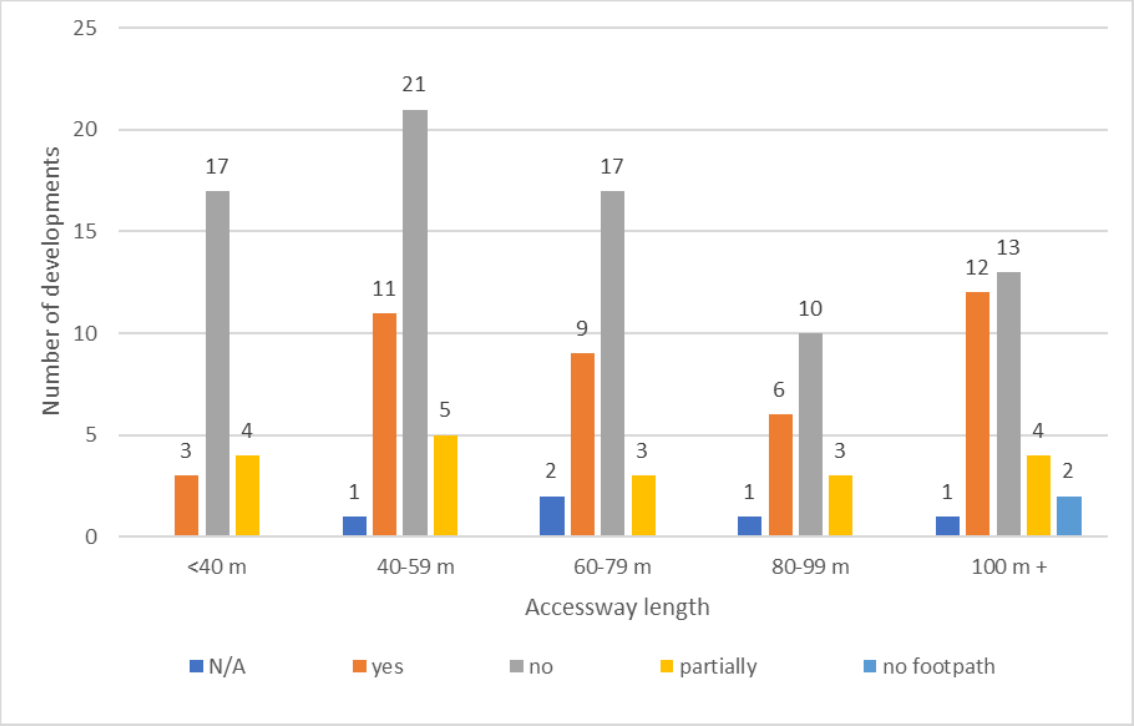
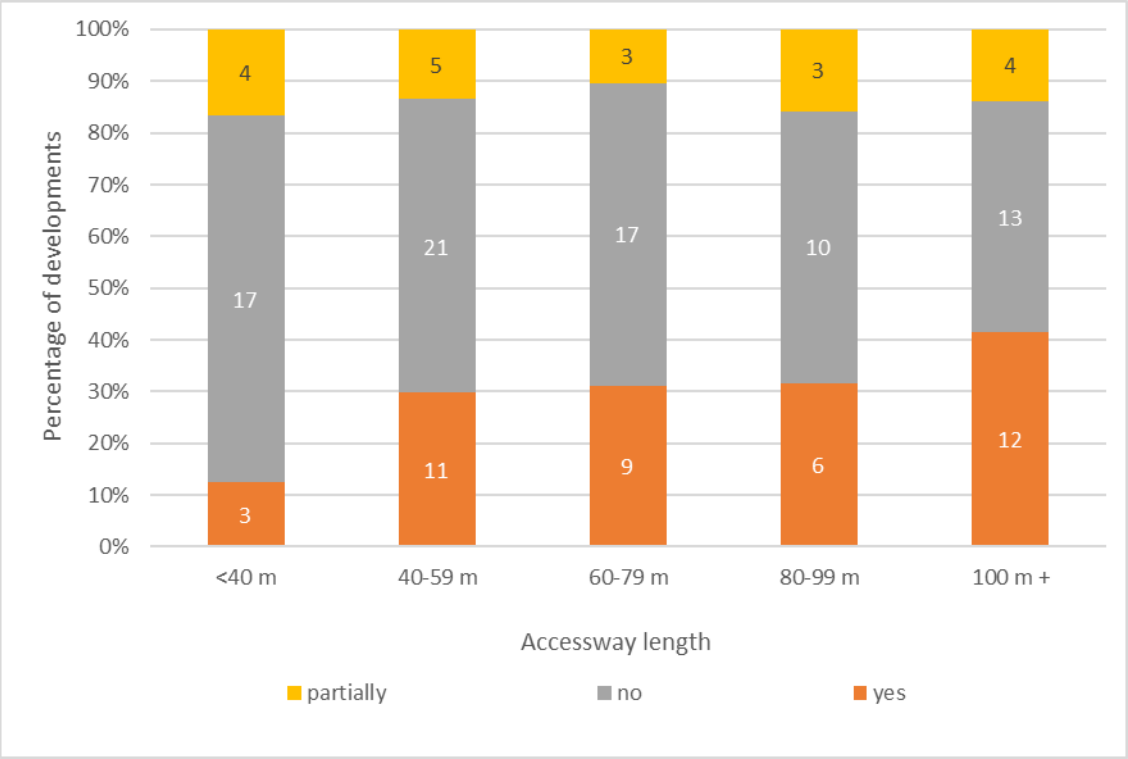


Figure 46: Footpath separation from carriageway by accessway length (percentage of developments)



6.3.5 Footpath gradient

There are no specific provisions in the AUP in relation to maximum gradients for footpaths within shared accessways, with the footpaths generally adopting the gradients associated with the vehicle access. As a result, the gradient of footpaths located within the shared accessway was not recorded as part of the monitoring indicators.

However, in terms of accessway gradients, **Section 6.2.3 (Gradient)** of this report states that at least 90 % of the vehicle access gradients did not exceed 1 in 5, in accordance with the AUP's vehicle access gradients under Standard *E27.6.4.4. Gradient of vehicle access.*

Notwithstanding the above, the maximum gradient permitted for shared accessways may be considered too steep for some users (e.g. people with prams and young children, people in wheelchairs, people with bulky goods).

6.3.6 Theme 3 conclusions and recommendations

Pedestrian accessways are anticipated under Standards E27.6.4.3.2 and E38.8.1.2 of the AUP. These standards are inconsistent, with E27 requiring the provision of footpaths based on the number of parking spaces, whilst E38 is based on the number of rear sites served by a single accessway.

The requirements for the design of pedestrian accessways under E38 are also more specific than those under E27. This may result in developments infringing E38.8.1.2, but have a suitable access design confirmed through land-use consent.

The analysis of the pedestrian accessway provisions showed that

- the majority of developments complied with the AUP's operative provisions
- the current AUP provisions for pedestrian access results in outcomes that have a number of pedestrian safety issues, including:
    - conflicts between users
    - poor accessibility
    - narrow footpath widths that do not cater for two-way movements between pedestrians or mobility users.

A plan change introducing minimum standards and/ or strengthening of existing provisions in relation to pedestrian footpaths is recommended. This should include

- minimum footpath widths that can accommodate all users
- requirement for the separation of footpaths within shared accessways to minimise user conflict.
- addressing the conflicting provisions used by the AUP Chapters E27 and E38.

6.4 Theme 4 - Lighting

The AUP has no requirement for the provision of outdoor lighting for any residential properties, other than Section E27 which mandates any site with more than 10 carparks requires adequate lighting for vehicle manoeuvring and associated pedestrian paths.

The monitoring analysis looks at whether lighting has been provided, and the type of lighting provided. This is broken down further in relation to the following:

- The number of dwellings per development;
- Building typologies;
- Accessway length.

6.4.1 AUP Analysis

Lighting is provided for in Chapter E24 of the AUP, with the standards in this chapter seeking to protect adjoining properties from any adverse lighting effects, in terms of light spill or glare. It is noted that this chapter does not require the provision of lighting, with this required under the relevant zone, precinct or Auckland-wide provisions.

The AUP's transport provisions under Standard E27.6.3.7 require any site providing 10 or more parking spaces to provide 'adequate lighting' which complies with Chapter E24 for parking and manoeuvring areas and associated pedestrian routes. However, this standard does not provide further guidance on what 'adequate lighting' means. In addition, where a site has less than 10 carparks, the provision of lighting is not required.

In addition to the AUP, the Auckland Design Manual provides some best practice recommendations on the use of lighting to make pedestrian access safer at night. Auckland Transport's '*Street Lighting Engineering Design Code*' also refers to AS/NZS 1158.3.1 for lighting performance recommendations and requirements, and provides lighting engineering and design guidelines on the management and design

of public lighting installations on Auckland Transport (AT) routes or associated infrastructure, including on pedestrian accesses. It is noted however that both these documents are non-statutory.

6.4.2 Findings

6.4.2.1 Types of lighting

The percentage breakdown of lighting types specified for shared accessways in consented developments is summarised below.

- 39% of developments provided lighting details via consent conditions.
- 19% of developments did not provide any lighting details.
- 21% of developments provided bollard lighting.
- 9% of developments provided streetlamp or pole lighting.
- 11% of developments provided building-mounted lighting.
- 1% of developments provided in-ground lighting.

Figure 47 and Figure 48 show the number and percentage of lighting types for carpark provisions below and above 10 carparks.

The sample data shows that

- only 4 out of the 27 developments that did not provide any lighting had under 10 car parks within the site. This indicates that 23 developments with more than 10 carparks within the site did not provide lighting and therefore infringed Standard E27.6.3.7.
- 52 % of the developments which did not provide lighting details provided carparking via individual garages or carports directly adjacent to the dwellings, rather than within a communal parking area.
- For 39% of developments, lighting conditions requiring the provision of detailed lighting specifications during consent monitoring stage was imposed by Council on approved resource consents.

Figure 47: Types of lighting by number of car parks provided

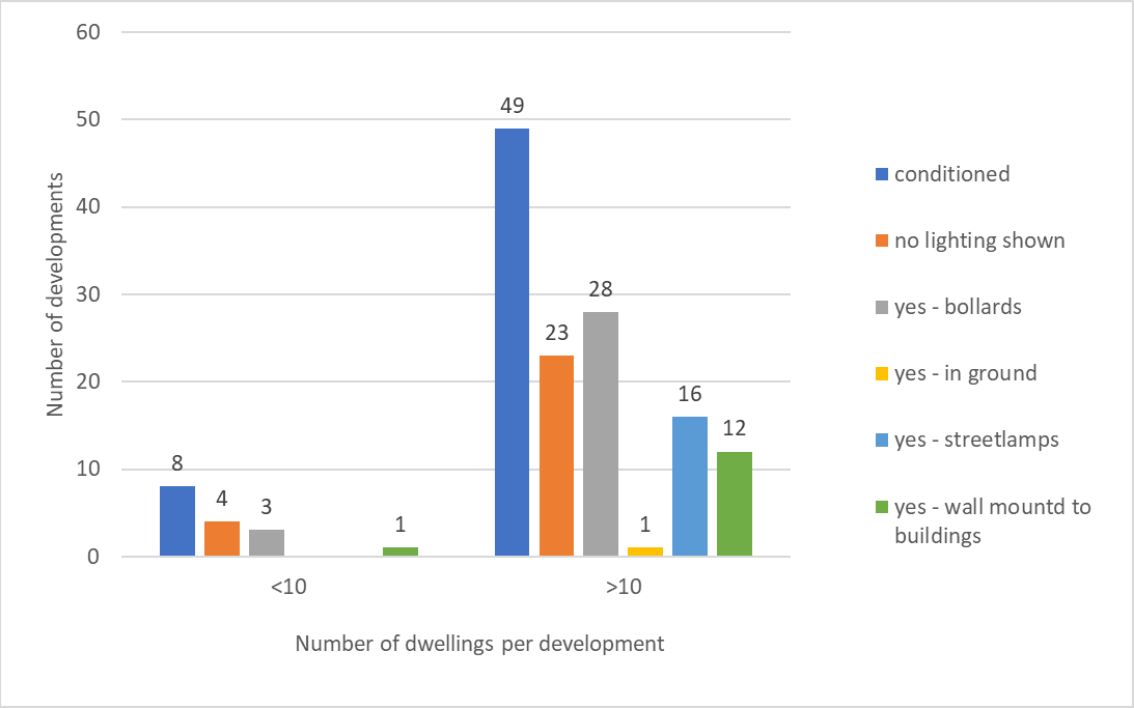
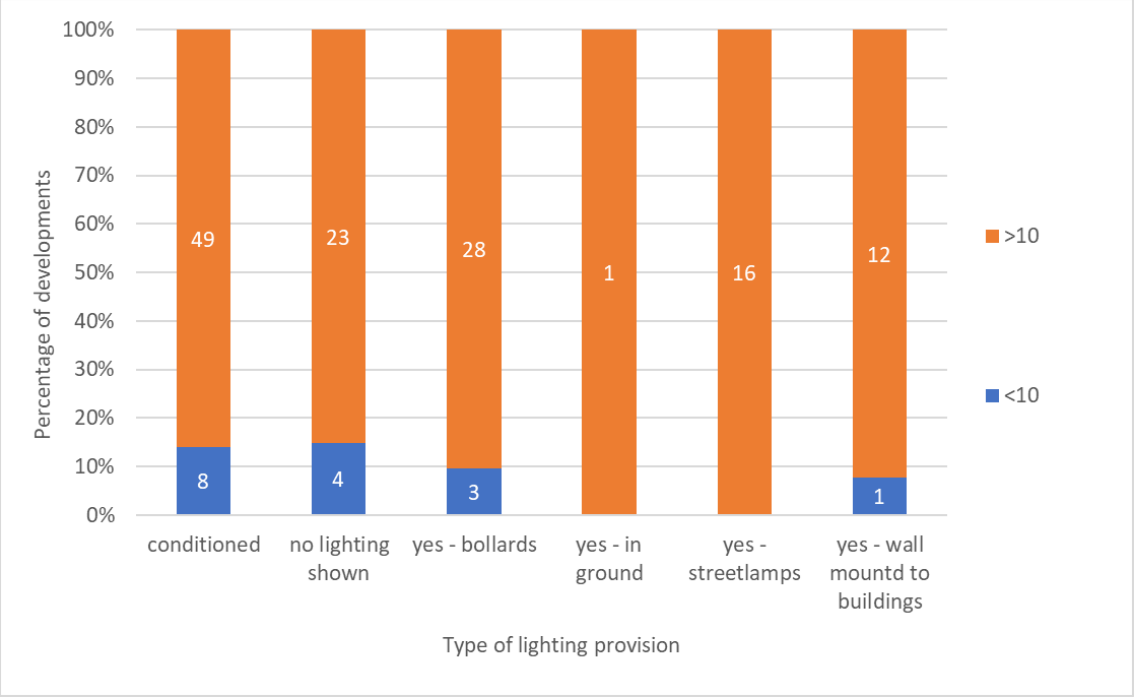


Figure 48: Percentage of lighting type by number of car parks provided



6.4.2.2 Development scale

Figure 49 and Figure 50 show the lighting type provision for different development scales. The analysis showed that

- the provision of lighting details via consent condition was the most common lighting type across most development scale ranges except for developments where accessways served between 20 to 29 dwellings.

- bollard lighting was the most common lighting type development with 20-29 dwellings.
- the percentage of developments that did not have any lighting provisions decreased as the number of dwellings per development increased.
- of the 23 developments where no lighting was provided in accordance with Standard E27.6.3.7, the analysis showed that these developments were generally at the lower scale of the development sizes analysed.

Streetlamp provision increased as the development scale increased.

Figure 49: Types of lighting by number of dwellings per development

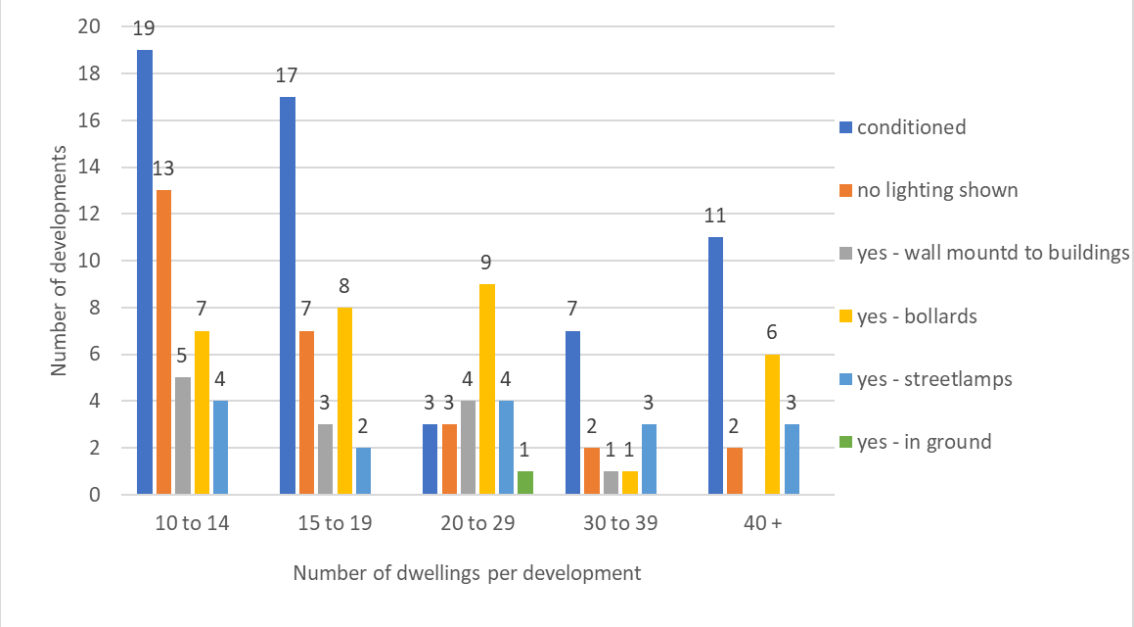
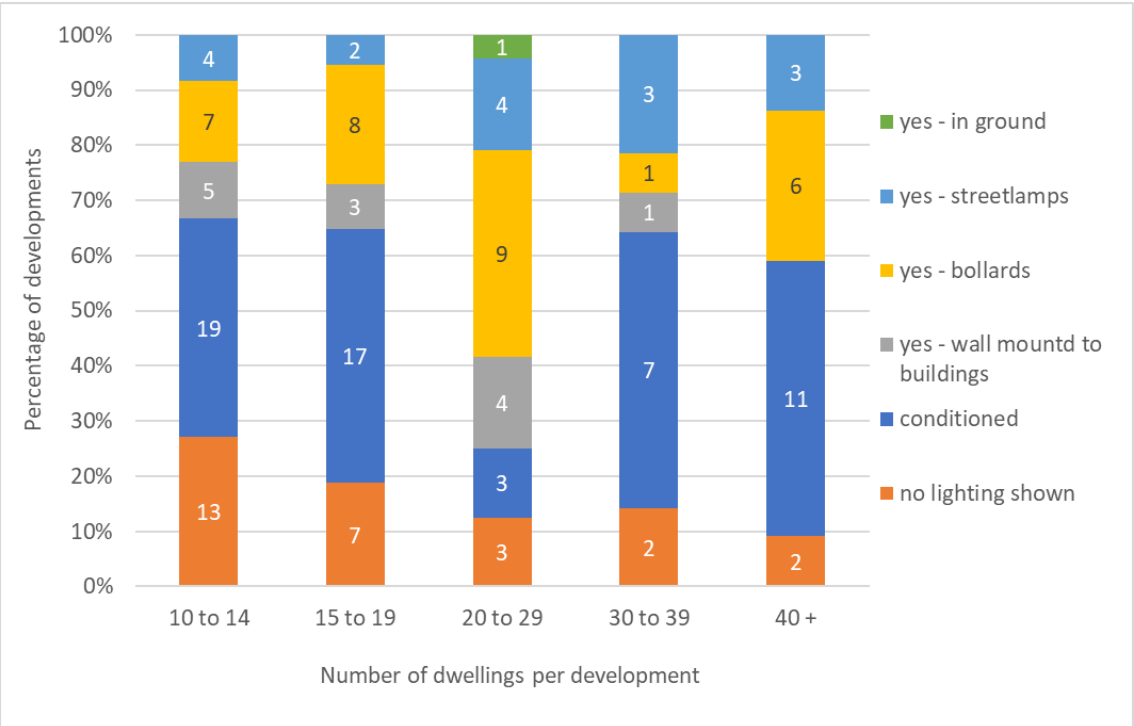


Figure 50: Percentage of lighting types by number of dwellings per development



6.4.2.3 Building typologies

Figure 51Figure 52 shows the lighting provision for different building typologies. The analysis showed that

- imposed lighting conditions followed by bollard lighting was common across all building typologies, with the exception being stand-along housing. As noted earlier, the data sample for standalone houses is too small to identify any trends for this building typology.
- Bollard lighting is the second most common lighting type for townhouses and building typologies that generally have communal parking areas. This has the potential to have unwanted safety concerns due to the typical height of this lighting type when used adjacent to car parking areas due to the potential for parked cars to block the lighting.
- streetlamp or pole lighting was the least common within apartments or developments with mixed housing types, with this more common for developments containing individual units, such as within the *Townhouse, flats, units and other*.
- building mounted lighting is the most common for developments within the apartment typology. This is likely due to the nature of this type of lighting, which generally provides additional amenity by assisting wayfinding, unlocking doors and identification of visitors.

Overall, the findings show that the types of lighting provided across each building typology varies, depending on the nature of the development, and/ or whether lighting is proposed in relation to illuminating common or individual areas.

Figure 51: Number of lighting types by building typologies

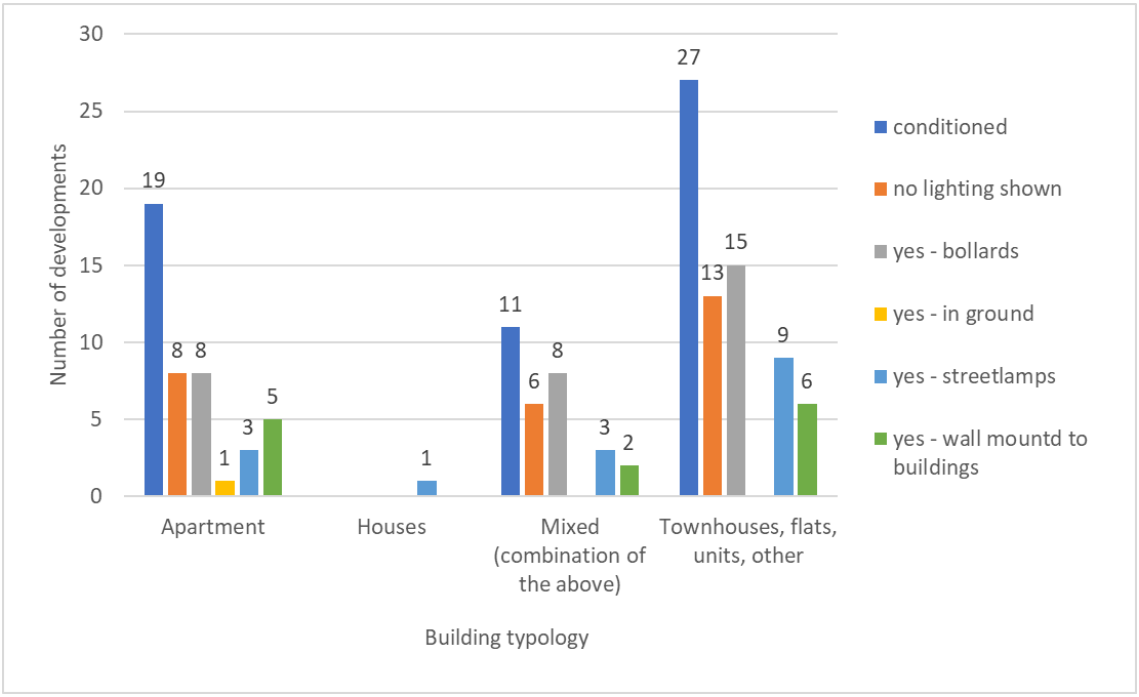
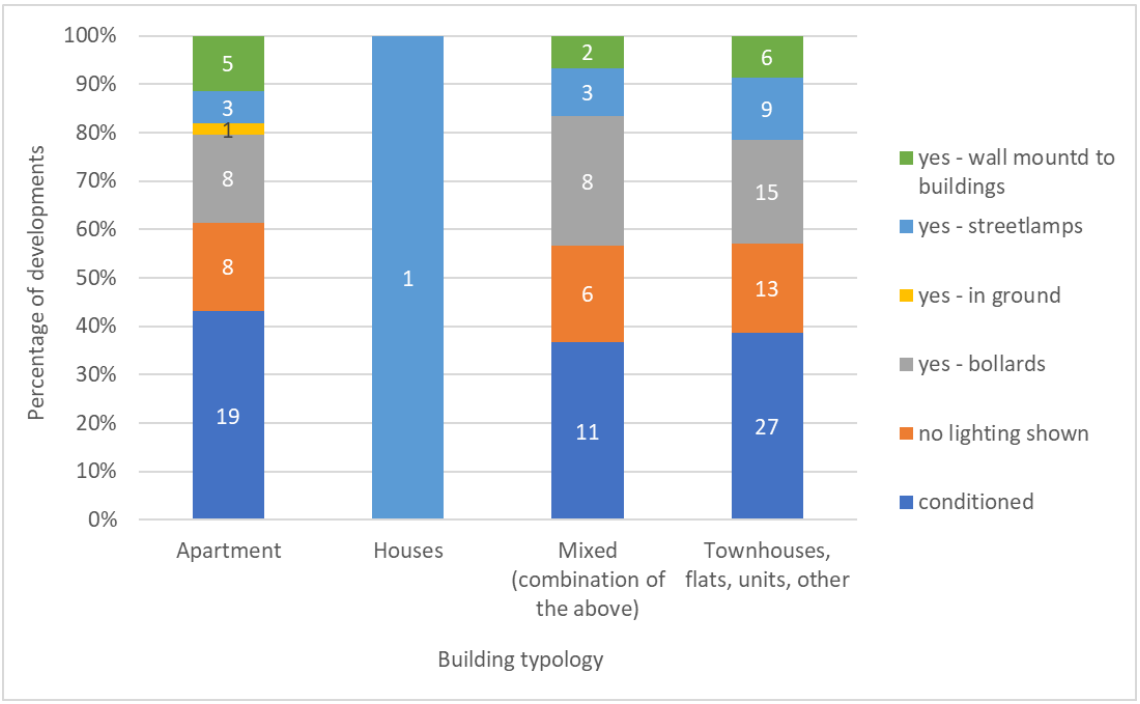


Figure 52: Percentage lighting types by building typologies



6.4.2.4 Accessway length

The analysis looked at the percentage of each lighting type in relation to the length of accessways provided, to identify if there was any correlation between lighting type and accessway length. Figure 53 and Figure 54 show the different types of lighting for different accessway lengths.

The analysis showed that although lighting details via consent conditions is common across all accessway lengths, there is a decreasing trend as the development scale increases.

The data did not indicate a decreasing trend in the percentage of developments not having lighting provisions as the accessway length increased. This raises concerns as the risk to user conflict increases as the accessway length increases, particularly for developments where the pedestrian accessway is located within the carriageway, which accounts for at least 40 % of developments as noted in section 6.3.3.4.

Figure 53: Lighting types by accessway length

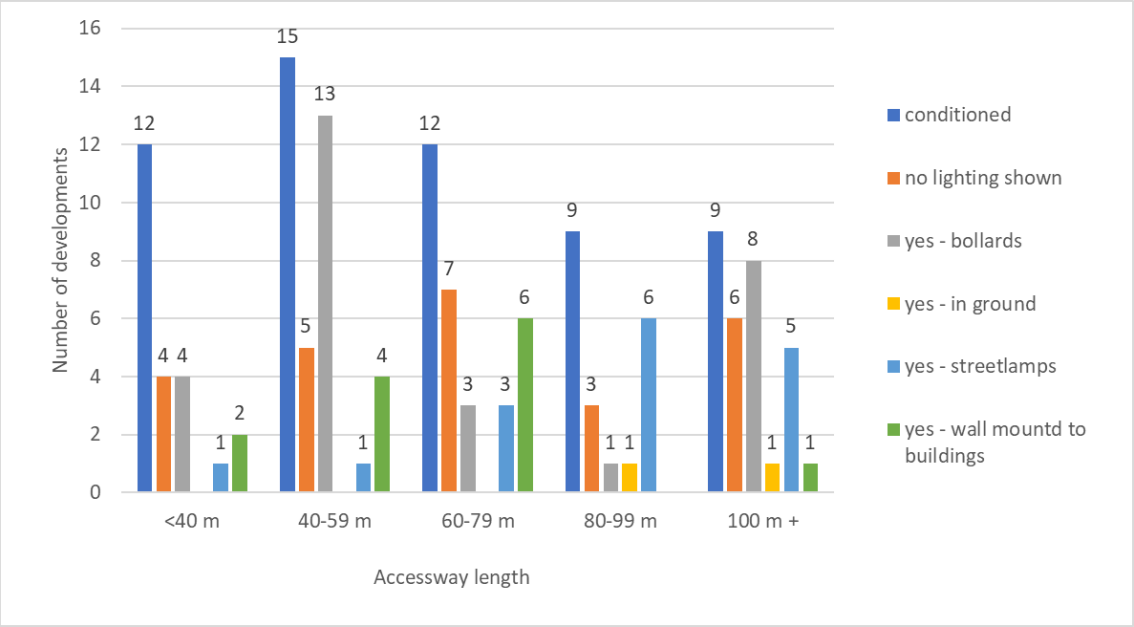
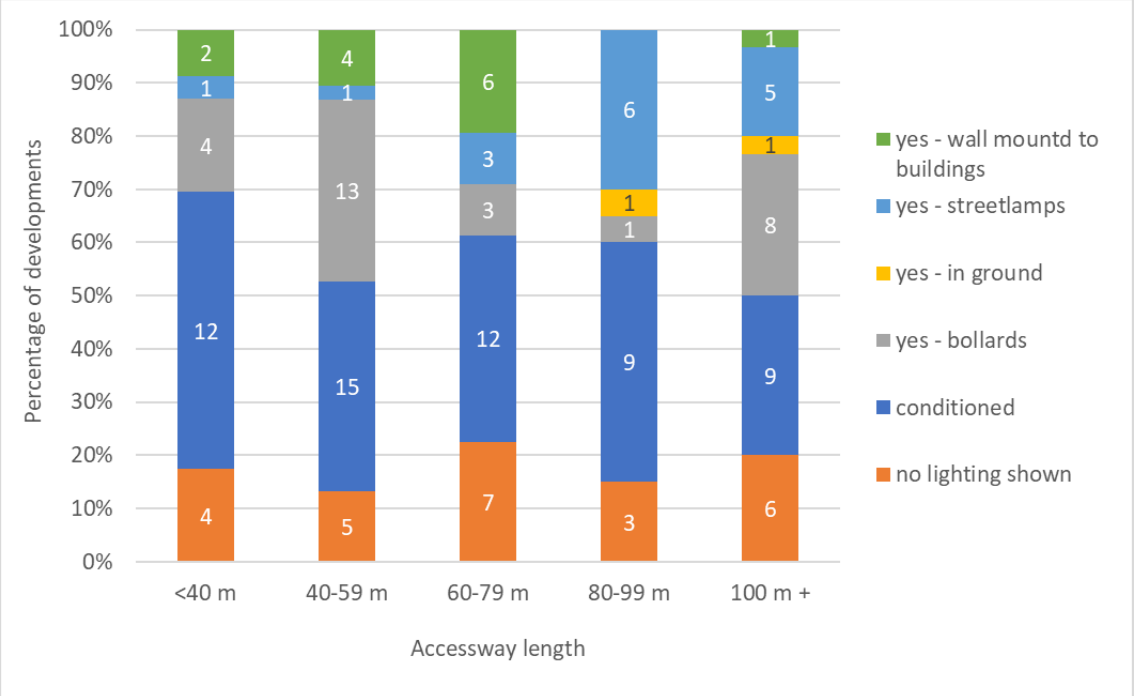


Figure 54: Percentage of lighting types by accessway length



6.4.3 Conclusion and recommendations

The AUP does not provide any direction on what type of lighting is required, with Standard E27.6.3.7 only requiring 'adequate lighting' in accordance with Chapter E24. This ambiguity has resulted in Auckland Council needing to impose lighting conditions when considering a resource consent to ensure an appropriate lighting result is provided.

Several different lighting solutions are required to provide the appropriate lighting performance. Although best practice recommendations are provided within the Auckland Design Manual and Auckland Transport's '*Street Lighting Engineering Design Code*', this advice may not always be considered as part of the development, due to the non-statutory nature of these documents. This has the potential to result in poor lighting outcomes within developments as shown by the sample monitoring data where a significant percentage of developments did not provide any lighting.

The introduction of further guidance and/or stronger lighting provisions in the AUP is recommended to ensure that appropriate artificial outdoor lighting is provided within shared accessways, including driveways, carparking and pedestrian access areas.

6.5 Theme 5 - Parking

Parking is identified in the AUP as an essential component of Auckland's transport network, as it has the potential to impact on the operation and function of the surrounding transport network. Parking is provided for under Chapter E27 of the AUP, with standards that regulate the parking numbers, size and manoeuvring dimensions within a site.

6.5.1 AUP Analysis

The number of parking spaces is provided for under Standard E27.6.2 of the AUP, whilst the design of parking in terms of size, location and manoeuvring dimensions are provided for under Standard E27.6.3.

With regard to location, it is noted that this is limited to ensuring that parking is provided within a site and that it does not impede vehicular access.

The AUP does not specify what types of parking (e.g. basement, car port, uncovered) should be designed in relation to a proposed development, however, non-statutory best practice guidance is provided for within the Auckland Design Manual.

As of 11 February 2022, minimum parking requirements within the AUP have been removed, following direction of the NPS-UD. There were no minimum requirements in the THAB Zone, and there are no maximum parking requirements for the MHU, MHS and THAB Zones.

Notwithstanding the above, it is noted that despite the removal of minimum parking requirements, the number of parking spaces within a development is used as a trigger for standards in the AUP relating to accessways, pedestrian footpaths and lighting under Chapter E27.

In light of the removal of parking minimums, the analysis looked at whether there are any prominent trends in the provision of parking, particularly in relation to the scale of developments, building typologies and accessway lengths.

6.5.2 Findings

6.5.2.1 Number of dwellings

Figure 55 and Figure 56 show the number of parking spaces provided for different scales of developments.

The monitoring data showed that the number of parking spaces generally correlated to the number of dwellings within the development. Between 40 % - 60 % of developments have parking provision in line with the number of dwellings across all development scales.

This is likely a response to the AUP's minimum parking requirements prior to their removal, particularly within the MHU and MHS Zones (where one parking space per dwelling was required), or the typologies associated with each development.

As the development size increased, the percentage of developments with parking space provisions lower than the number of dwellings increased, indicating that larger developments generally have lower parking provision per dwelling.

Figure 55: No. of parking spaces by number of dwellings per development

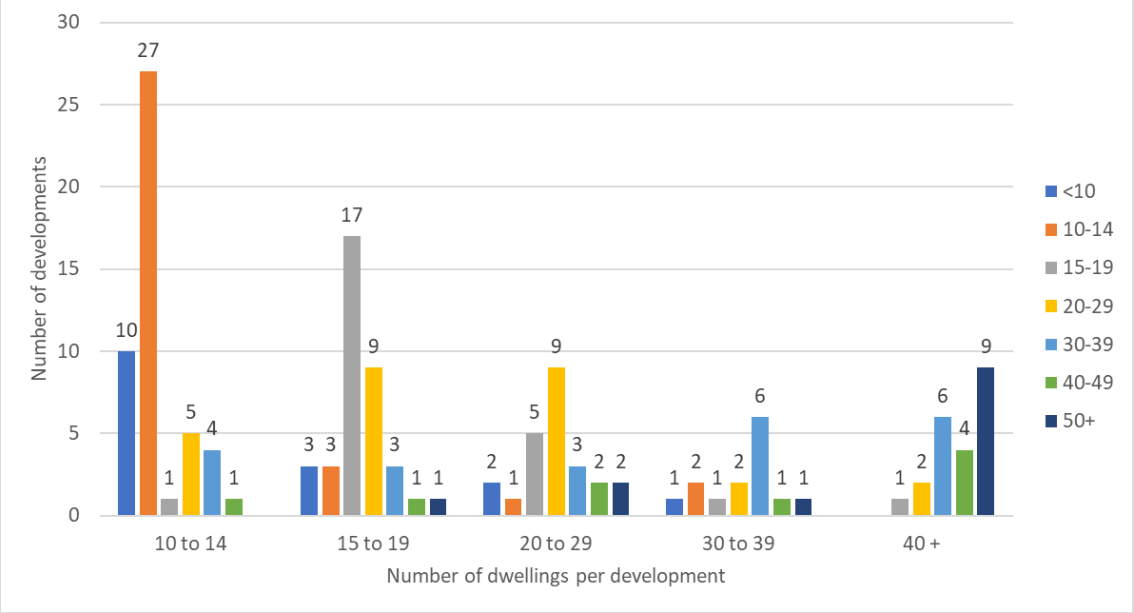
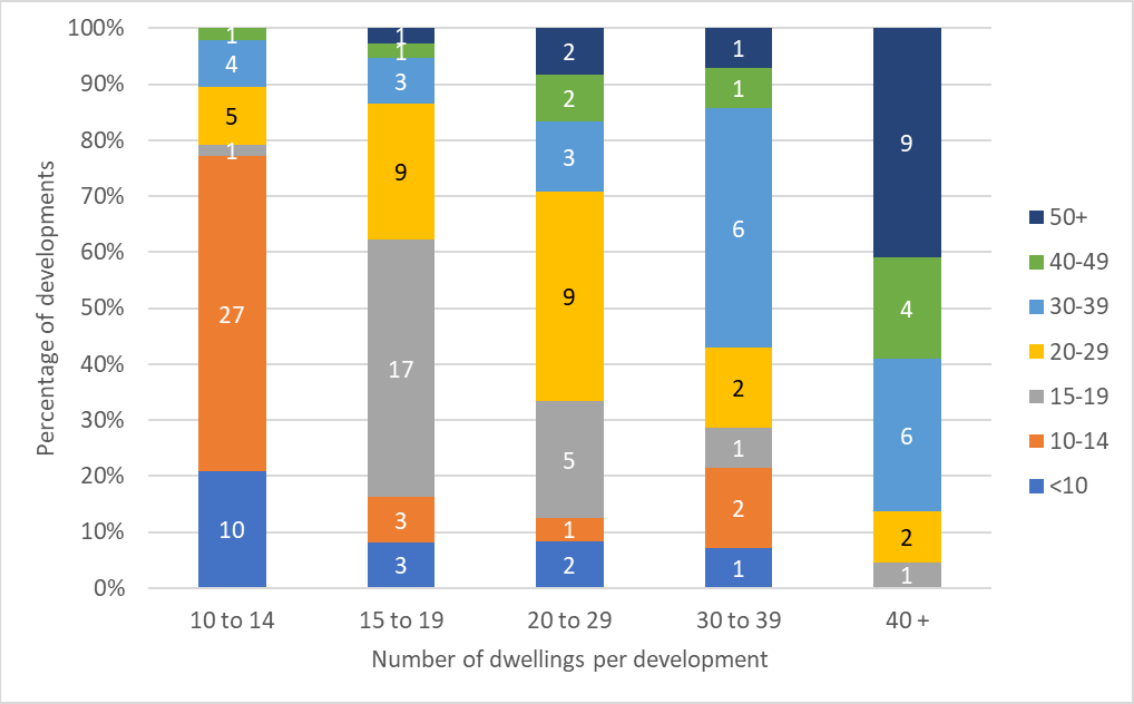


Figure 56: Percentage split of number of parking spaces by dwellings per development



6.5.2.2 Building typologies

Figure 57 and Figure 62 show the number of parking spaces provided for different building typologies. No clear trends were identified between the number of parking spaces and building typology.

Figure 57: Number of carparks by building typologies

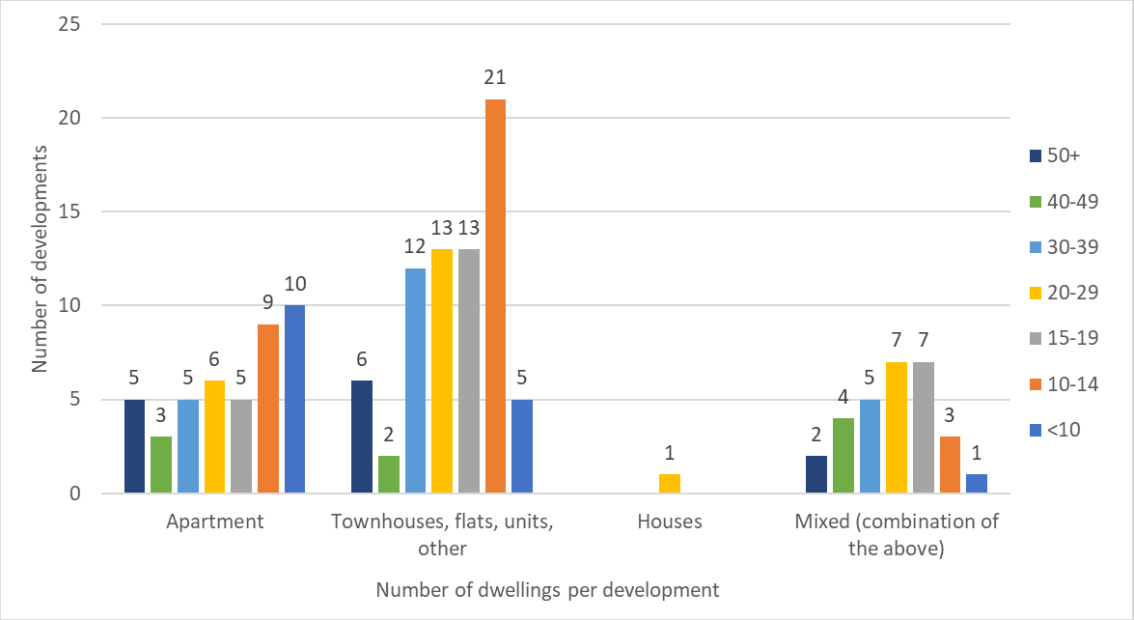


Figure 58: Percentage of number of carparks by building typologies

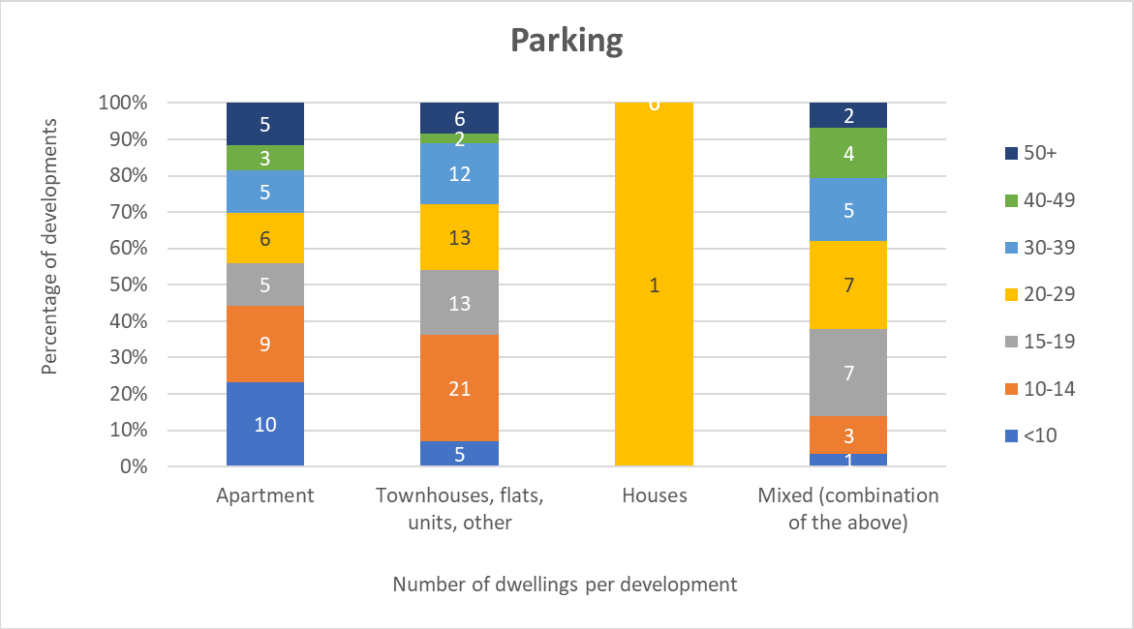


Figure 59 and Figure 60 show the types of parking provided for different building typologies. Due to the small sample size for stand-alone houses, this data point was not considered further.

The data indicated that

- approximately 50 % of developments across all building typologies (except standalone houses) have parking spaces located within the shared accessway
- the dominant type of carparks across all building typologies is individual parking, either within the accessway, or a garage or car port
- 2 of the 145 developments did not provide any parking. These developments were from the *Apartment* and *Townhouse, flat, units or other* typologies.
- developments within the *Townhouse, flats, units or other* typology provided a large percentage (52 %) of individualised parking spaces, either within a garage or carport. This can be anticipated, given that there may be more individual rather than communal areas within these developments.

The large number of parking spaces within the shared accessway has the potential to result in safety risks and conflicts between users, particularly if pedestrian accesses are located within the shared driveway. The analysis in Section 6.3.4.4 of this report does note that footpaths can be constructed within the formed driveway under Standards E27.6.4.3.2 and E38.8.1.2 of the AUP, and this was a common occurrence amongst the 145 developments sampled.

Figure 59: Types of parking by building typologies

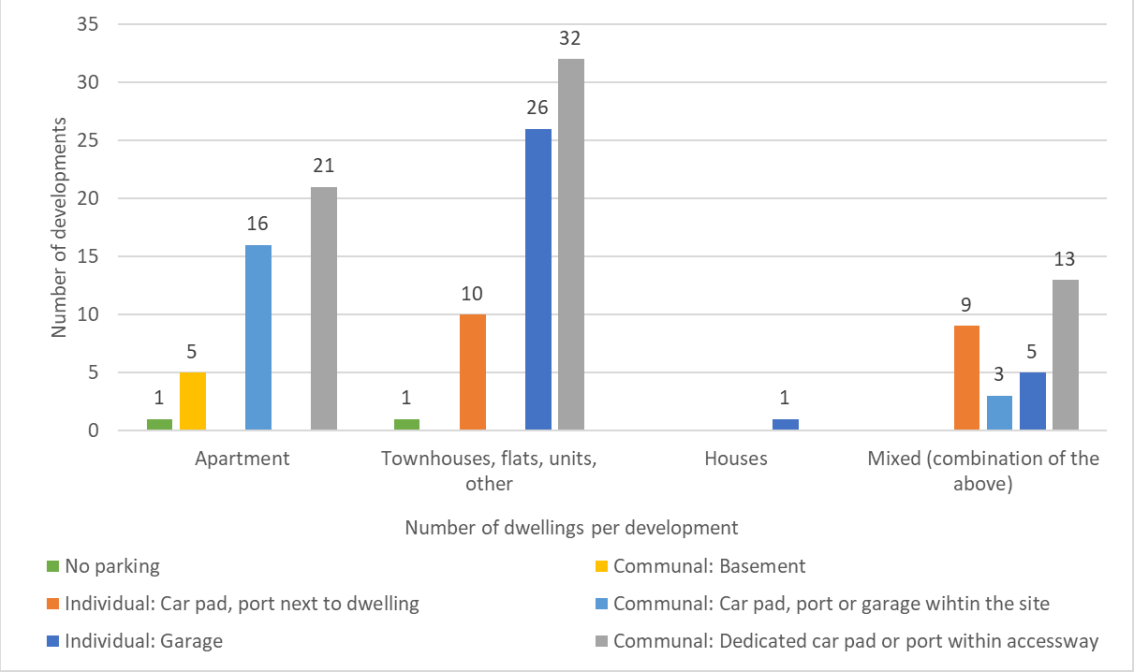
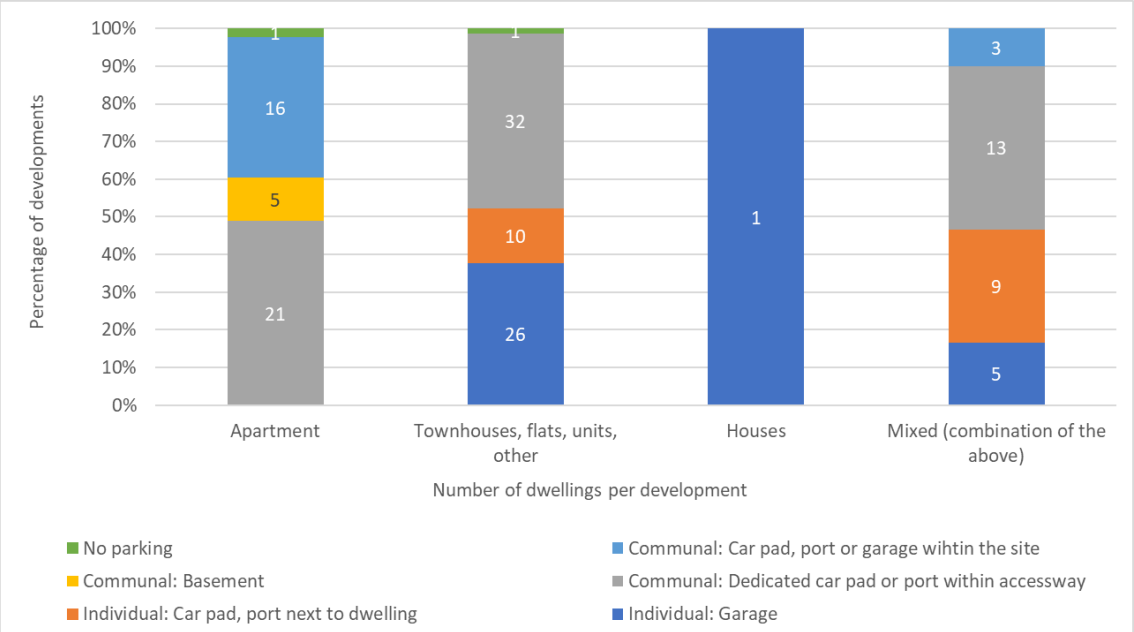


Figure 60: Types of parking by building typologies (percentage of developments)



6.5.2.3 Accessway lengths

Figure 61 and Figure 62 show the car parking provisions for different accessway lengths.

The monitoring data indicated that

- parking provision generally increases as the accessway length increases.

The higher number of parking provision for longer accessways will result in an increase in users and/ or vehicles within the accessway. This has the potential to increase safety risks for pedestrians, particularly where pedestrian accessways are located within the shared driveway without any physical separation.

Figure 61: Number of carparks in comparison with accessway lengths (Number of developments)

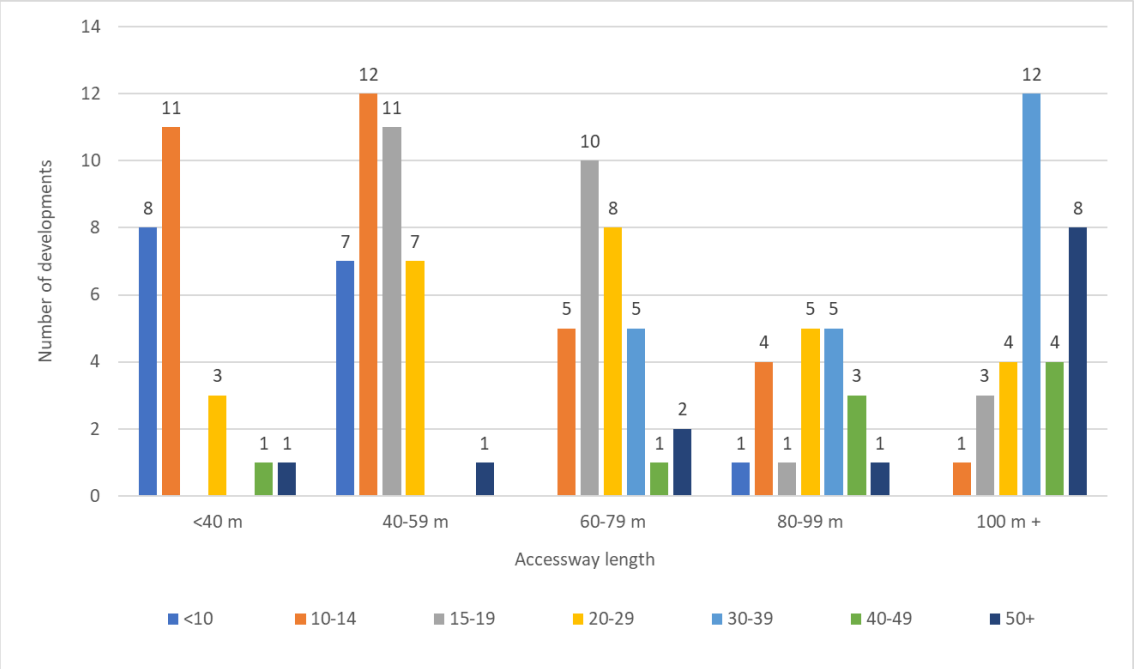


Figure 62: Number of carparks in comparison with accessway lengths (Percentage of developments)

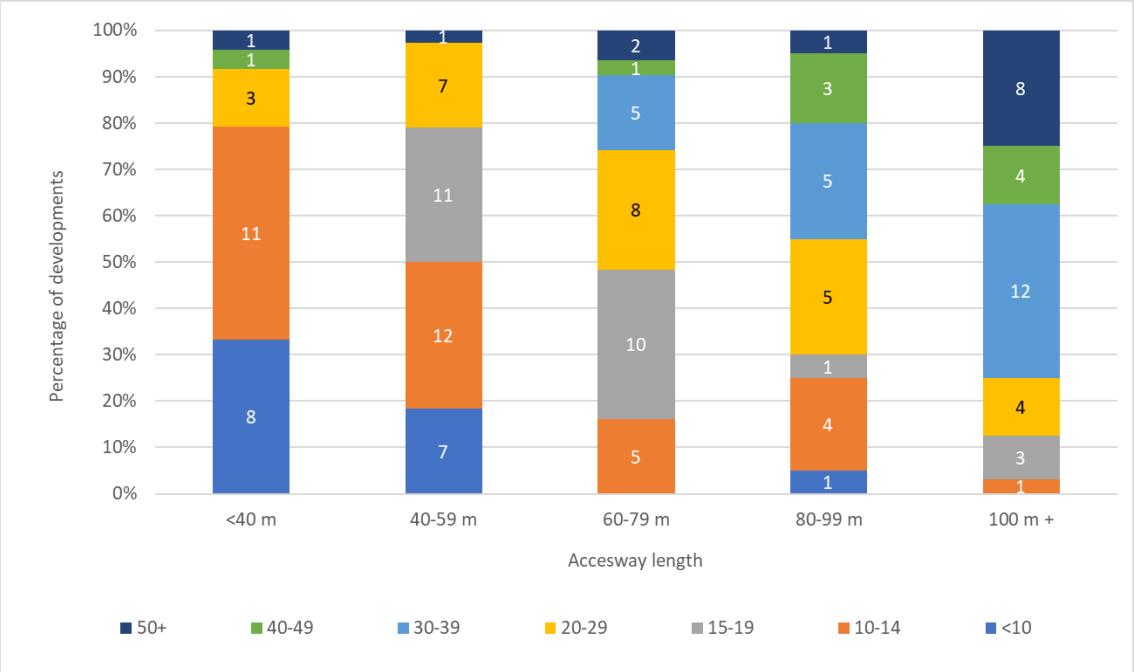


Figure 63 and Figure 64 show the type of parking provisions provided for different accessway lengths. The analysis found that

- individual car parks were common across all accessway lengths.
- The AUP does not provide any guidance regarding accessway lengths and parking types and or numbers, but it does anticipate the number of vehicles served by a single accessway under Chapter E27.

Figure 63: Parking types in relation to accessway lengths (number of developments)

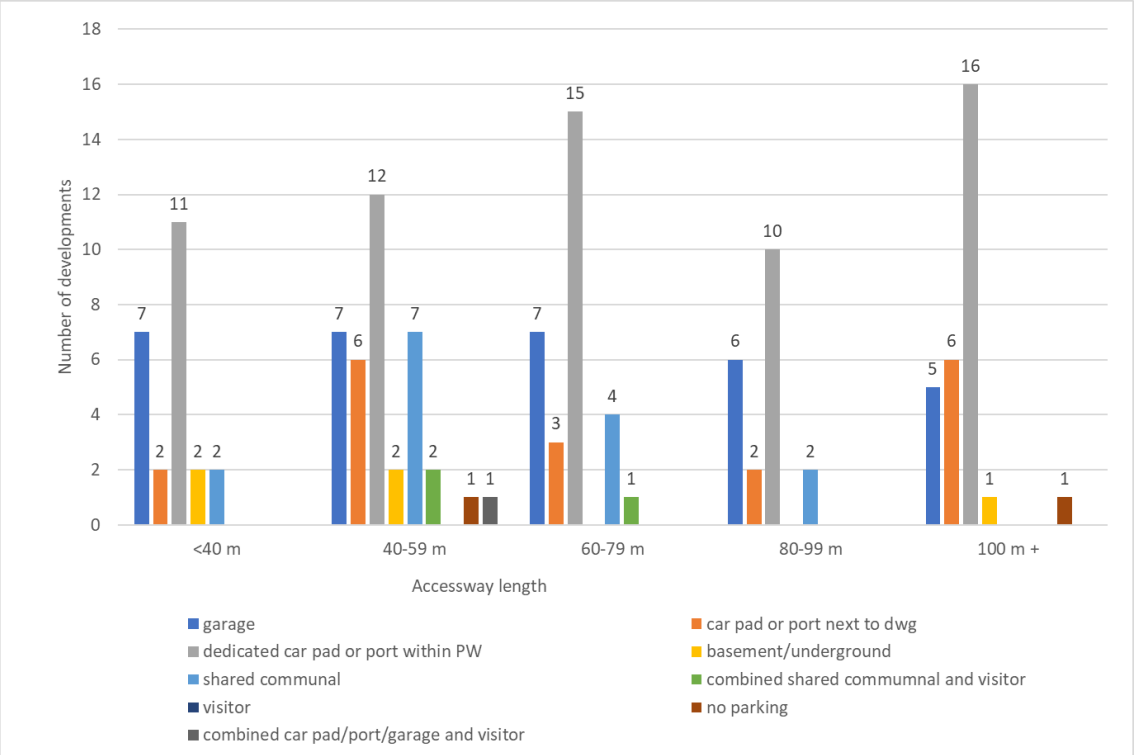
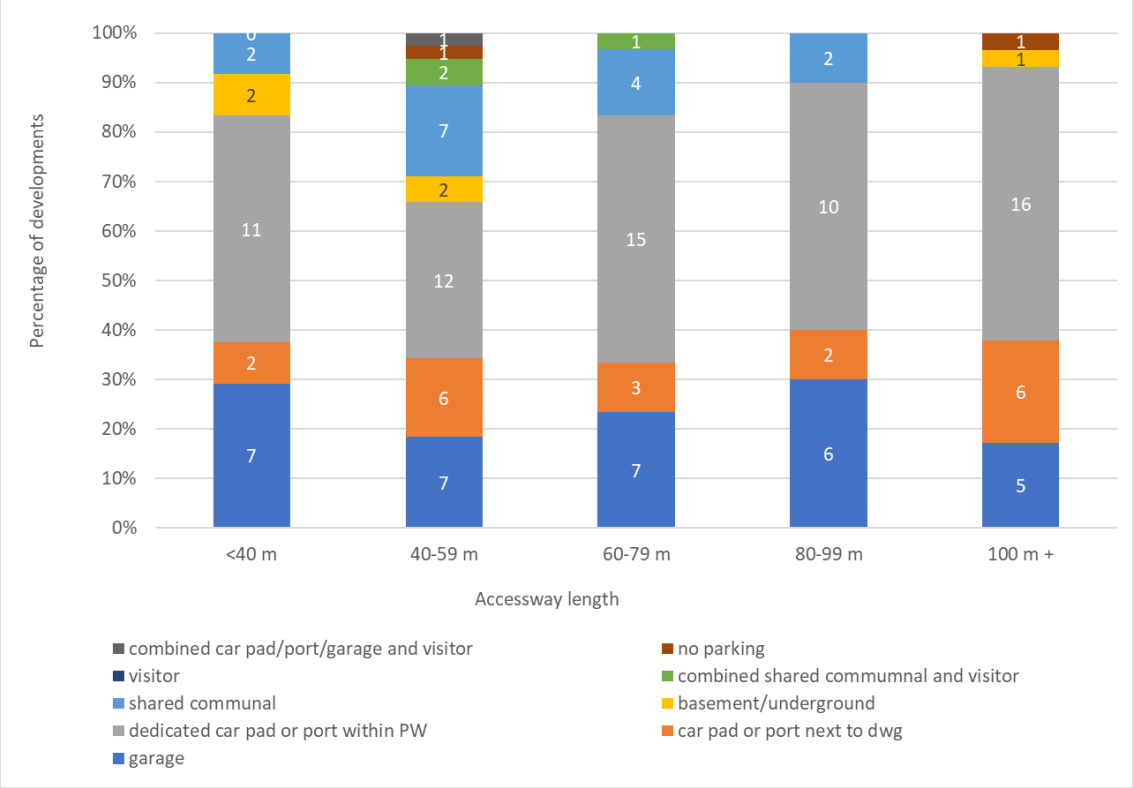


Figure 64: Parking types in relation to accessway lengths (percentage of developments)



6.5.3 Conclusion and recommendations

The findings showed that developments generally provided carparking. However, given the removal of car parking minimums from the AUP it is anticipated that there will be a growing trend of large-scale

developments where no carparking or more dwellings than carparks are provided. This is already evident with larger developments having the largest percentage of developments with parking provisions being lower than the number of dwellings.

With regard to vehicle accesses, the AUP sets carparking thresholds for the access width and provision of footpaths. Where parking is not provided in a development, or provided at low rates, there is a risk that pedestrian safety and accessibility will be compromised through less onerous requirements related to lower parking provisions.

Further investigation into the design of accessways is required to ensure that developments with limited parking provision achieves outcomes with safe access for all users which minimises conflicts between different users.

6.6 Theme 6 - Waste – Management, Collection and servicing

6.6.1 AUP Analysis

The AUP lacks strong provisions to manage waste within developments. The assessment criteria for the zones (MHS, MHU and THAB) all require a similar assessment of providing the necessary waste collection and recycling facilities in locations conveniently accessible and screened from streets and public open spaces. This however leaves a lot of discretion on what can be deemed accessible, whether the accessibility of the bin storage area to the bin collection area is accessible and how waste is to be collected from the site.

Chapter E27 provides provisions relating to Access and manoeuvring (E27.6.3.3.) where collection is proposed to occur on site, with applications providing the necessary tracking curves required for the proposed waste vehicle.

Although non-statutory and separate to the AUP, the Auckland Design Manual provides additional guidance on best practice for waste through its Residential Design Element R7 – Design for Waste. This document sets out best practice for storage, amenity affects, access and management. Also non-statutory, the publicly available Practice and Guidance note on Waste Management for Residential Sites provides matters to assess when consent planners are reviewing waste collection and storage requirements.

6.6.2 Findings

Table 9 and Table 10 summarises the breakdown of waste collection methods and locations for the resource consent sample data used in this monitoring report.

The following sections provide a more detailed analysis of the waste collection methods for different developments sizes and typologies.

Table 9: Breakdown of sampled resource consent waste collection method

Waste collection method	Number of developments consented	Percentage of consented developments
Council collection service	10	7%
Private contractor	66	46%
Unknown	69	48%
Total	145	100 %

Table 10: Breakdown of sampled resource consent waste collection location

Location of collection point	Number of developments consented	Percentage of consented developments
Within shared accessway communal area	55	38%
Individual sites	3	2%
At road frontage	22	15%
Within building	5	3%
unknown	60	41%
Total	145	100 %

6.6.2.1 Method of waste collection

Figure 65 and Figure 66 show the different waste collection types for different scales of developments.

The analysis indicated that

- many of the consents did not specify the method of waste collection
- as the scale of development increases there is an increasing trend of providing waste collection information
- The percentage of developments using private contractors for waste collection increases as the development size increases.
- Council waste collection was only specified for developments between 10 to 29 dwellings and tapers off as developments increase in size.

The developments where collection type is not specified raises concern as this may imply that developers have not considered how waste will be addressed.

Developers may be relying on future property owners to organise these services for themselves which may be appropriate on smaller developments but in the case of larger developments may present issues surrounding private waste truck access or the distance in which an individual bin needs to be moved to be picked up.

The lack of provision for waste vehicle access can result in unsafe accessway outcomes for vulnerable users due to increased reverse manoeuvring required as a result of inadequate manoeuvring space.

Figure 65: Waste collection type by number of dwellings per development.

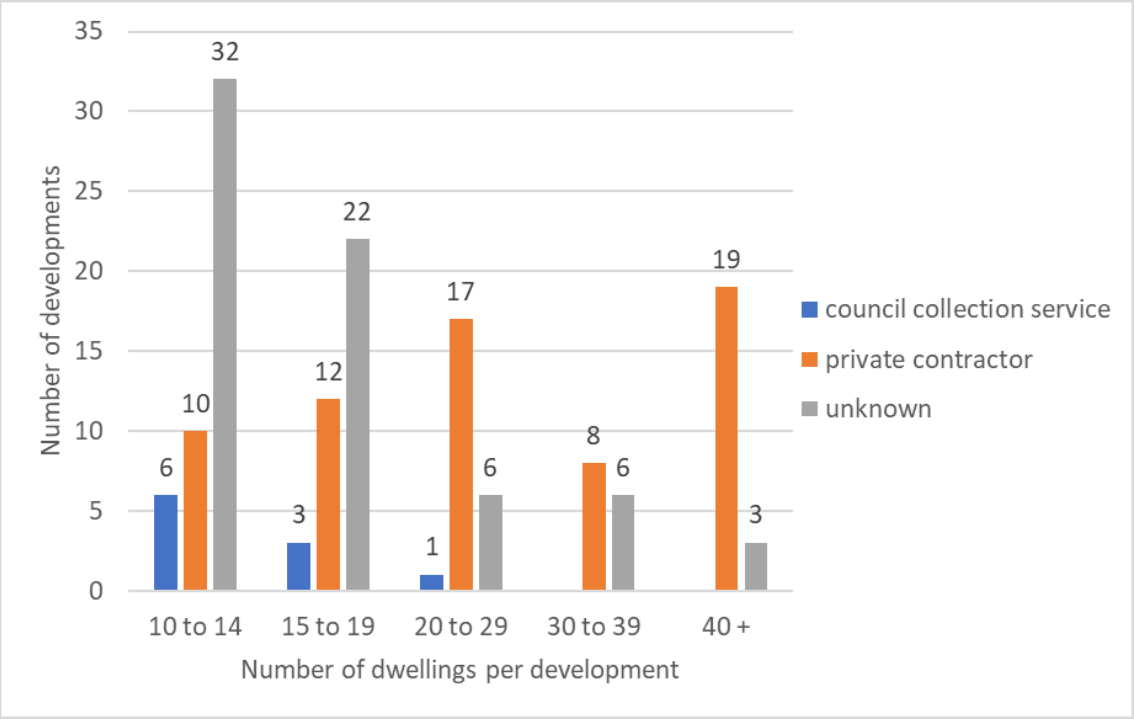
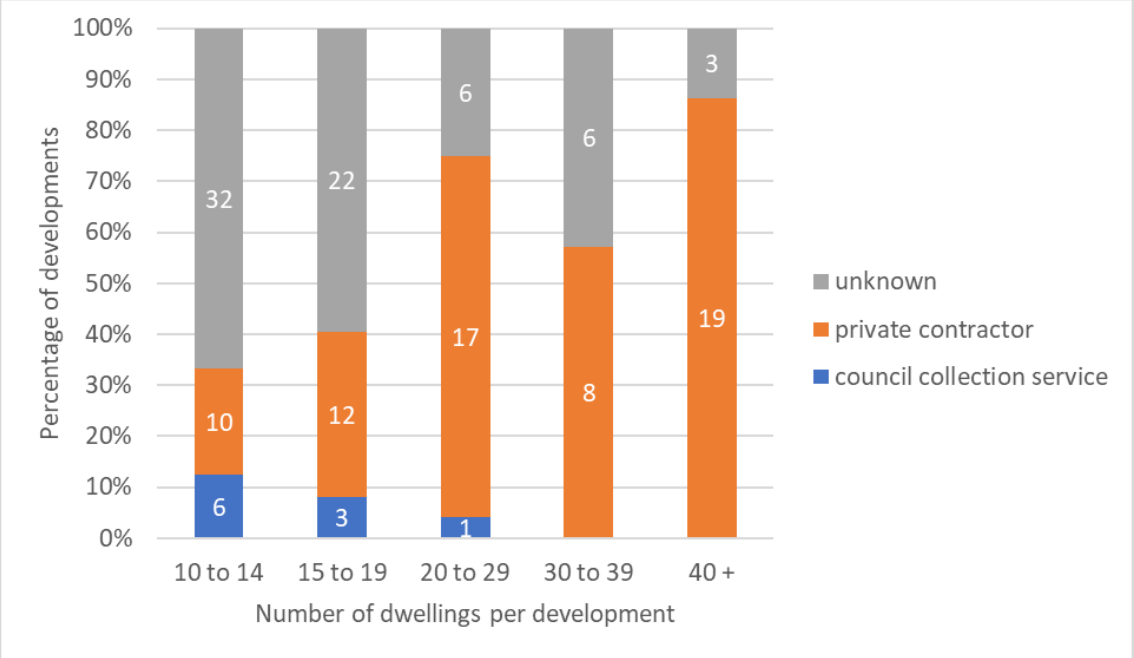


Figure 66: Percentage of waste collection types by number of dwellings per development.



6.6.2.2 Location of waste collection

The location of waste collection is important as it determines what type of collection will be possible and whether accessways need to cater for waste truck movements onto and off the site. Regular truck movements inside a site may increase the risk of runover or injury in particular with reverse manoeuvring which is riskier for larger vehicles which have lower visibility.

Figure 67 and Figure 68 show the waste collection type for different scales of development.

The data indicates that

- bin collection located within the accessways communal area is increasingly popular as the scale of developments increase.
- road-frontage based collection decreases as development size increase with no kerb side collection for developments with more than 30 dwellings per development.
- there is a larger proportion of smaller developments not specifying where their waste bins will be collected from, leaving this decision up to the property owner in the future.

Figure 67: Waste collection location by scale of development

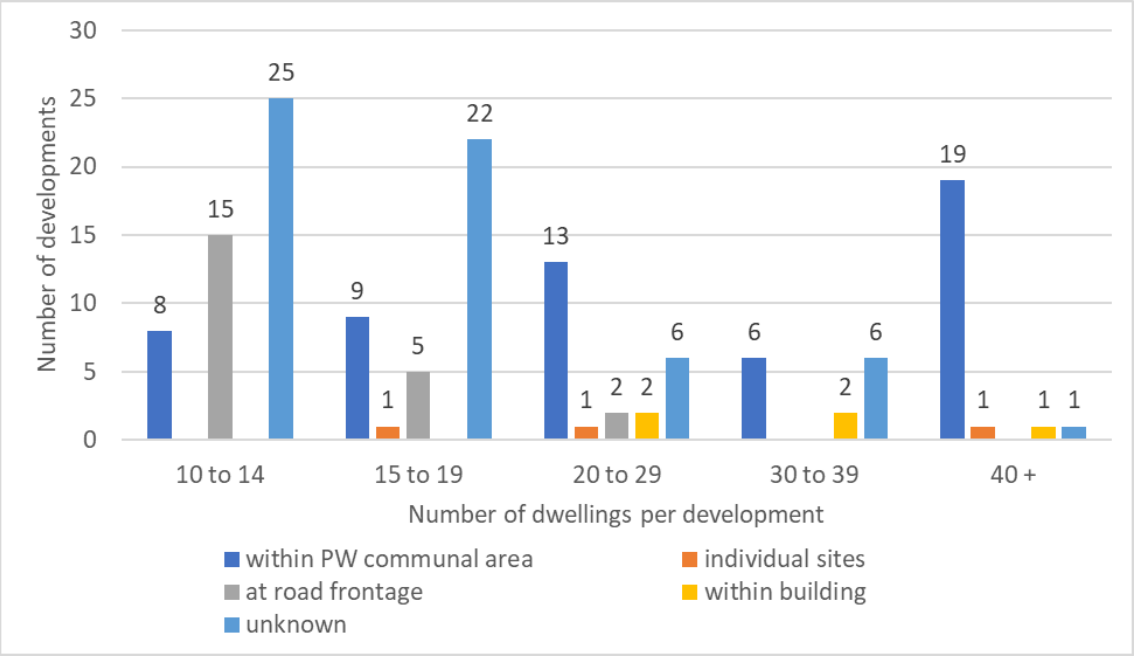
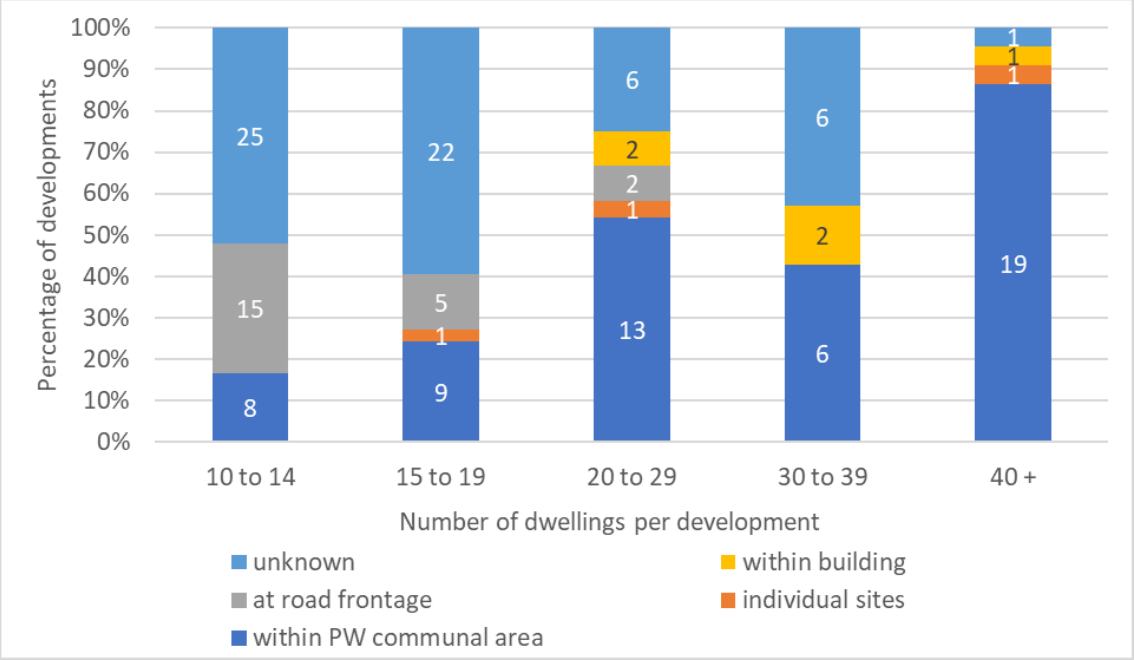


Figure 68: Percentage of waste collection location by scale of development



6.6.3 Conclusion and recommendations

Overall, we see a poor trend in the management of waste on sites as a result of the lack of comprehensive AUP standards.

There is a strong direction of larger developments relying on the use of private contracts. While private contractors shouldn't be seen as a negative system, they can have some less than favourable outcomes. These can include locking property owners into the ongoing use of these services as developments may not be designed with council collection in mind and a transition to Council collection service may not therefore be possible. Ongoing cost associated with private services also need to be addressed by property owners and may not be apparent at the time of purchase.

The location of waste collection data showed that bins collected within the accessways communal area is increasingly popular as the scale of developments increase with the inverse true for street collection. Bin collection can be correlated with the method of collection, with Council collection largely only occurring on public road frontages, this therefore means that bins collected within the accessway will most likely be managed privately and would require accessway designs suitable for heavy vehicle access.

A large proportion of developments did not specify the method of waste collection or the location of the waste collection. While the zone chapters (MHS, MHU and THAB) have assessment criteria requiring this information to be provided as part of the consent, this is not being achieved in many cases. It is therefore recommended that the provisions and requirements around waste collection be strengthened. Clear guidance should be given on accessway design requirements for different waste collection methods that ensure safe access and manoeuvring of waste trucks on the site.

6.7 Theme 7 – Ongoing Management

6.7.1 AUP analysis

The main provision addressing ownership in the AUP is E38.7.2.3.

This section requires all buildings with multi-ownership schemes to have either existing use rights, comply with the relevant Auckland-wide and zone rules, or be in accordance with an approved land use consent. It also requires all areas that are to be set aside for the exclusive use of each building or unit to be shown on the survey plan, in addition to any areas to be used for communal access and parking.

All service connections and infrastructure must be located either within the boundary of the site they serve or have access provided by an appropriate legal mechanism such as being located in areas with communal access from all units.

Currently, there are no provisions in the AUP that require the presence of a multi-ownership scheme such as an incorporated society or unit title scheme to provide maintenance of communal spaces, including accessways in multi-unit developments. This could be a problem as issues surrounding the poor maintenance of accessways or ambiguity around who is required to maintain accessways can occur in the absence of such a scheme.

6.7.2 Findings

6.7.2.1 Number of dwellings – provision of incorporated society

Table 11 summarises the incorporated provision for the sample data considered in this monitoring report.

Table 11: Breakdown of sampled resource consent provision of incorporated society

Location of collection point	Number of developments consented	Percentage of consented developments
Incorporated society provided	30	21%
No incorporated society	63	43%
Subdivision proposed	16	11%
Unit title required	36	25%
Total	145	100 %

Figure 69 and Figure 70 show the number and percentage of developments that have a requirement for an incorporated society or other entity to be established.

The analysis found that

- less than 30 % of all development scales provide incorporated societies
- 19 % to 38 % of developments require unit titles across all development scales
- 41 % to 71 % of developments without any incorporated society or unit title to provide maintenance for communal spaces.

Figure 69: Incorporate society provision by number of dwellings per development

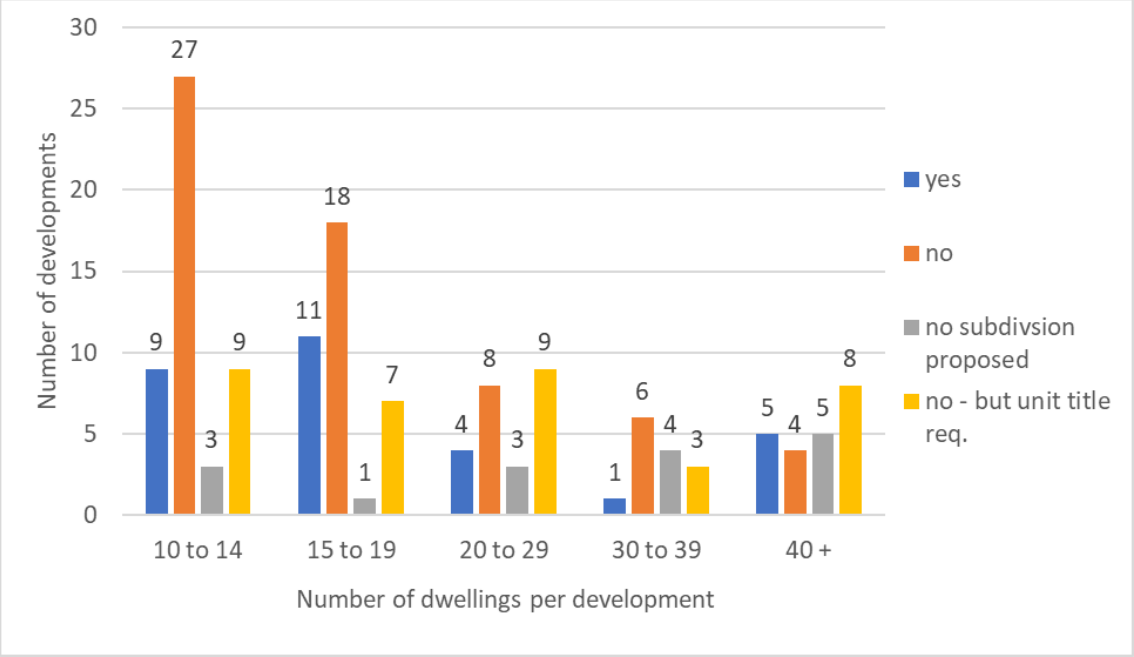
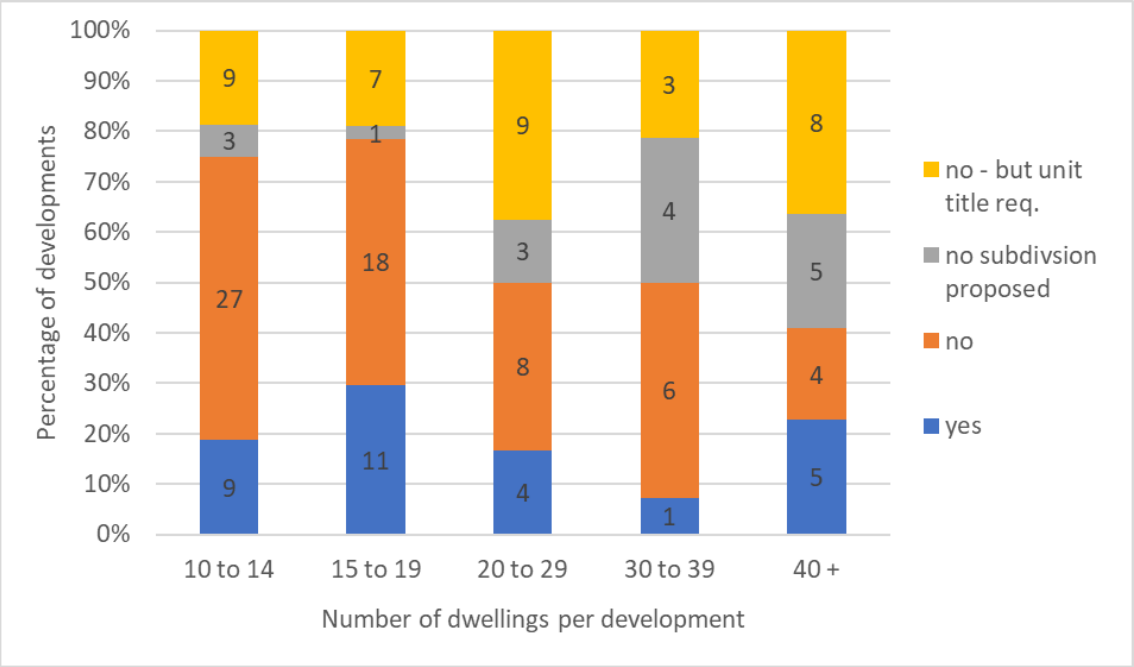


Figure 70: Percentage of incorporated society provision by number of dwellings per development



6.7.2.2 Building typology – provision of incorporated society

Figure 71 and Figure 72 shows the number and percentage of developments requiring incorporated society provision for different building typologies.

The monitoring data does not indicate any specific trends for incorporated societies based on building typologies. Given the low sample of standalone houses, this data point was not considered in the analysis.

Figure 71: Number of incorporated society provision by building typology

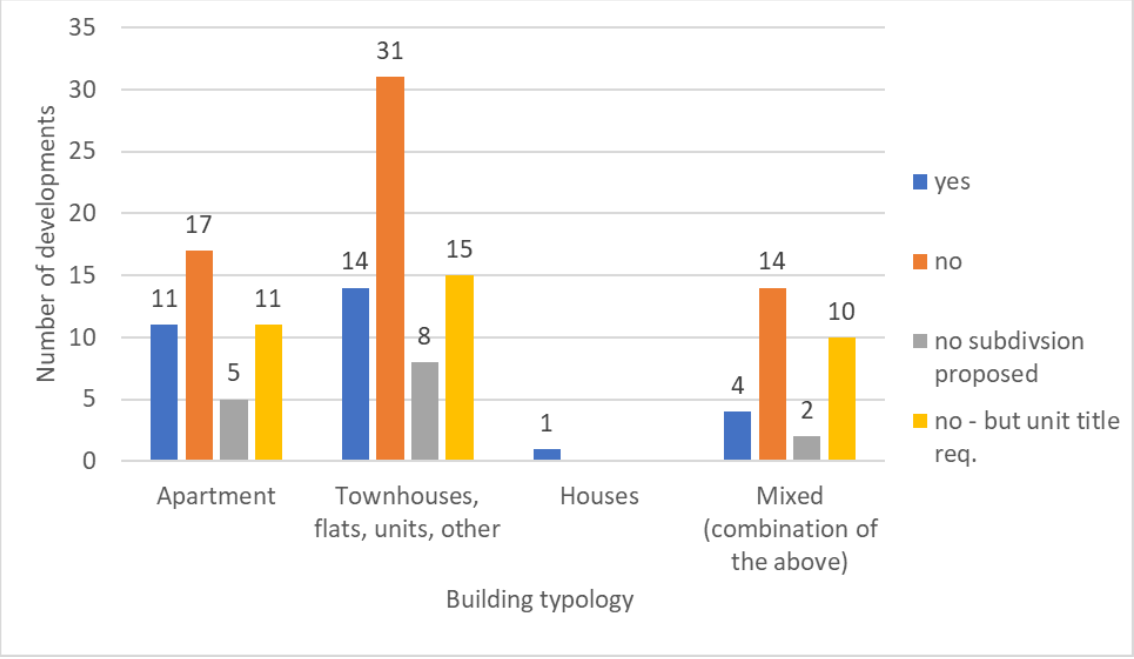
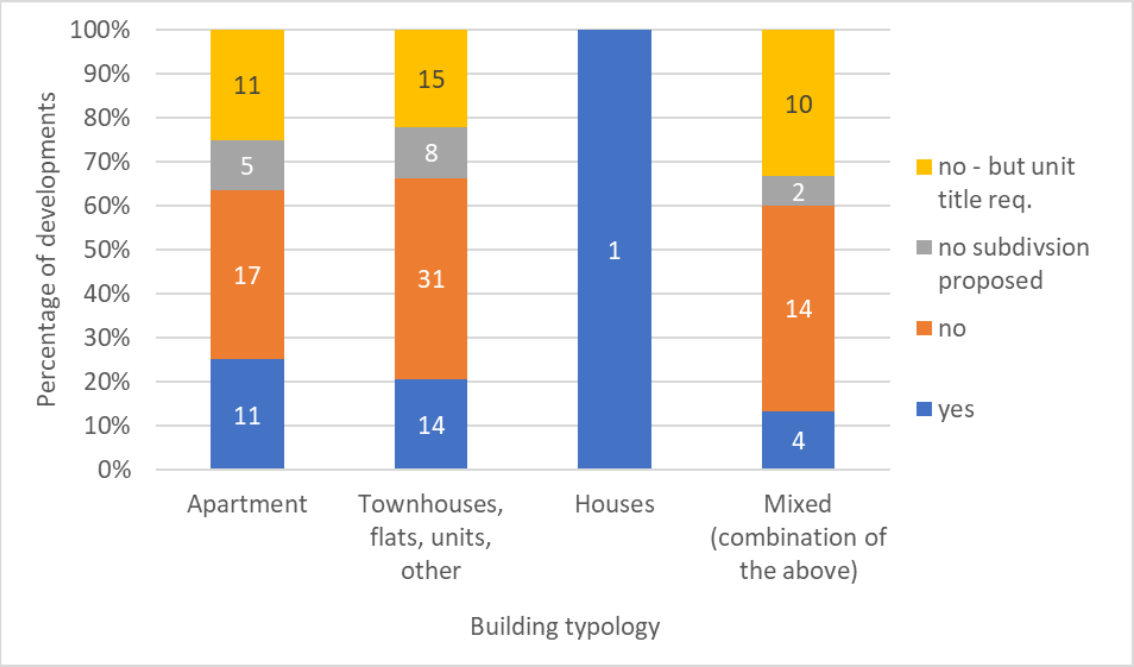


Figure 72: Percentage of incorporated society provision by building typology



6.7.2.3 Accessway length – provision of incorporated society

Figure 73 and Figure 74 show the incorporated society provisions for different accessway lengths. The data shows that

- developments with accessways over 100 m in length are more likely to have provisions for incorporated facilities.
- there is a decreasing trend in provisions as the accessway length increases.

Figure 73: Number of incorporated societies by accessway length

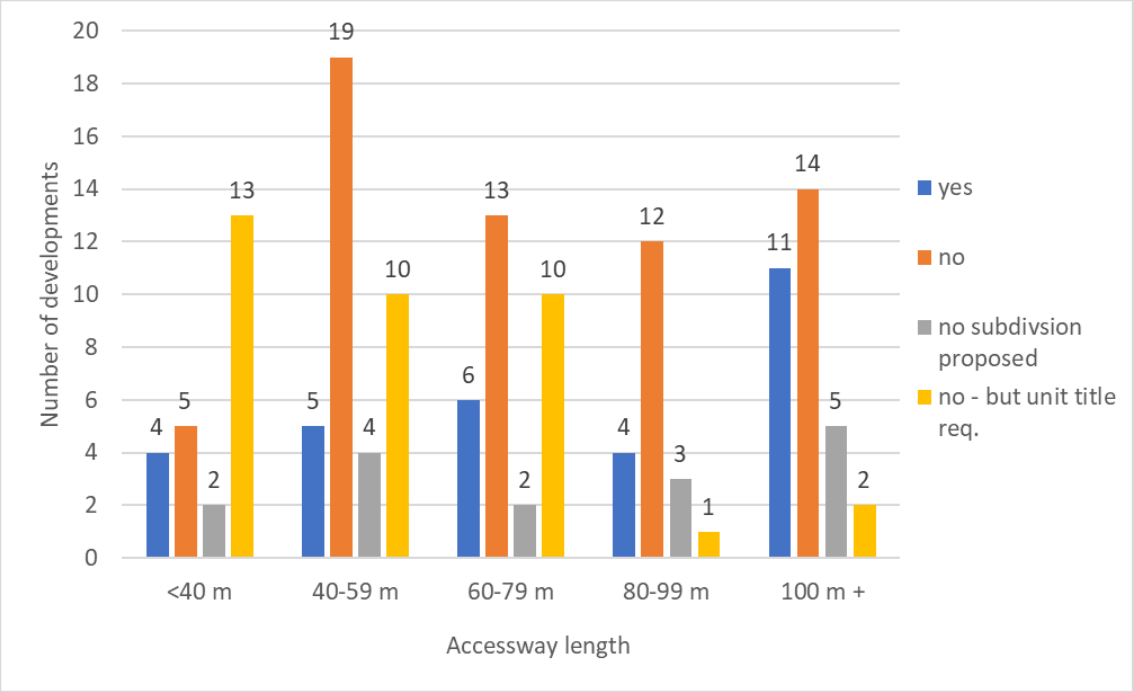
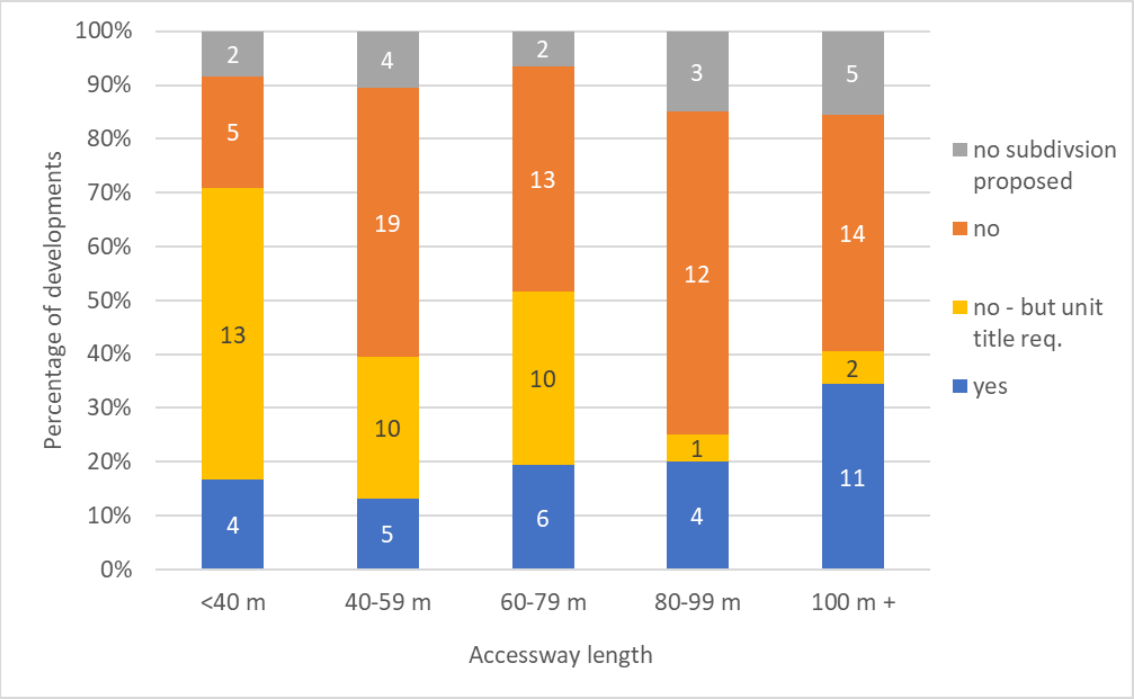


Figure 74: Percentage of incorporate society provision by accessway length



6.7.3 Conclusions and recommendations

The large number of developments that lack incorporated societies and/or unit title schemes raise the concern of how these developments are able to effectively maintain any communal areas in their respective development such as the accessway. The lack of such schemes on longer accessways raises concern as it is these accessways that require these schemes the most due to the amount of accessway space that needs maintaining.

More guidance to developers on how important it is to provide such a scheme in lower density developments (e.g. for townhouses, flats, and detached units), and/or the introduction of provisions in the AUP to require incorporated societies or unit title schemes in multi-unit developments would help to ensure that poor maintenance issues for communal spaces and accessways do not occur in the future.

7 CONCLUSIONS AND RECOMMENDATIONS

An analysis of the monitoring data of approved resource consents for residential developments with 10 or more dwellings was conducted to assist in quantifying the extent of issues related to the achieved outcomes for accessways under the current E27 and E38 provisions.

The analysis showed that the AUP provisions for accessways in E27 and E38 do not enable outcomes in line with the objectives and policies of the AUP RPS and fail to provide consistent safe pedestrian access in shared accessways.

The analysis included the assessment of different aspects of accessways under 7 themes. The key findings and recommendations from each of the themes are summarised below.

General accessway information

Approximately 60 % of consented developments have between 10 - 19 dwellings per development accessed by a shared accessway. Considering that many of the requirements for accessways in E27 are currently linked to the number of parking spaces served by an accessway and the removal of parking minimums from the AUP, there is a need to establish dwelling-based triggers to ensure the access provided is suitable for the scale of development.

Accessway design

The assessment of accessway design outcomes included the following aspects of shared accessways:

- Accessway width
- Carriageway width
- Manoeuvring and turning circles
- Gradient

The following key issues have been identified and should be considered further:

- Conflicting provisions in the AUP E27 and E38 chapters were identified.
- The monitoring data shows that there is a need for further provisions as developments increase in scale. Currently a development with 10 dwellings relies on the same provisions as a development with 100 dwellings and does not consider the increased risk associated with the increased exposure of larger developments.
- Further investigation into the accessway gradient outcomes for heavy vehicles is required due to limitations of the monitoring data.
- The monitoring data on accessway and carriageway widths indicated that accessway widths are likely only wide enough to allow for vehicle traffic, resulting in poor outcomes for pedestrians.

  It is recommended that the AUP provisions on accessway and carriageway widths are reviewed to ensure that all development sizes have appropriate accessway widths to provide for consistent and safe outcomes for all users.
- A large percentage of developments are not providing on-site manoeuvring space with provisions for manoeuvring space only increasing when accessway lengths exceed 100 m. A lack of onsite

manoeuvring space means that vehicles will most likely need to reverse off the site. This not only poses safety risks to the accessway users but also where the accessway connects to the public road. This raised concerns on the compliance and effectiveness of the AUP provisions in eliminating unsafe reversing manoeuvring from sites.

Pedestrian accessways

The analysis identified a lack of and inconsistent provisions for pedestrian accessways under the AUP. Although the analysis showed that most of the developments complied with the AUP provisions, several pedestrian safety issues have been identified, including:

- Conflicts between users due to insufficient physical separation from carriageways
- Poor accessibility and lack of footpaths to cater for two-way movements between pedestrians or mobility users

A plan change introducing minimum standards and/ or strengthening of existing provisions in relation to pedestrian footpaths is recommended.

Lighting

The introduction of further guidance and/or stronger lighting provisions in the AUP is recommended to ensure that appropriate artificial outdoor lighting is provided within shared accessways, including driveways, carparking and pedestrian access areas.

Parking

The analysis showed that developments generally provide carparking, however, given the removal of car parking minimums from the AUP, it is anticipated that there will be a growing trend of developments with low parking provisions. The reliance on the number of carparks as a guide for accessway design requirements is therefore no longer suitable to ensure adequate accessway provisions in line with the scale of development.

With regard to vehicle accesses, the AUP sets carparking thresholds for the access width and provision of footpaths. Where parking is not provided in a development, or provided at low rates, there is a risk that pedestrian safety and accessibility will be compromised.

Waste management

There is a strong trend of larger developments relying on the use of private contracts for waste collection in the sampled developments. Overall, there is a poor trend in the management of waste on sites as a result of the lack of comprehensive AUP standards.

The location of waste collection data showed that bins collected within the accessways communal area is increasingly popular as the scale of developments increase. This highlights the need for clear guidance on accessway design requirements for different waste collection methods to ensure safe access and manoeuvring of waste trucks on the site.

Ownership and ongoing maintenance

Approximately 43 % of sampled developments lack incorporated societies or unit title schemes. This raises concern that developments are unable to effectively maintain shared accessways.

The introduction of provisions in the AUP to require incorporated societies or unit title schemes in multi-unit developments would help to ensure that poor maintenance issues for communal spaces and accessways do not occur in the future.

APPENDIX A E27 and E38 Provisions

E27.6.4. Access

E27.6.4.1. Vehicle Access Restrictions

(1) Vehicle Access Restrictions apply and new vehicle crossings must not be constructed to provide vehicle access across that part of a site boundary which is subject to:

(a) a Vehicle Access Restriction – General Control as shown on the planning maps in the Business – City Centre Zone; or

(b) a Key Retail Frontage Control as shown on the planning maps;

infringing this standard is a non-complying activity unless the application involves:

(i) the use of an existing vehicle crossing to service the establishment of a new activity, a change of activity type, the expansion or intensification of an existing activity or where a building(s) is constructed, or additions to buildings that are not permitted activities in:

- Table H8.4.1 Activity table;
- Table H9.4.1 Activity table; or
- Table H10.4.1 Activity table;

(ii) the construction of a new vehicle crossing and the establishment of the vehicle crossing is to relocate and/or amalgamate an existing vehicle crossing or crossings serving the site, that will reduce or otherwise not increase either the number of crossings or width of crossings serving a site; or there is no other means of accessing a site

where Standards E27.6.4.1(1)(b)(i) and E27.6.4.1(1)(b)(ii) apply the activities require a restricted discretionary activity consent.

(2) Standard E27.6.4.1(3) below applies in any of the following circumstances:

(a) a new vehicle crossing is proposed;

(b) a new activity is established on a site;

(c) there is a change of type of activity; or

(d) a building(s) is constructed, or additions to buildings that are not permitted activities in:

- Table H8.4.1 Activity table;
- Table H9.4.1 Activity table;

- Table H10.4.1 Activity table;
- Table H11.4.1 Activity table;
- Table H12.4.1 Activity table;
- Table H13.4.1 Activity table;
- Table H14.4.1 Activity table; or
- Table H15.4.1 Activity table

except that this does not apply in the case of a dwelling where the reconstruction, alteration or addition does not increase the number of dwellings on a site.

(3) Vehicle Access Restrictions apply and vehicle crossings must not be constructed or used to provide vehicle access across that part of a site boundary which:

(a) is located within 10m of any intersection as measured from the property boundary, illustrated in Figure E27.6.4.1.1;

(b) is subject to the following types of Vehicle Access Restriction as identified on the planning maps in the zones listed in Table E27.6.4.1.1;

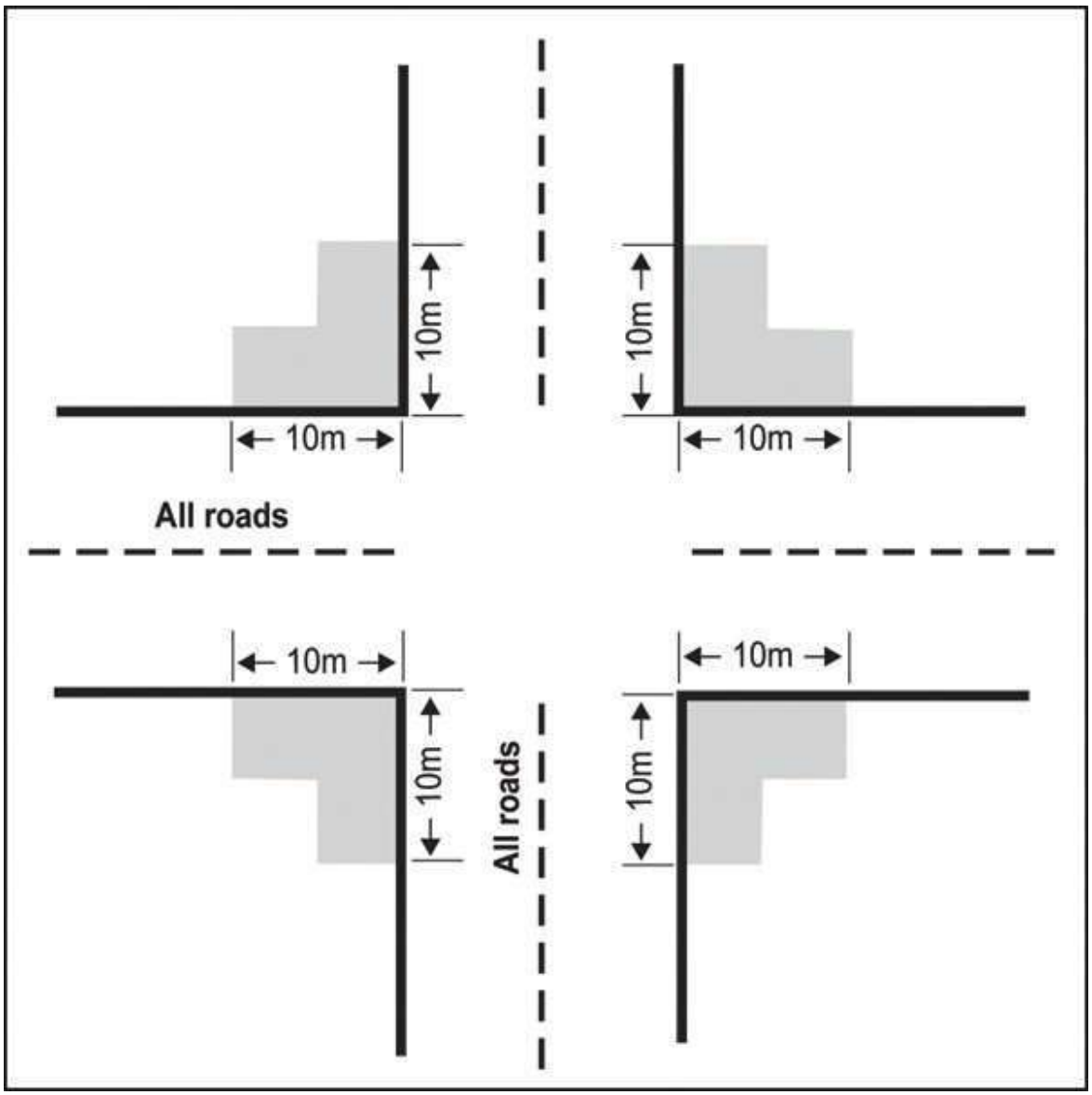
(c) has frontage to an arterial road as identified on the planning maps; or

(d) is located closer than 30m from a railway level crossing limit line.

Table E27.6.4.1.1 Types of Vehicle Access Restrictions

Type of Vehicle Access Restriction		Zone
(T140)	Vehicle Access Restriction General Control	All zones except the Business – City Centre Zone which is covered in Standard E27.6.4.1(1)(a)
(T141)	Vehicle Access Restriction Motorway Interchange Control	All zones
(T142)	Vehicle Access Restriction Level Crossing Control	All zones

Figure E27.6.4.1.1 Vehicle crossing restrictions 10m



E27.6.4.2. Width and number of vehicle crossings

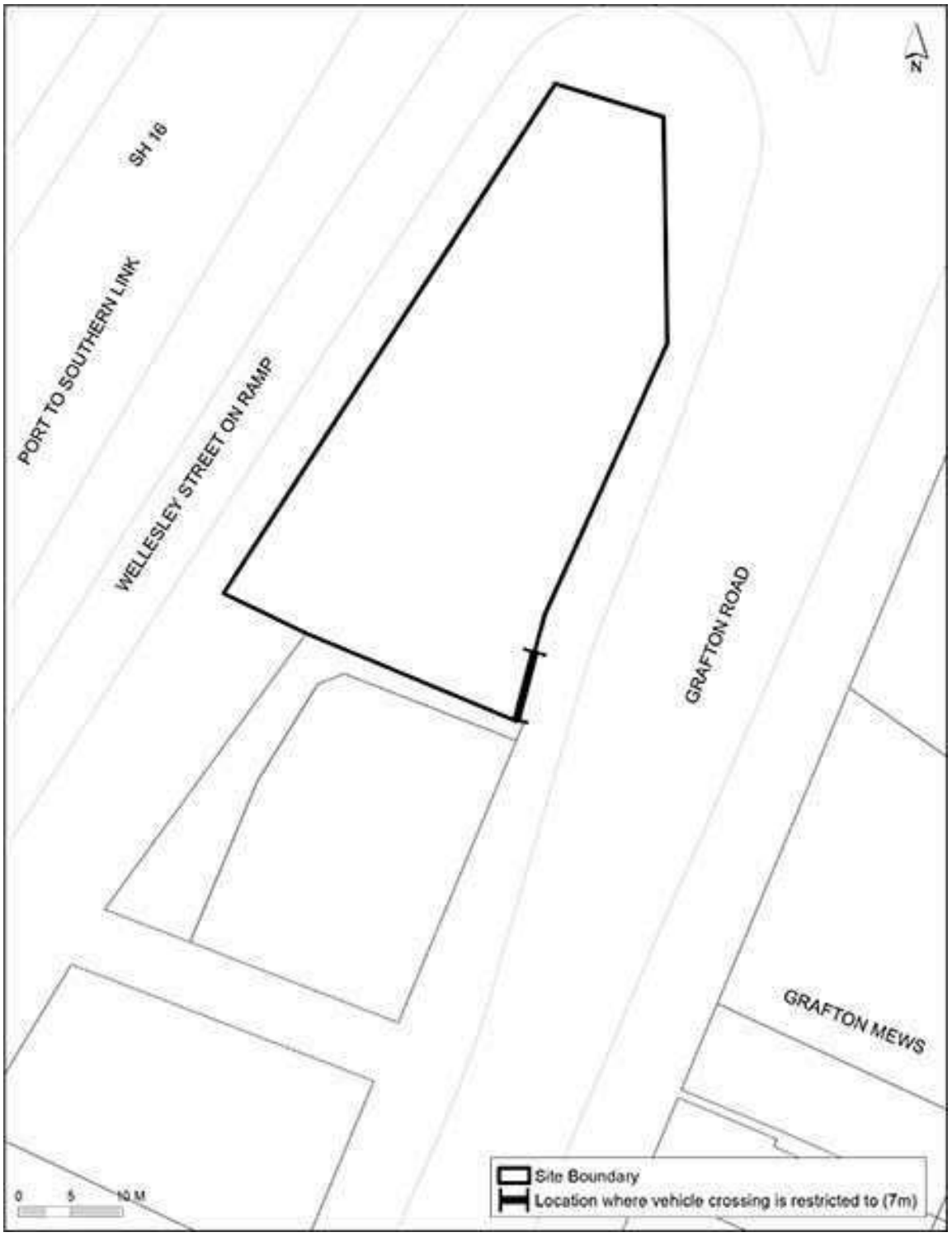
(1) The maximum number of vehicle crossings permitted for any site and separation distance between crossings is specified in Table E27.6.4.2.1.

Table E27.6.4.2.1 Maximum number of vehicle crossings and separation distance between crossings

Location		Maximum number of vehicle crossings per road frontage of the site	Minimum separation from crossings serving adjacent sites	Minimum separation between crossings serving same site
(T143)	That part of a site subject to: • a Vehicle Access Restriction General Control in the Business – City Centre Zone • a Key Retail Frontage Control as shown on the planning maps	No crossings permitted	No crossings permitted	No crossings permitted
(T144)	That part of a site subject to: • a Vehicle Access Restriction under Standards E27.6.4.1(2) and E27.6.4.1(3) (see additional limitation below for site at 71-75 Grafton Road) • a General Commercial Frontage Control as shown on the planning maps	1 per 50m of frontage or part thereof	2m Where two crossings on adjacent sites can be combined and where the combined crossings do not exceed a total width of 6m at the property boundary, no minimum separation distance will apply	6m
(T145)	Site at 71-75 Grafton Road	1 - located within the area identified on Figure E27.6.4.2.1	No limitation	Only one crossing permitted
(T146)	All other sites	1 per 25m of frontage or part thereof	2m Where two crossings on adjacent sites can be combined and where the combined crossings do not exceed a total width	6m

			of 6m at the property boundary, no minimum separation distance will apply	

Figure E27.6.4.2.1 Location of vehicle crossing at 71-75 Grafton Road



(2) The width of a vehicle crossing(s) must meet the minimum width and not exceed the maximum width as specified in Table E27.6.4.3.2.

(3) With the exception of vehicle crossings on unsealed roads, all vehicle crossings must be designed and constructed to maintain the level, colour, and materials of the footpath to clearly identify to vehicles that pedestrians have priority.

(4) Vehicle crossings on unsealed roads:

(a) where the vehicle crossing is served by an access steeper than 1 in 8, the vehicle crossing must be sealed for 6m between the site boundary and the unsealed road.

(b) vehicle crossings not covered by Standard E27.6.4.2(3)(a) above must be formed using materials similar to the existing road surface or better.

(5) Where a vehicle crossing is altered or no longer required, the crossing, or redundant section of crossing, must be reinstated as berm and/or footpath and the kerbs replaced. The cost of such work will be borne by the owner of the site previously accessed by the vehicle crossing.

Note 1 – Any new vehicle crossing or alteration of an existing vehicle crossing (e.g. replacement, widening or relocation) will require vehicle crossing approval from Auckland Transport as road controlling authority.

E27.6.4.3. Width of vehicle access and queuing requirements

(1) Every on-site parking and loading space must have vehicle access from a road, with the vehicle access complying with the following standards for width:

(a) passing bays are provided in accordance with Table E27.6.4.3.1; and

(b) meeting the minimum formed access width specified in Table E27.6.4.3.2.

(2) Access must be designed so that vehicles using or waiting to use fuel dispensers, ticket vending machines, remote ordering facilities and devices, entrance control mechanisms, or other drive-through facilities do not queue into the adjoining road reserve or obstruct entry to or exit from the site.

Table E27.6.4.3.1 Passing bay requirements

Zone		Length of access	Width of access	Maximum intervals between passing bays	Passing bay width
(T147)	Rural	Exceeds 100m	Less than 5.5.m	100m	Increase formed width of access to 5.5m over a 15m length (to allow two vehicles to safely pass each other)
(T148)	All other zones	Exceeds 50m		50m	Increase formed width of access to 5.5m over 7m with 45^{O} tapers

Table E27.6.4.3.2 Vehicle crossing and vehicle access widths

Location of site frontage		Number of parking spaces served	Minimum width of crossing at site boundary	Maximum width of crossing at site boundary	Minimum formed access width
(T149)	Residential zone	Serves 1 or 2 parking spaces	2.75m	3.0m	2.5m provided it is contained within a corridor clear of buildings or parts of a building with a minimum width of 3m
(T150)		Serves 3 to 9 parking spaces	3.0m (one way)	3.5m (one way)	3.0m provided it is contained within a corridor clear of buildings or parts of a building with a minimum width of 3.5m
(T151)		Serves 10 or more parking spaces	5.5m (two-way)	6.0m (two-way)	5.5m (providing for two-way movements) The formed width is permitted to be narrowed to 2.75m if there are clear sight lines along the entire access and passing bays at 50m intervals are provided. 1.0m pedestrian access for rear sites which may be located within the formed driveway
(T152)	Centres, Mixed Use and all other	Serves nine or less parking	3.0m (one way)	3.5m (one way)	3.0m provided it is contained within a corridor clear of buildings or parts of a building with

	zones not listed below	spaces			a minimum width of 3.5m
(T153)		Serves 10 or more parking spaces or three	5.5m (two-way)	6.0m (two-way)	5.5m (providing for two-way movements) 1.5m pedestrian access for rear sites
(T154)	General Business, Business Park or Industrial zones	Serves nine or less parking spaces	3.7m (one way)	4.0m (one-way)	3.0m provided it is contained within a corridor clear of buildings or parts of a building with a minimum width of 3.5m
(T155)		Serves 10 or more parking spaces	6.0m (two-way)	7m (two-way)*	6.0m (providing for two-way movements)
(T156)	Rural zones		3.0m	6.0m*	No minimum specified

* Provided that a maximum width of 9.0m is permitted where the crossing needs to accommodate the tracking path of large heavy vehicles

Note 1

Minimum vehicle crossing widths to the State Highway network may be greater than those above. All access to the State Highway network requires the approval of the New Zealand Transport Agency under the Government Roading Powers Act 1989. Applicants are advised to contact the New Zealand Transport Agency's Auckland Office.

E27.6.4.4. Gradient of vehicle access

(1) The gradient of the access must not be steeper than specified in Table E27.6.4.4.1:

Table E27.6.4.4.1 Gradient of vehicle access

Access type		Maximum gradient
(T156A)	Vehicle access serving one residential rear site	1 in 4 (25 per cent)
(T157)	Vehicle access serving any other residential activities (including rear sites)	1 in 5 (20 per cent)
(T158)	Vehicle access used by heavy vehicles	1 in 8 (12.5 per cent)
(T159)	Vehicle access serving all other activities	1 in 6 (16.7 per cent)

Note 1

For curved ramps and driveways, the gradient is measured along the inside radius (refer to Figure E27.6.4.4.1).

(2) To avoid the underside of the car striking the ground, as illustrated in Figure E27.6.4.4.2, access with a change in gradient exceeding 1 in 8 (greater than 12.5 per cent change) at the summit or a 1 in 6.7 (15 per cent change) at a sag must include transition sections to achieve adequate ground clearance, refer to Figure E27.6.4.4.3. Typically, a transition section requires a minimum length of 2m.

(3) All vehicle access must be designed so that where the access adjoins the road there is sufficient space onsite for a platform so that vehicles can stop safely and check for pedestrians and other vehicles prior to exiting. This is illustrated in Figure E27.6.4.4.4. The platform must have a maximum gradient no steeper than 1 in 20 (5 per cent) and a minimum length of 4m for residential activities and 6m for all other activities.

Figure E27.6.4.4.1 Curved ramp diagram

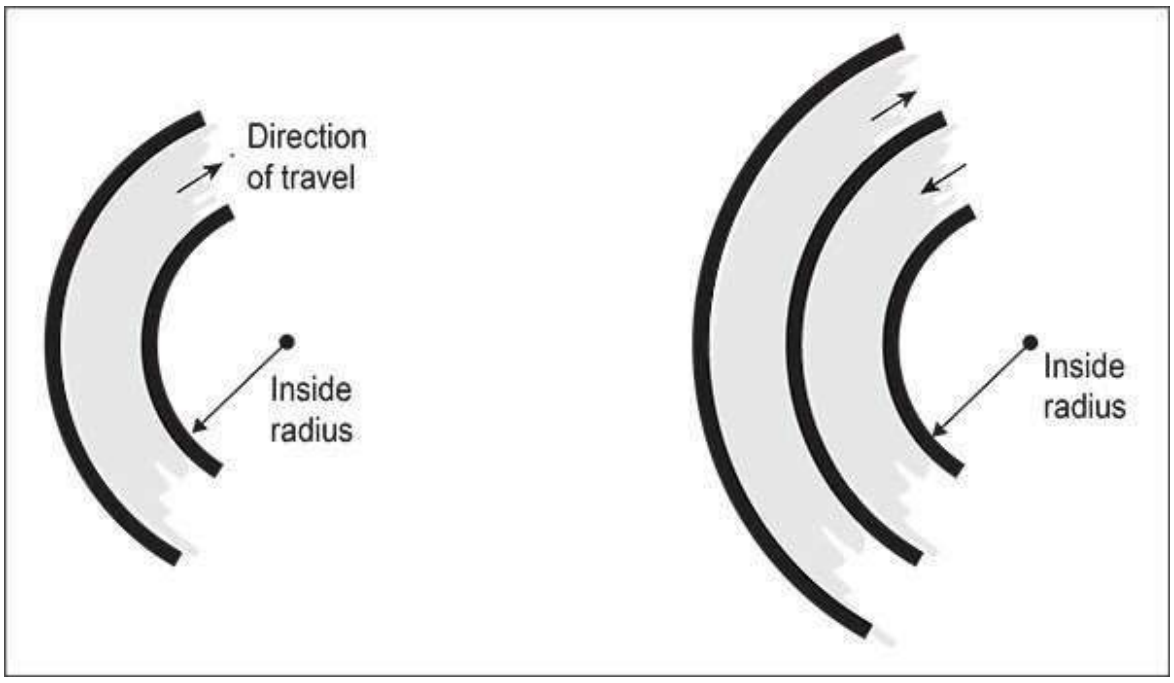
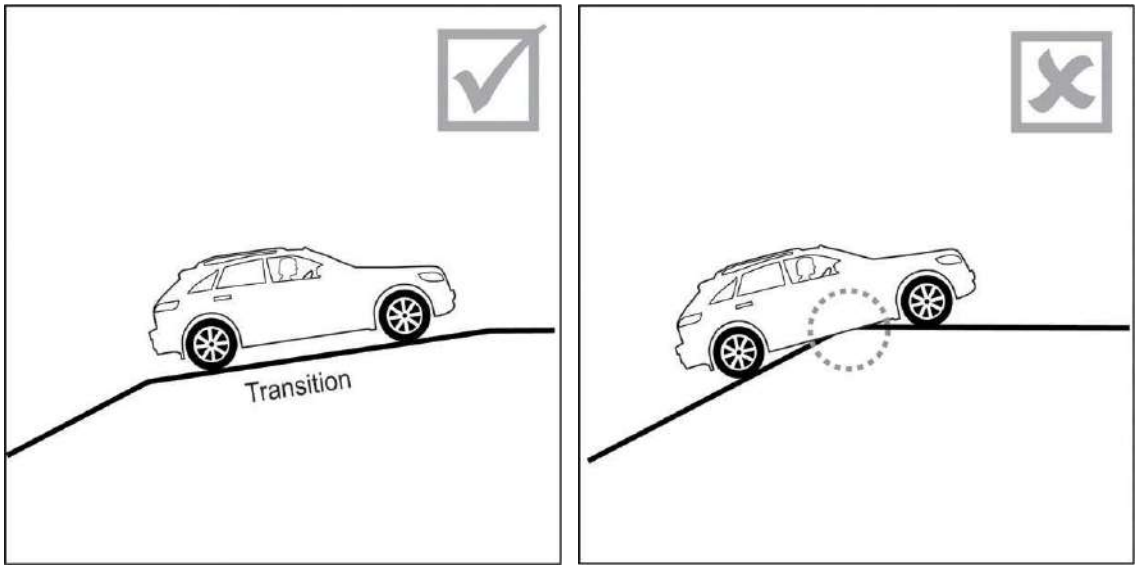
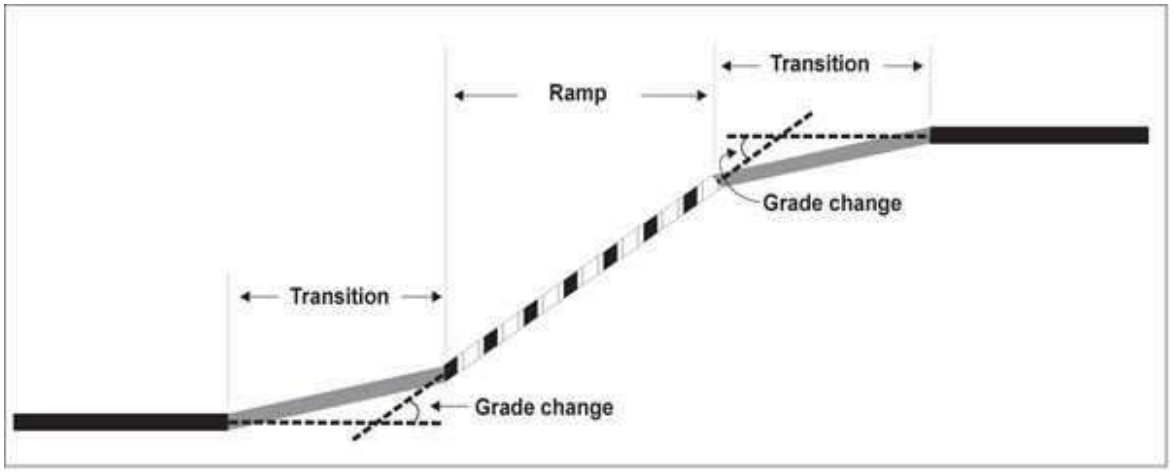


Figure E27.6.4.4.2 Illustrating the benefit of transitions



Correct Incorrect

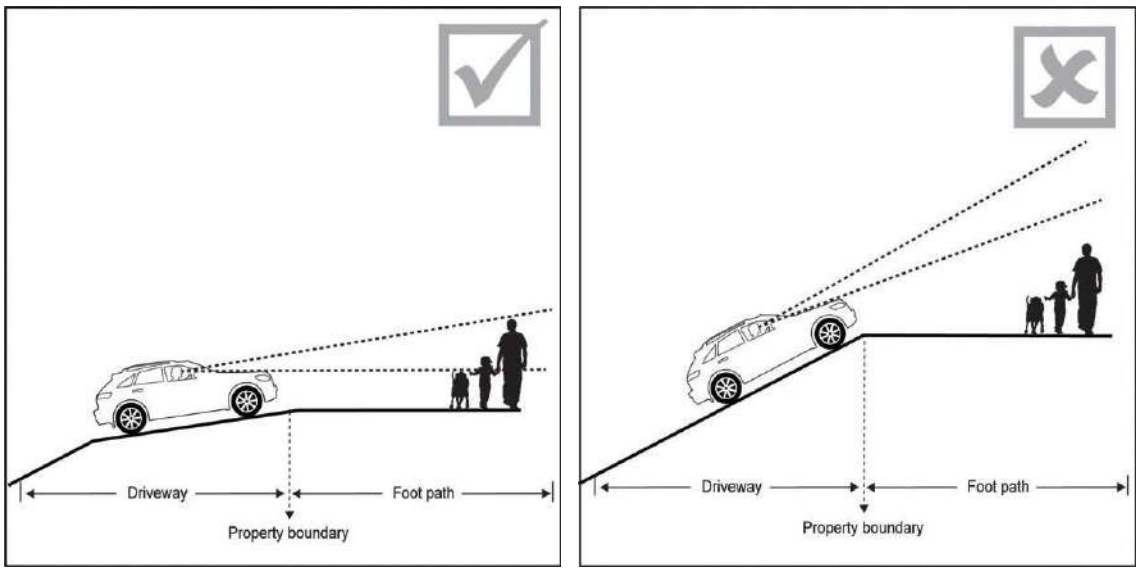
Figure E27.6.4.4.3 Gradient transition



Note 1

The gradient change is determined by subtracting one gradient from the adjacent gradient, both expressed as percentages; if this is greater than a 12.5 per cent change, then a gradient transition will be required.

Figure E27.6.4.4.4 Illustrating the benefits of a level platform



Correct Incorrect

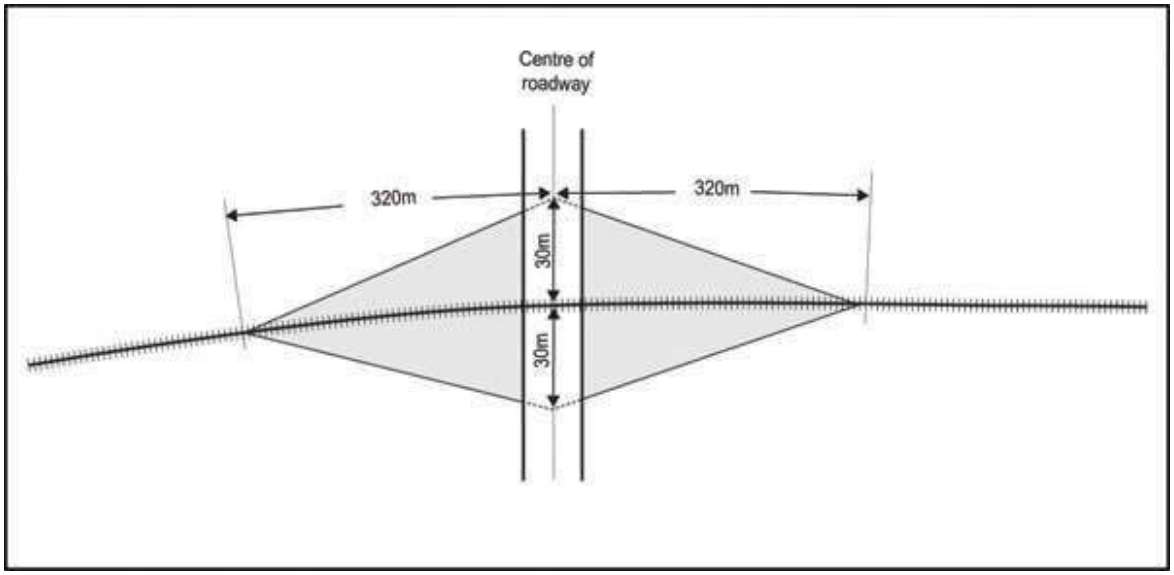
E27.6.4.5. Sightlines for road/rail level crossings

(1) Sites subject to sightlines for level crossings are identified on the planning maps by the Level Crossings with Sightline Control. If alarms and/or barrier arms are subsequently installed at a level crossing with Stop or Give Way signs, the Approach sight triangle in Figure E27.6.4.5.1 below ceases to apply.

(2) Approach sight triangles (refer to Figure E27.6.4.5.1)

(a) on sites adjacent to the Level Crossings with Sightline Control buildings and other visual obstructions, cannot be located within the approach sight triangles identified on the planning maps.

Figure E27.6.4.5.1 Approach sight triangles for rail level crossings with 'stop' or 'give way' signs

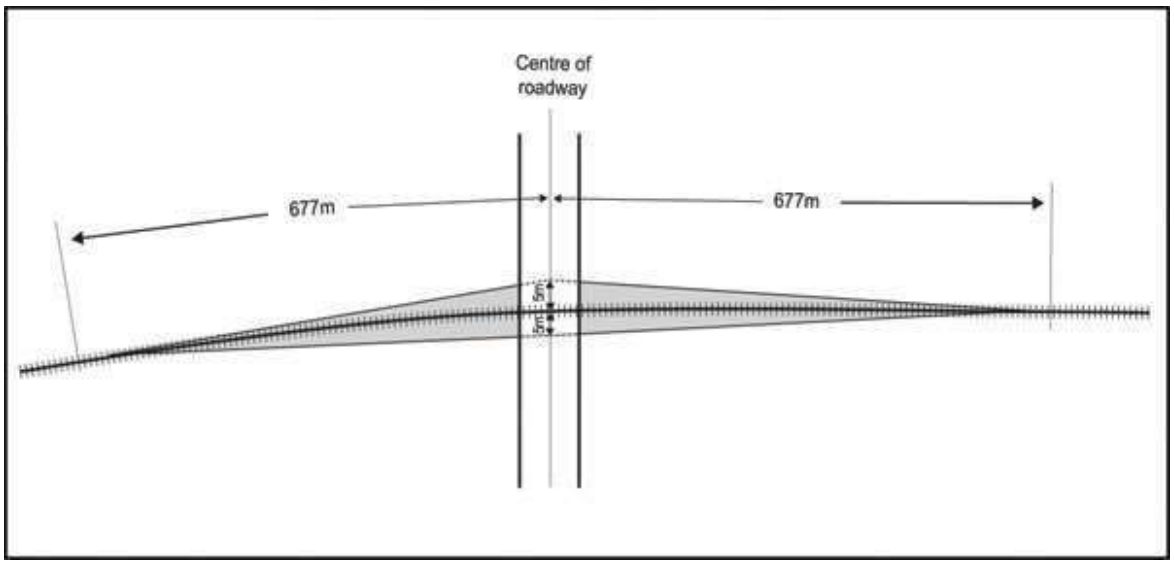


(b) the approach sight triangles are calculated by reference to Figure E27.6.4.5.1. For a single set of railway tracks, the sight triangles are defined by a triangle taken 30m from the outside rail and 320m along the railway track. For each additional set of tracks, 25m is added to the 320m along the railway track.

(3) Restart sight triangles (see Figure E27.6.4.5.2)

(a) on sites adjacent to the Level Crossings with Sightline Control, buildings and other visual obstructions, cannot be located within the restart sight triangles identified on the planning maps. The restart triangle applies to all level crossings.

Figure E27.6.4.5.2 Restart sight site triangles for rail level crossings



(b) the restart sight triangles are calculated by reference to Figure E27.6.4.5.2. For a single set of tracks, the sight triangles are defined by a triangle taken 5m from the outside rail and 677m along the railway track. For each additional set of tracks, 50m is added to the 677m along the railway track.

E38.8.1.2. Access to rear sites

(1) A single jointly owned access lot or right-of-way easement must not serve more than ten proposed rear sites.

(2) Vehicle access to proposed sites without direct vehicular access to a formed legal road must be by way of an entrance strip, jointly owned access lot or right-of-way easement over adjoining land, or by a combination of these mechanisms, provided the total width and other dimensions of the access comply with the standards in Table E38.8.1.2.1 Access to rear sites below.

Table E38.8.1.2.1 Access to rear sites

	Total number of rear sites served		
	1	**2 – 5**	**6 - 10**
Minimum legal width	3.0m	3.5m	6.5m
Minimum formed width	2.5m	3.0m	5.5m
Minimum service strip	0.5m	0.5m	1.0m
Maximum length	50m	50m	100m Note 1
Maximum gradient	1 in 4	1 in 5	
Minimum vertical clearance from buildings or structures	3.8m		
Minimum inside turning radius for bends	6.5m		

Note 1

For accessways greater than 50 metres in length speed management measures should be considered.

(3) Accessways serving six or more rear sites must provide separate pedestrian access, which may be located within the formed driveway.

(4) The pedestrian access required by E38.8.1.2(3) must meet all of the following:

(a) have a minimum width of 1 metre;

(b) can include the service strip; and

(c) be distinguished from the vehicle carriageway through the use of a raised curb or different surface treatment.

APPENDIX B Indicators

Indicator	Measures / Key Question(s) to Address	Assumptions
General Accessway Information		
Number of new dwellings proposed	**What is the scale of the development**	
Total number of accessways	**Does the development comply with standard E38.8.1.2(1) which requires that an accessway serves no more than 10 proposed new rear sites**	**Unit title subdivision will always produce 1 accessway**
How many accessways serve more than ten dwellings	**As above**	
Maximum number of dwellings served by an accessway	**As above.**	
Does the decision identify an infringement against standard E38.8.1.2(1) access to rear sites	**What are the practices across the region where subdivision is proposed around an approved land use consent**	**Standard will not apply to unit title subdivision per AUP definition of 'site'**
Has the requirement for an incorporated society or other common entity been conditioned	**Are long term maintenance and upkeep requirements of the accessway addressed**	**A body corporate will always be required for unit title subdivision under the Unit Titles Act**
Accessway Construction Details		
Does the entire accessway comply with minimum access width requirements for serving 10+ rear sites/parking spaces	**Would the accessway meet the minimum legal and formed width requirements for access serving 6-10 rear sites in standards E38.8.1.2(2) and E27.6.4.3(1)**	
What is the average legal width of the accessway (m)	**As above**	**N/A for unit title subdivision per AUP definition of 'site'**
What is the average formed width of the accessway (m)	**As above**	
What is the total length of the accessway	**Would the accessway meet the maximum length requirement for access serving 6-10 rear sites in standard E38.8.1.2(2)**	

Does the accessway provide a turning head or thoroughfare to another public road	**Is there sufficient manoeuvring space for larger vehicles i.e., waste collection, emergency services, etc.**	
Does any part of the accessway exceed a gradient of 1:5 or 20%	**Would the accessway meet the maximum gradient requirement for access serving 6-10 rear sites in standard E38.8.1.2(2) and the requirement for the relevant residential activity in standard E27.6.4.4(1)** **How do the gradients of accessways compare to requirements for public roads**	**Relying on sections where cross sections or site plans show this**
What is the steepest grade	**As above**	
Where the steepest grade exceeds 1:5 or 20%, What is the distance covered by the steepest grade	**As above**	
Where the steepest grade exceeds 1:5 or 20%, how many dwellings are affected	**As above**	
User Safety and Amenity		
Is a footpath provided within the accessway (relative to the formed accessway)	**Does the accessway comply with standards E38.8.1.2(3) and (4) and E27.6.4.3(1)(b)for the provision of pedestrian access**	
Where a footpath is provided, how is it differentiated	**Where a footpath is provided, how does the outcome compare to requirements for public roads**	
What is the width of the footpath	**Does the accessway comply with rule E38.8.1.2(4) for the minimum width of pedestrian access** **For larger scale developments, how does the outcome compare to requirements for public roads**	

Is the footpath located within the formed carriageway width	**Standards E38.8.1.2(3) and E27.6.4.3(1) allow pedestrian access to be located within the formed driveway. This can result in shared zones which are unsafe for pedestrians where the scale of residential development (and vehicles) increases beyond 10 rear sites. Is this a prevalent issue and does it create a safety issue in larger scale developments?**	
How many dwellings are accessed via a footpath only	**Are there any prominent trends in site layout emerging, particularly in the context of the removal of parking minimums**	
Is there lighting within the accessway	**Where lighting is provided, how does the outcome compare to streetlight requirements for public roads**	
Is there landscaping within the accessway	**Is there landscaping within the accessway** **Where landscaping is provided, how does the outcome compare to landscaping/planting within public roads**	
What is the setback between the dwelling and accessway	**Are sufficient building setbacks from the accessways being achieved? The front yard setback standard in residential zones is only applicable where a site has a boundary line that adjoins a road**	**For freehold subdivision, measure between the front of the dwelling and PW.** **For unit title subdivision, measure between the dwelling and closest formed feature (footpath, vehicle carriageway etc)**
What is the percentage of landscaping between the dwelling and accessway	**Is sufficient landscaping between the dwelling and accessway being achieved? The front yard landscaping standard in residential zones is only applicable where a site has a boundary line that adjoins a road**	

Which immediately adjoining ground level room or feature overlooks the PW	**Does building layout achieve passive surveillance by locating active living areas adjacent to the accessway** **Is there visual dominance from garage doors facing the accessway?** **Zone policies encourage development to provide for passive surveillance and minimise the visual dominance of garage doors in order to achieve attractive and safe streets and open spaces. These policies do not apply where a development does not face a 'street'.**	**N/A where the accessway does not immediately adjoin a dwelling, i.e., distance is too far or there is something in between blocking passive surveillance i.e., parking pad**
Parking		
Number of car parks per dwelling (excluding visitor and accessible parking)	**Are there any prominent trends in the provision of parking emerging, particularly in the context of the removal of parking minimums**	
What percentage of dwellings are provided with a dedicated parking space	**As above**	
What is the predominant type of parking provided across the development	**As above**	
How many dwellings in the entire development are located more than 30m[1] from the shared parking area (or road where no parking for those dwellings are provided)	**Are there potential accessibility effects associated with the site layout**	**Will only apply where there is shared communal parking** **Taken from the closest edge of the closest parking pad to the dwellings** **Measure from the road where there are dwellings that do not have allocated parking spaces**
Mail		

Where are letter boxes located	**Does the development create potential visual streetscape effects by locating letter boxes at the site frontage**	
Domestic Waste Collection		
Method of collection	**Is the development more likely to utilise a private contractor because of the accessway design** **This may be due to the formation of the accessway not being able to accommodate council's contracted waste collection trucks**	
Location of collection point	**Is there consideration of the collection point location** **Does the accessway create issues with multiple bins being left out on the kerb on collection days**	
Location of bin storage	**Is there consideration of the bin storage location** **Is sufficient space being made available for bin storage**	

[1] The New Zealand Building Code (G15/AS1 (2.0.1)) specifies a maximum carry distance of 30m for occupants transferring waste from dwellings to waste bins. For larger developments this may mean that multiple waste storage areas are required.

https://content.aucklanddesignmanual.co.nz/regulations/design-for-the-rules/Documents/Design_Element_R7_Design_for_Waste.pdf

[2] Section 3.1.4: http://webapps.stoke.gov.uk/uploadedfiles/Urban%20Design%20Compendium%201.pdf