

Brooklyn to City Improvements Parking Management Plan

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Brooklyn to City Improvements Parking Management Plan

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Contents

1.	Introduction.....	2
2.	Parking Policy	4
3.	Current Parking Supply and Demand	5
3.1	March & June 2021 Surveys	5
3.2	February & March 2022 Surveys.....	7
3.3	2022 Parking Occupancy Survey Summary	13
4.	Proposed Changes to Parking Supply and Restrictions.....	15
4.1	Proposed Parking Supply Changes	15

Appendices

Appendix A.	2021 Parking Occupancy Survey.....	21
Appendix B.	2022 Parking Occupancy Survey.....	22

Tables

Table 1:	Key Transport Routes Parking Hierarchy.....	4
Table 2:	February & March 2022 Survey Locations, Park Types and Capacities.....	10
Table 3:	February & March 2022 Parking Occupancy.....	12
Table 4:	Proposed Parking Supply Changes Summary excluding Brooklyn Road	15
Table 5:	Proposed Parking Supply Change Summary Brooklyn Road	16

Figures

Figure 1:	Project Extents and Location Map	2
Figure 2:	Parking Zones for March and June 2021 Survey.....	5
Figure 3:	Average Park Occupancy During Weekdays on Brooklyn Road	6
Figure 4:	Average Park Occupancy During Weekend on Brooklyn Road.....	7
Figure 5:	February & March 2022 Survey Extents	7
Figure 6:	February and March 2022 Survey Zones	8
Figure 7:	Comparison of 2021 & 2022 Parking Occupancy	13
Figure 8:	Proposed Brooklyn Road Parking Changes.....	18
Figure 9:	Proposed Ohio Road Parking Changes.....	18
Figure 10:	Proposed Cleveland Street Parking Changes	19
Figure 11:	Proposed Washington Avenue Parking Changes	20
Figure 12:	Proposed Jefferson Street Parking Changes.....	20

1. Introduction

During mid-2021, Wellington City Council (WCC), through Waka Kotahi funding, installed a temporary uphill bike/scooter lane between Nairn Street to Ohiro Road, to trial a safer way for people to travel from central city to Brooklyn.

Following evaluation of the temporary lane, WCC Councillors at Planning and Environment Committee agreed to proceed with public consultation on making these changes permanent that will also include extension of the lane and making the area safer for pedestrians.

Jacobs were instructed by WCC late 2021 to design a permanent arrangement for the trial lane as well as wider active mode and PT improvements for the whole corridor between the SH1 Intersection with Victoria Street through to and including Cleveland Street in Brooklyn. The proposed options considered, and the preferred design is discussed in a separate report.

This Parking Management Plan (PMP) has been prepared for the 2.0km linear length of the Brooklyn to City Improvement Project and its connecting side roads between Webb Street / Willis Street intersection up to Cleveland Road as shown in the map in Figure 1.



Figure 1: Project Extents and Location Map

Note: The section of Webb Street and Victoria Street has been removed from the project following an agreement with WCC and the Let's Get Wellington Moving (LGWM) Programme.

The preferred option incorporates the following improvements / upgraded facilities:

- A new fully separated uni-directional cycle lane between Nairn Street North / Brooklyn Road Intersection uphill to Brooklyn Road / Ohiro Road Intersection.
- A new footpath between Nairn Street South to Brooklyn Road / Ohiro Road Intersection
- On-road cycle lanes, separated by a buffer where possible, between Brooklyn Road / Ohiro Road Intersection and Cleveland Road / Ohiro Road Intersection
- Improvements to walking infrastructure, connectivity, and accessibility, including new crossing facilities and upgrades to existing ones
- Improvements to public transport infrastructure, connectivity, and accessibility, including upgrades to existing bus stops

The Preliminary Design Report details processes involved to determine the preferred option including Concept design layout.

To achieve a high quality and safe route for everyone moving through this area, there is a requirement to use the road space in a different way. In summary, this requires reallocating the current road space (kerb to kerb) to provide safe and dedicated infrastructure for more vulnerable modes including walking and cycling. In some areas, this will mean less, or very little, space for on-street parking. Reducing on-street parking provides:

- Space for a two-way bike path and dedicated footpath separated from motor vehicle traffic
- Appropriate bus stop entry and exit tapers to allow buses to efficiently use bus stops
- Safe visibility entering and exiting driveways
- Space for heavy vehicles and buses to travel in both directions without having to cross the centre line.

To improve the area and balance the needs of people who walk, bike, drive, and use the area in different ways, Jacobs propose to reduce the amount of parking by **124 spaces** (63 were removed as part of the initial trial cycle lane and a further 61 spaces are required to be removed to implement the preferred option).

Car parking removal is not evenly spread, with most of the parking removal occurring on the southbound (uphill) direction of Brooklyn Road and both sides of Ohiro Road between the Ohiro Road / Brooklyn Road Intersection and the Ohiro Road / Cleveland Street Intersection. This is due to the permanence of the trial, extension of the route and subsequent improvements to pedestrian and public transport connectivity and accessibility along the corridor.

2. Parking Policy

WCC's Parking Policy was approved by Councillors in August 2020. The policy sets the objectives and principles for management of Council-controlled off-street and on-street parking that considers how parking management will support achieving the city's climate change goals and vision for a more sustainable city.

Within this policy is a parking space hierarchy that supports transport priorities to guide parking provision decisions and allocating parking spaces throughout the city. The parking space hierarchy describes types of parking that have the highest and lowest priorities in different areas. It also sets out the priority level for that type of parking space, not the number of spaces.

Within this hierarchy Brooklyn Road and Ohiro Road, as shown in Figure 1, are classified as arterial roads can be considered as a key transport route as it provides access to the southern communities of the city and the Southern Landfill site.

For key transport routes the hierarchy defines the priorities as shown in Table 1.

Location	Highest Priority	High Priority	Medium Priority	Low Priority	Lower Priority	Lowest Priority
Key Transport Routes	Safe and efficient movement of people and goods (footpaths, bus lanes, cycleways, no stopping zones/clearways, construction, and maintenance works)	Bus stops	-	Urban design features Mobility Loading zones Bicycle/micro-mobility Car share Electric-vehicle charging Short-stay (car & motorcycle) SPSV*/taxi stands Coach and bus (short stay)	Residents Commuter (car & motorcycle) Coach and bus (long stay)	The lowest priority across all areas is Long stay parking of private non-motorised vehicles (trailers, towed caravans, boats), advertising vehicles, heavy commercial vehicles and motorhomes

Table 1: Key Transport Routes Parking Hierarchy

The parking policy specifies that key transport routes include roads and streets where there are higher priority transport requirements, such as public transport over on-street parking. On these roads, on-street parking will be reduced or removed; either during peak traffic hours only or to create the road space for dedicated bus lanes or other forms of active and public transport.

In general, reducing on-street parking leads to several wider benefits that include:

- Better utilisation of space, that means we can:
 - transport more people or goods using the same amount of space
 - increase the people carrying capacity of roads leading into town and metro centres and increases the number of people that can remain in the centre (as the number of people that can visit is not constrained by parking availability)
 - free up the roads for the likes of freight, trades people and emergency services
 - can reduce travel times and improve travel time reliability
- Converting space to make the environment more attractive and enjoyable
- Converting space to other types of parking such as mobility, bicycle or micro-mobility

3. Current Parking Supply and Demand

3.1 March & June 2021 Surveys

WCC commissioned Stantec Consultants to undertake baseline parking occupancy for the pre cycle lane trial implementation in March 2021. To make best use of parking spaces and manage demand, occupancy should ideally be around 85%.

The survey area was initially divided into 24 zones as shown in Figure 2 with the number of available parking spaces calculated to be 176 on Brooklyn Road for all types of parking including coupon, restricted and unrestricted.

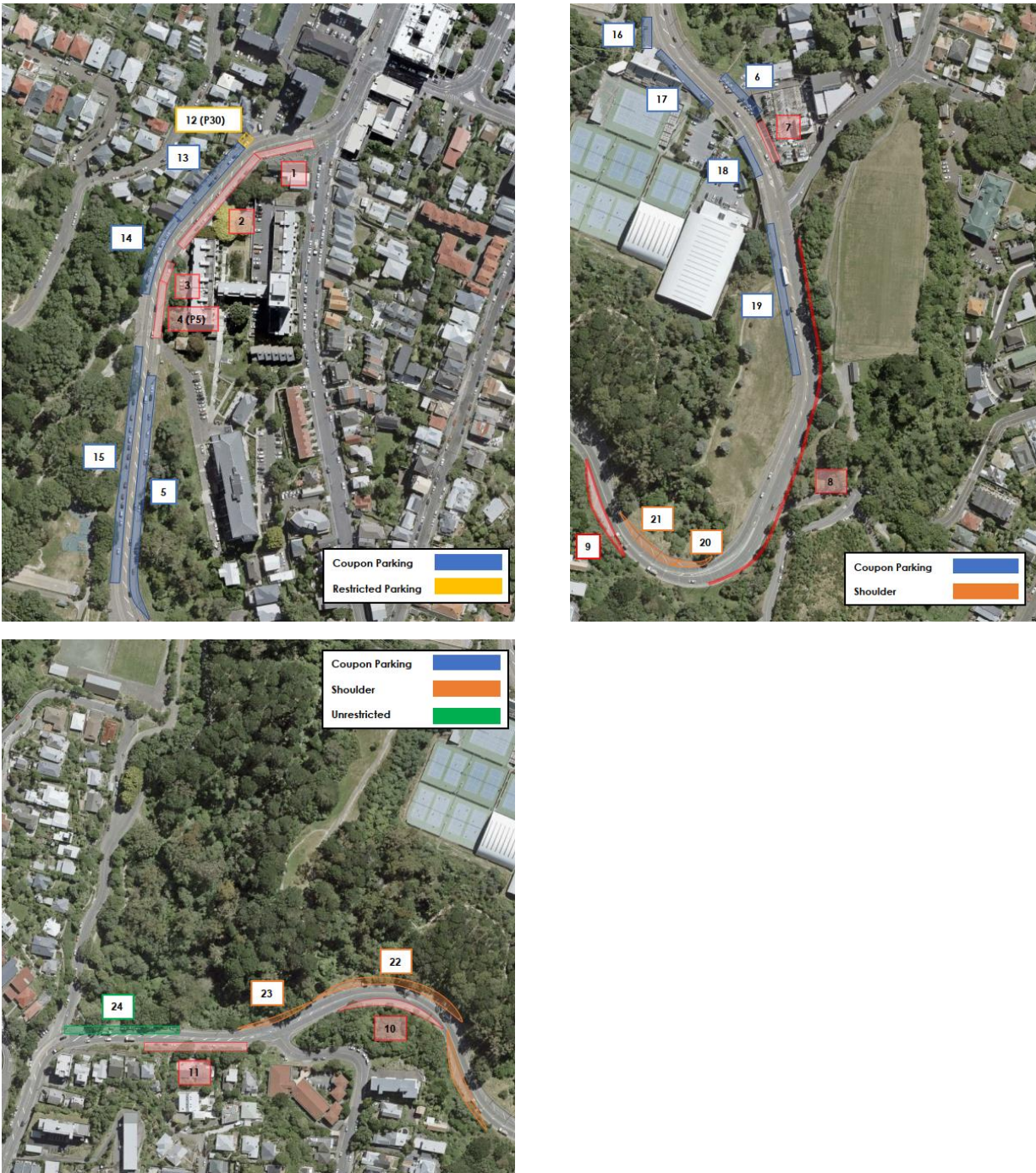


Figure 2: Parking Zones for March and June 2021 Survey

The March 2021 survey indicated that within the 24 zones during the weekday and weekend were predominantly underoccupied, therefore it was concluded that there was an oversupply of parking spaces.

Following the trial cycle lane, this survey was repeated in June 2021. The zones indicated in red in Figure 2 are the areas of parking removed following the implementation of the trial. The initial number of parking spaces was reduced to 113 and led to a 35% reduction in car parking spaces within the boundary of the trial.

The two surveys were compared to fully understand the impact of the trial cycle lane on parking occupancy along Brooklyn Road. With changes to the parking layout and availability a direct comparison was only possible where the same zone remained from the March 2021 survey.

These directly comparable zones indicated no fundamental increase to parking occupancy at this time even with the reduced supply, and in some zones, occupancy dropped further.

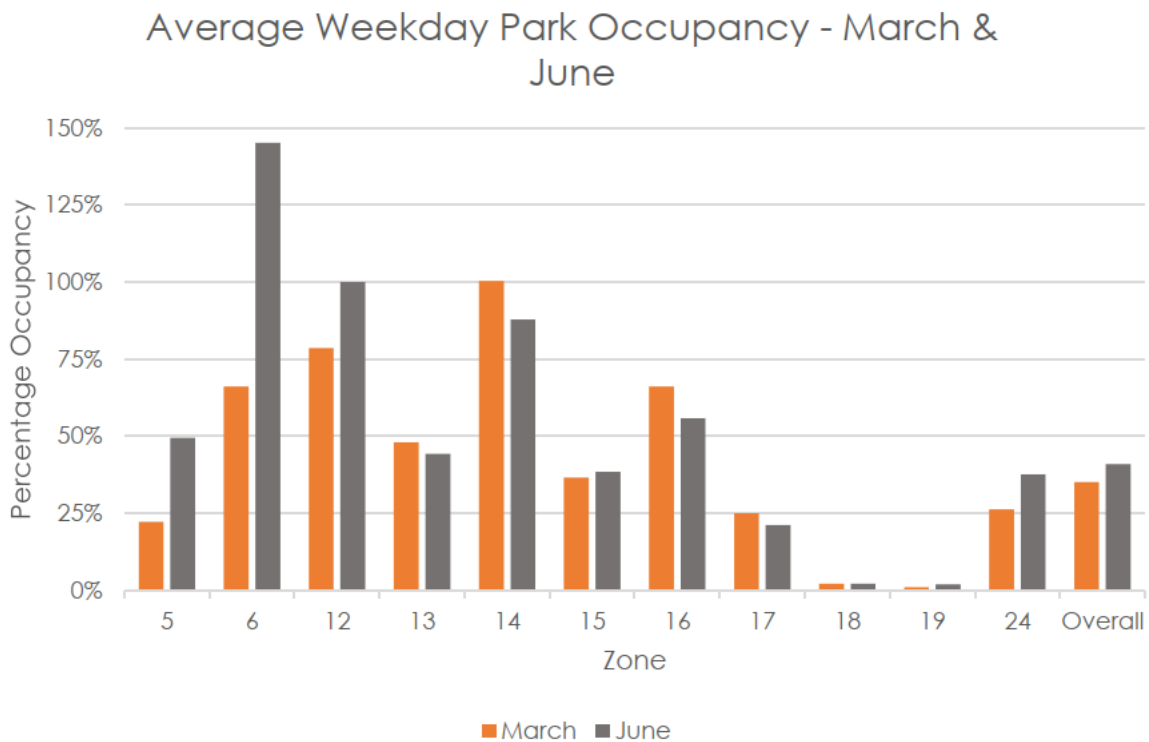


Figure 3: Average Park Occupancy During Weekdays on Brooklyn Road

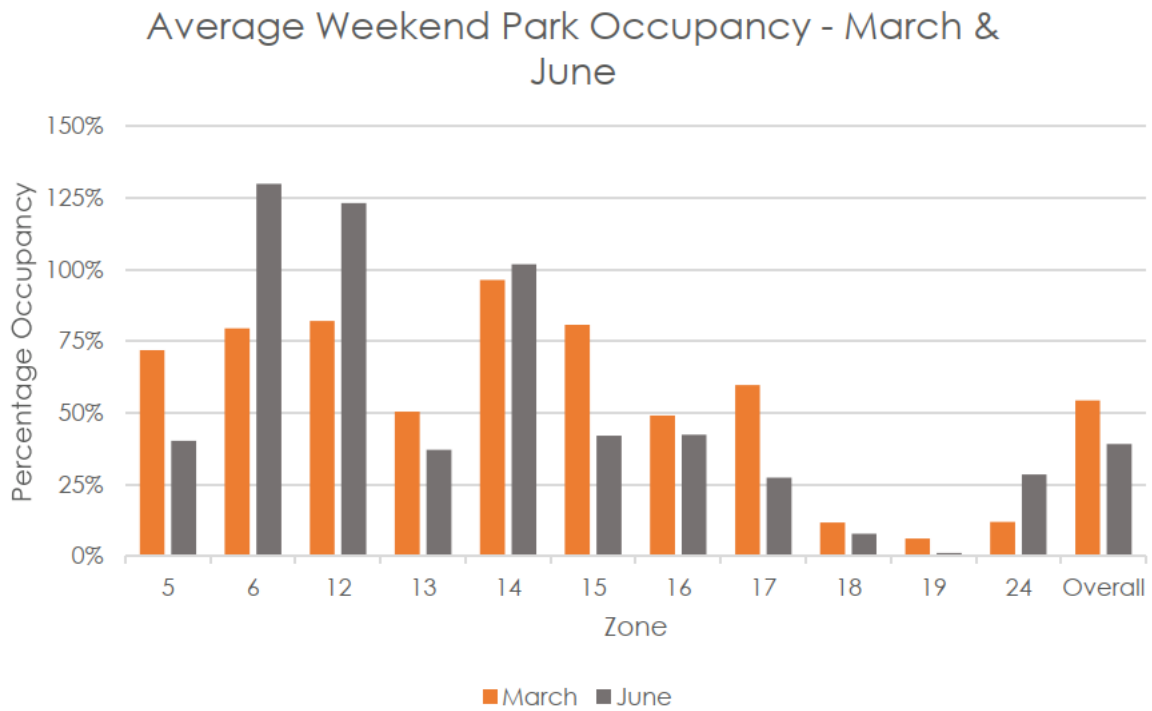


Figure 4: Average Park Occupancy During Weekend on Brooklyn Road

It should be noted that the surveys were carried out in the summer and winter months and therefore its not unexpected that parking in some areas increased due to seasonal travel patterns.

3.2 February & March 2022 Surveys

An additional set of occupancy surveys were completed by Stantec in February and March 2022. These covered a wider geographical area than the 2021 surveys to encapsulate the complete Brooklyn to City Improvements route and adjoining side streets shown in Figure 5.



Figure 5: February & March 2022 Survey Extents

As with the previous 2021 survey the area was divided into zones as summarised in Figure 6.

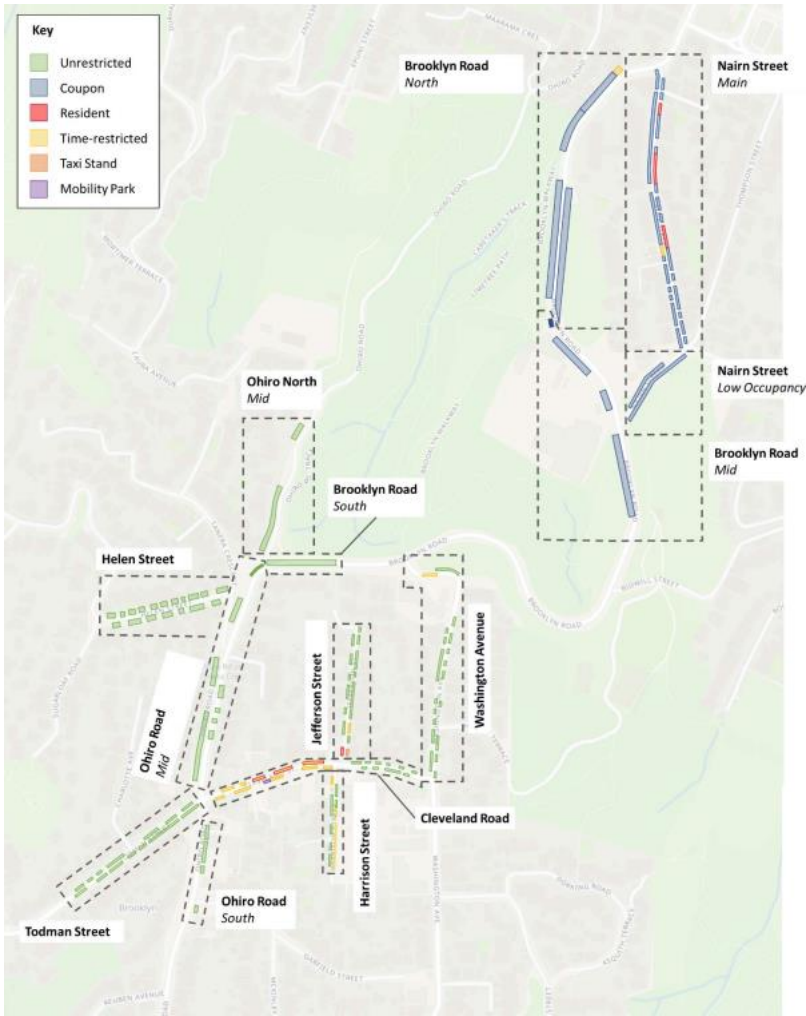


Figure 6: February and March 2022 Survey Zones

These surveys included reduced parking provisions on Brooklyn Road due to the implementation of the cycleway trial. There was a total of 493 spaces in these zones that comprised coupon, restricted and unrestricted spaces as shown in Table 2.

The surveyed car parking occupancy within these zones is shown in Table 3.

Brooklyn to City Improvements Parking Management Plan

Road		Park Type	Location	Capacity	Notes
Nairn Street	Main	Coupon	Roadside	69	
		Resident	Roadside	12	
		P60	Roadside	2	
	Low Occupancy	Coupon	Roadside	25	Nairn Street between Thompson Street and Brooklyn Road experienced significantly less parking usage, and has accordingly been separated for reporting
Brooklyn Road	North	P30	Roadside	1	Previously Surveyed (Report: Brooklyn Road Surveys July 2021).
		Coupon	Roadside	60	
	Mid	Coupon	Roadside	33	Off-street parking at Seido Karate
		Coupon	Off-street	4	North relates to 2021 Zones 5,6,12,13,14,15 Mid relates to 2021 Zones 16,17,18,19
	South	Unrestricted	Roadside	15	South relates to 2021 Zone 24
Washington Avenue		Unrestricted	Roadside	33	
		P60	Roadside	3	
Jefferson Street		Unrestricted	Roadside	24	
		P30	Roadside	2	
		Resident	Roadside	2	
		Taxi	Roadside	1	
Harrison Street		Unrestricted	Roadside	12	
		P10	Roadside	11	
		P30	Roadside	3	
Todman Street		Unrestricted	Roadside	52	

Brooklyn to City Improvements Parking Management Plan

Road		Park Type	Location	Capacity	Notes
Ohiro Road	North	Unrestricted	Roadside	15	
	Mid	Unrestricted	Roadside	30	
		Unrestricted	Off-street	9	Off-street parking on corner of Ohiro Road and Brooklyn Road
	South	Unrestricted	Roadside	11	
Helen Street		Unrestricted	Roadside	24	
Cleveland Street		Unrestricted	Roadside	13	
		P10	Roadside	8	
		P30	Roadside	18	Including P30 parks from 8:00am- 6:00pm Mon-Sat, Resident parking otherwise (reported on as P30)
		Mobility	Roadside	1	
Total Spaces				493	

Table 2: February & March 2022 Survey Locations, Park Types and Capacities

Brooklyn to City Improvements Parking Management Plan

Road		Park Type	Location	Capacity	Weekday Occupancy %		Weekend Occupancy %	
					AM 7:00am - 1:00/2:00pm	PM 1:00/2:00pm - 7:00/9:00pm	AM 7:00am - 1:00/2:00pm	PM 1:00/2:00pm - 7:00/9:00pm
Nairn Street	Main	Coupon	Roadside	69	94%	84%	95%	84%
		Resident	Roadside	12	96%	73%	100%	76%
		P60	Roadside	2	83%	83%	77%	69%
	Low Occupancy	Coupon	Roadside	25	2%	3%	1%	0%
Brooklyn Road	North	P30	Roadside	1	83%	71%	17%	29%
		Coupon	Roadside	60	49%	42%	66%	52%
	Mid	Coupon	Roadside	33	30%	33%	43%	34%
		Coupon	Off-street	4	39%	45%	64%	47%
	South	Unrestricted	Roadside	15	45%	40%	27%	18%
Washington Avenue		Unrestricted	Roadside	33	119%	113%	113%	112%
		P60	Roadside	3	49%	25%	67%	67%
Jefferson Street		Unrestricted	Roadside	24	116%	113%	89%	91%
		P30	Roadside	2	75%	67%	0%	60%
		Resident	Roadside	2	92%	90%	56%	54%
		Taxi	Roadside	1	13%	13%	0%	4%
Harrison Street		Unrestricted	Roadside	12	127%	112%	92%	77%
		P10	Roadside	11	59%	52%	50%	44%
		P30	Roadside	3	75%	70%	23%	52%

Brooklyn to City Improvements Parking Management Plan

Road		Park Type	Location	Capacity	Weekday Occupancy %		Weekend Occupancy %	
Todman Street		Unrestricted	Roadside	52	105%	109%	95%	106%
Ohiro Road	North	Unrestricted	Roadside	15	103%	119%	99%	98%
	Mid	Unrestricted	Roadside	30	78%	73%	65%	58%
		Unrestricted	Off-street	9	86%	56%	94%	95%
	South	Unrestricted	Roadside	11	33%	52%	34%	62%
Helen Street		Unrestricted	Roadside	24	121%	81%	108%	101%
Cleveland Street		Unrestricted	Roadside	13	102%	91%	74%	78%
		P10	Roadside	8	59%	79%	46%	61%
		P30	Roadside	18	82%	92%	73%	87%
		Mobility	Roadside	1	11%	7%	0%	11%

Table 3: February & March 2022 Parking Occupancy

As the majority of parking along roads in Brooklyn is unmarked, the total available length of parking was measured, and the approximate number of spaces calculated and used for analysis. When calculating the amount of parking occupied a nominal vehicle parking space of 6m was used. Note that due to this assumption it is possible for occupancies exceeding 100% to be observed, as vehicles may take up less space than that of the assumed nominal length.

3.3 2022 Parking Occupancy Survey Summary

3.3.1 Brooklyn Road

Prior to the implementation of the trial cycle lane Brooklyn Road had a total of 176 spaces, this comprised 143 on-street coupon spaces, 1 P30 space, 5 P5 spaces, 4 off-street coupon spaces and 23 unrestricted spaces.

Following implementation of the trial, 63 spaces were removed leaving 93 coupon spaces, 4 off-street coupon spaces, 15 unrestricted spaces and 1 P30 space. Stantec completed a comparison of the pre-implementation and post implementation (2021 and 2022) parking occupancy data shown in Figure 7

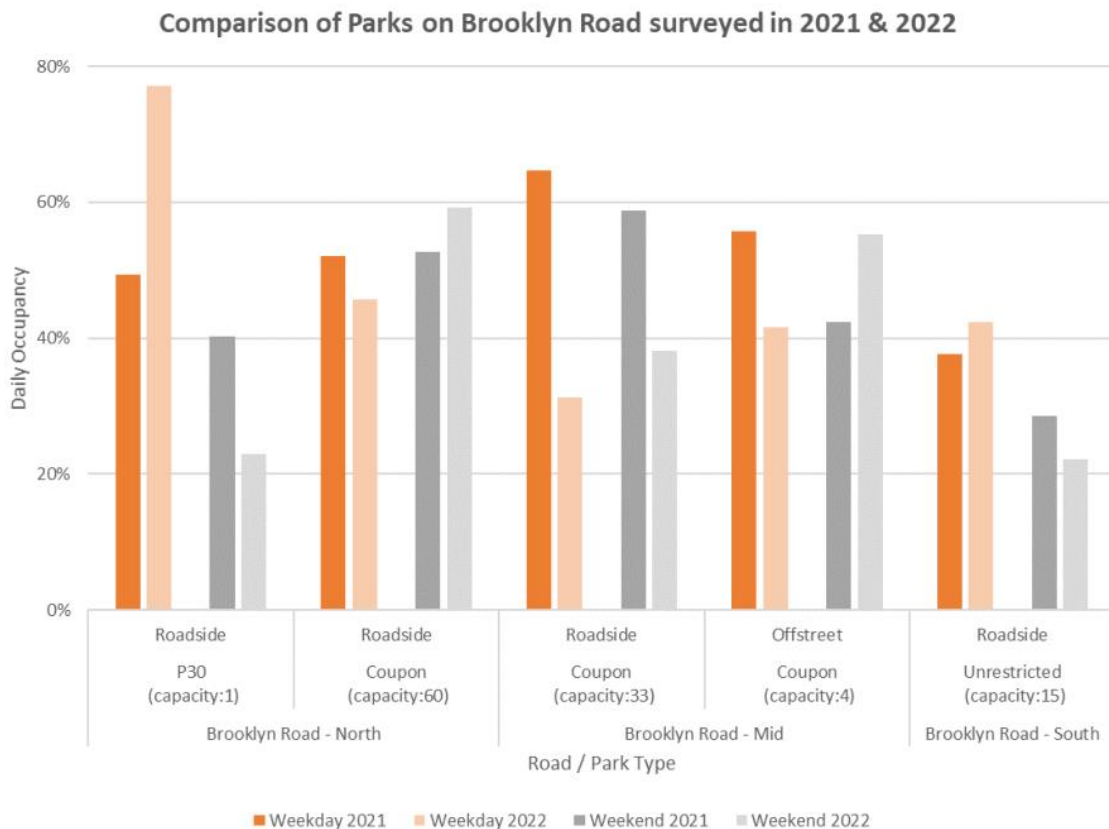


Figure 7: Comparison of 2021 & 2022 Parking Occupancy

The weekday comparison indicates a decrease in occupancy between 2021 to 2022, however there was an increased demand for the single P30 space. Weekday occupancy is considerably lower than the ideal occupancy of 85% that indicates there is a surplus of spaces along Brooklyn Road in relation to weekday demand.

The weekend comparison of the roadside spaces from 2021 to 2022 indicates a general decline, however the spaces closest to Central Park and CBD show a slight increase in demand. This is also the case for off-street spaces that are adjacent to Central Park and access to the play area. Weekend occupancy is considerably lower than the ideal occupancy of 85%.

3.3.2 Ohio Road

Ohio Road has 56 unrestricted spaces, 15 in the north section, 30 in the mid-section and 11 in the south section, and 9 off-street spaces. The north section occupancy is around 100% during the weekday and weekend peak periods with demand primarily associated with residential on street parking. The mid-section has relative high occupancy in the weekdays through residential on street parking, medical centres, and proximity to the village shopping area. The occupancy drops slightly at the weekend to around 60%. The off-

street occupancy at the corner of Brooklyn Road / Ohiro Road has high occupancy during the AM period on weekdays but reduces during the PM period, that may be due to vehicles being utilised for commuting to work. The weekend occupancy at this location is almost 100%.

3.3.3 Cleveland Street

Cleveland Street has 13 unrestricted spaces, 8 P10 spaces, 18 P30 spaces and 1 Mobility space. The unrestricted spaces have a high occupancy during the weekdays with a combination of on street residential parking and proximity to the village. The P30 spaces are a combination of residents parking and time restricted spaces with a high occupancy during the weekdays and the weekends. The mobility park has low occupancy during weekdays and weekends but provides accessibility as these are wider than standard parking spaces (making it easier to get in and out of a vehicle with a wheelchair or mobility aid) and are located closer to services and facilities.

3.3.4 Side Streets

3.3.4.1 Brooklyn Road Side Streets

Nairn Street currently has 94 coupon spaces, 12 residents parking spaces and 2 P60 spaces. Parking occupancy was shown to be high during weekday and weekend peak periods. The coupon area between Brooklyn Road and Thomson Street that has 25 of the 94 coupon spaces is highly underutilised with only a maximum of a 3% occupancy recorded during the survey period. This section of Nairn Street doesn't contain any residential properties and is at the furthest point away from the CBD.

Washington Avenue currently has 33 unrestricted spaces and 3 P60 spaces. Parking occupancy is over 100% for the unrestricted spaces during the weekday and weekend peak periods, primarily due to residential or commuting on-street parking. The P60 spaces are lower occupancy during weekdays and slightly higher during weekends that may be primarily due to people visiting Central Park or the Malaysian High Commission for a limited period.

3.3.4.2 Ohiro Road Side Streets

Helen Street has 24 unrestricted spaces with occupancy for these spaces high close to 100% during the weekend and weekday periods.

Todman Street has 52 unrestricted spaces with occupancy for these spaces close to 100% during the weekdays and the weekend peak periods with demand primarily coming from residential on street parking

3.3.4.3 Cleveland Street Side Streets

Jefferson Street currently has 24 unrestricted spaces, 2 resident spaces, 1 taxi space and 2 P30 spaces. Parking occupancy is over 100% for the unrestricted spaces during the weekdays and lower at the weekends, primarily due to residential on street parking and proximity to the village retail area. The P30 spaces are well utilised during the weekdays but less so during the weekend indicating quick visits to the village retail area. The residents parking is well utilised during the weekdays however this reduces at the weekend. The taxi space has very low occupancy during the weekday and weekend peak periods with the likelihood that any taxi can locate a space on Cleveland Road if required to wait for passengers.

Harrison Street currently has 12 unrestricted spaces, 11 P10 spaces and 3 P30 spaces. The street is the back entrance to Brooklyn Primary School, Brooklyn Playcentre, Brooklyn Scout Group. The P10 spaces will be used for drop-offs and pick-ups and are around 50% utilised including the weekend. The unrestricted spaces have an occupancy of over 100% during the weekdays and slightly less at the weekend due to competing demand from residential on street parking, proximity to the village retail area and community centre. The P30 spaces have a relatively high occupancy during the week but much lower at the weekend.

4. Proposed Changes to Parking Supply and Restrictions

4.1 Proposed Parking Supply Changes

The proposed parking supply changes required due to the implementation of the preferred option for the Brooklyn to City Improvements Project are summarised in Table 4 and Table 5 .

Road		Park Type	Location	Current Number	Proposed Change (+/-)
Nairn Street	Main	Coupon	Roadside	69	No Change
		Resident	Roadside	12	No Change
		P60	Roadside	2	No Change
	Low Occupancy	Coupon	Roadside	25	No Change
Washington Avenue		Unrestricted	Roadside	33	-4
		P60	Roadside	3	No Change
Jefferson Street		Unrestricted	Roadside	24	No Change
		P30	Roadside	2	+1
		Resident	Roadside	2	No Change
		Taxi	Roadside	1	-1
Harrison Street		Unrestricted	Roadside	12	No Change
		P10	Roadside	11	No Change
		P30	Roadside	3	No Change
Todman Street		Unrestricted	Roadside	52	Outside Project Extents
Ohio Road	North	Unrestricted	Roadside	15	No Change
	Mid	Unrestricted	Roadside	30	-30
		Unrestricted	Off-street	9	TBC on Intersection Form
	South	Unrestricted	Roadside	11	Outside Project Extents
Helen Street		Unrestricted	Roadside	24	No Change
Cleveland Street		Unrestricted	Roadside	13	No Change
		P10	Roadside	8	No Change
		P30	Roadside	18	-5
		Mobility	Roadside	1	+1

Table 4: Proposed Parking Supply Changes Summary excluding Brooklyn Road

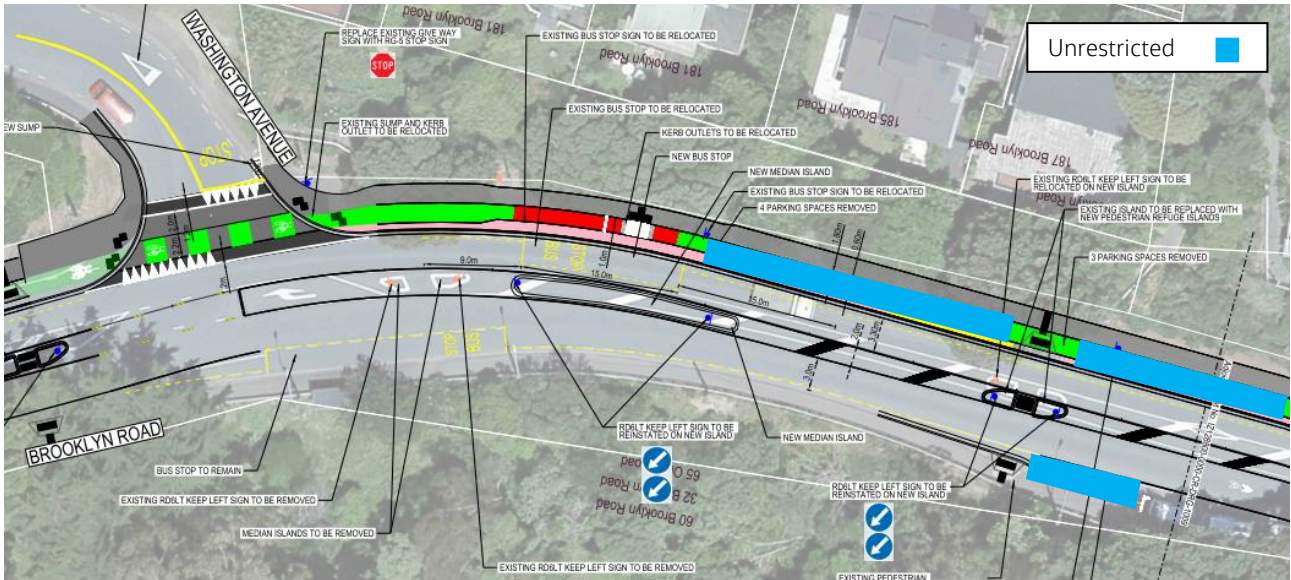


Figure 8: Proposed Brooklyn Road Parking Changes

4.1.2 Ohio Road

The removal of all 30 on-road parking spaces on Ohio Road from the Todman Street intersection to the Brooklyn Road intersection as shown in Figure 9 is required to provide additional space for the proposed on-road cycle lanes for both sides of the road. The choice of intersection form at the Brooklyn Road / Ohio Road intersection may also require the removal of the 9 off-street parking spaces in the location.

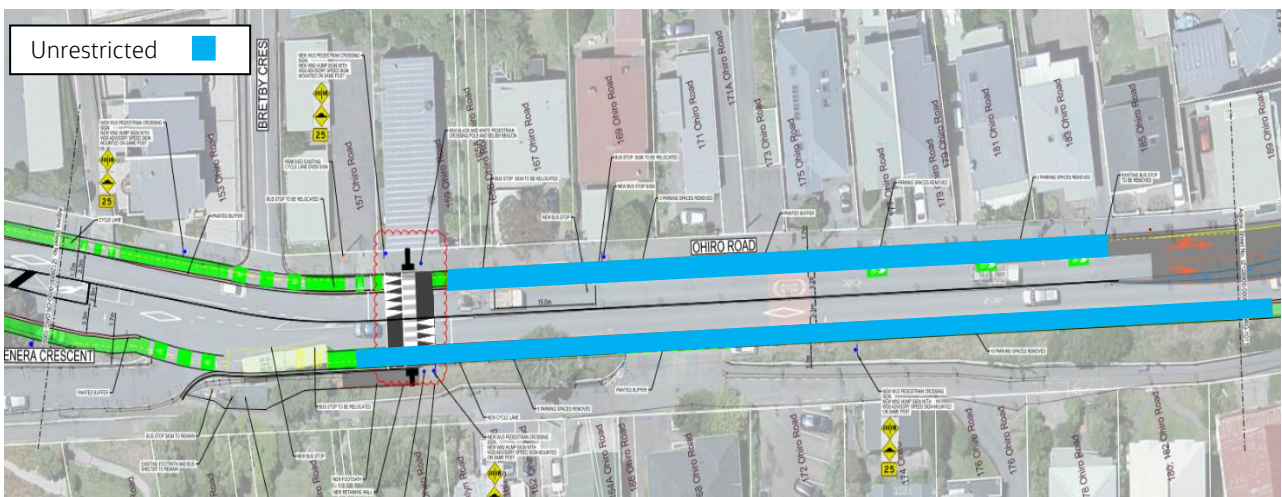
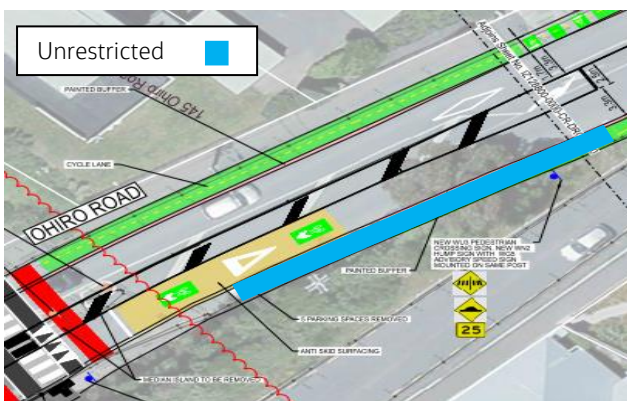


Figure 9: Proposed Ohio Road Parking Changes

4.1.3 Cleveland Street

The removal of 4 angled parking spaces to be replaced with 2 parallel parking spaces outside the Brooklyn Fire Station as shown in Figure 10 will increase safety and visibility for cyclists and provide more spaces for buses using Cleveland Street. An additional mobility space is to be provided outside number 46 Cleveland Street and this is facilitated by the removal of 2 existing P30 spaces. 1 further P30 space requires removal due to a fire hydrant located in the bay, this area is proposed to be hatched out with a possibility of providing cycle parking.

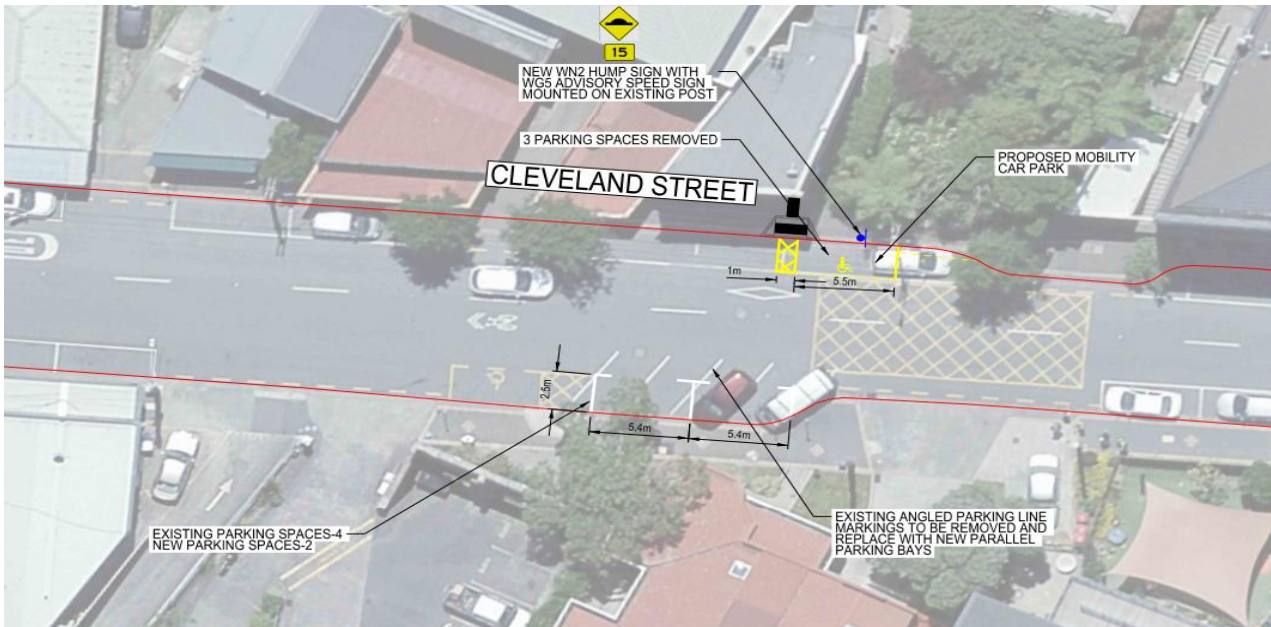


Figure 10: Proposed Cleveland Street Parking Changes

4.1.4 Side Streets

4.1.4.1 Brooklyn Road Side Streets

There are no proposed changes to the parking supply in Nairn Street. The low occupancy coupon area at the southern area of the street will provide additional spaces for users of the Renouf Tennis Centre and Seido Karate Centre to offset the on-street loss on Brooklyn Road due to improvements to the bus stop areas. The upgraded crossing point on Brooklyn Road will provide safe connection from these spaces to the facilities.

4.1.4.2 Ohiro Road Side Streets

There are no proposed changes to the parking supply in Helen Street at this current time.

Changes to parking on Todman Street are covered by the intersection improvement currently being completed by WCC.

4.1.4.3 Cleveland Street Side Streets

4 spaces require removal at the intersection of Cleveland Street and Washington Avenue, these are outside 41a to 43 Washington Avenue as shown in Figure 11. This area of no parking will allow buses turning right out of Cleveland Street into Washington Avenue to safely be within the traffic lane fully.

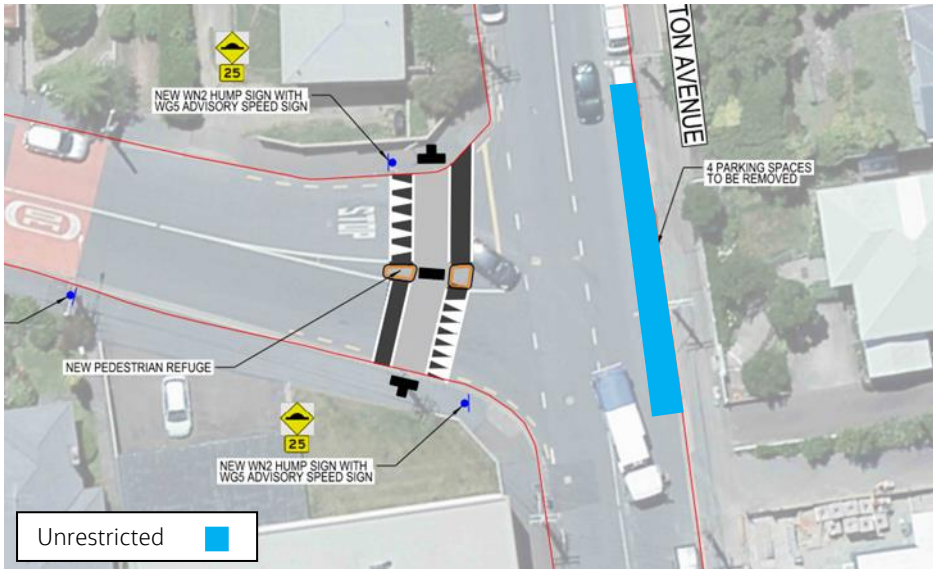


Figure 11: Proposed Washington Avenue Parking Changes

The existing taxi space in Jefferson Street is proposed to be removed given its low occupancy and replaced with a P30 parking bay as shown in Figure 12.

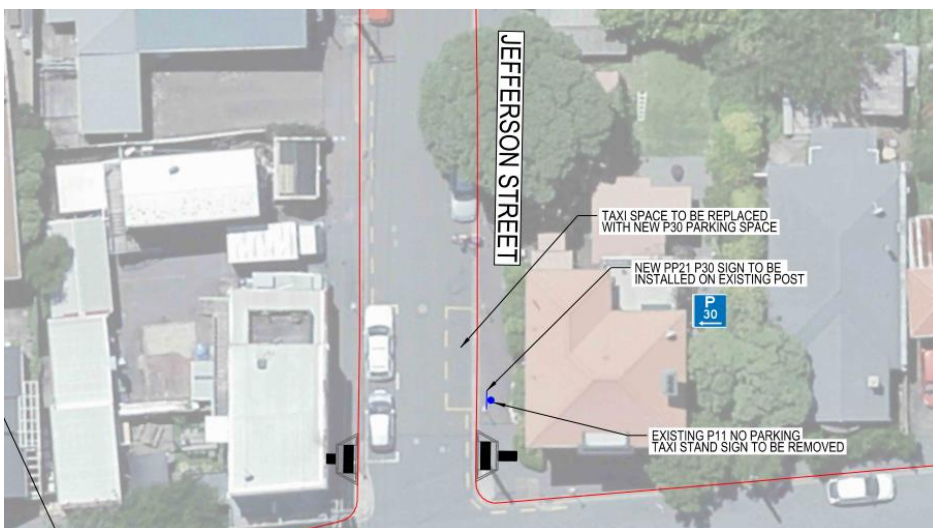


Figure 12: Proposed Jefferson Street Parking Changes

There are no proposed changes to the parking supply in Harrison Street at this current time.

Appendix A. 2021 Parking Occupancy Survey

Appendix B. 2022 Parking Occupancy Survey

Brooklyn Road Surveys

PREPARED FOR WELLINGTON CITY COUNCIL | JULY 2021

We design with community in mind

Revision Schedule

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	15/4/21	Pre-Implementation	Will Roper	Christopher Hendrickson	Christopher Hendrickson	Mark Georgeson
2	13/7/21	Post-Implementation	Will Roper	Christopher Hendrickson	Mark Georgeson	Mark Georgeson



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Table of Contents

1.0	INTRODUCTION	1
1.1	CLIENT BRIEF	1
1.2	SURVEY DATES	1
1.2.1	March – Pre cycle lane construction	1
1.2.2	June – Post cycle lane construction.....	1
2.0	PARKING OCCUPANCY SURVEY	2
2.1	METHODOLOGY	2
2.2	SURVEY RESULTS AND ANALYSIS.....	2
3.0	VEHICLE TRIP TIME SURVEY.....	13
3.1	METHODOLOGY	13
3.2	SURVEY RESULTS AND ANALYSIS.....	13

LIST OF TABLES

Table 2-1	Survey zone locations, park types and capacities.....	3
Table 2-2.	Brooklyn Road parking occupancy between 7:00am & 9:00pm	4
Table 2-3.	Brooklyn Road coupon parking percentages*	7
Table 2-4.	Brooklyn Road parking occupancy by vehicle type	8
Table 2-5.	Brooklyn Road average duration of stay on weekdays.....	10
Table 2-6.	Brooklyn Road average duration of stay on weekends.	11
Table 3-1	Brooklyn Hill peak hour travel time summary statistics.....	14

LIST OF FIGURES

Figure 2-1.	Average park occupancy during Weekdays on Brooklyn Road.....	6
Figure 2-2.	Average park occupancy during Weekend on Brooklyn Road.	6
Figure 2-3.	Duration of stay of Parked cars on Brooklyn Road on weekdays	12
Figure 2-4.	Duration of stay of Parked cars on Brooklyn Road on weekend	12
Figure 3-1	Vehicle travel times during AM peak on weekday	15
Figure 3-2	Vehicle travel times during PM peak on weekday	15
Figure 3-3	Vehicle travel times during AM peak on weekend.....	16
Figure 3-4	Box and Whisker plot: Vehicle travel times distribution by day, peak time and direction.....	17

LIST OF APPENDICES

APPENDIX A	SURVEY ZONES	A.1
APPENDIX B	VEHICLE TRAVEL TIMES – CAMERA LOCATIONS	B.1



1.0 INTRODUCTION

This report outlines parking occupancy and travel time surveys carried out by Stantec on Brooklyn Road. These surveys took place before and after the construction of an uphill cycle lane, in March and June 2021 respectively. The results from the surveys provide information on occupancy, vehicle types and duration of stay of parking, vehicle trip times and volumes.

1.1 CLIENT BRIEF

As part of the innovating city streets programme, an uphill cycling lane on Brooklyn Road from Webb Street to Ohiro Road was proposed and subsequently constructed by Wellington City Council (WCC). In response, WCC was interested in understanding how vehicles parking along the road may interact with this cycling lane, and how vehicles trip times travelling from Webb Street to Ohiro Road (uphill) may be affected.

A baseline survey (pre cycle lane implementation) was undertaken in March 2021 and repeated in June 2021 to understand the cycle lane's effect on vehicle behaviour on Brooklyn Road.

1.2 SURVEY DATES

1.2.1 March – Pre cycle lane construction

Surveys monitoring parking occupancy were undertaken from Thursday 25 to Sunday 28 March in 2021, for 14 hours between 7:00am and 9:00pm.

A travel time survey was undertaken on Friday 26 March at 7:00am – 9:00am and 4:30pm – 6:30pm, and Saturday 27 March at 10:00am – 12:00pm.

Fine weather was recorded on all survey days in March.

1.2.2 June – Post cycle lane construction

Surveys monitoring parking occupancy were undertaken from Thursday 17 to Sunday 20 June in 2021, for 14 hours between 7:00am and 9:00pm.

A vehicle travel time survey was undertaken on Friday 18 June at 7:00am – 9:00am and 4:00pm – 6:00pm, and Saturday 3 July at 10:00am – 12:00pm, scheduled pre and post the COVID-19 Alert Level 2 which was in place from Wednesday 23 June to Tuesday 29 June. Note that the evening peak period was revised in the June survey as agreed with WCC.

Isolated showers occurred on the Thursday and Friday (17/18 June), and fine weather was recorded on Saturday 3 July.



2.0 PARKING OCCUPANCY SURVEY

2.1 METHODOLOGY

Four surveyors conducted the parking surveys from the Thursday to Sunday periods of March and June from 7:00am – 9:00pm by recording partial number plates of vehicles parked within the survey area using tablets.

The survey area was initially divided into 24 zones based on parking type and location. These zones were reconfigured following the removal of parks due to the construction of the uphill cycle lane as shown in **Table 2-1**. Vehicles parked in each zone were recorded every 30 minutes.

As not all of the zones from the original March survey are relevant to the June survey, parking zones highlighted yellow in **Table 2-1** have been focused on for the figures below as they are comparable across both survey periods. Parks with orange strikethrough represent parking spaces that have been removed/changed.

Appendix A includes maps showing the zones pre and post cycle lane implementation.

As the majority of parking along Brooklyn Road is unmarked, the total available length of parking was measured, and the approximate number of spaces calculated and used for analysis. When calculating the amount of parking occupied, a nominal vehicle parking space of 6.0m was used. Note that due to this assumption, it is possible for occupancies exceeding 100% to be observed as vehicles may take up less space than the assumed nominal length.

It is also worth noting that while the marked spaces in zone 6 changed from 10 diagonal parks to 4 parallel parks, surveyors noted that motorists were still parking diagonally after this change, resulting in high occupancy percentages in this zone for the June surveys.

Results from the surveys were used to determine parking behaviour on Brooklyn Road within each zone to the nearest beat interval (30 minutes), by tracking each individual vehicle using the partial number plates recorded in the survey throughout the day.

2.2 SURVEY RESULTS AND ANALYSIS

Parking occupancy survey results for March and June have been tabulated and graphed below as follows, based on all unique vehicles recorded.

- **Table 2-2:** Overall parking occupancy in March and June;
- **Figure 2-1** and **Figure 2-2:** Graphical representations of Table 2-2, showing overall parking; occupancy in March and June for weekdays and weekends respectively, for zones where comparisons are available;
- **Table 2-3:** Overall coupon usage in March and June;
- **Table 2-4:** Types of vehicles parked in March and June; and
- **Table 2-5/Figure 2-3** and **Table 2-6/Figure 2-4:** Duration of stay for weekdays and weekends respectively in March and June, again for zones where comparisons are available.

Raw data from the surveys and the following tables can be found tabulated in the accompanying spreadsheet.



**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 2-1 Survey zone locations, park types and capacities

Side of Road	Zone	Park Type	Location: Pre-cycle lane - Post cycle lane	Type	Length	Capacity	
						Current (June)	Change
Northern End	1	Unmarked roadside parking	Outside 3 Brooklyn Road	Coupon	30m	0	-4
	2	Unmarked roadside parking	Between 3 Brooklyn Road & 21 Brooklyn Road apartments entrance	Coupon	60m	0	-10
	3	Unmarked roadside parking	Outside 21 Brooklyn Road apartments	Coupon	15m	0	-2
	4	Unmarked roadside parking	Outside 21 Brooklyn Road apartments	P5	30m	0	-5
	5	Unmarked roadside parking Marked parking (between road & cycle lane)	Between Central Park bus stop & Diagonal parking outside substation Between Central Park bus stop & tapering off before substation	Coupon	200m 140m	17	-16
	6	Diagonal parking Marked roadside parking	Diagonal Parking area outside substation Outside substation.	Coupon	35m	4	-6
	7	Unmarked roadside parking	Between Diagonal parking & bus stop	Coupon	20m	0	-3
	8	2-Lane section (no parks)	Beginning Nairn St & finishing after Bidwell St	Lane	250m	0	0
	9	Shoulder (NBD)	Following 2-lane section, ending near "concealed" road sign	Temporary	40m	0	0
	10	Unmarked roadside parking	Between shoulder & coupon parking zone end	Coupon	55m	0	-9
Southern End	11	Unmarked roadside parking	Between Washington Avenue bus stop & taper finish	Unrestricted	50m	0	-8
Northern End	12	Marked Park	Marked carpark outside Central Vet Hospital	P30	8m	1	0
	13	Unmarked roadside parking	Between P30 park & pedestrian crossing point	Coupon	60m	~10	0
	14	Unmarked roadside parking	Between pedestrian crossing point & Central Park Entrance	Coupon	40m	~7	0
	15	Unmarked roadside parking	Between Central Park bus stop & Seido Karate	Coupon	160m	~26	0
	16	Off-street marked parks	Delineated parks at Seido Karate	Coupon	-	4	0
	17	Unmarked roadside parking	Between Seido Karate & Renouf Centre Entrance	Coupon	50m	~9	0
	18	Unmarked roadside parking	Between Renouf Centre Entrance & Nairn Road bus stop	Coupon	30m	~5	0
	19	Unmarked roadside parking	Between Nairn Road bus stop & Bidwell St bus stop (taper finishes earlier)	Coupon	90m	~15	0
	20	Shoulder (SBD)	Shoulder on RHS of right-hand curve, with yellow dashed road markings	Shoulder	10m	-	0
	21	Shoulder (SBD)	Shoulder on RHS of right-hand curve, between yellow dashed road marking & safety barrier	Shoulder	40m	-	0
Northern End	22	Shoulder (SBD)	Shoulder on RHS of left-hand curve, between safety barrier & narrowing of shoulder	Shoulder	60m	-	0
	23	Shoulder (SBD)	Shoulder on RHS of left-hand curve, between narrowing of shoulder & yellow dashed road markings	Shoulder	60m	-	0
	24	Unmarked roadside parking	Between yellow dashed road markings following Washington Avenue bus stop, & Ohiro Road	Unrestricted	90m	~15	0

113 -63



**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 2-2. Brooklyn Road occupancy between 7:00am & 9:00pm

Side of Road	Zone	Park Type	Type	Capacity (Before → After)	March				June			
					Total Number of Unique Vehicles Recorded		Average Occupancy		Total Number of Unique Vehicles Recorded		Average Occupancy	
					Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Uphill Lane	1	Unmarked roadside parking	Coupon	4 → 0	24	41	83%	111%				
	2	Unmarked roadside parking	Coupon	10 → 0	28	33	66%	67%				
	3	Unmarked roadside parking	Coupon	2 → 0	22	19	84%	88%				
	4	Unmarked roadside parking	P5	5 → 0	19	27	27%	60%				
	5	Marked parking (between road & cycle lane)	Coupon	33 → 17	70	142	22%	72%	48	58	49%	40%
	6	Marked roadside parking	Coupon	10 → 4	20	35	66%	79%	24	24	145%	130%
	7	Unmarked roadside parking	Coupon	3 → 0	0	7	0%	36%				
	8	2-Lane Section of road (no parks)	Illegal	0 → 0	1	10						
	9	Shoulder (NBD)	Shoulder	0 → 0	0	0						
	10	Unmarked roadside parking	Coupon	9 → 0	1	1	1%	0%				
	11	Unmarked roadside parking	Unrestricted	8 → 0	17	9	35%	30%				



**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Side of Road	Zone	Park Type	Type	Capacity (Before → After)	March				June			
					Total Number of Unique Vehicles Recorded		Average Occupancy		Total Number of Unique Vehicles Recorded		Average Occupancy	
					Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Down hill Lane	12	Marked Park	P30	1 → 1	27	10	79%	82%	27	13	100%	123%
	13	Unmarked roadside parking	Coupon	10 → 10	31	36	48%	50%	44	23	44%	37%
	14	Unmarked roadside parking	Coupon	7 → 7	57	56	100%	96%	51	43	88%	102%
	15	Unmarked roadside parking	Coupon	26 → 26	122	205	37%	81%	99	99	38%	42%
	16	Off-street marked parks	Coupon	4 → 4	39	33	66%	49%	37	25	56%	42%
	17	Unmarked roadside parking	Coupon	9 → 9	34	68	25%	60%	30	40	21%	27%
	18	Unmarked roadside parking	Coupon	5 → 5	4	19	2%	12%	1	2	2%	8%
	19	Unmarked roadside parking	Coupon	15 → 15	3	19	1%	6%	9	6	2%	1%
	20	Shoulder (SBD)	Shoulder	0 → 0	0	0			2	2		
	21	Shoulder (SBD)	Shoulder	0 → 0	2	0			1	1		
	22	Shoulder (SBD)	Shoulder	0 → 0	22	0			0	0		
	23	Shoulder (SBD)	Shoulder	0 → 0	11	4			4	3		
24	Unmarked roadside parking	Unrestricted	15 → 15	22	14	26%	12%	31	34	38%	29%	
Overall				176 → 113	576	788	35%	54%	408	373	41%	39%



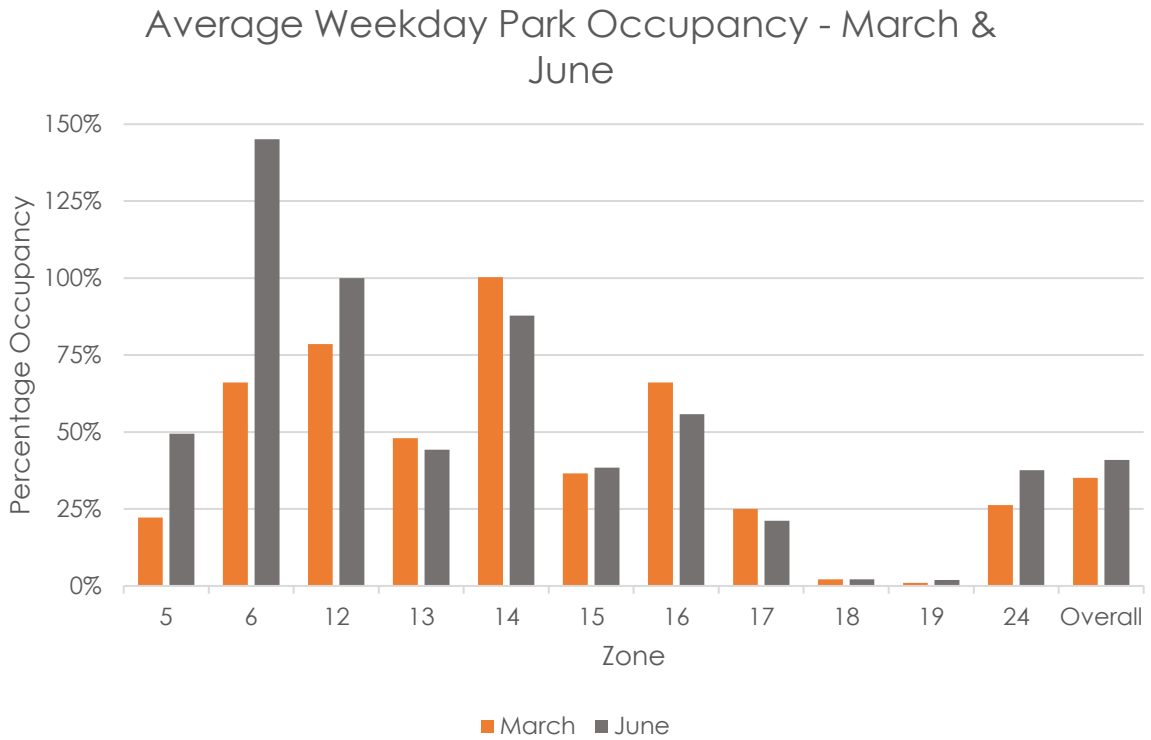


Figure 2-1. Average park occupancy during Weekdays on Brooklyn Road.

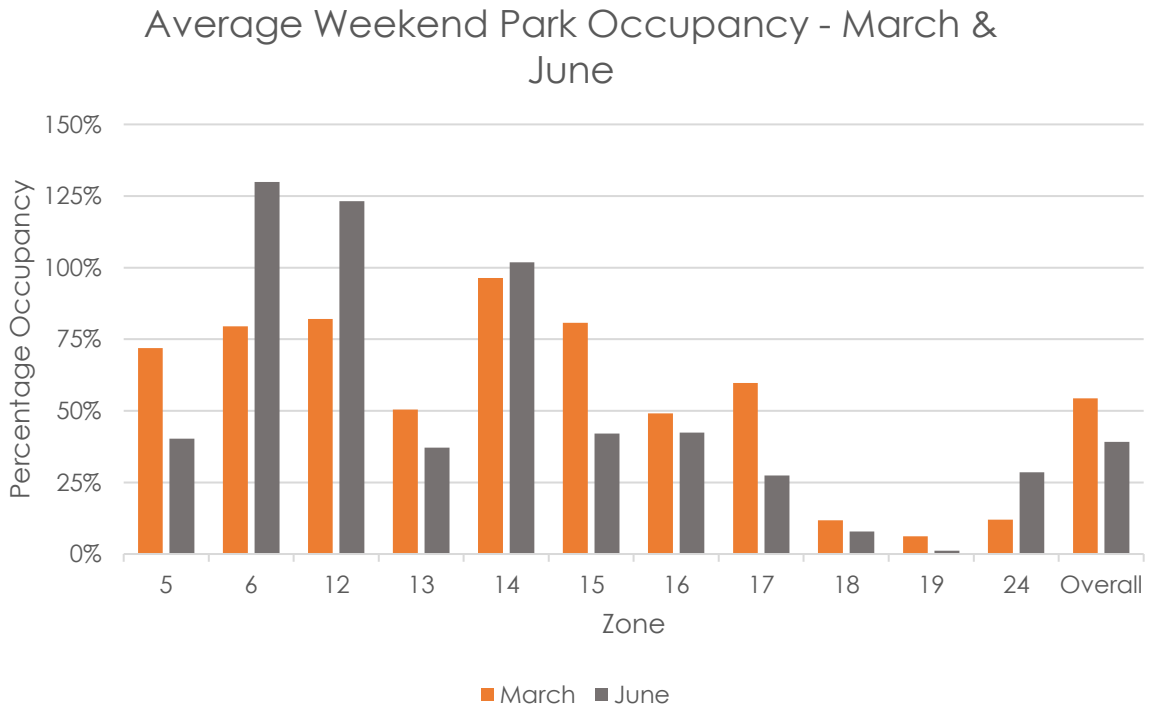


Figure 2-2. Average park occupancy during Weekend on Brooklyn Road.

**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 2-3. Brooklyn Road coupon parking percentages*

Side of Road	Zone	Park Type	Type	Capacity (Before →After)	March				June			
					Total Number of Unique Vehicles Recorded		% Vehicles displaying Coupons		Total Number of Unique Vehicles Recorded		% Vehicles displaying Coupons	
					Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Uphill Lane	1	Unmarked roadside parking	Coupon	4 → 0	24	41	6%	5%				
	2	Unmarked roadside parking	Coupon	10 → 0	28	33	49%	17%				
	3	Unmarked roadside parking	Coupon	2 → 0	22	19	12%	9%				
	5	Marked parking (between road & cycle lane)	Coupon	33 → 17	70	142	57%	34%	48	58	19%	6%
	6	Marked roadside parking	Coupon	10 → 4	20	35	84%	60%	24	24	29%	11%
	7	Unmarked roadside parking	Coupon	3 → 0	0	7	-	1%				
	10	Unmarked roadside parking	Coupon	10 → 4	1	1	0%	0%				
Down hill Lane	13	Unmarked roadside parking	Coupon	10 → 10	31	36	59%	58%	44	23	64%	39%
	14	Unmarked roadside parking	Coupon	7 → 7	57	56	56%	48%	51	43	18%	30%
	15	Unmarked roadside parking	Coupon	26 → 26	122	205	19%	8%	99	99	25%	27%
	16	Off-street marked parks	Coupon	4 → 4	39	33	0%	0%	37	25	1%	0%
	17	Unmarked roadside parking	Coupon	9 → 9	34	68	42%	8%	30	40	0%	0%
	18	Unmarked roadside parking	Coupon	5 → 5	4	19	0%	0%	1	2	0%	0%
	19	Unmarked roadside parking	Coupon	15 → 15	3	19	0%	0%	9	6	0%	0%
Overall				147 → 97	455	714	37%	27%	343	320	25%	18%

*As vehicles can also apply for coupon parking using a smartphone app, not all vehicles that have coupon parking have been captured in this survey. The coupon zone applies from Monday to Friday, 8:00am to 6:00pm (excluding public holidays). Vehicles can park free for 2 hours without coupons.

**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 2-4. Brooklyn Road parking occupancy by vehicle type

Side of Road	Zone	Park Type	Type	Capacity (Before → After)	March								June							
					Weekday				Weekend				Weekday				Weekend			
					Light vehicles	Vans	Trucks	Articulated Trucks	Light vehicles	Vans	Trucks	Articulated Trucks	Light vehicles	Vans	Trucks	Articulated Trucks	Light vehicles	Vans	Trucks	Articulated Trucks
Uphill Lane	1	Unmarked roadside parking	Coupon	4 → 0	85%	15%	0%	0%	78%	15%	7%	0%								
	2	Unmarked roadside parking	Coupon	10 → 0	82%	16%	2%	0%	93%	7%	0%	0%								
	3	Unmarked roadside parking	Coupon	2 → 0	88%	12%	0%	0%	100%	0%	0%	0%								
	4	Unmarked roadside parking	P5	5 → 0	89%	11%	0%	0%	99%	1%	0%	0%								
	5	Marked parking (between road & cycle lane)	Coupon	33 → 17	81%	16%	3%	0%	95%	5%	0%	0%	100%	0%	0%	0%	98%	2%	0%	0%
	6	Marked roadside parking	Coupon	10 → 4	93%	7%	0%	0%	99%	1%	0%	0%	100%	0%	0%	0%	93%	6%	1%	0%
	7	Unmarked roadside parking	Coupon	3 → 0	-	-	-	-	100%	0%	0%	0%								
	8	2-Lane Section of road (no parks)	Illegal	0 → 0	-	-	-	-	100%	0%	0%	0%								
	9	Shoulder (NBD)	Shoulder	0 → 0	-	-	-	-	-	-	-	-								
	10	Unmarked roadside parking	Coupon	9 → 0	100%	0%	0%	0%	-	-	-	-								
	11	Unmarked roadside parking	Unrestricted	8 → 0	100%	0%	0%	0%	100%	0%	0%	0%								

**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Side of Road	Zone	Park Type	Type	Capacity (Before →After)	March								June							
					Weekday				Weekend				Weekday				Weekend			
					Light vehicles	Vans	Trucks	Articulated Trucks	Light vehicles	Vans	Trucks	Articulated Trucks	Light vehicles	Vans	Trucks	Articulated Trucks	Light vehicles	Vans	Trucks	Articulated Trucks
Down hill Lane	12	Marked Park	P30	1 → 1	79%	19%	2%	0%	100%	0%	0%	0%	98%	1%	1%	0%	100%	0%	0%	0%
	13	Unmarked roadside parking	Coupon	10 → 10	89%	11%	0%	0%	100%	0%	0%	0%	95%	5%	0%	0%	100%	0%	0%	0%
	14	Unmarked roadside parking	Coupon	7 → 7	95%	5%	0%	0%	98%	2%	0%	0%	97%	3%	0%	0%	100%	1%	0%	0%
	15	Unmarked roadside parking	Coupon	26 → 26	88%	11%	1%	0%	92%	8%	0%	0%	98%	2%	0%	0%	87%	13%	0%	0%
	16	Off-street marked parks	Coupon	4 → 4	83%	16%	1%	0%	92%	9%	0%	0%	99%	1%	0%	0%	95%	5%	0%	0%
	17	Unmarked roadside parking	Coupon	9 → 9	86%	14%	0%	0%	95%	5%	0%	0%	90%	0%	10%	0%	99%	1%	0%	0%
	18	Unmarked roadside parking	Coupon	5 → 5	0%	67%	0%	33%	93%	7%	0%	0%	100%	0%	0%	0%	100%	0%	0%	0%
	19	Unmarked roadside parking	Coupon	15 → 15	71%	29%	0%	0%	97%	3%	0%	0%	100%	0%	0%	0%	100%	0%	0%	0%
	20	Shoulder (SBD)	Shoulder	0 → 0	-	-	-	-	-	-	-	-	100%	0%	0%	0%	100%	0%	0%	0%
	21	Shoulder (SBD)	Shoulder	0 → 0	100%	0%	0%	0%	-	-	-	-	0%	100%	0%	0%	0%	100%	0%	0%
	22	Shoulder (SBD)	Shoulder	0 → 0	7%	3%	0%	90%	-	-	-	-	-	-	-	-	-	-	-	-
	23	Shoulder (SBD)	Shoulder	0 → 0	29%	43%	7%	21%	100%	0%	0%	0%	89%	0%	0%	11%	0%	0%	0%	100%
24	Unmarked roadside parking	Unrestricted	15 → 15	67%	33%	0%	0%	55%	45%	0%	0%	70%	24%	5%	0%	81%	13%	7%	0%	
Overall				176 → 113	86%	13%	1%	1%	94%	6%	0%	0%	94%	5%	1%	0%	93%	6%	1%	0%

**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 2-5. Brooklyn Road average duration of stay on weekdays

Zone	Park Type	Type	March				June			
			Average duration of stay (hours)	Percentage of vehicles staying:			Average duration of stay (hours)	Percentage of vehicles staying:		
				2 hours or less	2-8 hours	8 hours or more		2 hours or less	2-8 hours	8 hours or more
1	Unmarked roadside parking	Coupon	2.9	50%	3%	47%				
2	Unmarked roadside parking	Coupon	4.3	41%	12%	46%				
3	Unmarked roadside parking	Coupon	1.8	72%	0%	28%				
4	Unmarked roadside parking	P5	1.9	71%	0%	29%				
5	Unmarked roadside parking	Coupon	2.7	62%	3%	35%	3.9	55%	27%	18%
6	Diagonal parking	Coupon	4.5	35%	9%	56%	6.2	29%	32%	39%
7	Unmarked roadside parking	Coupon	-	-	-	0%				
8	2-Lane Section of road	Illegal Park	0.5	100%	0%	0%				
9	Shoulder (NBD)	Temporary	-	-	-	0%				
10	Unmarked roadside parking	Coupon	-	-	-	0%				
11	Unmarked roadside parking	Unrestricted	3.6	27%	0%	73%				
12	Marked Park	P30	0.9	96%	0%	4%	1.3	86%	14%	0%
13	Unmarked roadside parking	Coupon	4.0	31%	6%	64%	3.5	61%	21%	18%
14	Unmarked roadside parking	Coupon	3.5	43%	4%	53%	2.5	69%	24%	7%
15	Unmarked roadside parking	Coupon	2.2	61%	0%	39%	2.5	64%	32%	4%
16	Off-street marked parks	Coupon	2.0	73%	0%	27%	3.3	59%	35%	6%
17	Unmarked roadside parking	Coupon	1.8	74%	0%	26%	2.6	65%	27%	8%
18	Unmarked roadside parking	Coupon	0.8	100%	0%	0%	3.9	60%	20%	20%
19	Unmarked roadside parking	Coupon	1.1	75%	0%	25%	1.2	100%	0%	0%
20	Shoulder (SBD)	Temporary	-	-	-	-	0.5	100%	0%	0%
21	Shoulder (SBD)	Temporary	2.8	50%	0%	50%	0.5	100%	0%	0%
22	Shoulder (SBD)	Temporary	0.6	100%	0%	0%	-	-	-	-
23	Shoulder (SBD)	Temporary	0.5	100%	0%	0%	2.8	50%	50%	0%
24	Unmarked roadside parking	Unrestricted	5.0	23%	0%	77%	3.9	50%	32%	18%
<i>Overall</i>			2.7	58%	3%	40%	3.2	59%	28%	12%

**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 2-6. Brooklyn Road average duration of stay on weekends.

Zone	Park Type	Type	March				June			
			Average duration of stay (hours)	Percentage of vehicles staying:			Average duration of stay (hours)	Percentage of vehicles staying:		
				2 hours or less	2-8 hours	8 hours or more		2 hours or less	2-8 hours	8 hours or more
1	Unmarked roadside parking	Coupon	2.7	48%	0%	52%				
2	Unmarked roadside parking	Coupon	4.0	35%	10%	55%				
3	Unmarked roadside parking	Coupon	2.4	52%	0%	48%				
4	Unmarked roadside parking	P5	2.6	52%	0%	48%				
5	Unmarked roadside parking	Coupon	3.8	32%	2%	66%	3.2	55%	33%	12%
6	Diagonal parking	Coupon	4.3	24%	4%	72%	4.1	50%	29%	21%
7	Unmarked roadside parking	Coupon	3.4	50%	0%	50%				
8	2-Lane Section of road	Illegal Park	0.5	100%	0%	0%				
9	Shoulder (NBD)	Temporary	-	-	-	-				
10	Unmarked roadside parking	Coupon	0.5	100%	0%	0%				
11	Unmarked roadside parking	Unrestricted	4.0	41%	0%	59%				
12	Marked Park	P30	2.3	40%	0%	60%	3.5	25%	75%	0%
13	Unmarked roadside parking	Coupon	3.9	42%	0%	58%	2.8	63%	28%	10%
14	Unmarked roadside parking	Coupon	3.4	41%	0%	59%	2.6	67%	24%	9%
15	Unmarked roadside parking	Coupon	2.9	49%	0%	51%	3.3	56%	33%	11%
16	Off-street marked parks	Coupon	1.7	79%	0%	21%	4.5	50%	25%	25%
17	Unmarked roadside parking	Coupon	2.1	61%	0%	39%	2.7	70%	15%	15%
18	Unmarked roadside parking	Coupon	1.6	76%	0%	24%	3.3	40%	60%	0%
19	Unmarked roadside parking	Coupon	2.2	73%	5%	23%	2.0	50%	50%	0%
20	Shoulder (SBD)	Temporary	0.5	100%	0%	0%	0.5	100%	0%	0%
21	Shoulder (SBD)	Temporary	-	-	-	-	0.5	100%	0%	0%
22	Shoulder (SBD)	Temporary	-	-	-	-	-	-	-	-
23	Shoulder (SBD)	Temporary	0.6	100%	0%	0%	-	-	-	-
24	Unmarked roadside parking	Unrestricted	4.7	30%	5%	65%	3.5	58%	23%	19%
<i>Overall</i>			3.1	46%	1%	53%	3.2	58%	29%	13%

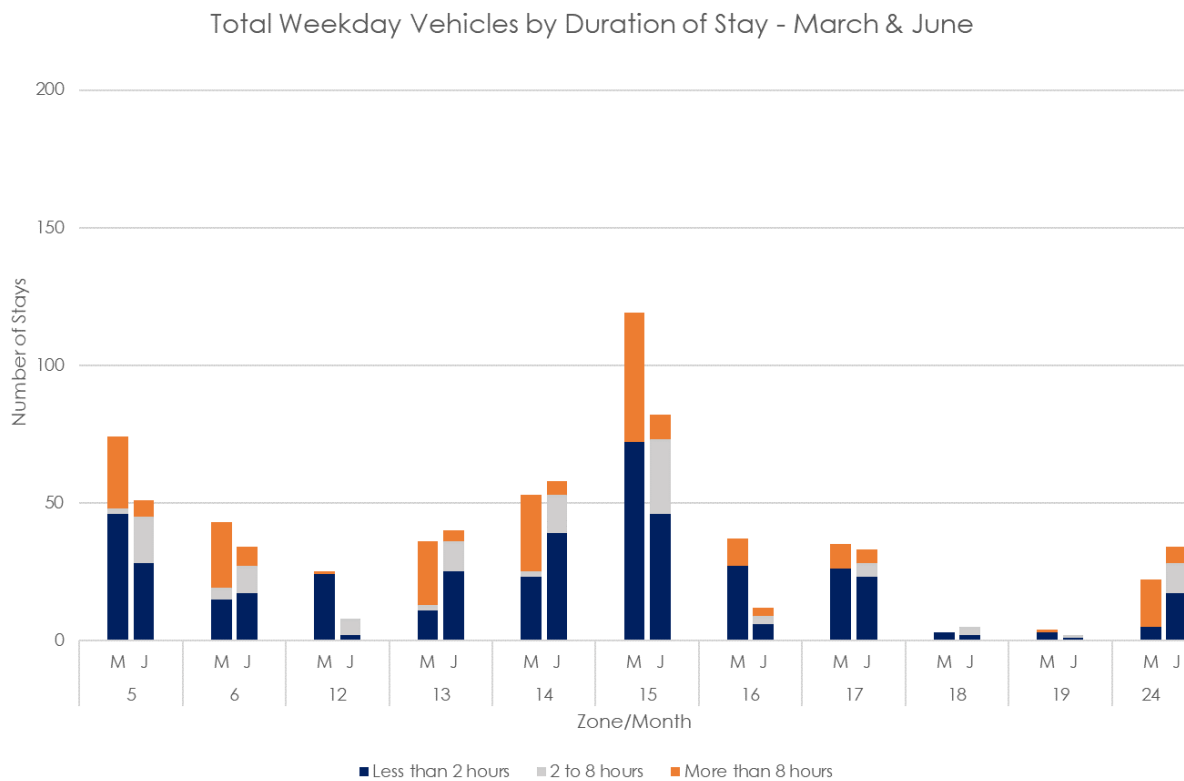


Figure 2-3. Duration of stay of Parked cars on Brooklyn Road on weekdays

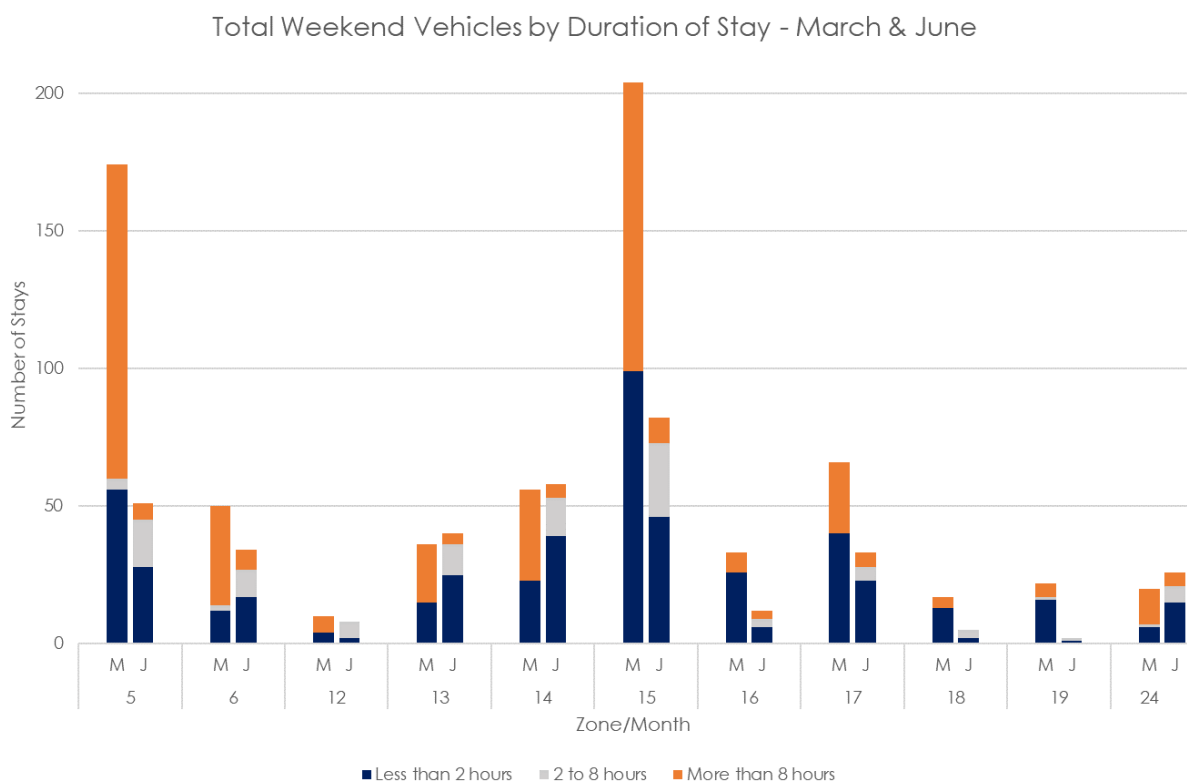


Figure 2-4. Duration of stay of Parked cars on Brooklyn Road on weekend

3.0 VEHICLE TRIP TIME SURVEY

3.1 METHODOLOGY

Cameras were set up along Brooklyn Road at approximately 15 Nairn Street and 140 Ohiro Road to capture vehicle travel times and volumes.

Pre cycle lane construction, the cameras recorded vehicle travel times in March on Friday 26 at 7:00am – 9:00am and 4:30pm – 6:30pm, and on Saturday 27 at 10:00am – 12:00pm.

Post cycle lane construction, the cameras recorded vehicle travel times in June on Friday 18 at 7:00am – 9:00am and 4:00pm – 6:00pm and in July on Saturday 3 at 10:00am – 12:00pm.

Appendix B includes a map showing the camera locations.

3.2 SURVEY RESULTS AND ANALYSIS

Travel time survey results have been tabulated and graphed below as follows:

- **Table 3-1:** Travel time statistics
- **Figure 3-1:** Weekday AM Peak travel times
- **Figure 3-2:** Weekday PM Peak travel times
- **Figure 3-3:** Weekend AM Peak travel times
- **Figure 3-4:** Travel time distributions

Raw travel time data can be found tabulated in the accompanying spreadsheet.

Note the irregularity in the data between 11:15 am and 11:30 am during the weekend survey seen in Figure 3-3. The sudden increase in travel times suggests this delay was caused by some event that blocked southbound traffic for ~10 minutes. While this data is included in Figure 3-3, it has been removed from the remaining analysis.

**WELLINGTON CITY COUNCIL
BROOKLYN ROAD SURVEYS**

Table 3-1 Brooklyn Hill peak hour travel time summary statistics.

Day	Time	Metric	Survey Date		Difference
			March	June	
Friday	AM 7:00am - 9:00am	Number of vehicles	364	411	+12.9%
		Average travel time	0:01:37	0:01:51	+14.5%
		Max travel time	0:03:17	0:04:33	+38.6%
		Timestamp of max travel time	8:14:08	8:53:00	
		Min travel time	0:01:07	0:01:16	+38.2%
		Timestamp of min travel time	7:23:28	7:32:16	
		Vehicle Type	Light	79.9%	77.4%
		Heavy	16.5%	17.8%	+1.3%
		Bus	3.6%	4.9%	+1.3%
	PM 4:30pm - 6:30pm (March)	Number of vehicles	795	809	+1.8%
		Average travel time	0:01:39	0:01:56	+16.8%
		Max travel time	0:04:18	0:04:43	+9.7%
		Timestamp of max travel time	17:44:40	17:45:48	
		Min travel time	0:01:08	0:01:18	+14.7%
		Timestamp of min travel time	16:56:51	16:37:06	-
Vehicle Type		Light	96.9%	96.7%	-0.2%
4:00pm - 6:00pm (June)	Heavy	1.1%	2.1%	+1.0%	
	Bus	2.0%	1.2%	-0.8%	
Saturday	AM 10:00am - 12:00pm	Number of vehicles	422	524	+24.2%
		Average travel time	0:01:33	0:01:45	+12.5%
		Max travel time	0:02:49	0:03:57	+40.2%
		Timestamp of max travel time	11:00:58	10:27:43	
		Min travel time	0:01:15	0:00:56	-25.3%
		Timestamp of min travel time	10:19:05	10:01:24	
		Vehicle Type	Light	94.1%	91.4%
		Heavy	4.0%	6.5%	+2.5%
		Bus	1.9%	2.1%	+0.2%

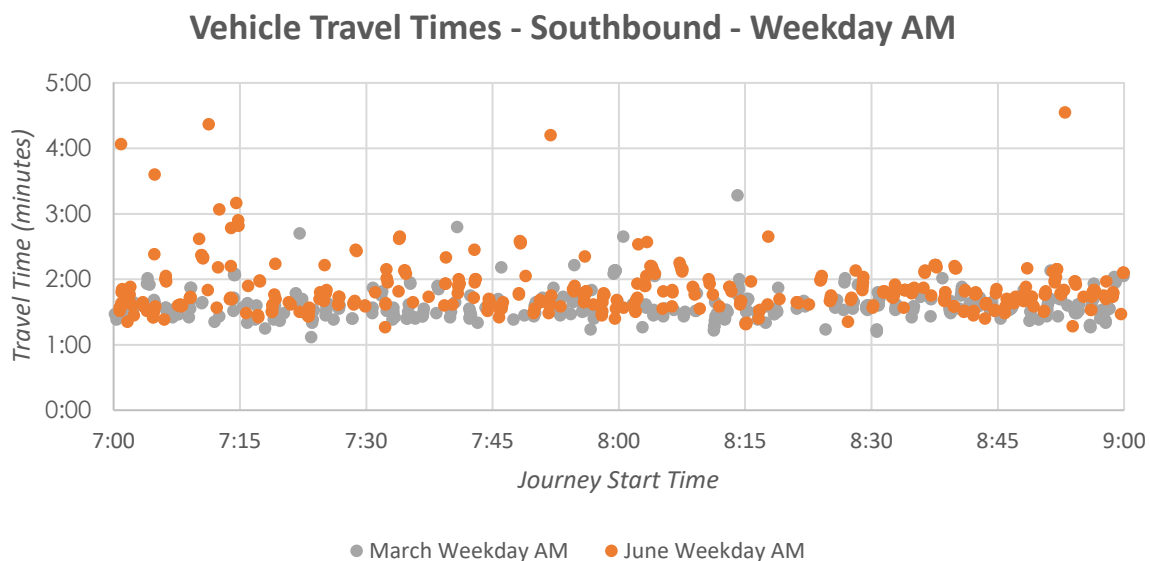


Figure 3-1 Vehicle travel times during AM peak on weekday

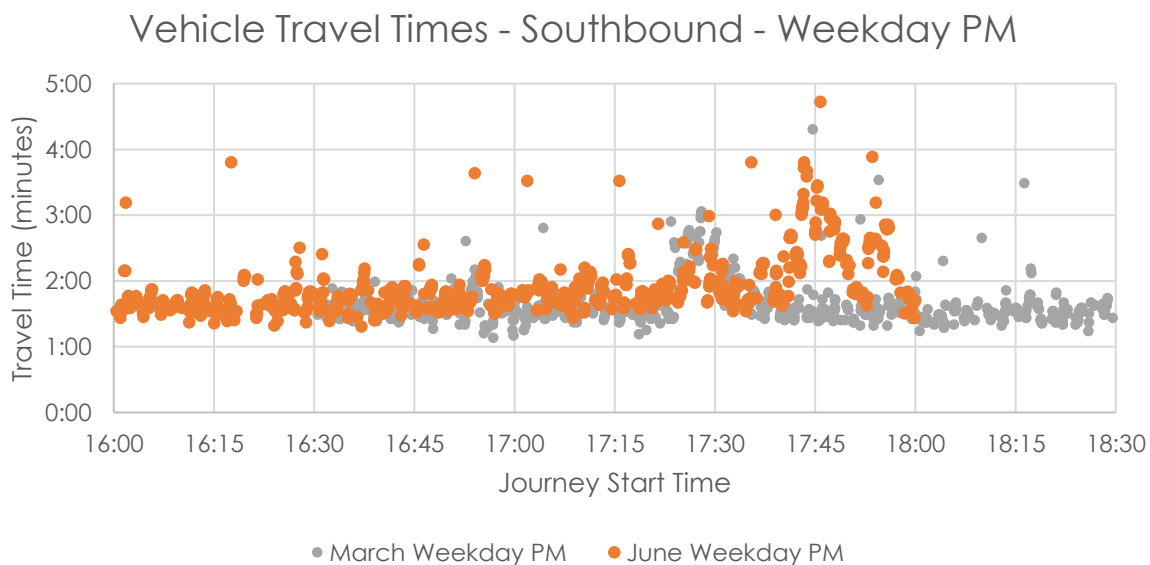


Figure 3-2 Vehicle travel times during PM peak on weekday

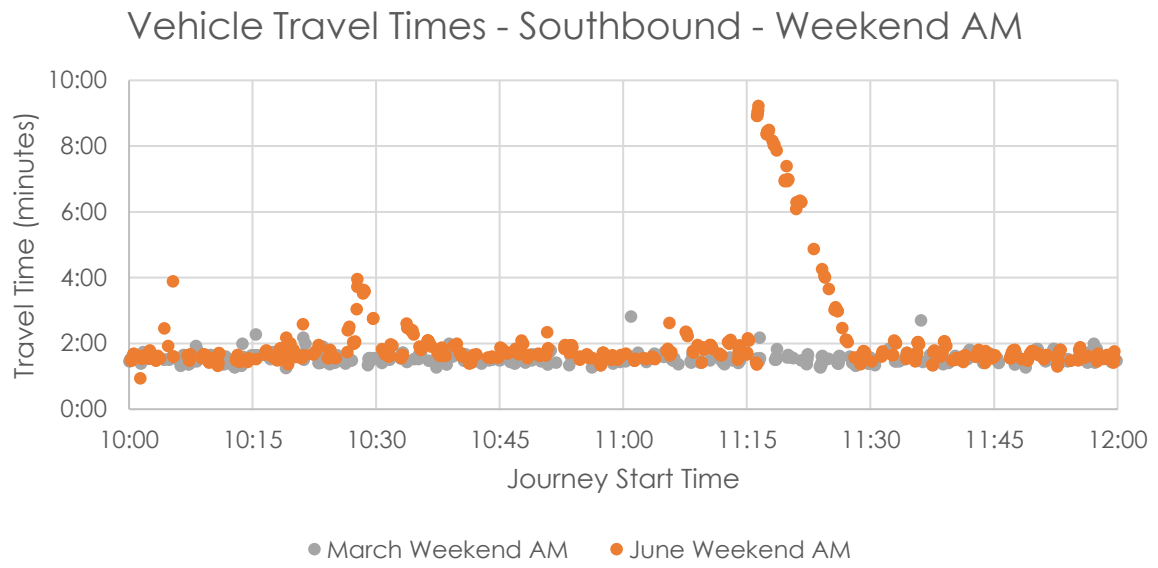


Figure 3-3 Vehicle travel times during AM peak on weekend

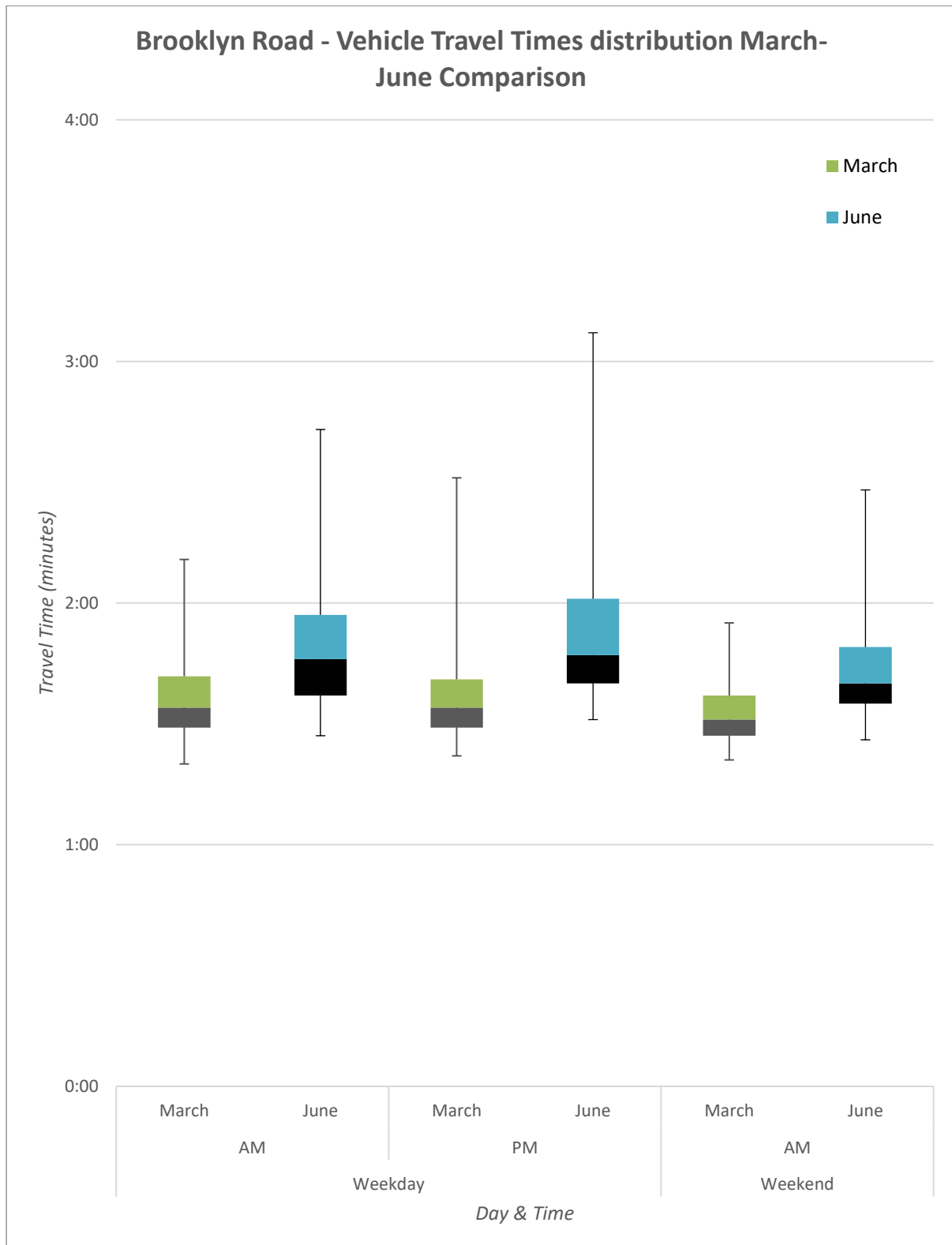


Figure 3-4 Box and Whisker plot: Vehicle travel times distribution by day, peak time and direction.

This Box and Whisker plot uses the 5th, 25th, 50th, 75th and the 95th percentile values.

APPENDICES

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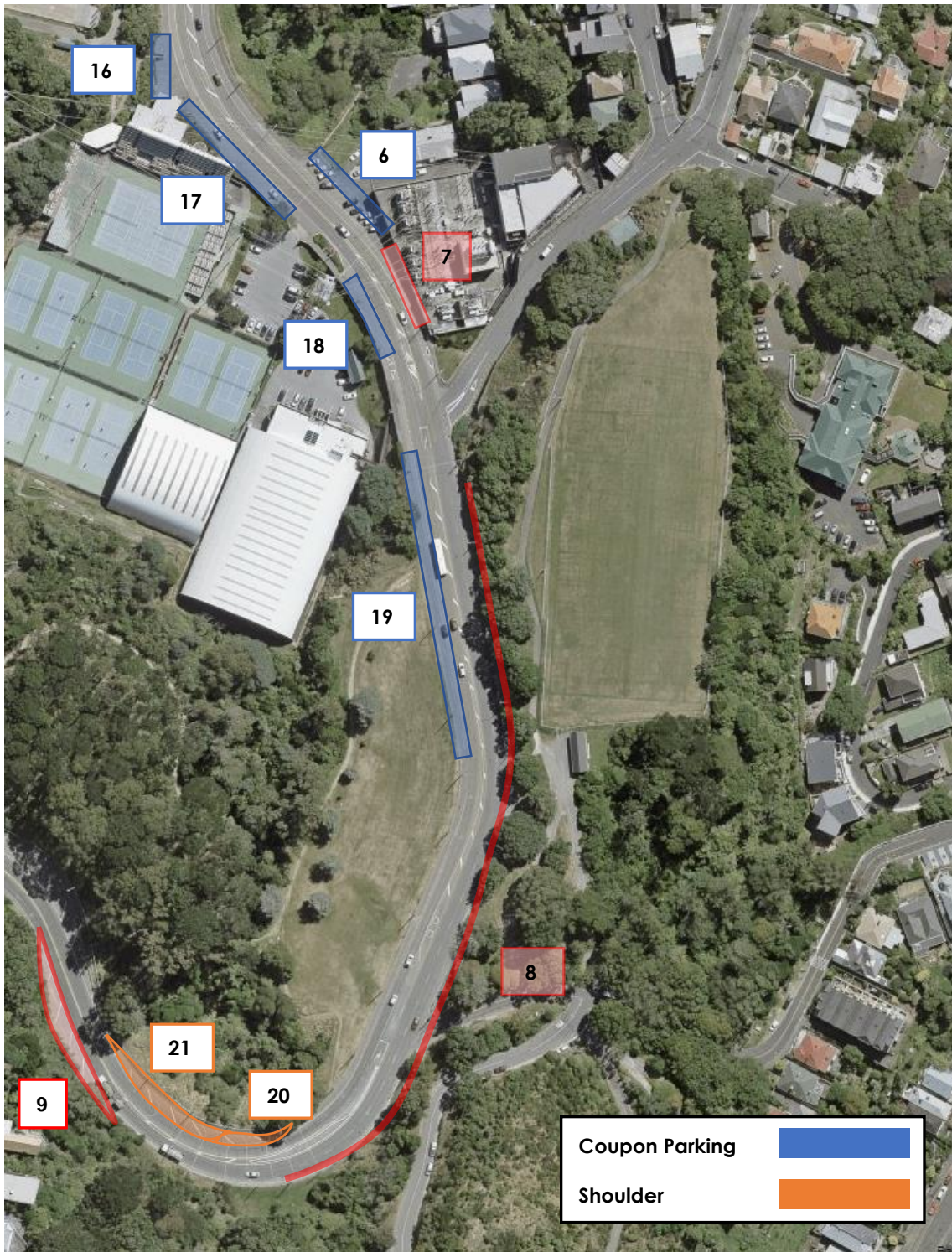


Appendix A SURVEY ZONES

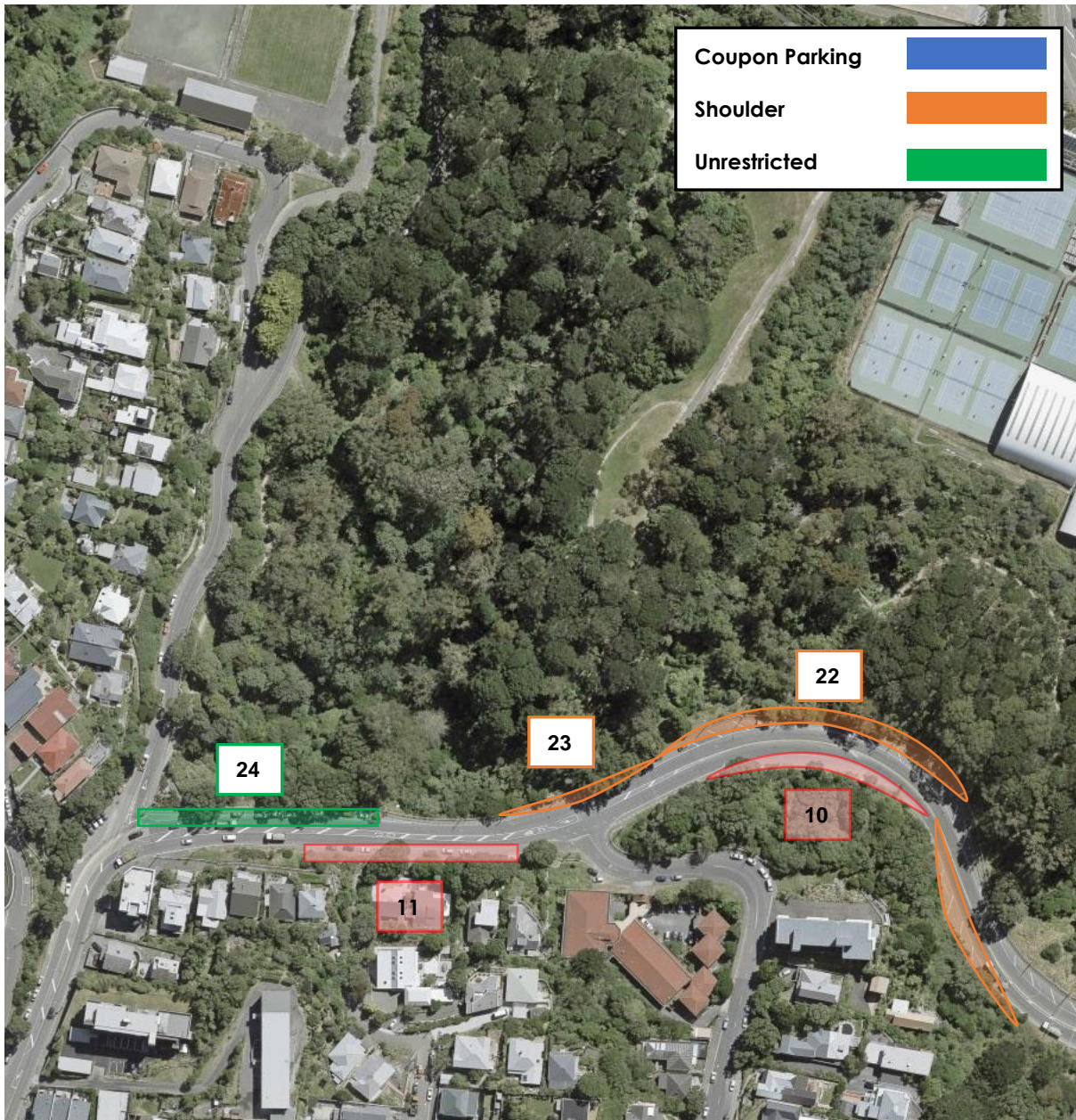
Survey Zone Locations – updated post cycle lane construction (parks in red have been removed)



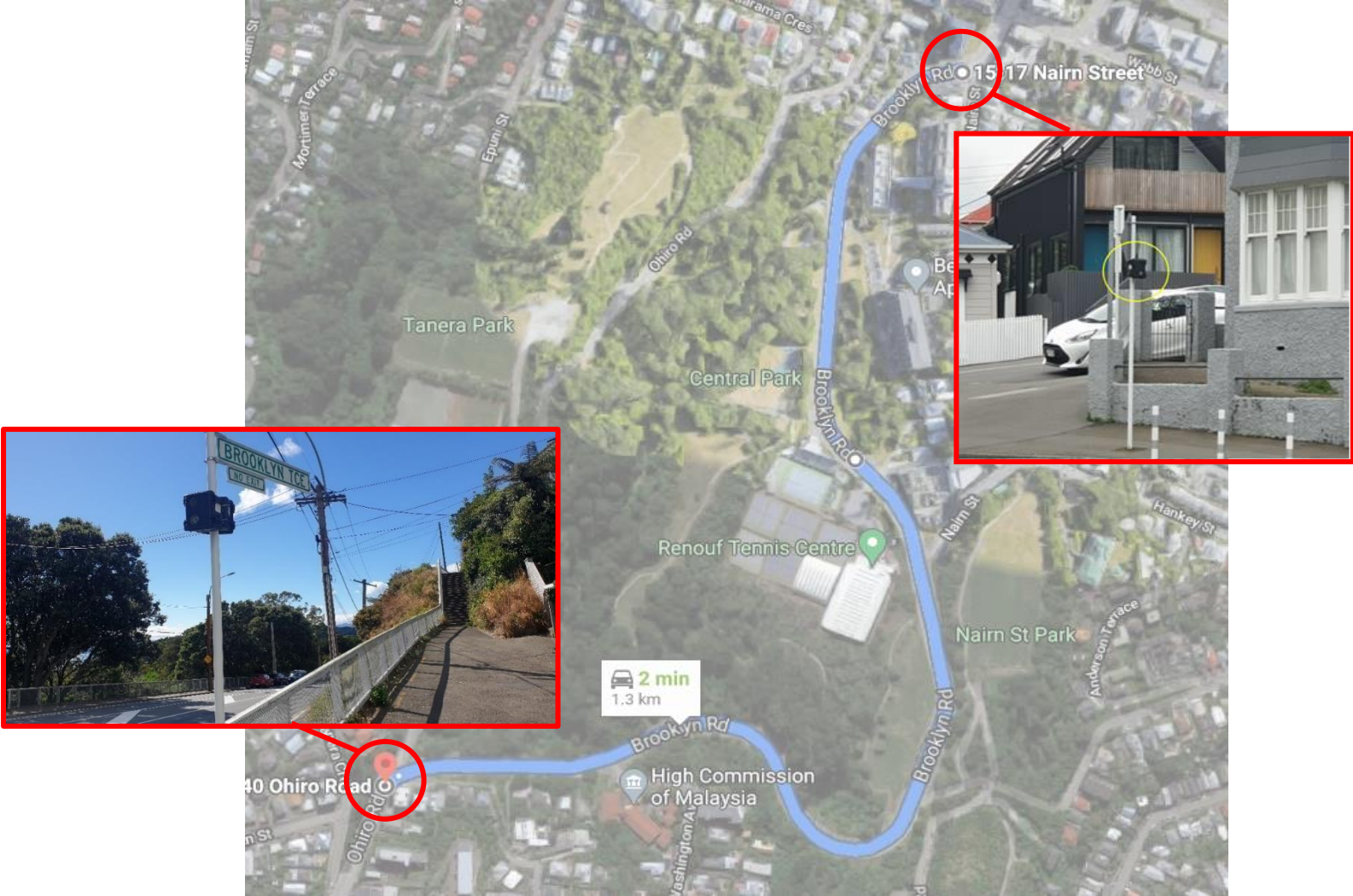
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Appendix B VEHICLE TRAVEL TIMES – CAMERA LOCATIONS



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Brooklyn Parking Occupancy Survey

PREPARED FOR WELLINGTON CITY COUNCIL | APRIL 2022

We design with community in mind

Revision Schedule

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	06/05/22	Brooklyn Parking Occupancy Survey	Will Roper	Christopher Hendrickson	Mark Georgeson	Mark Georgeson



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Table of Contents

1.0	INTRODUCTION	1
1.1	CLIENT BRIEF	1
1.2	SURVEY DATES	1
2.0	SURVEY METHODOLOGY	2
3.0	SURVEY RESULTS AND ANALYSIS	3
4.0	2021 SURVEY COMPARISON	17

LIST OF TABLES

Table 3-1	Survey locations, park types and capacities	5
Table 3-2.	Brooklyn Parking occupancy	7
Table 3-3.	Brooklyn Road parking occupancy by vehicle type	11
Table 3-4.	Average duration of stay.....	13

LIST OF FIGURES

Figure 1-1.	Parking occupancy survey extent	1
Figure 3-1	Survey Zones	4
Figure 3-2.	Average park occupancy during Weekdays.....	9
Figure 3-3.	Average park occupancy during Weekend.....	10
Figure 3-4.	Duration of stay of Parked cars on weekdays	15
Figure 3-5.	Duration of stay of Parked cars on weekends.....	16
Figure 4-1.	Parks on Brooklyn Road, surveyed in April 2021 and February/March 2022.	17
Figure 4-2.	Comparison of parking occupancy on Brooklyn Road, from April 2021 and February/March 2022.	18

LIST OF APPENDICES

APPENDIX A	COVID-19 CASES DURING SURVEY PERIODS	A.1
APPENDIX B	SURVEY ZONES	B.1



1.0 INTRODUCTION

This report outlines parking occupancy surveys carried out by Stantec on various streets in Brooklyn, in February and March 2022. The results from the surveys provide information on occupancy, vehicle types and duration of stay of parking.

Previous parking occupancy survey results on Brooklyn Road in 2021 (investigating parking patterns after the implementation of an uphill cycle lane on Brooklyn Road) are also compared.

1.1 CLIENT BRIEF

In 2021, an uphill cycling lane on Brooklyn Road (from Webb Street to Ohiro Road) was constructed by Wellington City Council (WCC) as part of the Innovating City Streets programme.

WCC is currently planning additional road layout changes in the area of the Brooklyn Shops and the surrounding streets. To assist with the optioneering process WCC is interested in understanding current parking behaviour on roads indicated in **Figure 1-1**.

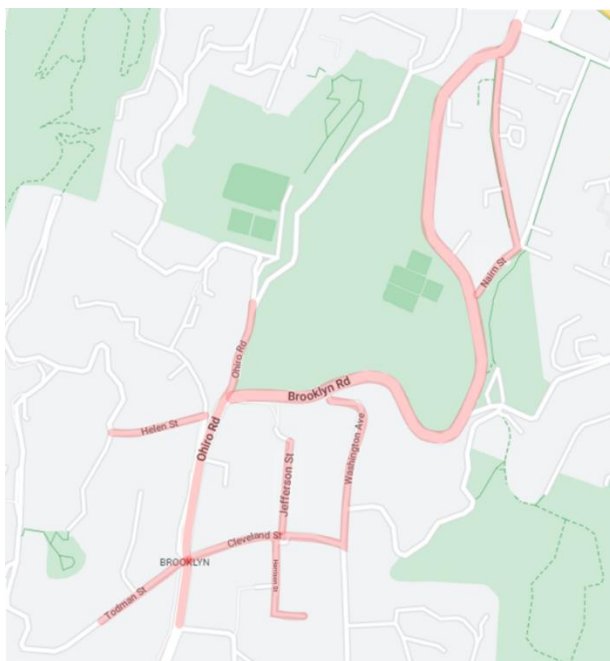


Figure 1-1. Parking occupancy survey extent

1.2 SURVEY DATES

Due to the size of the survey area, parking occupancy surveys were planned over two weeks from Thursday 17 to Sunday 20 February, and Thursday 24 to Sunday 27 February. Unfortunately, these dates were disrupted by adverse weather conditions and rising COVID-19 cases, as summarised in **Appendix A**. Some surveys were therefore rescheduled for the following weeks on Saturday 5 March, Sunday 6 March and Sunday 13 March.

For reporting purposes all data is grouped as Weekday (Thursday and Friday) or Weekend (Saturday and Sunday).

Surveys were typically undertaken from 7:00am to 7:00pm. Surveys were carried out to 9:00pm for roads around Brooklyn shops (Cleveland Street, Todman Street, Harrison Street, and Ohiro Road south of Cleveland Street).

2.0 SURVEY METHODOLOGY

Six surveyors, and one supervisor, conducted the parking surveys from the Thursday to Sunday periods of February and March from 7:00am – 7:00pm (or 9:00pm depending on location) by recording number plates of vehicles parked within the survey area using tablets. Vehicles parked in each zone were recorded every 30 minutes.

The survey area was initially divided into zones based on parking type and location, which have been further aggregated by road as shown in **Figure 3-1** and **Table 3-1**. **Appendix B** includes maps showing each street by parking type and form in further detail.

As the majority of parking along roads in Brooklyn is unmarked, the total available length of parking was measured, and the approximate number of spaces calculated and used for analysis. When calculating the amount of parking occupied a nominal vehicle parking space length of 6.0m was used. Note that due to this assumption it is possible for occupancies exceeding 100% to be observed, as vehicles may take up less space than the assumed nominal length.

Results from the surveys were used to determine parking behaviour on each road within each zone to the nearest 30 minutes, by tracking each individual vehicles using the partial number plates recorded in the survey throughout the day.

3.0 SURVEY RESULTS AND ANALYSIS

Parking occupancy survey results have been tabulated and graphed below as follows, based on all vehicles recorded.

- **Table 3-2:** Overall parking occupancy during weekdays and weekends surveyed;
- **Figure 3-2** and **Figure 3-3:** Graphical representations of Table 3-2, showing overall parking occupancy in weekdays and weekends respectively;
- **Table 3-3:** Types of vehicles parked;
- **Table 3-4:** Duration of Stay of vehicles parked; and
- **Figure 3-4** and **Figure 3-5:** Duration of stay for weekdays and weekends, respectively.

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BROOKLYN PARKING OCCUPANCY SURVEYS**

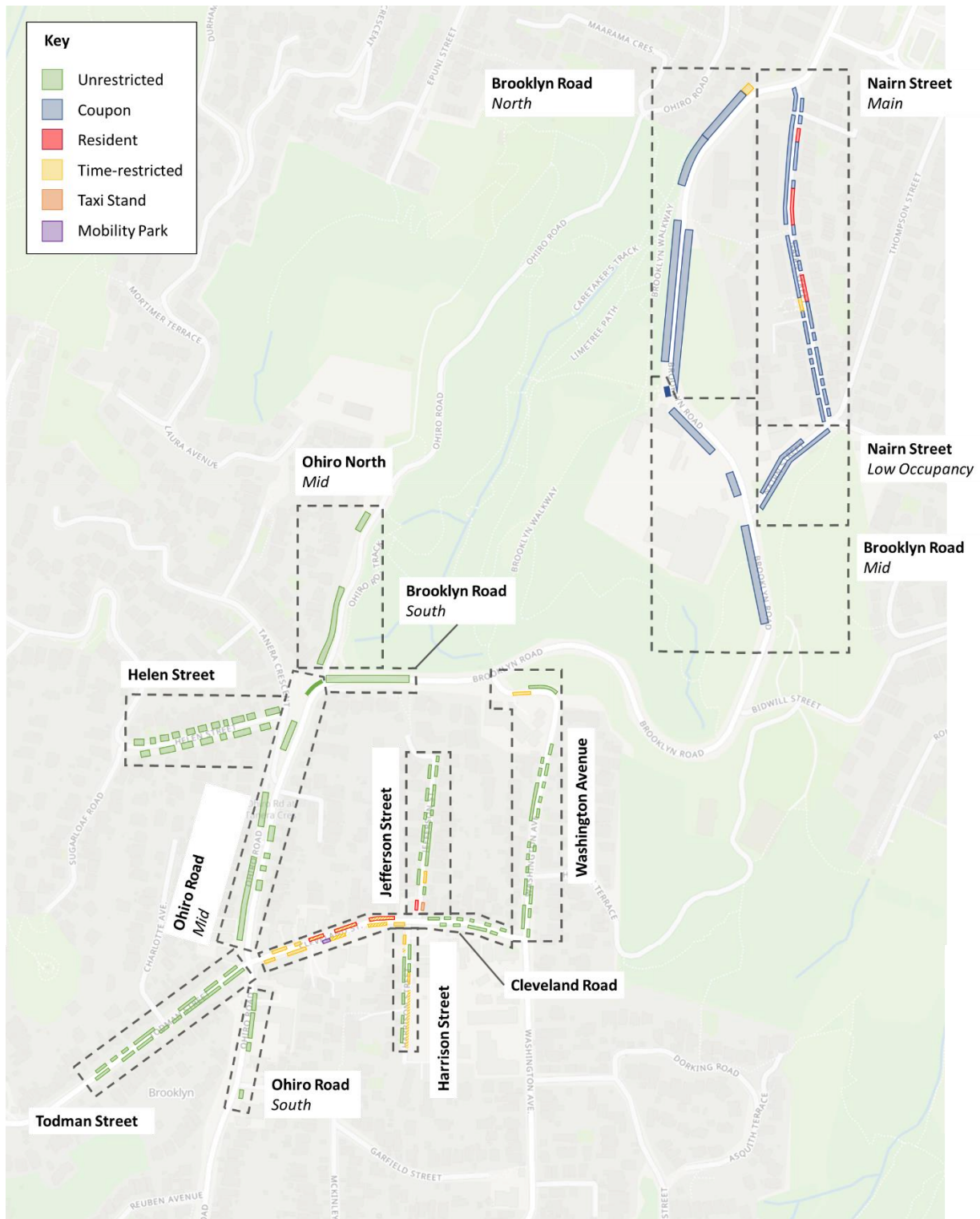


Figure 3-1 Survey Zones

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Table 3-1 Survey locations, park types and capacities

Road		Park Type	Location	Capacity	Notes
Nairn Street	Main	Coupon	Roadside	69	
		Resident	Roadside	12	
		P60	Roadside	2	
	Low Occupancy	Coupon	Roadside	25	<i>Nairn Street between Thompson Street and Brooklyn Road experienced significantly less parking usage, and has accordingly been separated for reporting</i>
Brooklyn Road	North	P30	Roadside	1	<i>Previously Surveyed (Report: Brooklyn Road Surveys July 2021)</i>
		Coupon	Roadside	60	
	Mid	Coupon	Roadside	33	
		Coupon	Off-street	4	
	South	Unrestricted	Roadside	15	
Washington Avenue		Unrestricted	Roadside	33	
		P60	Roadside	3	
Jefferson Street		Unrestricted	Roadside	24	
		P30	Roadside	2	
		Resident	Roadside	2	
		Taxi	Roadside	1	

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Road		Park Type	Location	Capacity	Notes
Harrison Street		Unrestricted	Roadside	12	
		P10	Roadside	11	
		P30	Roadside	3	
Todman Street		Unrestricted	Roadside	52	
Ohiro Road	North	Unrestricted	Roadside	15	
	Mid	Unrestricted	Roadside	30	
		Unrestricted	Off-street	9	<i>Off-street parking on corner of Ohiro Road and Brooklyn Road</i>
	South	Unrestricted	Roadside	11	
Helen Street		Unrestricted	Roadside	24	
Cleveland Street		Unrestricted	Roadside	13	
		P10	Roadside	8	
		P30	Roadside	18	<i>Including P30 parks from 8:00am- 6:00pm Mon-Sat, Resident parking otherwise (reported on as P30)</i>
		Mobility	Roadside	1	

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Table 3-2. Brooklyn Parking occupancy

Road		Park Type	Location	Capacity	Weekday Occupancy %		Weekend Occupancy %		Total Number of Unique Vehicles Recorded	
					AM 7:00am - 1:00/2:00pm	PM 1:00/2:00pm - 7:00/9:00pm	AM 7:00am - 1:00/2:00pm	PM 1:00/2:00pm - 7:00/9:00pm	Weekday	Weekend
Nairn Street	Main	Coupon	Roadside	69	94%	84%	95%	84%	177	160
		Resident	Roadside	12	96%	73%	100%	76%	31	33
		P60	Roadside	2	83%	83%	77%	69%	11	6
	Low Occ.	Coupon	Roadside	25	2%	3%	1%	0%	17	1
Brooklyn Road	North	P30	Roadside	1	83%	71%	17%	29%	28	9
		Coupon	Roadside	60	49%	42%	66%	52%	151	198
	Mid	Coupon	Roadside	33	30%	33%	43%	34%	56	74
		Coupon	Off-street	4	39%	45%	64%	47%	36	33
	South	Unrestricted	Roadside	15	45%	40%	27%	18%	15	13
Washington Avenue		Unrestricted	Roadside	33	119%	113%	113%	112%	97	69
		P60	Roadside	3	49%	25%	67%	67%	18	2
Jefferson Street		Unrestricted	Roadside	24	116%	113%	89%	91%	67	34
		P30	Roadside	2	75%	67%	0%	60%	23	5
		Resident	Roadside	2	92%	90%	56%	54%	24	11
		Taxi	Roadside	1	13%	13%	0%	4%	5	1

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Road	Park Type	Location	Capacity	Weekday Occupancy %		Weekend Occupancy %		Total Number of Unique Vehicles Recorded		
				AM 7:00am - 1:00/2:00pm	PM 1:00/2:00pm - 7:00/9:00pm	AM 7:00am - 1:00/2:00pm	PM 1:00/2:00pm - 7:00/9:00pm	Weekday	Weekend	
Harrison Street	Unrestricted	Roadside	12	127%	112%	92%	77%	75	49	
	P10	Roadside	11	59%	52%	50%	44%	84	60	
	P30	Roadside	3	75%	70%	23%	52%	65	29	
Todman Street	Unrestricted	Roadside	52	105%	109%	95%	106%	207	166	
Ohio Road	North	Unrestricted	Roadside	15	103%	119%	99%	98%	41	27
	Mid	Unrestricted	Roadside	30	78%	73%	65%	58%	78	73
	South	Unrestricted	Off-street	9	86%	56%	94%	95%	33	20
		Unrestricted	Roadside	11	33%	52%	34%	62%	70	77
Helen Street	Unrestricted	Roadside	24	121%	81%	108%	101%	71	74	
Cleveland Street	Unrestricted	Roadside	13	102%	91%	74%	78%	69	57	
	P10	Roadside	8	59%	79%	46%	61%	205	101	
	P30	Roadside	18	82%	92%	73%	87%	311	182	
	Mobility	Roadside	1	11%	7%	0%	11%	4	3	

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BROOKLYN PARKING OCCUPANCY SURVEYS**

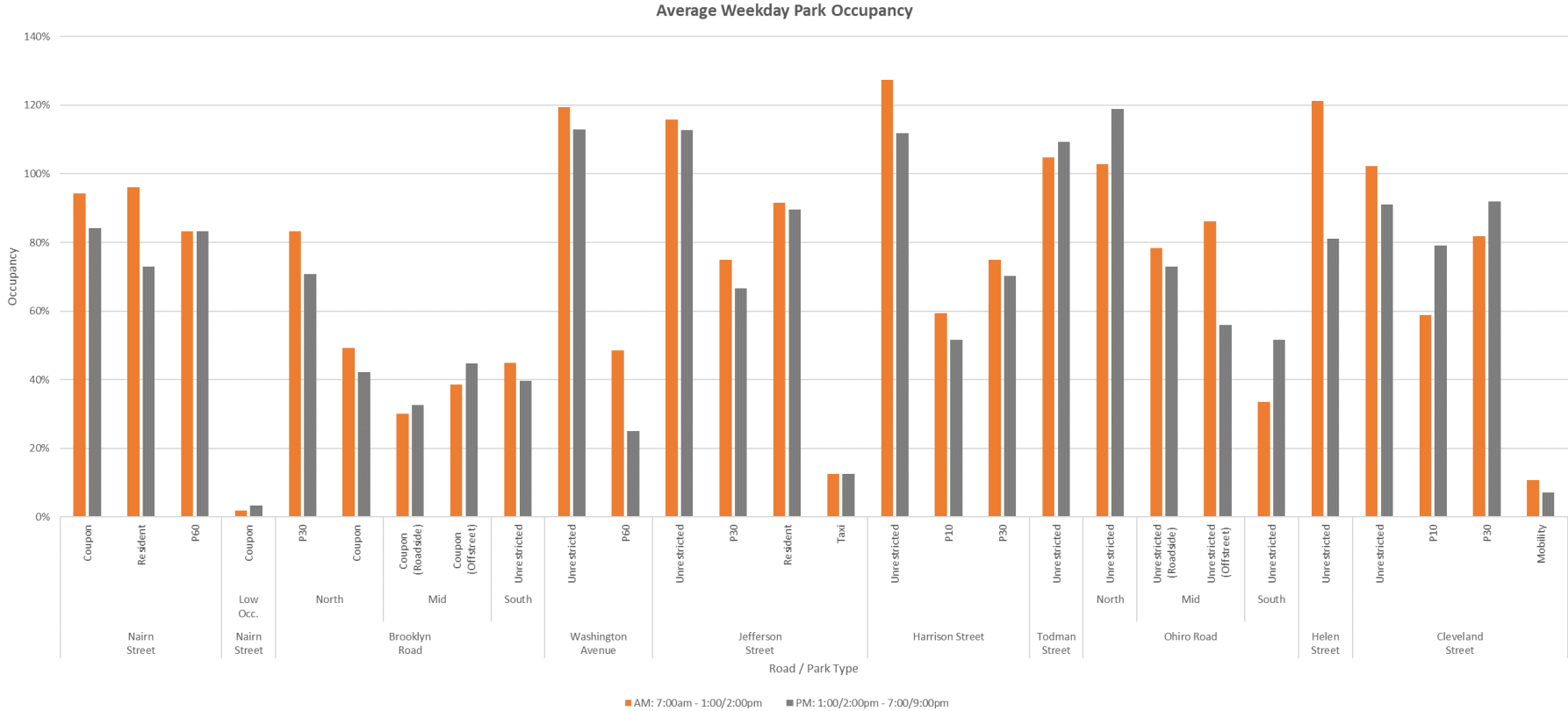


Figure 3-2. Average park occupancy during Weekdays.

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

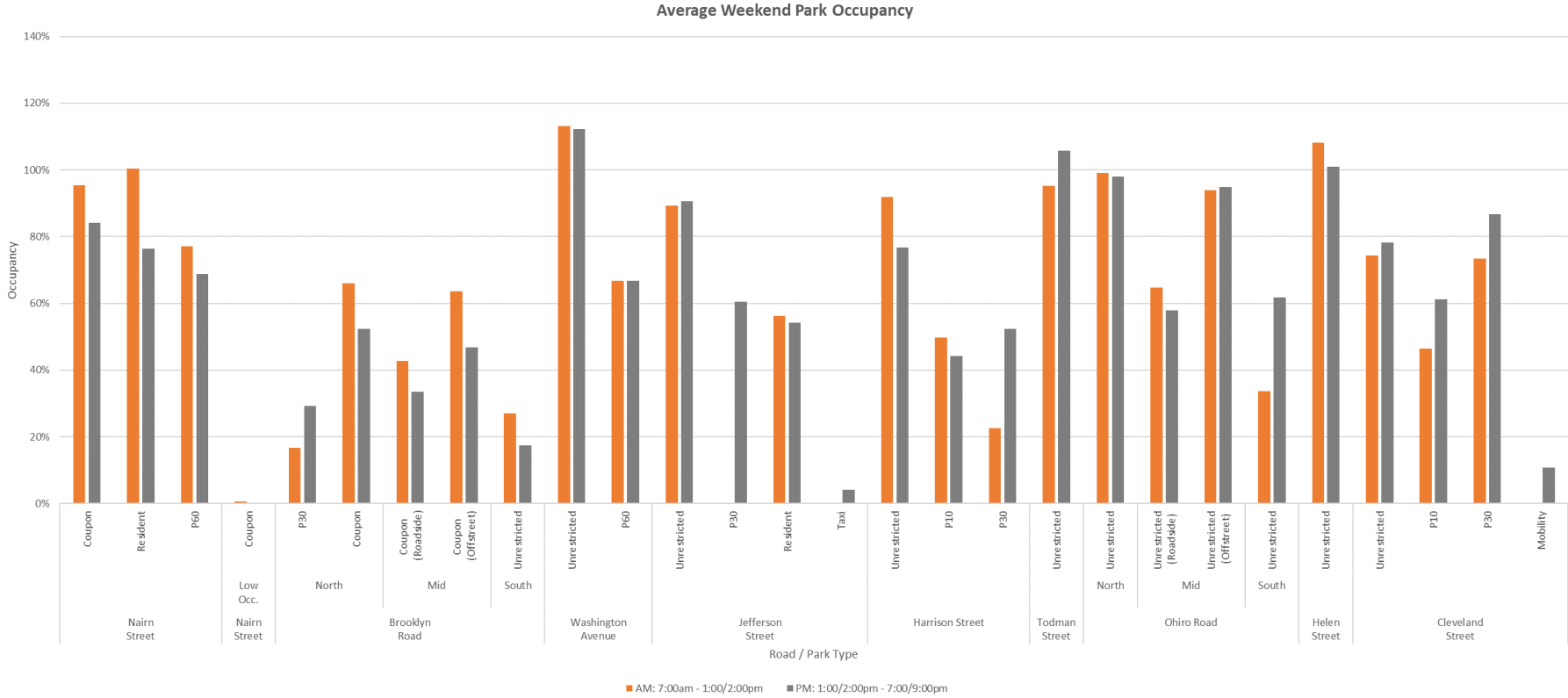


Figure 3-3. Average park occupancy during Weekend.

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Table 3-3. Brooklyn Road parking occupancy by vehicle type

Street		Park Type	Park Type	WEEKDAY (%)			WEEKEND (%)		
				Light Vehicle	Motorbike/ Moped	Heavy Vehicle	Light Vehicle	Motorbike/ Moped	Heavy Vehicle
Nairn Street	Main	Coupon	Roadside	97%	2%	1%	98%	1%	1%
		Resident	Roadside	98%	0%	2%	100%	0%	0%
		P60	Roadside	92%	0%	8%	97%	0%	3%
	Low Occupancy	Coupon	Roadside	84%	5%	11%	100%	0%	0%
Brooklyn Road	North	P30	Roadside	100%	0%	0%	100%	0%	0%
		Coupon	Roadside	99%	0%	1%	99%	0%	1%
	Mid	Coupon	Roadside	93%	0%	7%	100%	0%	0%
		Coupon	Off-street	92%	8%	0%	97%	3%	0%
	South	Unrestricted	Roadside	100%	0%	0%	100%	0%	0%
Washington Avenue		Unrestricted	Roadside	99%	0%	1%	100%	0%	0%
		P60	Roadside	84%	0%	16%	100%	0%	0%
Jefferson Street		Unrestricted	Roadside	96%	3%	1%	100%	0%	0%
		P30	Roadside	91%	0%	9%	100%	0%	0%
		Resident	Roadside	100%	0%	0%	100%	0%	0%
		Taxi	Roadside	100%	0%	0%	100%	0%	0%

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Street		Park Type	Park Type	WEEKDAY (%)			WEEKEND (%)		
				Light Vehicle	Motorbike/ Moped	Heavy Vehicle	Light Vehicle	Motorbike/ Moped	Heavy Vehicle
Harrison Street		Unrestricted	Roadside	98%	0%	2%	100%	0%	0%
		P10	Roadside	100%	0%	0%	98%	2%	0%
		P30	Roadside	94%	3%	3%	100%	0%	0%
Todman Street		Unrestricted	Roadside	99%	0%	1%	100%	0%	0%
Ohio Road	North	Unrestricted	Roadside	96%	2%	2%	95%	5%	0%
	Mid	Unrestricted	Roadside	99%	0%	1%	100%	0%	0%
		Unrestricted	Off-street	98%	0%	2%	100%	0%	0%
	South	Unrestricted	Roadside	98%	1%	1%	99%	1%	0%
Helen Street		Unrestricted	Roadside	96%	3%	1%	97%	0%	3%
Cleveland Street		Unrestricted	Roadside	96%	2%	2%	99%	0%	1%
		P10	Roadside	98%	1%	1%	98%	1%	1%
		P30	Roadside	98%	0%	2%	99%	0%	1%
		Mobility	Roadside	100%	0%	0%	100%	0%	0%

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Table 3-4. Average duration of stay

Street		Park Type	Park Type	Capacity	Weekday Duration of Stay (DOS)				Weekend Duration of Stay (DOS)			
					Average DOS (hh:mm)	< 2 hours	2-8 hours	> 8 hours	Average DOS (hh:mm)	< 2 hours	2-8 hours	> 8 hours
Nairn Street	Main	Coupon	Roadside	69	3:44	59%	23%	18%	4:16	49%	28%	23%
		Resident	Roadside	12	4:52	40%	33%	27%	5:01	50%	19%	31%
		P60	Roadside	2	2:35	65%	29%	6%	1:18	92%	5%	3%
	Low Occ.	Coupon	Roadside	25	1:04	90%	10%	0%	2:00	100%	0%	0%
Brooklyn Road	North	P30	Roadside	1	0:31	100%	0%	0%	0:33	100%	0%	0%
		Coupon	Roadside	60	2:32	72%	19%	9%	2:52	62%	28%	10%
	Mid	Coupon	Roadside	33	2:49	73%	9%	18%	2:03	74%	19%	7%
		Coupon	Off-street	4	0:36	98%	2%	0%	1:10	97%	0%	3%
	South	Unrestricted	Roadside	15	5:32	45%	0%	55%	1:09	85%	15%	0%
Washington Avenue		Unrestricted	Roadside	33	5:37	42%	16%	42%	5:51	36%	23%	41%
		P60	Roadside	3	1:13	90%	10%	0%	11:30	0%	0%	100%
Jefferson Street		Unrestricted	Roadside	24	5:18	44%	22%	34%	6:05	35%	20%	45%
		P30	Roadside	2	1:21	88%	8%	4%	2:30	60%	40%	0%
		Resident	Roadside	2	1:43	89%	0%	11%	1:55	84%	8%	8%
		Taxi	Roadside	1	0:30	100%	0%	0%	0:30	100%	0%	0%

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

Street		Park Type	Park Type	Capacity	Weekday Duration of Stay (DOS)			Weekend Duration of Stay (DOS)				
					Average DOS (hh:mm)	< 2 hours	2-8 hours	> 8 hours	Average DOS (hh:mm)	< 2 hours	2-8 hours	> 8 hours
Harrison Street		Unrestricted	Roadside	12	3:34	54%	31%	15%	3:38	58%	28%	14%
		P10	Roadside	11	1:31	83%	13%	4%	1:53	76%	23%	1%
		P30	Roadside	3	0:46	94%	6%	0%	0:41	97%	3%	0%
Todman Street		Unrestricted	Roadside	52	4:28	48%	30%	22%	4:12	49%	30%	21%
Ohio Road	North	Unrestricted	Roadside	15	3:01	57%	29%	14%	3:54	15%	85%	0%
	Mid	Unrestricted	Roadside	30	2:24	63%	30%	7%	3:08	47%	44%	9%
		Unrestricted	Off-street	9	2:26	66%	26%	8%	4:17	28%	58%	14%
	South	Unrestricted	Roadside	11	1:28	81%	18%	1%	1:24	80%	18%	2%
Helen Street		Unrestricted	Roadside	24	2:26	64%	28%	8%	3:39	43%	49%	8%
Cleveland Street		Unrestricted	Roadside	13	3:08	65%	16%	19%	3:01	64%	22%	14%
		P10	Roadside	8	0:37	99%	1%	0%	0:56	92%	4%	4%
		P30	Roadside	18	1:13	89%	8%	3%	1:31	84%	13%	3%
		Mobility	Roadside	1	0:37	100%	0%	0%	0:30	100%	0%	0%

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

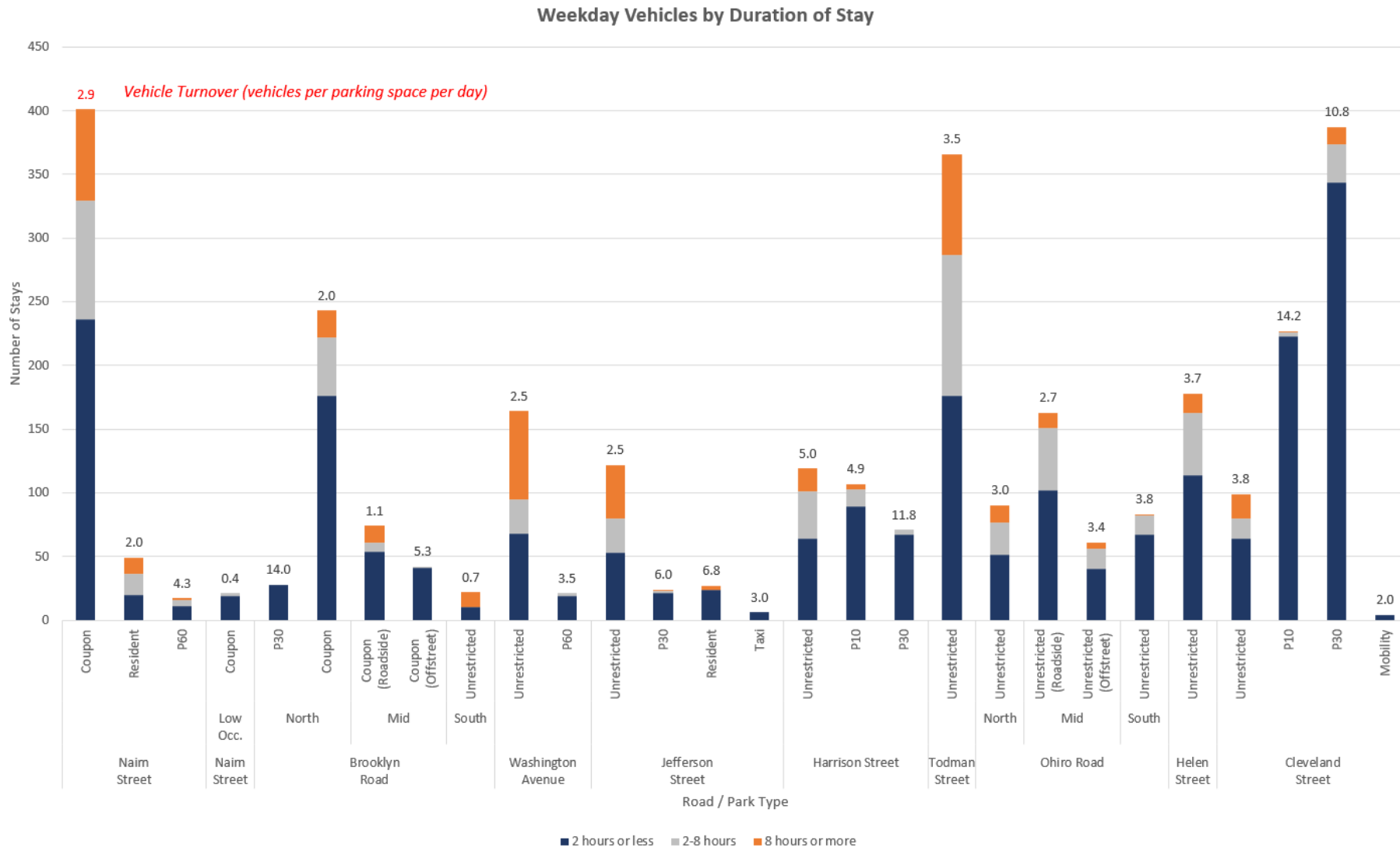


Figure 3-4. Duration of stay of Parked cars on weekdays, with daily turnover.

**WELLINGTON CITY COUNCIL
BROOKLYN PARKING OCCUPANCY SURVEYS**

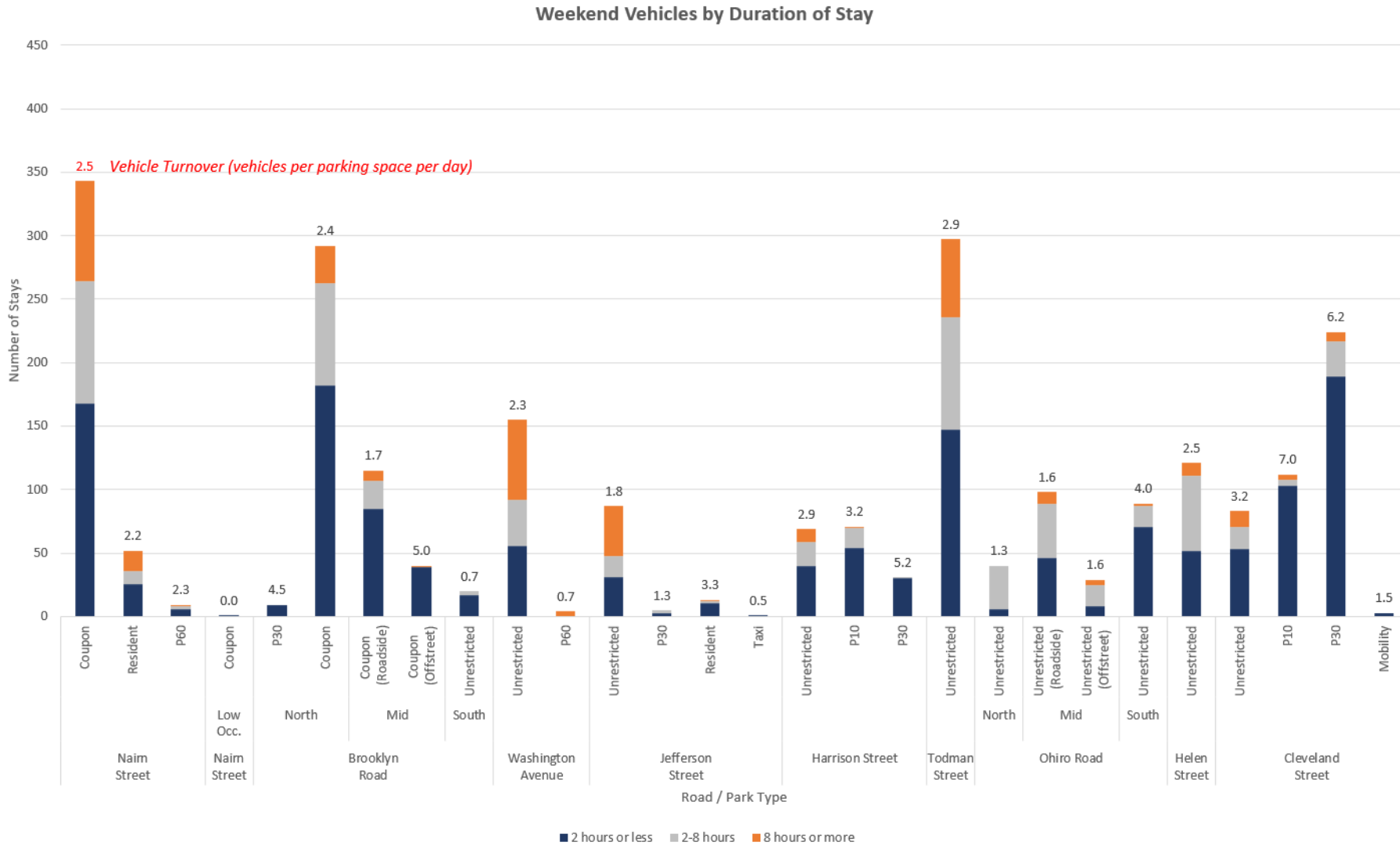


Figure 3-5. Duration of stay of Parked cars on weekends, with daily turnover.

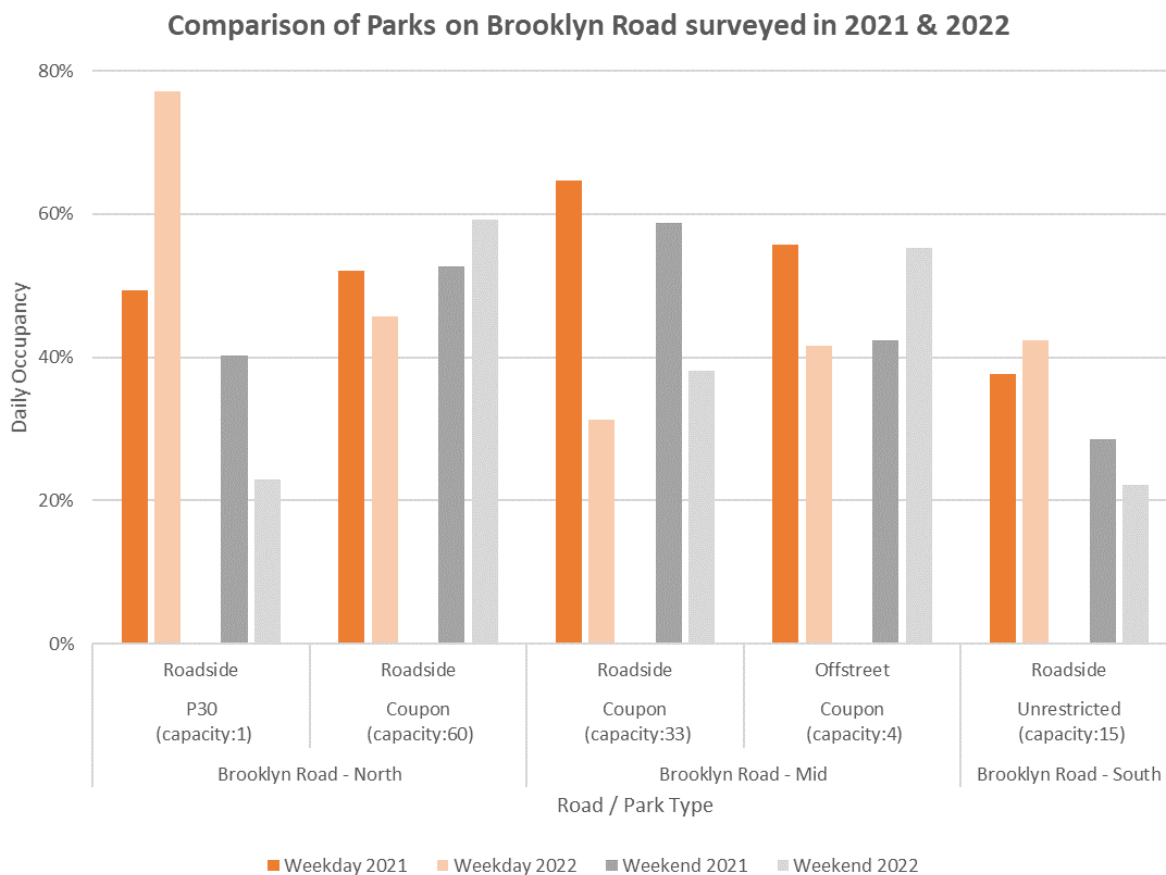


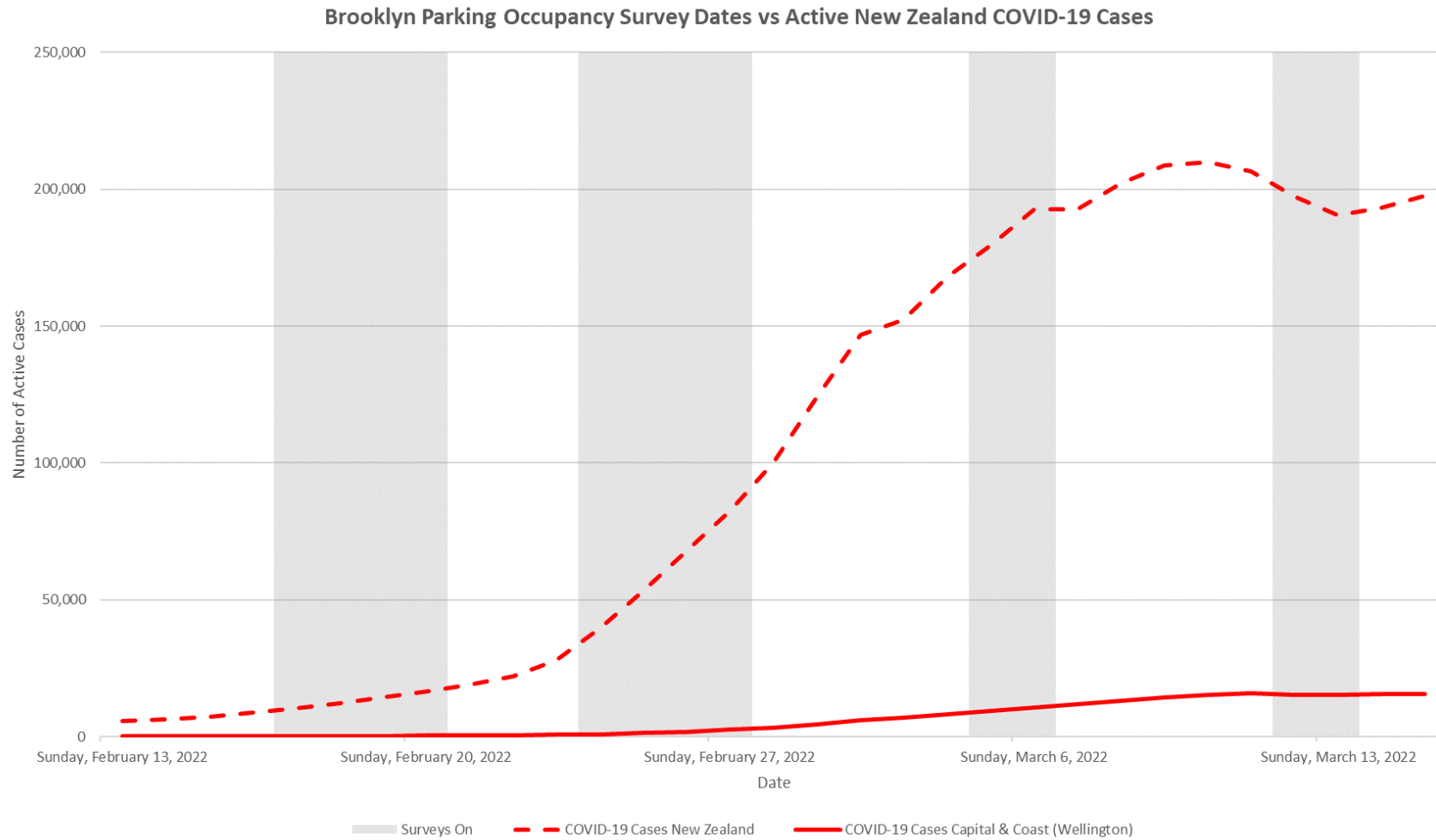
Figure 4-2. Comparison of parking occupancy on Brooklyn Road, from April 2021 and February/March 2022.

APPENDICES

We design with community in mind



Appendix A COVID-19 CASES DURING SURVEY PERIODS

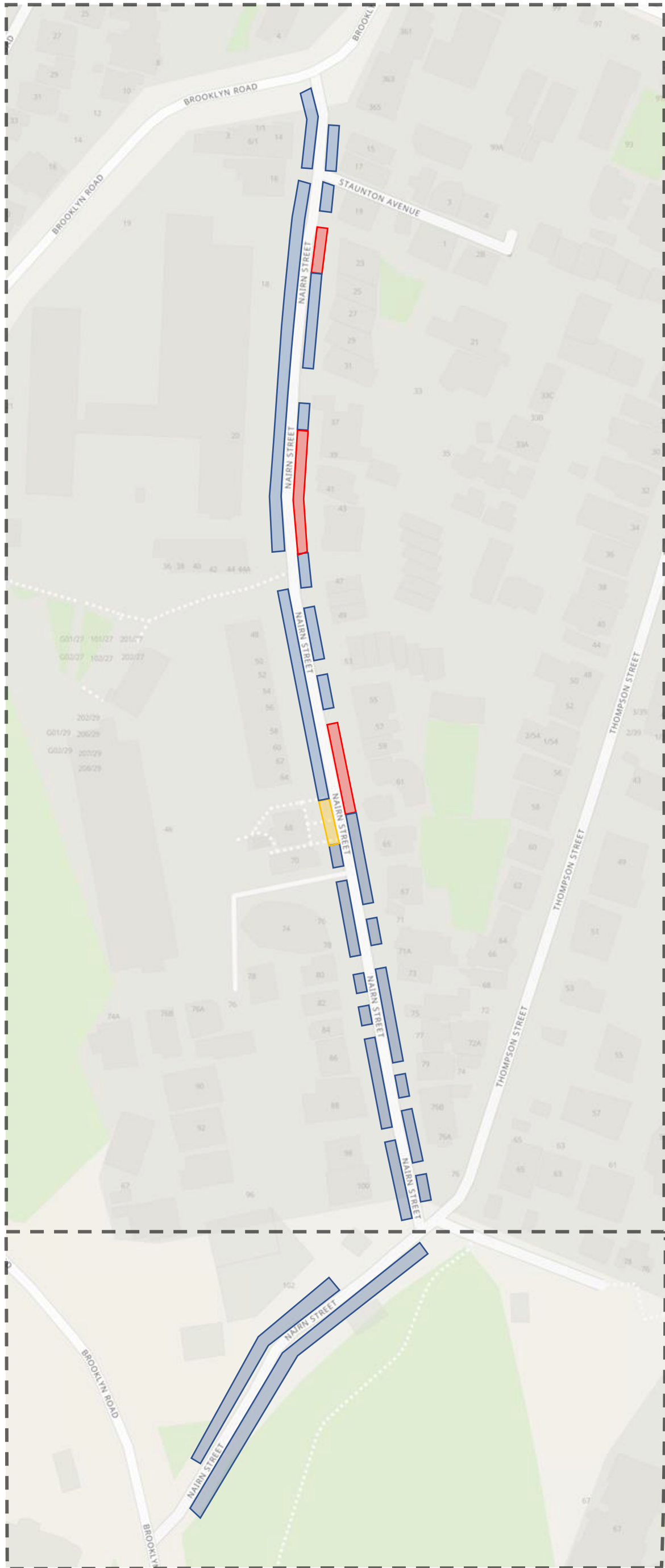


Source: Ministry of Health



Appendix B SURVEY ZONES





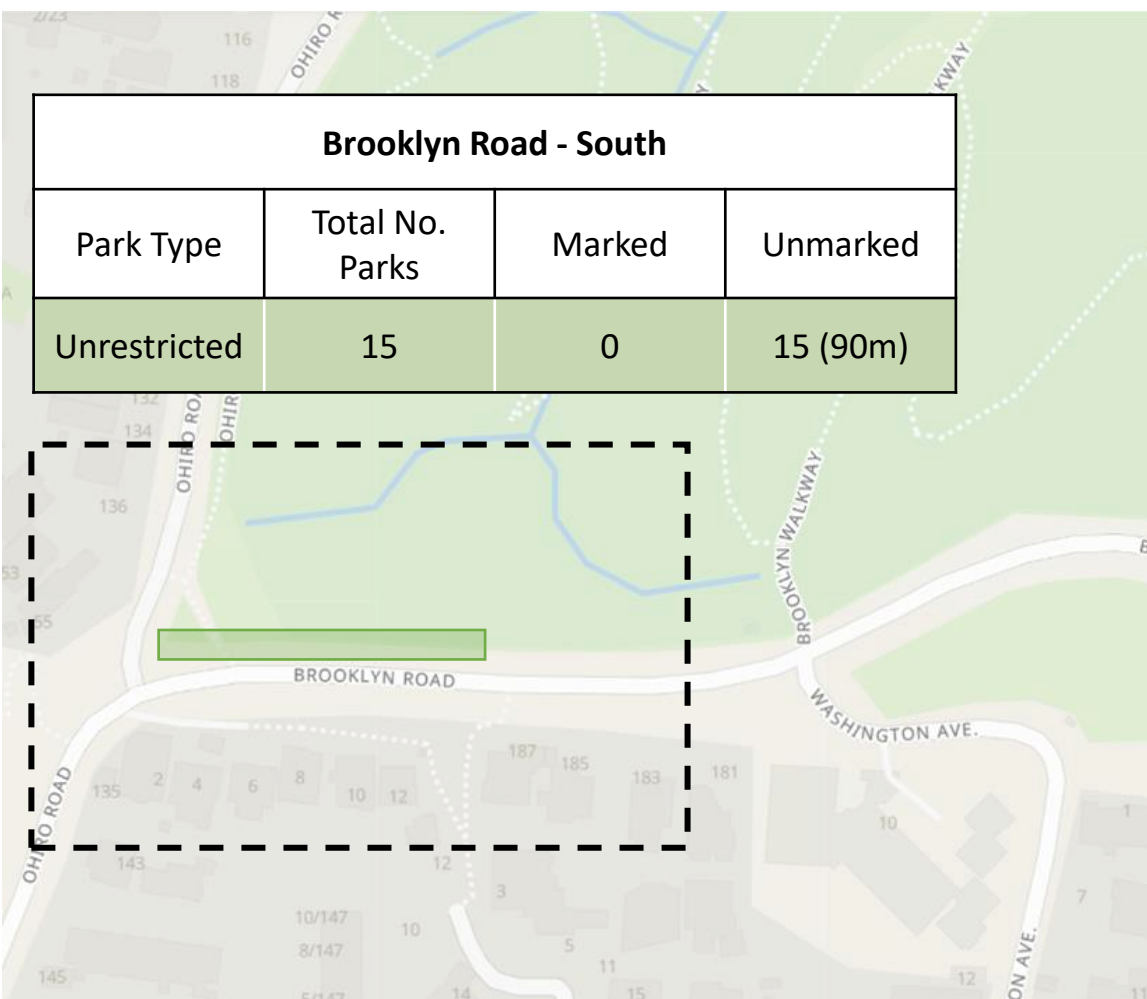
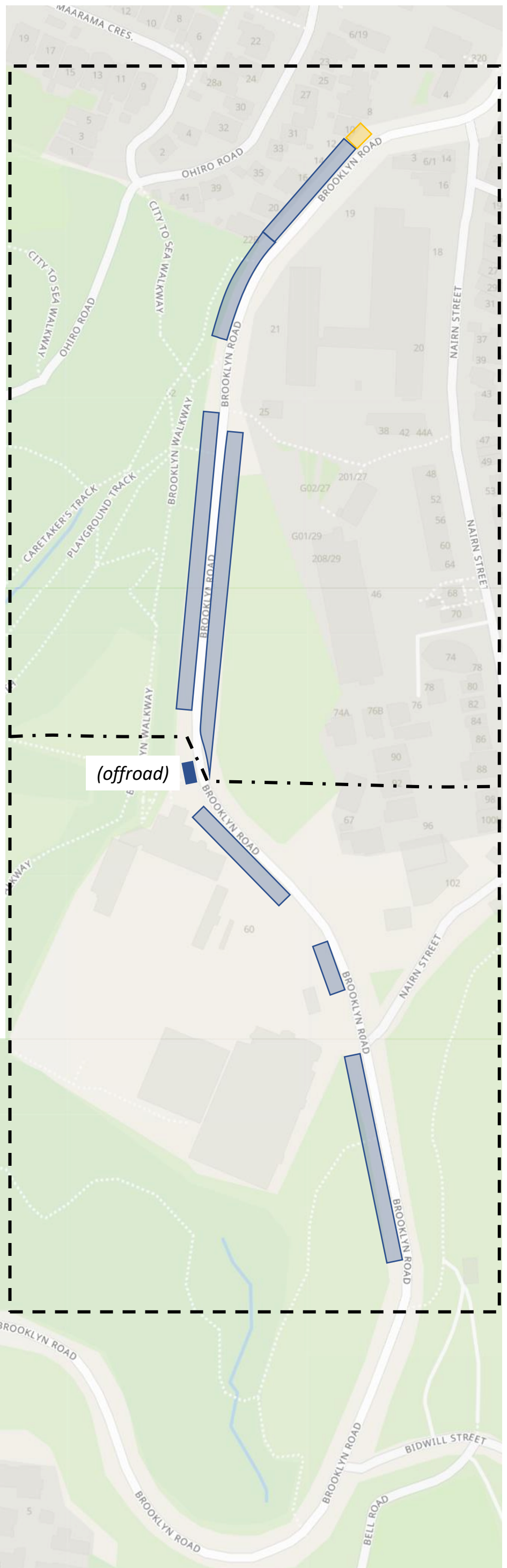
Nairn Street			
Park Type	Total No. Parks	Marked	Unmarked
Coupon	69	0	69 (432m)
Residential	12	0	12 (68m)
P60	2	0	2 (12m)

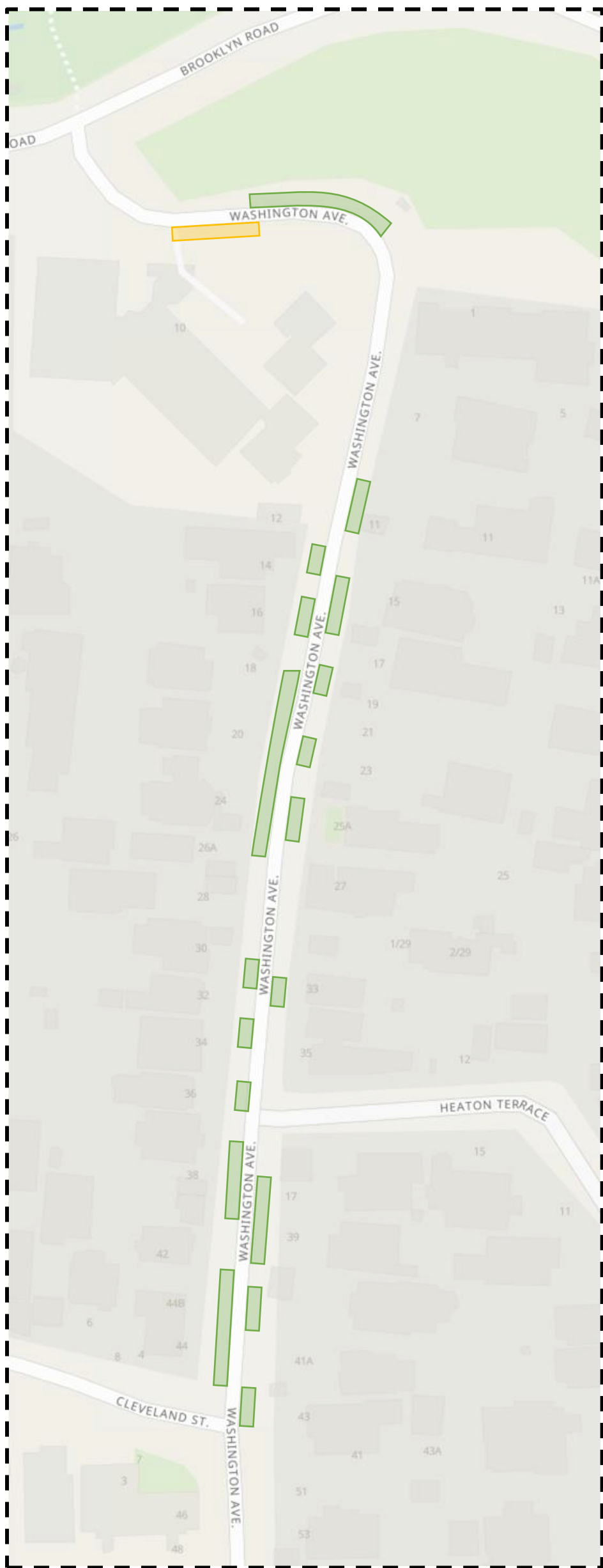
Nairn Street – Low Occupancy			
Park Type	Total No. Parks	Marked	Unmarked
Coupon	25	0	25 (153m)

Brooklyn Road - North			
Park Type	Total No. Parks	Marked	Unmarked
Coupon	60	17	43 (258m)
P30	1	1	0

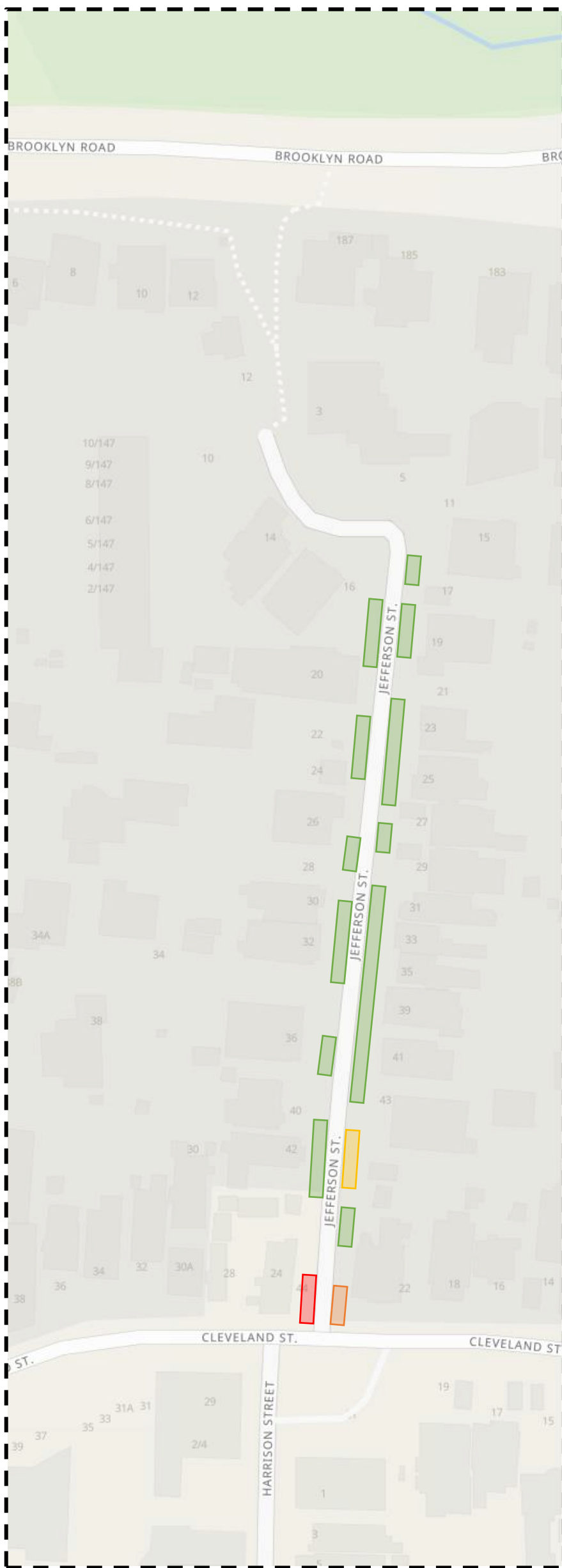
Brooklyn Road - Mid			
Park Type	Total No. Parks	Marked	Unmarked
Coupon	33	4	29 (165m)
Coupon - offroad	4	4	0

Brooklyn Road - South			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	15	0	15 (90m)

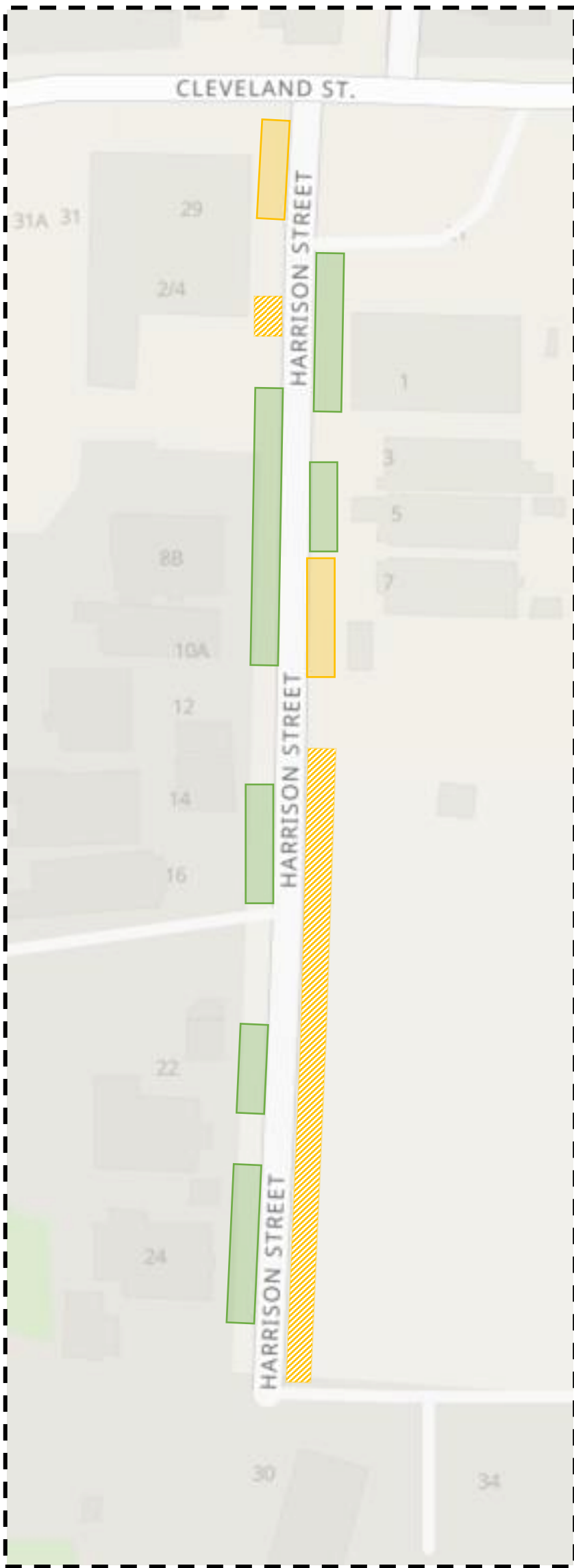




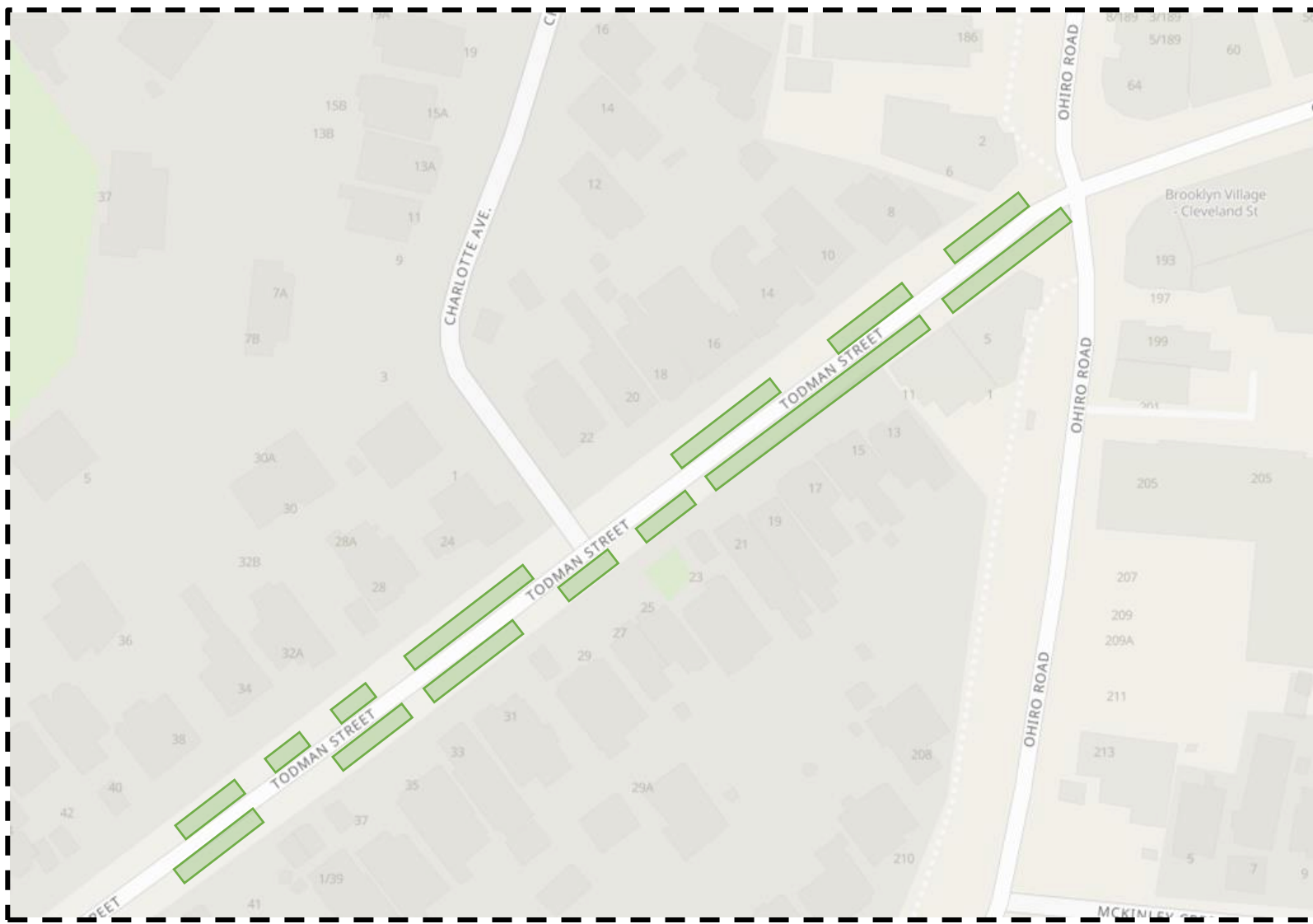
Washington Avenue			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	33	0	33 (220m)
P60	3	0	3 (18m)



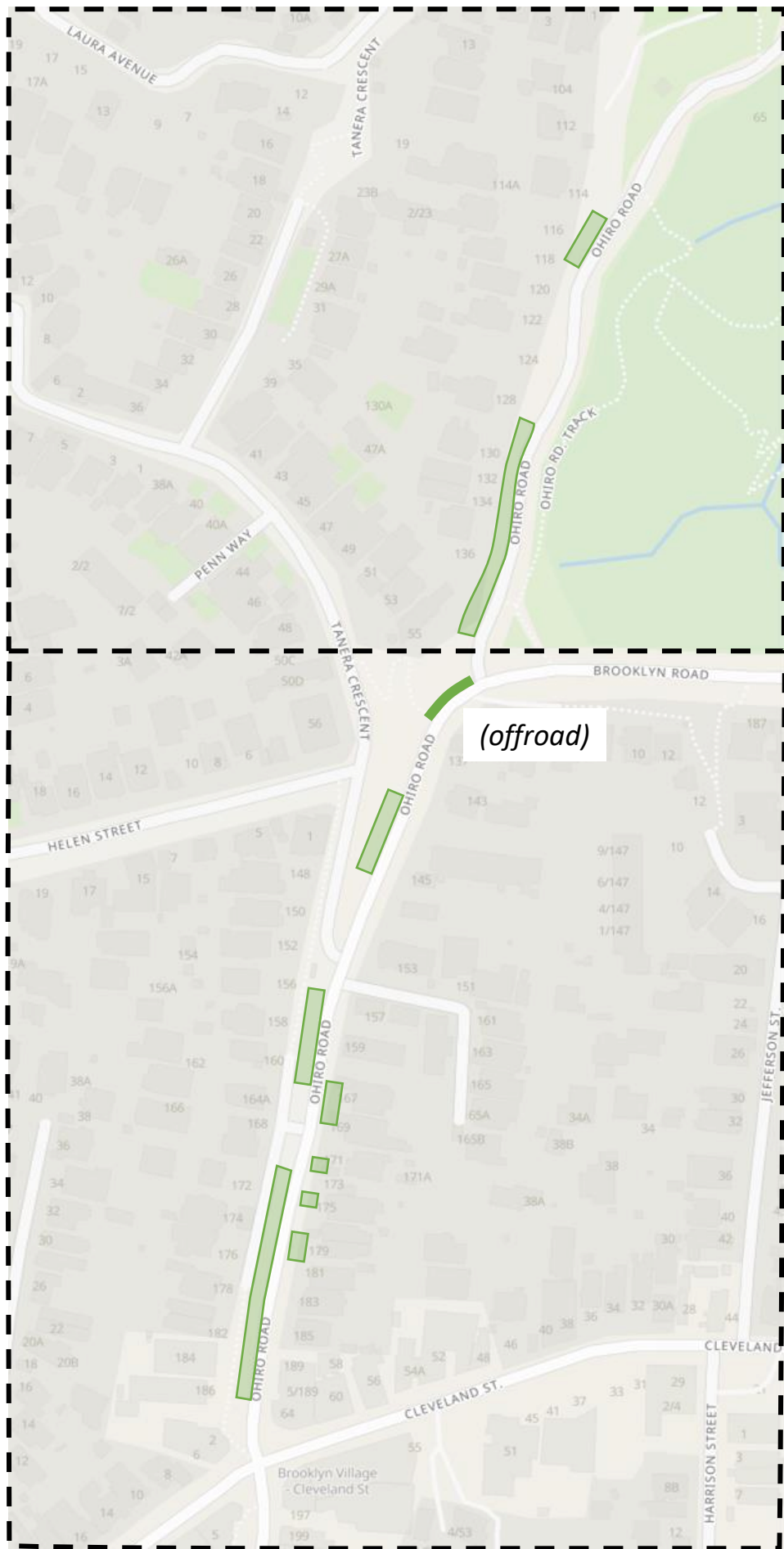
Jefferson Street			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	24	0	24 (173m)
P30	2	0	2 (14m)
Residential	1	0	1 (10m)
Taxi Stand	1	0	1 (8m)



Harrison Street			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	12	0	12 (90m)
P10	11	0	11 (70m)
P30	3	0	3 (22m)

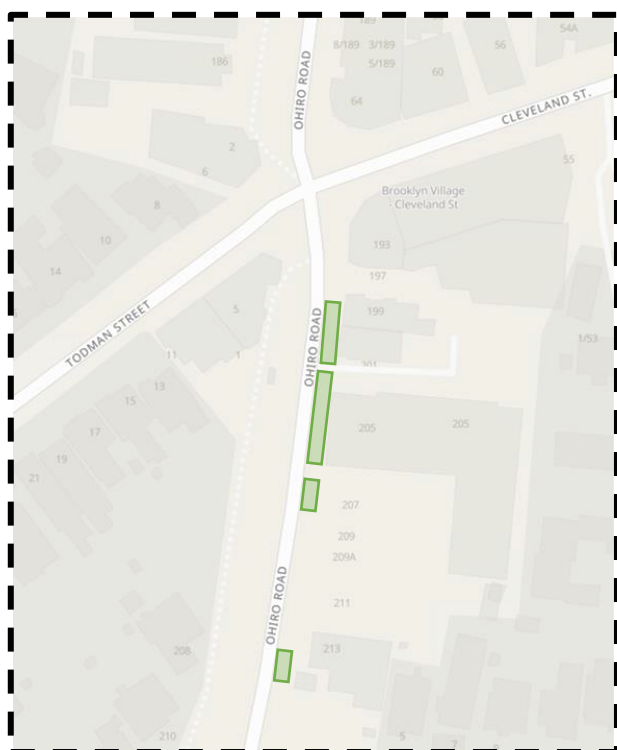


Todman Street			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	54	45	9 (68m)

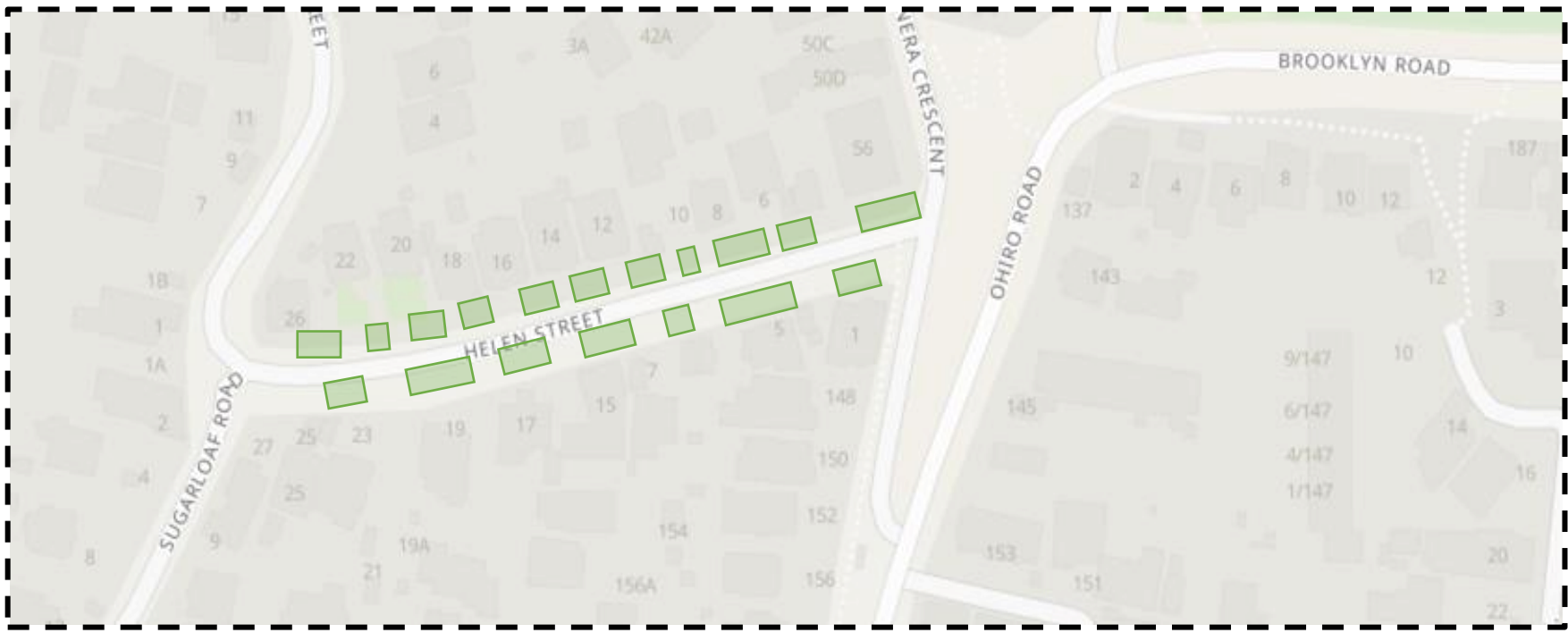


Ohiro Road - North			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	15	0	15 (92m)

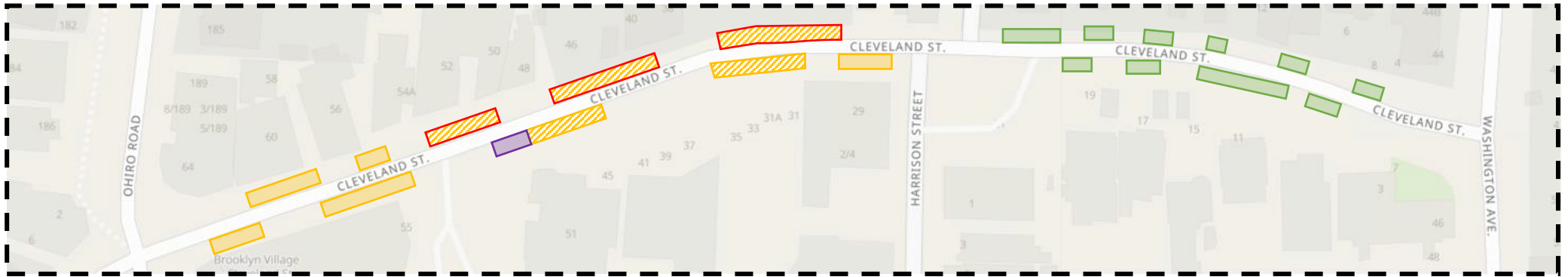
Ohiro Road - Mid			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	25	0	25 (156)
Unrestricted – offroad	9	0	27



Ohiro Road - South			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	7	4	3 (20m)



Helen Street			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	24	0	24 (178m)



Cleveland Street			
Park Type	Total No. Parks	Marked	Unmarked
Unrestricted	13	1	12 (75m)
P10	12	12	0
P30	14	7	7 (46m)
Mobility	1	1	0

**Unmarked P30 roadside parking from 8:00am- 6:00pm Mon-Sat, Resident parking otherwise (reported on as P30)*



CREATING COMMUNITIES

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of belonging. That's why at Stantec, we always **design with community in mind**.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

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