



HITRANS Train2Ride

A review of demand and solutions for cycle carriage on trains in the West Highlands

HITRANS

Project Number: 60539870

14 December 2017

(Image courtesy of HITRANS)

Prepared for:

HITRANS
7 Ardross Terrace, Inverness

Prepared by:

AECOM Limited
1 Tanfield
Edinburgh
EH3 5DA
UK

T: +44 131 301 8600
aecom.com

Prepared in association with:

University of Highland and Islands, and Sustrans' Research and Monitoring Unit

© 2017 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

Executive Summary	5
1. Introduction	7
1.1 Scope of this study	7
1.2 Structure of this report	7
2. Current Situation	8
2.1 Introduction	8
2.2 West Highland Line Services to Oban / Fort William / Mallaig	8
2.3 Caledonian Sleeper services to Fort William and Inverness	8
2.4 Summary of current situation	12
3. Current Demand and Rolling Stock Changes	13
3.1 Introduction	13
3.2 Serco Caledonian Sleeper – London to Inverness / London to Fort William	13
3.3 West Highland Line, Glasgow to Oban / Fort William / Mallaig – ScotRail cycle reservation data	15
3.4 Observed cycle carriage – on-board surveys, July 2017	25
3.5 Qualitative on-board surveys, July 2017	27
3.6 Summary	30
4. Factors driving future demand for bikes on trains in the West Highlands.....	31
4.1 Introduction	31
4.2 Policy	31
4.3 Rail networks and station usage	31
4.4 Tourism	33
4.5 Infrastructure and usage.....	35
4.6 Cycle hire, bike share and transport interchange.....	36
4.7 Engagement for this study	37
4.8 Conclusions	37
5. Approaches to carrying bikes on trains elsewhere.....	38
5.1 Introduction	38
5.2 United Kingdom	38
5.3 Europe	38
5.4 Internationally	39
5.5 Bike hire related to train services.....	39
5.6 Summary	39
6. Potential solutions to addressing demand for bikes on trains	40
6.1 Introduction	40
6.2 Operational and rolling stock review	40
6.3 Consideration of options for additional bike carrying space	40
6.4 Supporting rail-cycle interchange solutions.....	43
6.5 Information and charging	43
6.6 Summary of options.....	44

7. Conclusions 46
Appendix A Cycle capacity graphs (by month) 47
Appendix B On train survey 60

Executive Summary

Introduction

A number of potential changes to bike provision on trains in the West Highlands are proposed in coming years. Specifically, the proposed introduction of Class 158 trains on ScotRail services on the West Highland Line in 2019 could see a reduction of on-board cycle space per train. This potential reduction has caused some concern amongst interest groups. The Caledonian Sleeper from London Euston to Scotland will also see some changes to rolling stock in 2018, and currently, on some occasions, sees more bike carriage bookings than formal capacity on-train accommodates.

This study has therefore been commissioned by HITRANS and part-funded by Transport Scotland. It seeks to:

- Establish the current level of demand for on-train cycle carrying on ScotRail services on the West Highland Lines (WHL) and on Serco Caledonian Sleeper services to Inverness and Fort William; and
- Identify future trends and options for managing the demand.

The geographical area of interest in this study is predominantly the West Highlands, although train services on the Highland Mainline to Inverness have also been considered with regards to Caledonian Sleeper services only.

The University of Highlands and Islands (UHI), and Sustrans' Research & Monitoring Unit, have both inputted to specific elements of this study. UHI carried out on-train surveys and bike counts in July 2017, whilst Sustrans' Research & Monitoring Unit reviewed the survey design and data outputs of the UHI on-board survey of passengers travelling with bikes.

Bikes on trains – the current situation

For ScotRail services there are six cycle spaces for every two-carriage trainset on the West Highland Line. Bikes must be reserved in advance as per the ScotRail website¹. The Caledonian Sleeper has six bike spaces per eight-carriage trainset from London Euston, although this reduces as the sets split for onward travel in the Highland Sleeper. Bookings must also be made in advance to carry a bike on the Caledonian Sleeper, and a road-based courier service is available for any surplus bikes which cannot be carried on-board.

It is currently free to carry bikes on trains in the UK and on the services studied in this project, although some peak time restrictions apply in England.

Demand for bikes on trains

A sample of reservation data has been accessed for this study from both Serco and ScotRail. An on-board survey of passengers travelling with bikes was carried out by University of Highlands and Islands in July 2017 for this study, and the Sustrans' Research & Monitoring Unit reviewed the survey design & data outputs.

Broad conclusions from this analysis of reservation data, on-board count data and surveys of passengers suggests:

- Taking the West Highland Line rail network as a whole, there is substantial spare capacity for bikes on trains i.e. spaces that have not been reserved.
- Notwithstanding this overall spare capacity, some specific services and journey legs are subject to higher demand, and demand is highly seasonal. The journey legs between Glasgow Queen Street and Oban, and Crianlarich and Oban, see more frequent instances of fully booked cycle spaces than most of the journey legs analysed in this study. The 0821 service from Glasgow Queen Street seems particularly popular for cycle bookings. A snapshot of Calmac monitoring data suggests the 1330 sailing from Oban to Castlebay appears to see the highest level of bike demand of ferry services leaving Oban (though there is higher demand for bikes on ferries in other parts of the region).
- The survey work with passengers travelling with bikes suggest the significant majority (on both ScotRail and Caledonian Sleeper services) are travelling for cycle tourism and/or leisure purposes. This may in part be due to the timing of the survey in July, although this in turn reflects the period of highest demand from the cycle reservation data provided by both operators. In terms of the profile of those travelling with bikes on trains, there appears to be a gender bias with more men than women undertaking this activity (on both the Sleeper and ScotRail services). This appears to correlate with Sustrans monitoring of usage of the NCN.

¹ <https://www.scotrail.co.uk/plan-your-journey/travel-connections/cycling>

- On-board counts for this study by UHI suggests there is a degree of carrying bikes on-board without a reservation, more so on ScotRail services though also on Caledonian Sleeper services to a lesser extent.
- Should capacity be reduced in the future on ScotRail WHL services, at worst case by two-thirds, the proportion of Crianlarich to Oban journey legs (one of the most popular journey legs for cycle bookings) analysed where current demand for cycle carriage would exceed on-board capacity would be in the region of 15%. As context, some 4% of Crianlarich-Oban journey legs are fully booked currently.
- However, the analysis of a snapshot of cycle reservation data from ScotRail should be seen within the context of a degree of informal cycle carriage evidenced by UHI counts and on-board surveys with passengers, and therefore the impact of reduced cycle capacity on-trains could be higher than the booking data suggests.

Bikes on trains elsewhere

A selective review of approaches to bikes on trains in comparable areas across the world suggests that:

- Carrying bikes on trains is generally possible but there are many examples of peak-time travel being discouraged, particularly on busy lines or in urban areas.
- Booking bikes on trains in advance appears to be common, and paying a small fee to carry bikes also appears to be relatively widespread.

Factors influencing demand for bikes on trains in the future

Cycle tourism appears to be growing in Scotland, and access to the 'wild' outdoors is a future tourism trend identified by Visit Scotland. Local, regional and national policy, linked to transport accessibility as well as economic growth, appears to recognise the importance of cycling infrastructure in both these areas as well as the economic value of cycle tourism. There is reason to believe that the demand to use bikes in the region will continue to grow in the future, though it is less clear how willing people will be to rely on trains to bring them.

Cycle hire facilities are also increasing across Scotland, led by a number of organisations including ScotRail, local authorities and community organisations. Rail operators covering services in this study are potentially open to further partnership opportunities for cycle hire in the future for their passengers. It is clear from the types of bikes being carried on trains however (from the UHI survey work for this study) that more touring bike hire may be required to cater for the market currently represented by rail+bike passengers.

Potential solutions to cope with excess demand and conclusions

Caledonian Sleeper services will see new rolling stock in 2018/19 which will see an increase in cycle spaces on-board (increasing formal spaces from 6 to 10 per 8 coach trainset). Their road courier service will continue to absorb surplus demand, and it is likely this will still be required for peak services during the summer, particularly on the route to / from Inverness. The operator, Serco, is very aware that the road courier service is not ideal, and the increase in bike capacity on-board in the new rolling stock is in part a response to feedback from customers on this service.

Solutions to cope with demand on ScotRail WHL services are varied, and complicated by the context of continuing discussions over the nature of rolling stock proposed for the WHL. There is acknowledgement by ScotRail that the WHL has a particular character and role to play in Scotland as a scenic railway line. A number of possible options have been considered in this study to cope with bike carriage on board trains, including re-design of bike storage facilities on Class 158s, retention of existing rolling stock and a dedicated bike vehicle. Measures to improve choices available to those wishing to travel by bike in the region include further investment in bikes on buses and discounted bike hire for rail passengers. All options require further feasibility work in partnership with operators, in particular to assess any possible impact on reducing seat capacity for passengers.

Finally, the option of charging for bike spaces has been raised for further consideration in this study. The review of practice elsewhere carried out for this research suggests it is relatively common in other countries (though not the UK), and research with rail passengers for this study suggests the majority would support this, but only if guaranteed and quality space is provided. Charging for cycle carriage on ScotRail trains would however be contrary to the current franchise agreement.

It is also recommended that public-facing information on the bike spaces available is more transparent, the booking system is reviewed to make it as customer-friendly as possible and there is greater consistency on how train staff deal with bikes on trains.

1. Introduction

1.1 Scope of this study

A number of potential changes to bike provision on trains in the West Highlands are proposed in coming years. Specifically, the proposed introduction of Class 158 trains on ScotRail trains on the West Highland Line in 2019 could see a reduction of on-board cycle space. This potential reduction has caused some concern amongst interest groups. The Caledonian Sleeper will also see some changes to rolling stock in 2018, and currently sees more bike carriage bookings than formal capacity on-train accommodates.

This study has therefore been commissioned by HITRANS and part-funded by Transport Scotland. It seeks to:

- Establish the current level of demand for on-train cycle carrying on ScotRail services on the West Highland Lines (WHL) and on Serco Caledonian Sleeper services to Inverness and Fort William; and
- Identify future trends and options for managing the demand.

The geographical area of interest in this study is predominantly the West Highlands, although train services on the Highland Mainline to Inverness have also been considered with regards to Caledonian Sleeper services only.

The University of Highlands and Islands (UHI), and Sustrans' Research & Monitoring Unit, have both inputted to specific elements of this study. UHI carried out on-train surveys and bike counts in July 2017, whilst Sustrans' Research & Monitoring Unit reviewed the survey design and data outputs of the UHI on-board survey of passengers travelling with bikes.

1.2 Structure of this report

The remainder of this report is structured as follows:

- Chapter 2 – Current situation
- Chapter 3 – Current demand
- Chapter 4 – Factors driving future demand for bikes on trains in the West Highlands
- Chapter 5 – A review of approaches to bike carriage on trains elsewhere
- Chapter 6 – Potential solutions to address demand for bikes on trains
- Chapter 7 - Conclusions

2. Current Situation

2.1 Introduction

This section sets out the current situation in terms of services that currently provide cycle carriage in the West Highland Line (hereafter WHL) and provides context for the remainder of the study.

2.2 West Highland Line Services to Oban / Fort William / Mallaig

Regular ScotRail services operate on the West Highland Line throughout the year. Table 2-1 summarises the number of services which operate on each route per day.

Table 2-1 West Highland Line Services

Route ²	No. services Mon-Sat (per day)	No. services Sunday (per day)
GLQ – OBN	6	4
GLQ – FTW	3 (+1 Sleeper service)	2
GLQ – MLG	3	2
OBN – GLQ	6	4
FTW – GLQ	3 (+1 Sleeper service)	2 (+1 Sleeper service)
MLG – GLQ	3	2 (1 in winter)

Note that a direct return service operates once per day between Edinburgh and Oban on Sundays between 25th June and 27th August 2017.

2.3 Caledonian Sleeper services to Fort William and Inverness

Caledonian Sleeper rail services run six nights a week (not Saturdays) between Fort William and London Euston, and Inverness and London Euston. Timetables for the Fort William / Euston service are presented below (valid 21st May 2017 to 9 December 2017). It should be noted that no intermediate internal travel is permitted on the Caledonian Sleeper with the service focusing on cross-border journeys between England and Scotland. The exception to this is the ability to board / alight the sleeper at Edinburgh Waverley and subsequent, selected stations to / from Fort William (more below).

Table 2-2: Caledonian Sleeper Fort William-Euston timetable (arrival and departure times)

Fort William to London Euston	Mon-Fri	Sun
Fort William	19:50	19:00
Spean Bridge	20:10	19:20
Roy Bridge	20:17 (stops on request)	19:27
Tulloch	20:31	19:40
Corrour	20:52 (stops on request)	20:01 (stops on request)
Rannoch	21:06	20:15
Bridge of Orchy	21:34	20:48
Upper Tyndrum	21:52	21:06
Crianlarich	22:05	21:19
Ardlui	22:26 (stops on request)	21:40 (stops on request)
Arrochar & Tarbet	22:44	21:58

² GLQ (Glasgow Queen Street), FTW (Fort William), MGL (Mallaig)

Fort William to London Euston	Mon-Fri	Sun
Garelochhead	23:10	22:24
Helensburgh Upper	23:24	22:38
Dumbarton Central	23:40	22:53
Dalmuir	23:52	23:07
Glasgow Queen Street Lower Level	00:14 (set down only)	23:29 (set down only)
Edinburgh	01:10 (set down only)	00:24 (set down only)
Preston	04:36	
Crewe	05:37	
London Euston	07:47 (arrival)	09:01

Source: <https://www.sleeper.scot/timetables/london-fortwilliam>

Table 2-3: Caledonian Sleeper Euston-Fort William timetable (arrival and departure times)

London Euston to Fort William	Mon-Fri	Sun
London Euston	21:15	20:28
Watford Junction	21:33	
Crewe	23:56	
Preston	01:00	
Edinburgh	04:50 (pick up only)	04:50 (pick up only)
Glasgow Queen Street Lower Level	05:48 (pick up only)	05:48 (pick up only)
Dalmuir	06:03	06:03
Dumbarton Central	06:14	06:14
Helensburgh Upper	06:29	06:29
Garelochhead	06:44	06:44
Arrochar & Tarbet	07:08	07:08
Ardlui	07:23	07:23 (stops on request)
Crianlarich	07:45	07:45
Upper Tyndrum	07:58	07:58
Bridge of Orchy	08:16	08:16
Rannoch	08:43	08:43
Corrour	08:59 (stops on request)	08:59 (stops on request)
Tulloch	09:18	09:18
Roy Bridge	09:31 (stops on request)	09:31 (stops on request)
Spean Bridge	09:38	09:38
Fort William	09:55	09:55

Source: <https://www.sleeper.scot/timetables/london-fortwilliam>

Timetables for the Inverness / Euston service are presented below (valid 21st May 2017 to 9 December 2017).

Table 2-4: Caledonian Sleeper Inverness-London Euston timetable (arrival and departure times)

Inverness to London Euston	Mon-Thurs	Fri	Sun
Inverness	20:44	20:44	20:26
Aviemore	21:34	21:34	21:15
Kingussie	21:51	21:51	21:29

Inverness to London Euston	Mon-Thurs	Fri	Sun
Newtonmore	21:57	21:57	21:35
Dalwhinnie	22:11	22:11	21:50
Blair Atholl	22:38	22:38	22:15
Pitlochry	22:50	22:50	22:29
Dunkeld & Birnam	23:04	23:04	22:43
Perth	23:56	23:30	23:06
Gleneagles		23:48	
Dunblane		00:05	
Stirling		00:16	
Falkirk Grahamston		00:39	
Preston	04:36	04:36	
Crewe	05:37	05:37	
London Euston	07:47	07:47	09:01

Source: <https://www.sleeper.scot/timetables/london-inverness>

Table 2-5: Caledonian Sleeper London Euston-Inverness timetable (arrival and departure times)³

London Euston to Inverness	Mon-Fri	Sun
London Euston	21:15	20:28
Watford Junction	21:33	
Crewe	23:56	
Preston	01:00	
Stirling	04:55	04:55
Dunblane	05:04	05:04
Gleneagles	05:19	05:19
Perth	05:39	05:39
Dunkeld & Birnam	06:00	06:00
Pitlochry	06:16	06:16
Blair Atholl	06:28	06:28
Dalwhinnie	06:59	06:59
Newtonmore	07:11	07:11
Kingussie	07:19	07:19
Aviemore	07:43	07:43
Carrbridge	07:56	07:56
Inverness	08:38	08:38

Source: <https://www.sleeper.scot/timetables/london-inverness>

The Caledonian Lowland Sleeper route runs from London Euston (departing 2315) with initially 16 cars, splitting at Carstairs to Glasgow and Edinburgh.

The Caledonian Highland Sleeper route runs from London Euston (departing 2100) to Fort William, Aberdeen and Inverness, splitting at Edinburgh at c0400-0415 northbound, 0110-0140 southbound. A Fort William-bound lounge car and seated vehicle is added the Highland Sleeper route at Edinburgh Waverley.

³ <https://www.sleeper.scot/timetables/london-inverness>

Each Sleeper begins as a 16-car train at London. Each eight-car trainset contains one lounge car, one seated car with baggage space including bike spaces, and six sleeping cars.

2.3.1 Caledonian Sleeper and bikes

Caledonian Sleeper services carry up to six bikes per seated eight-car trainset, and one cycle booking can be made per passenger. That said, there is no upper limit set on how many bikes can be carried as a courier service operates, which is available for any surplus demand. The courier service is an existing road-based van courier service already making the journey north, which is used to also carry bikes if required. All bikes are carried for free.

Bookings for bikes must be made by noon one day in advance of the journey, and can be either booked alongside the purchase of a passenger ticket online or by calling the guest services centre. If booking online, the customer still needs to call customer service to agree arrangements for cycle carriage.

It should be noted it is possible for rail ticket holders to board the Sleeper service to Fort William at Edinburgh at c5am without booking in advance, and this is a potential challenge if these ticket holders bring a bike.

Only three on-board bike spaces are available on the Inverness to Euston Sleeper services due to a negotiation over southbound space for local produce by HITRANS.

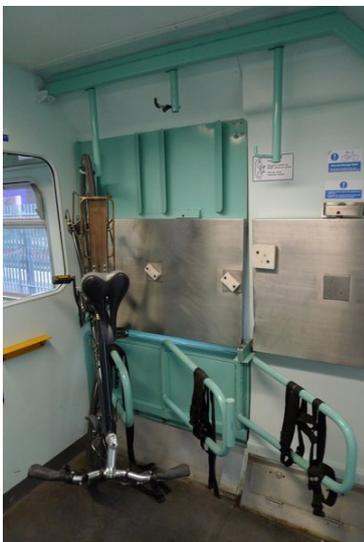
Anyone travelling with a bike from Euston to Fort William must move these to a new coach at Edinburgh Waverley during the night (c5am) although this may not be the case in the future.

Information on bikes is presented clearly on the Caledonian Sleeper website at <https://www.sleeper.scot/on-board/cycles-and-pets>.

New Caledonian Sleeper rolling stock will also come into service in April 2018. New sleeper coaches will be launched which will provide four ways to travel between London Euston and Scotland; Cradle Seats, Berths, En-Suite Berths as well as the addition of suites with double beds. The new trains will have 10 spaces for bikes on each seated portion of eight cars (compared to six bike spaces currently); the local produce transported will be stored in a separate refrigerated area. Through engagement with Serco as part of this study, it is understood that the courier service for surplus bikes will continue to be available if required.

2.3.2 ScotRail services and bikes

The current West Highland Line timetable is serviced by Class 156 units. These run in a timetabled pattern from Glasgow Queen Street Station to Oban and Mallaig via Fort William. There is a mixture of Oban ‘independents’ (two car); Oban/Fort William and Mallaig combined trains (four car); Mallaig independents (two car usually); and Dalmally terminator (two car).



The Class 156 units currently have space for six bikes on racks at the end of one vehicle in each two-car set. The bikes are held vertically secured by the rear wheel and secured by straps at the front wheel. When running four carriage formations the number of bike spaces is doubled.

The Class 156 fleet has recently begun to undergo PRM-TSI (Persons of Reduced Mobility – Technical Specifications for Interoperability) alterations including the introduction of a universally accessible toilet. This has not reduced the overall number of bike spaces.

An important element to note is that most WHL services depart from Glasgow Queen Street as one combined train set, and then divide at Crianlarich for onward travel west to Oban, and onward travel north to Fort William and Mallaig. Generally speaking, the set to Oban has space for six bikes, and the sets north to Fort William and Mallaig have up to 12 spaces (although this varies by service). This means that a combined WHL train set leaving Glasgow can carry up to 18 bikes to Crianlarich on certain services during the day.

Bike spaces need to be reserved on WHL services prior to travel, and cycle carriage is free. Bookings can be made on ScotRail's website when booking a ticket, via ScotRail's telesales team or by visiting one of ScotRail's staffed stations. Bike spaces are booked via a drop-down menu, where the user selects the number of bike spaces required. This drop-down menu will only show the number of spaces available to book on that service (minus any already booked). Apart from this, there is no information on the total number of available cycle spaces on WHL train services available for public viewing.

The Class 156 units are planned to be replaced by Class 158s in December 2018 as part of the Scenic Trains roll-out and timetable changes. New legislation on Persons of Restricted Mobility requires a second disabled/wheelchair space to be provided in the area that provided the third and fourth reservable bike spaces. These two additional spaces were created as part of the 2008 Highland 158 refurbishment that HITRANS helped to develop and fund.

Disabled users have priority use of the second disabled space, and thus cycling organisations foresee a potential 66% diminution in cycle carrying capacity.

Former ScotRail Alliance MD Phil Verster suggested in a public forum that the third and fourth spaces may be reservable for bikes, but that if a second disabled space is required then the conductor will arrange for the bikes to be stored safely elsewhere. That said, customers with disability are not required to book in advance although can book assistance in advance when travelling on the ScotRail network⁴. This would suggest these third and fourth spaces should be kept clear for wheelchair users, which will reduce formal cycle capacity on each two car set to two cycle spaces. This is therefore an assumption that has been used in this study.

2.4 Summary of current situation

Currently West Highland Line ScotRail Class 156 trains permit up to six bikes per two-car set, reservable in advance via phone or online bookings. The Caledonian Sleeper services to Scotland, operated by Serco, offer up to six bikes per seated eight-car trainset. Bike spaces must be reserved in advance, and a courier service is available for any surplus bikes booked in advance.

⁴ ScotRail website "We aim to provide assistance to those who need help when travelling on our network whether this has been booked in advance or not. You are able to book assistance at least three hours in advance for journeys on the ScotRail network".

3. Current Demand and Rolling Stock Changes

3.1 Introduction

A key focus of this study has been to understand current demand for bikes on trains in the West Highlands, on both ScotRail and Caledonian Sleeper services (the latter including services to Inverness). This topic has been examined using two data sources:

- A sample of bike reservation data from both ScotRail and Serco for relevant services.
- An on-train survey and count of bikes on/off trains on both ScotRail and Caledonian Sleeper services in July 2017.

Representatives from ScotRail and Serco were both engaged with for this study, including a structured in-depth interview to understand process and issues from the operator perspective.

This section sets out the results of this review of current demand.

3.2 Serco Caledonian Sleeper – London to Inverness / London to Fort William

3.2.1 Demand – actual bookings

Data on cycle carriage bookings was provided by Serco for use in this research. Data on bookings from 12th July 2015 to 11th November 2016 were provided for all Caledonian Sleeper routes. Though analysis in this study has mainly focused on services to Fort William and Inverness, comparing demand for bike reservations across all Sleeper routes offers additional context in which to view this information.

The figure below shows the number of cycle reservations made across all Sleeper routes to Scotland during the observed period. The most in-demand sleeper route for cycle carriage in terms of total numbers of cycle bookings is between Euston and Inverness (both ways). The Sleeper service between Edinburgh and Euston (both ways) experiences the lowest bookings for cycle carriage.

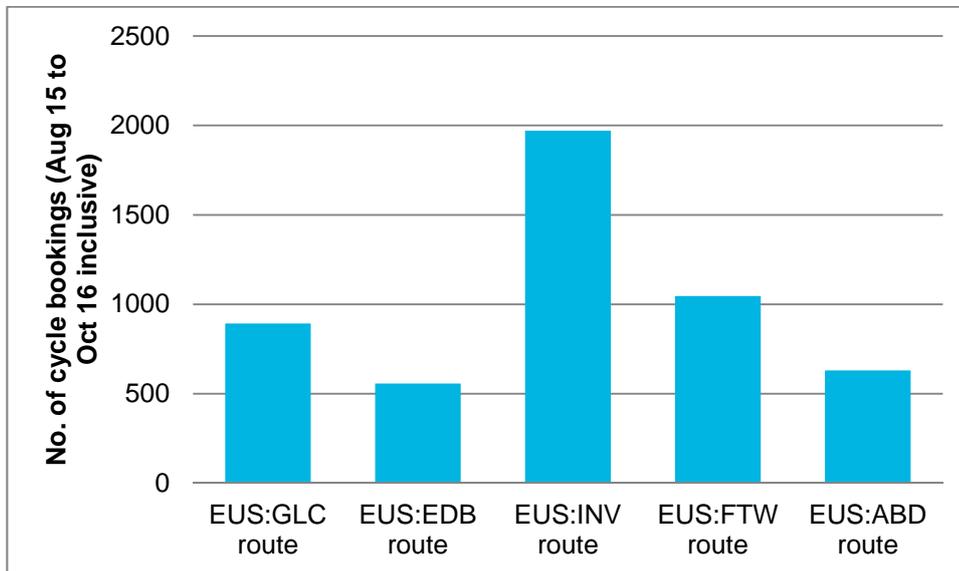


Figure 3-1: Caledonian Sleeper – number of cycle bookings for all routes from London Euston to Scotland (dataset for full months, n=5097⁵)

Demand for cycle carriage is highest on Fridays and lowest on Wednesdays. It should be noted the Caledonian Sleeper does not run on Saturdays.

⁵ In this report, “n” refers to the total dataset or survey sample being discussed in the figure or table presented.

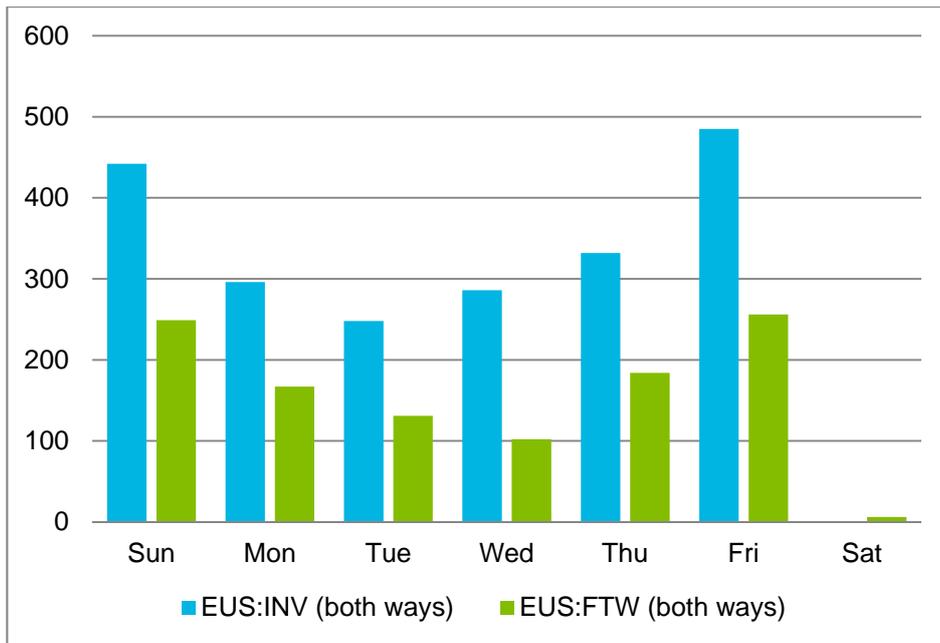


Figure 3-2: Caledonian Sleeper (London Euston – Fort William / Inverness) - cycle booking demand by day (full dataset)

Booking data for complete months within the observed period shows that on the Euston-Fort William sleeper route, demand for cycle carriage was highest during July 2016. Demand for cycle carriage on the Euston-Inverness route was highest in May 2016, followed by August 2016. It should be noted that cycle carriage bookings were higher in 2016 months than comparable 2015 months for all Sleeper services. Serco were consulted as part of this project, and there is no clear understanding of why this increase has occurred – it has been speculated that it may be due to people slowly becoming more familiar with the Sleeper service under a new franchise operator and the cycle carriage facilities.

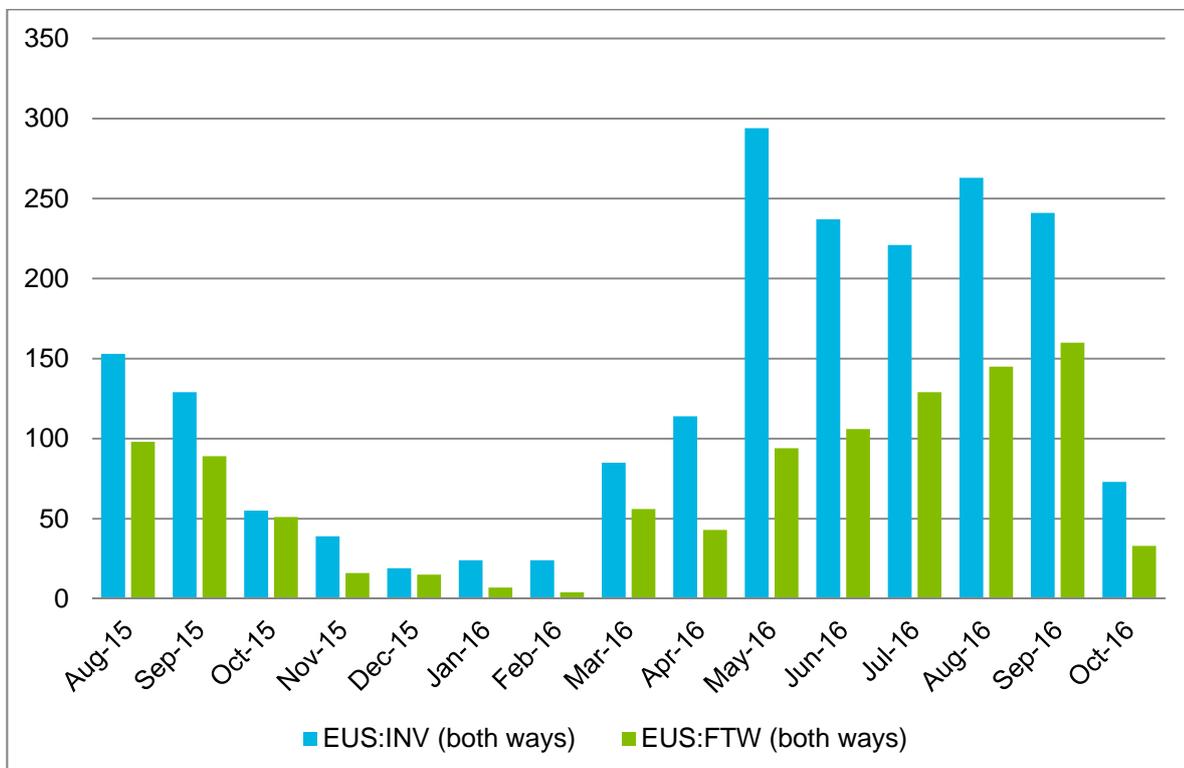


Figure 3-3: Caledonian Sleeper (London Euston – Fort William / Inverness) cycle carriage demand by month

There is almost equal demand northbound and southbound on the Euston-Inverness sleeper route. There is slightly more demand northbound on the Euston-Fort William route (as opposed to Fort William to Euston). Cycle bookings northbound to Fort William are more likely to be greater in volume than cycle bookings southbound in the spring/summer/early autumn months, though the data sample is small and cycle bookings southbound exceeded northbound in one summer month. Overall on the Caledonian Sleeper services, there is slightly more demand northbound than southbound (48% v. 52% of all cycle carriage bookings). This may suggest that some people are using the Sleeper to bring their bike to Scotland, and are then returning by a different rail service or mode of travel, albeit the numbers doing this are likely to be low and it is hard to draw conclusions from this sample.

Table 3.1: Caledonian Sleeper cycle bookings northbound v. southbound

Route	EUS:GLC	EUS:EDB	EUS:INV	EUS:FTW	EUS:ABD
No. of cycle bookings (Aug'15: Oct '16 inclusive)	893	557	1971	1046	630
Northbound	57%	46%	51%	53%	54%
Southbound	43%	54%	49%	47%	46%

Source: Serco

As described in Section 2 of this report, Serco offer a courier service for any bikes that cannot be carried by train due to excess demand. A detailed sample of cycle bookings by train was provided by Serco from mid-November 2015 to mid-October 2016. The table below shows the number of cycle bookings which had to be transported by the courier service, by direction of travel and destination on the Sleeper. In total during this period, the data shows a record of 3093 cycle reservations were made, with 643 of these (21%) carried by courier. The route between Euston and Inverness sees the highest incidences of bikes transported by road courier (of all Sleeper routes), though it should be noted that there are a smaller number of cycle spaces on-board southbound due to an arrangement for shellfish carriage.

Table 3.2: Caledonian Sleeper cycles carried by courier (Nov 2015-Oct 2016)

Total no. of bikes by courier = 643	INV-EUS	EUS-INV	FTW-EUS	EUS-FTW	EUS-GLC	GLC-EUS
No. of bikes transported by courier	244	189	55	57	48	21

Source: Serco

This same detailed sample highlights that whilst most cycle bookings are destined for (in order of magnitude) Inverness, Fort William, Glasgow and Edinburgh (to a lesser extent), a number of bookings are specifically to intermediate destinations on-route, with Crianlarich and Aviemore being particularly popular, followed by Pitlochry.

3.2.2 Impact of future increase in on-board cycle capacity on Caledonian Sleeper services

As discussed in Section 2, Serco are replacing Caledonian Sleeper rolling stock in 2018/19. On-board bike capacity will increase from six to ten spaces. This is likely to absorb a proportion of the excess demand which is currently accommodated by road courier. Serco have stated that there are currently no plans to remove the road courier service.

That said, from May to September, there are notable incidences of high demand for cycle carriage in the Caledonian Sleeper dataset provided for this study, which will not be accommodated by this additional on-board capacity. It is not unusual to see close to (and occasionally over) 20 bikes booked onto the Sleeper on the Euston-Inverness / Inverness-Euston services during the summer peak.

3.3 West Highland Line, Glasgow to Oban / Fort William / Mallaig – ScotRail cycle reservation data

3.3.1 Demand – cycle carriage bookings on ScotRail WHL services

Data on cycle carriage bookings was provided by ScotRail for use in this research. Bookings from 1st July 2016 to 17th January 2017 were provided for WHL routes. As the dataset is substantial, key elements have been extracted which are of most relevance to this study. The dataset consisted of:

- All services on the WHL for the time period above, shown by date and time, origin and destination of service and broken down by journey leg (as opposed to between individual stations). This is an important point to note in the analysis of ScotRail cycle reservation data for this study, as reservation data is shown for the leg but not for individual segments of each journey between stations. It is therefore not possible to identify precisely where passengers boarded

the train with their bike and which station they departed at. An example of a leg is a train service with an origin of Oban, destination Glasgow, with data provided for two legs – Oban to Crianlarich and Crianlarich to Glasgow. It is theoretically possible that cycle reservations could be for a shorter section of this journey leg, leaving the train empty of bikes for the remainder – or that people with bikes could be boarding at stops consecutively meaning a smaller number of bikes are on the train at any one time than the reservation data suggests.

- The number of reservable cycle spaces per route service and individual leg was provided together with the number of bookings made. The distinction between route, and journey leg, is therefore an important one to remember when considering the analysis below. Routes contain multiple journey legs.

From the data provided, Table 3.3 provides an indication of the usual cycle capacity available on routes, together with their constituent journey legs. On the West Highland Line, the basic principle of cycle carriage is that there are six reservable cycle spaces for every two carriages. That said, cycle space capacity per service depends on the stage in the journey as the table below demonstrates.

Table 3.3: Typical cycle capacity by WHL route, and detail of individual journey legs

	GLQ-MLG	GLQ-MLG	GLQ-OBN	MLG-FTW
Total reservable bike space	12	6	6	6
Example services	0821 & 1219 & 1821 Glasgow to Mallaig	1821 Glasgow to Mallaig	0821 & 0941 & 1022 & 1622 & 1821 Glasgow to Oban	1815
Journey legs	GLQ-FTW, FTW-MLG	GLQ-FTW, FTW-MLG	GLQ-CNR, CNR-OBN	MLG-GLF, GLF-FTW
Comments	NB the 0821 & 1821 leaves GLQ attached to Oban trains	Not all services between GLQ & MLG have 12 cycle spaces	NB the 0821 & 1821 leaves GLQ attached to Mallaig trains	Terminates at FTW, connects with Sleeper

Source: ScotRail

In the ScotRail dataset, data on cycle bookings was presented for a total of 7110 journey legs on the WHL between July 2016 and mid-January 2017. Of this total dataset, available cycle space was 100% booked in 117 instances (only 1.6%).

The table below gives an overview of the number of booked cycle spaces per route for the sample data period.

Table 3.4: WHL ScotRail total cycle bookings per route Jul 16-Jan 17

	OBN-GLQ	OBN-EDB	MLG-GLQ	MLG-FTW	FTW-MLG	EDB-OBN	GLQ-MLG	GLQ-OBN
Jul-16	357	0	274	14	26	12	236	586
Aug-16	402	4	457	9	35	15	286	546
Sep-16	391	0	187	4	6	0	147	392
Oct-16	168	0	156	16	19	0	117	170
Nov-16	81	0	24	1	1	0	19	66
Dec-16	20	0	31	0	8	0	28	42
Jan-17	13	0	13	0	0	0	9	18

Source: ScotRail

The Glasgow-Oban (GLQ-OBN) route experiences the highest demand for cycle bookings, although the Mallaig-Glasgow (MLG-GLQ) route is also in demand – in particular the journey leg from Fort William to Mallaig.

That said, when the number of cycle reservations are compared to the total number of available spaces on-board trains, there is substantial free capacity. It should be remembered that some WHL services leave Glasgow with up to 18 available cycle spaces, as combined trains split at Crianlarich leaving six available spaces on the route to Oban, and 12 on the route north to Fort William and Mallaig.

Table 3.5: WHL ScotRail cycle bookings as % of overall available cycle space per route Jul 16-Jan 17

	OBN-GLQ	OBN-EDB	MLG-GLQ	MLG-FTW ⁶	FTW-MLG	EDB-OBN	GLQ-MLG	GLQ-OBN
Jul-16	15%	0%	16%	4%	4%	20%	14%	33%
Aug-16	18%	8%	26%	2%	5%	31%	17%	30%
Sep-16	19%		11%	1%	1%		11%	22%
Oct-16	8%		9%	4%	3%		9%	9%
Nov-16	4%		2%	0%	0%		2%	4%
Dec-16	1%		3%	0%	3%		3%	2%
Jan-17	1%		2%	0%	0%		2%	2%

Source: ScotRail

Within these routes, a number of journey legs as defined in ScotRail's booking data see a sizeable proportion of spaces booked.

Table 3.6: WHL ScotRail cycle bookings as % of overall available cycle space per journey leg Jul 16-Jan 17

	CNR-GLQ	GLQ-CNR	CNR-OBN	OBN-CNR	FTW-GLQ	GLQ-FTW	FTW-MLG	MLG-FTW ⁷
Jul-16	15%	33%	32%	15%	21%	18%	9%	10%
Aug-16	17%	29%	31%	19%	36%	21%	12%	16%
Sep-16	19%	23%	22%	18%	16%	17%	4%	6%
Oct-16	7%	10%	9%	8%	14%	13%	4%	4%
Nov-16	4%	4%	3%	4%	4%	3%	1%	1%
Dec-16	1%	3%	2%	1%	5%	4%	2%	2%
Jan-17	1%	2%	2%	1%	4%	3%	1%	1%

Source: ScotRail

It is clear from the booking data that demand for bikes on trains on the WHL is highly seasonal. This is supported by the survey work for this study by UHI, discussed later in this chapter, which highlights the role of bikes on trains for cycling holidays and leisure in particular.

In addition, the figure below demonstrates that capacity was greatest on services which operated on a Saturday and was lowest on services operating mid-week, particularly on Thursdays.

⁶ MLG-FTW data is presented within the ScotRail booking data as a complete route, and contains two journey legs – MLG-GLF, GLF-FTW. This is separate from the MLG-FTW journey leg data which is a journey leg within the overall MLG-GLQ route. The same applies vice versa.

⁷ This MLG-FTW leg differs from the MLG-FTW route shown in Table 3.4 as per the previous footnote.

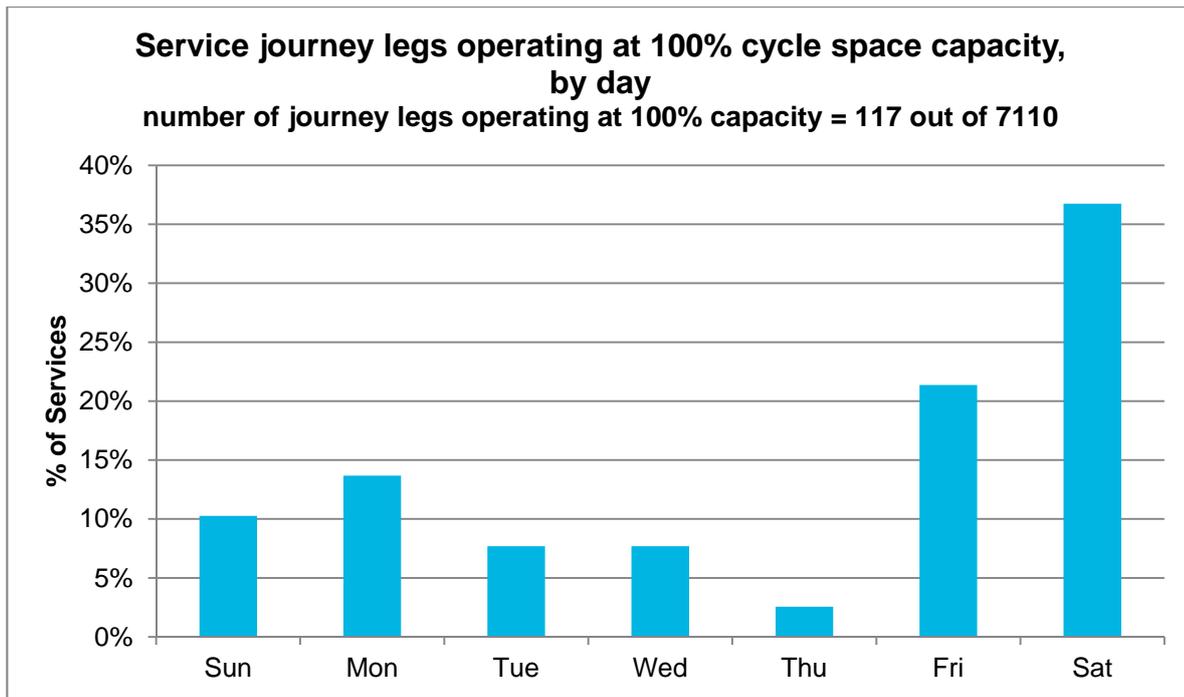


Figure 3-4: Proportion of WHL services (journey legs) operating at 100% capacity by day (over period of ScotRail data provided Jul '16-Jan '17)

Notwithstanding this apparent spare capacity when considering the routes overall, a slightly different picture emerges when individual services are interrogated. The remainder of this section addresses this dimension.

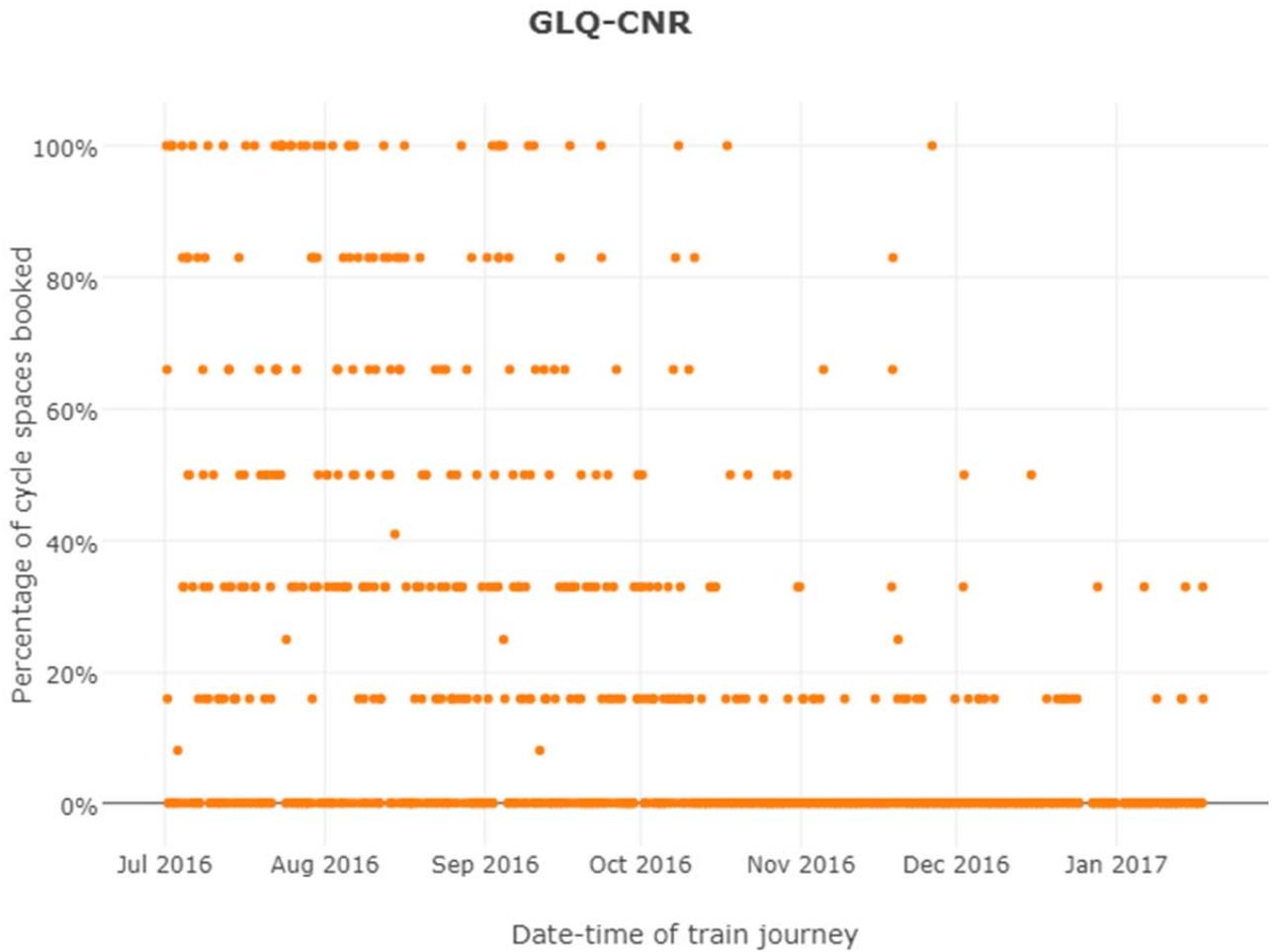
Table 3.7 provides details of route legs on the WHL and the percentage of services which recorded a capacity greater than or equal to 83% of reservable cycle spaces (a chosen measure of 'almost at capacity'). This demonstrates that although 117 services are at maximum capacity, this figure almost doubles when services which are 'almost at capacity' are also taken into consideration. Table 3.7 shows on which journey legs the 117 100% capacity incidents occur. Glasgow to Crianlarich services recorded the highest number of WHL at maximum cycle space capacity, although this is closely followed by Crianlarich to Oban services. This may be partly due to demand, and partly due to the lower cycle capacity on-board to Oban (six spaces) – whilst routes from Glasgow to Fort William and Mallaig also see high numbers of cycle bookings, these services have up to 12 cycle spaces on-board. That said, there are more rail services to Oban than northwards to Fort William and Mallaig. However, it should be noted that according to reservation data, a majority of journey legs operate with sufficient capacity for additional bicycles.

Table 3.7: Percentage of journey legs at >=83% Capacity and 100% capacity

Journey leg	Total number of services (journey legs)	Number of journey legs >=83% capacity (%)	Number of journey legs 100% capacity (%) (n=117)
Glasgow to Crianlarich	936	68 (7.3%)	38 (4.1%)
Glasgow to Fort William	558	12 (2.2%)	5 (0.9%)
Fort William to Mallaig	558	3 (0.5%)	3 (0.5%)
Crianlarich to Oban	945	66 (7.0%)	36 (3.8%)
Crianlarich to Glasgow	1107	30 (2.7%)	9 (0.8%)
Fort William to Glasgow	558	24 (4.3%)	15 (2.7%)
Mallaig to Fort William	558	4 (0.7%)	2 (0.4%)

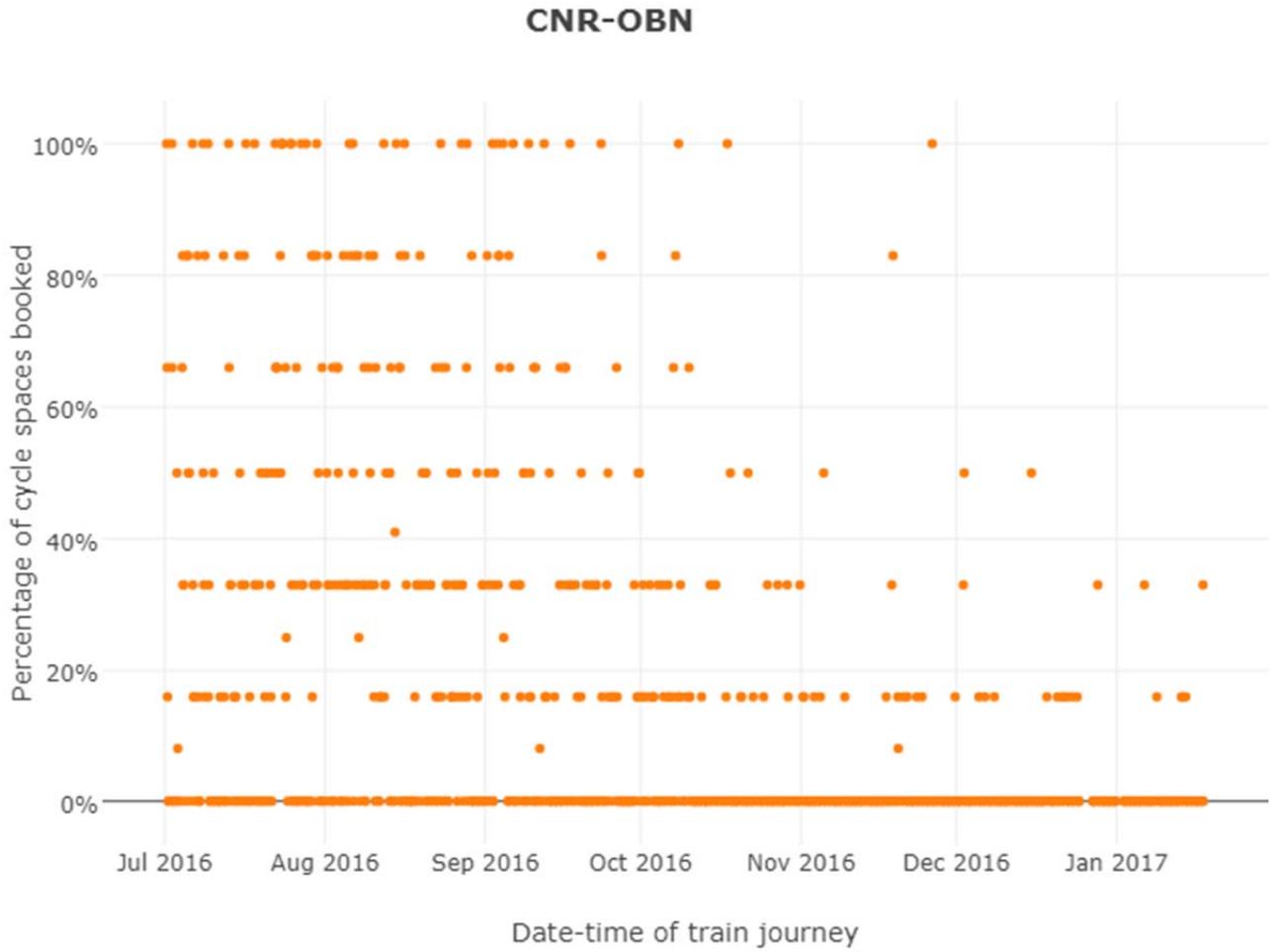
Journey leg	Total number of services (journey legs)	Number of journey legs \geq 83% capacity (%)	Number of journey legs 100% capacity (%) (n=117)
Oban to Crianlarich	1116	25 (2.2%)	9 (0.8%)

Graphs have been produced which displays capacity on individual services by month; graphs for each route leg are displayed in Appendix A. Example graphs for the services which recorded the greatest maximum capacity (Glasgow to Crianlarich, Crianlarich to Oban) are displayed in Figures 3.5 and 3.6 below. These graphs show reservable cycle space capacity on Glasgow to Crianlarich services operating between July 2016 and mid-January 2017. Each dot on the graph indicates an individual service



Percentage of cycle spaces booked	Frequency
0	604
8	2
16	102
25	3
33	80
41	1
50	45
66	31
83	30
100	38

Figure 3-5: Glasgow to Crianlarich journey leg services at 100% capacity



Percentage of cycle spaces booked	Frequency
0	611
8	3
16	97
25	3
33	90
41	1
50	41
66	33
83	30
100	36

Figure 3-6: Crianlarich to Oban journey leg services at 100% capacity

The data suggests that the 0821 from Glasgow Queen Street is a particularly in-demand service in terms of cycle bookings during the summer period. This train arrives in Oban at 1127, Fort William at 1208 and Mallaig at 1334. Calmac provided a snapshot of cycle booking data for this study on ferry services, and ferry services from Oban appear to enjoy moderate levels of cycle demand on-board compared to other ferry services in the region. The 1330 sailing from Oban to Castlebay appears to see the highest level of bike demand of ferry services leaving Oban, which may in part explain the higher demand on morning train services leaving Glasgow Queen Street if people are making combined rail-ferry cycle trips for leisure purposes.

3.3.2 Booking in advance

An analysis of ScotRail booking data was carried out to assess how far in advance passengers are booking. This was possible due to the nature of a raw dataset supplied, which was a series of daily data downloads over a period time. The figure below suggests there is a tendency for passengers to start booking over a month in advance on this example journey leg, with a small spike in reservations in the final week before the journey. This broadly correlates with the findings from the on-board survey, discussed later in this section.

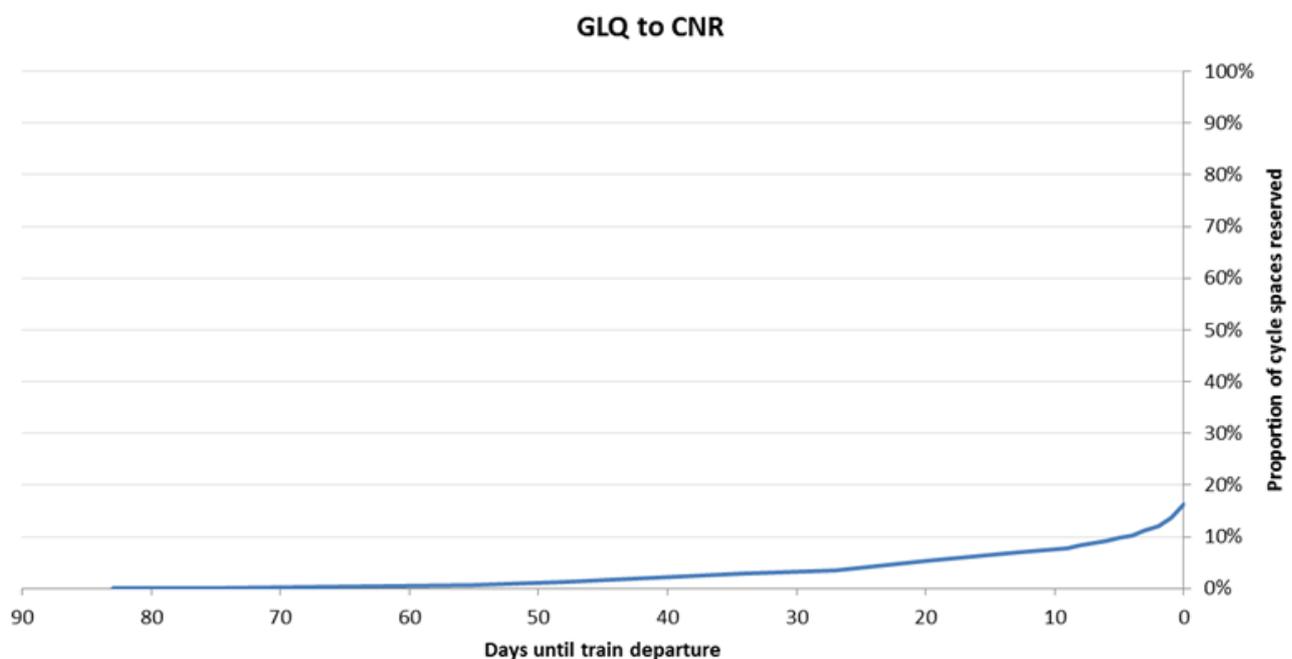


Figure 3-7: Bookings in advance

3.3.3 Impact of reduced cycle carriage space on-board WHL

An element of this study has been to understand the potential impact of any future reduction in cycle carriage space on-board WHL services.

Caledonian Sleeper services to Fort William and Inverness

Caledonian Sleeper rolling stock is to be replaced in coming years, and it is understood that on-board cycle capacity will increase to ten spaces over the current six, and the courier service is not planned to be withdrawn at the time of writing. Therefore, in theory, all demand for cycle carriage will continue to be met as currently, and it is feasible that the road courier service may have to be less frequently called upon. That said, it is likely on-board cycle carrying capacity will still not be sufficient for demand during peak summer months, particularly on services to Inverness.

ScotRail WHL services

The aspect of future capacity has been considered in more depth with regards to ScotRail services on the WHL on the assumption that 156s will be replaced by 158s, meaning a reduction in overall cycle capacity on ScotRail services as described below. As there is no alternative in place for carrying bikes that are surplus to capacity, as in the case of the

Caledonian Sleeper, this study has prioritised focusing on assessing how current demand against reduced capacity will look on ScotRail services on the WHL, as well as potential options to deal with it.

The most effective way to do this is to consider the current demand set against reduced capacity. Taking one of the most in-demand journey legs for cycle bookings (Crianlarich-Oban presented above in Figures 3-5 and 3-6, though it should be noted Fort William-Glasgow is also an in-demand leg in ScotRail cycle booking data), capacity has been reduced by one third, and then by two-thirds, to attempt to reflect the possibility of six spaces on-board reducing to four, and six spaces reducing to two with the removal of any possible cycle use of wheelchair spaces on-board 158s.

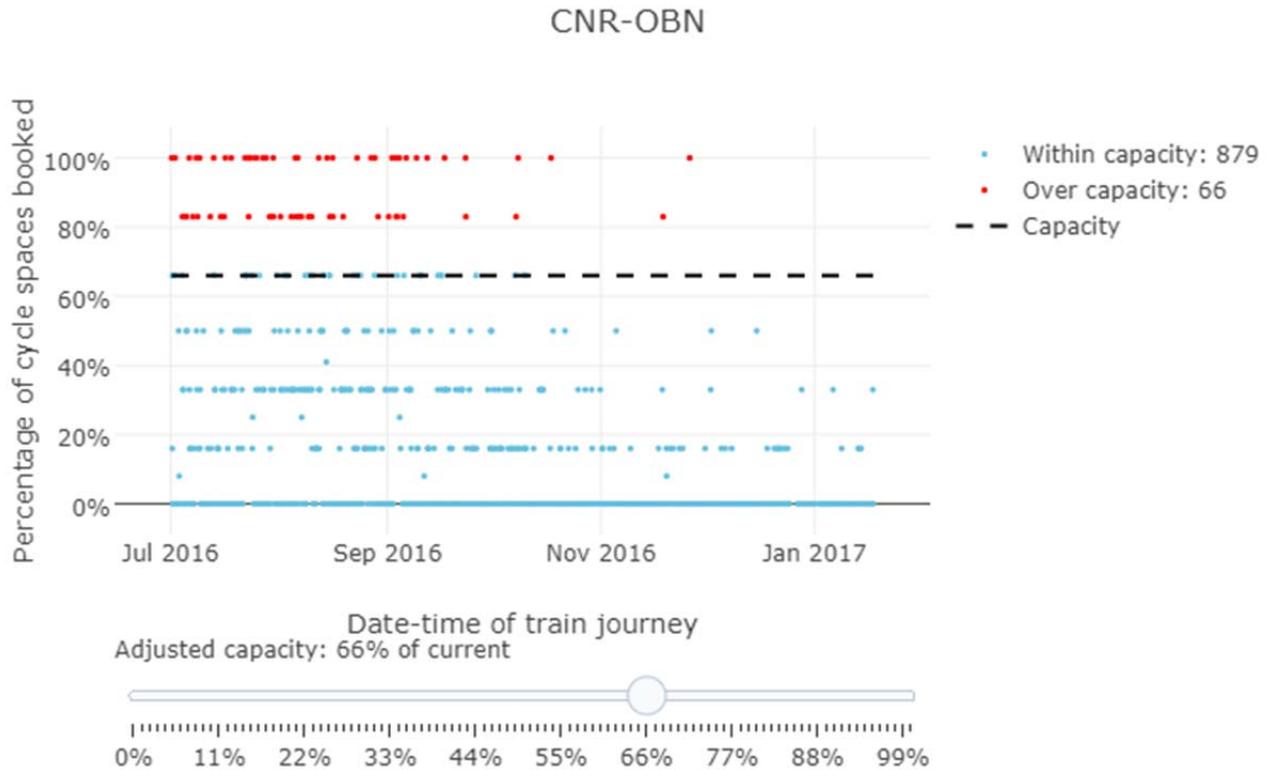


Figure 3-8: Actual cycle reservations Jul 2016-Jan 2017 against 66% of actual capacity

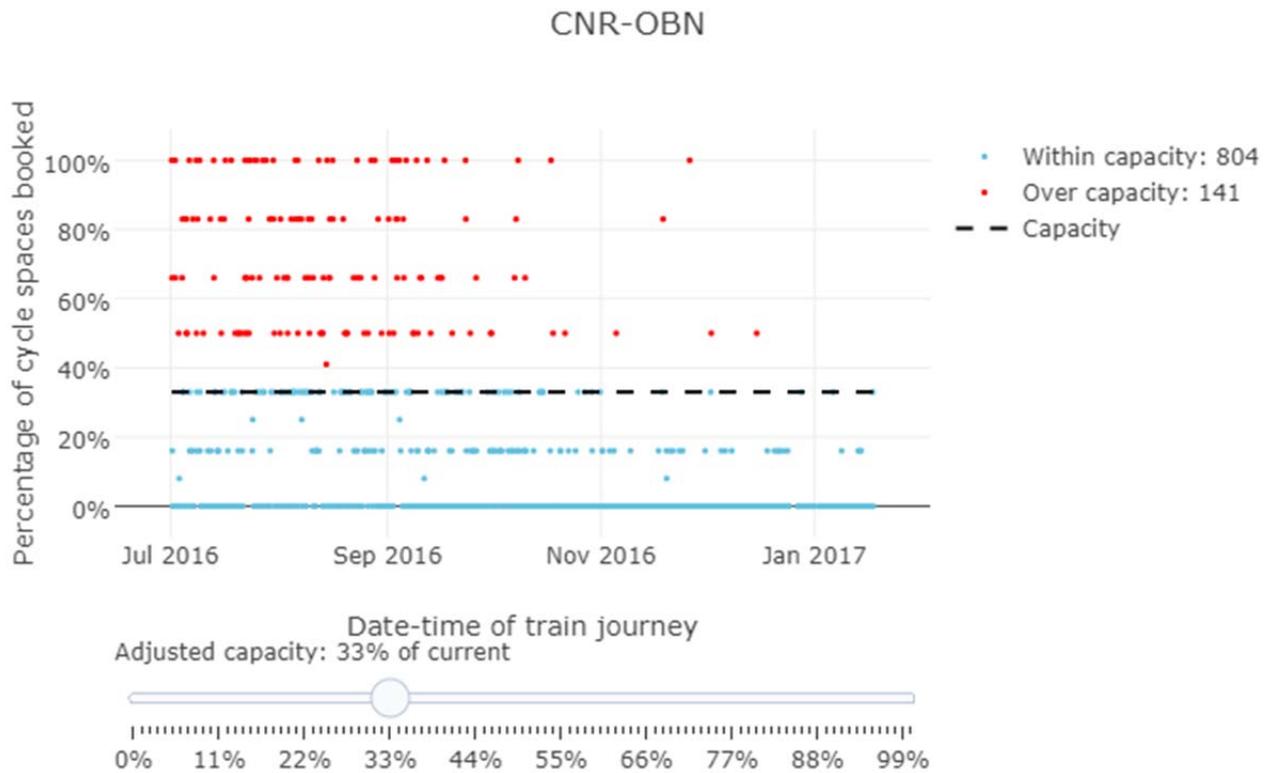


Figure 3-9: Actual cycle reservations Jul 2016-Jan 2017 against 33% of actual capacity

The figures above and Table 3.8 below are an illustrative example of one journey leg on the West Highland Line, Crianlarich to Oban, and the potential impact of reduced capacity. Journey leg services are more likely to reach 100% capacity during the summer months, with the 0821 from Glasgow Queen Street being a particularly in-demand service for cycle bookings. As Table 3.8 shows, currently, some 4% of Crianlarich –Oban journey legs are fully booked. Should spaces reduce by a third, some 7% of journey legs would see more cycle demand than space available on-board, with this figure increasing to 15% of journey legs if spaces reduced by two-thirds. Clearly, other less in-demand legs would see lower percentages against this indicator.

Table 3.8. Analysis of current Crianlarich to Oban journey leg ScotRail cycle booking data against varied capacity scenarios

Cri-Obn journey legs Jul 2016-Jan 2017 (945 in total)	6 spaces	4 spaces	2 spaces
No. / % of journey legs within capacity	100% including 36 fully booked (4%)	879 ⁸ (93%)	804 (85%)
No. / % of journey legs where current demand would exceed capacity on-board		66 (7%)	141 (15%)

Source: ScotRail reservation data

The following graphs show broad, route-level analysis forecasting (as opposed to individual journey legs) of what would happen to current demand v. capacity on-board if cycle capacity was reduced by 33%, and by 66% fewer reservable spaces.

⁸ Note, figures for 4 and 2 space scenarios includes number of fully booked legs as these are still deemed to be within capacity.

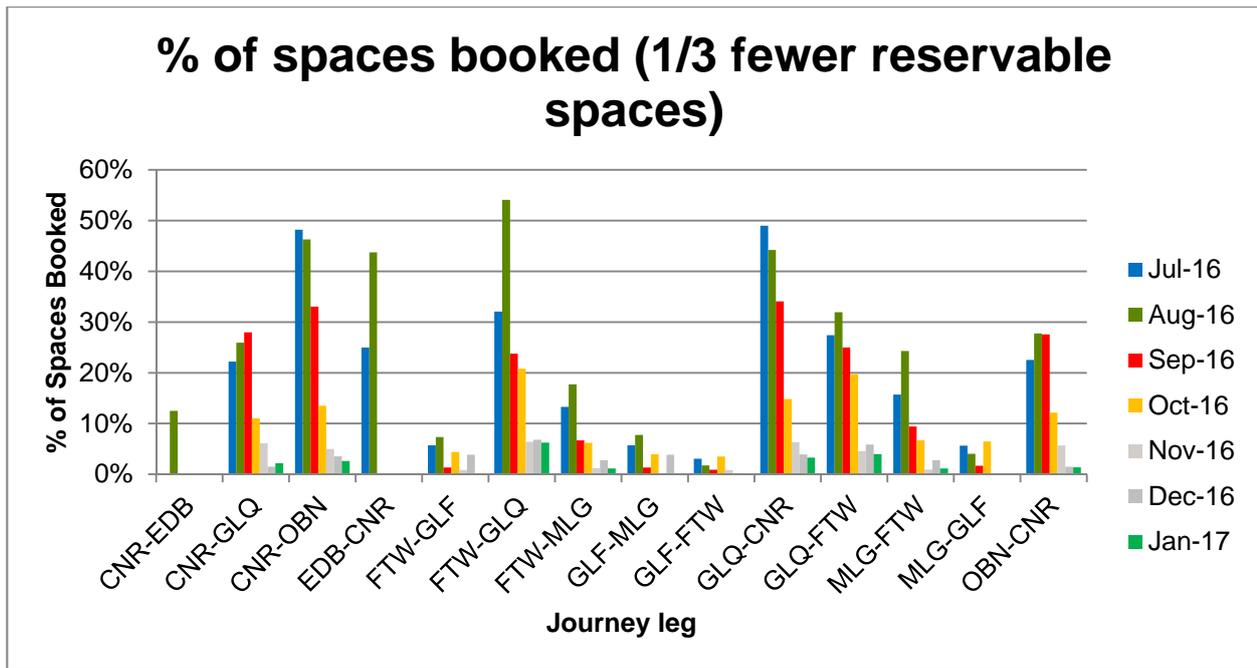


Figure 3-10: Route level analysis and 33% reduced capacity for bikes on board v. cycle spaces booked

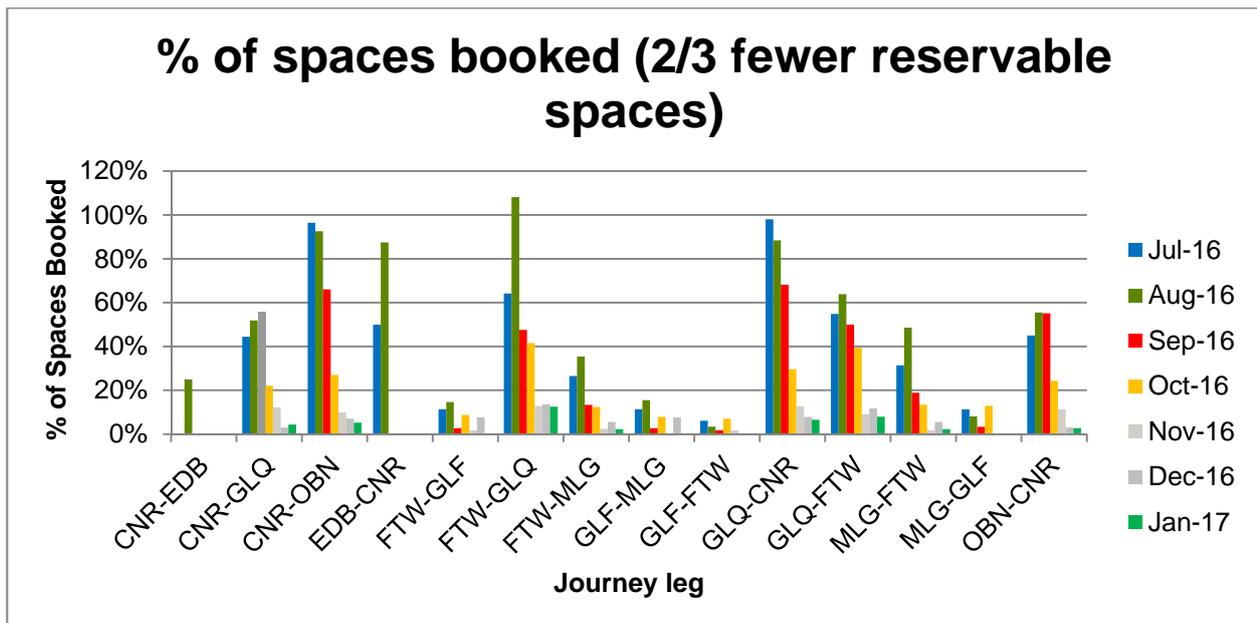


Figure 3-11: Route level analysis and 66% reduced capacity for bikes on board v. cycle spaces booked

3.4 Observed cycle carriage – on-board surveys, July 2017

The University of Highlands and Islands West Highland College (hereafter UHI) was commissioned by HITRANS to carry out on-board surveys and counts of bikes on WHL services across a three day period in July 2017. The aims of this survey work were:

- To count the number of bikes on-board to explore the extent of people bringing bikes on-board WHL services without a booking, an important factor in understanding overall demand for bikes on trains on the WHL as reservation data may be masking true demand. It also helps to understand the extent to which the compulsory reservation policy is being adhered to.
- To understand the reasons why people bring bikes on board and how much value they place on this.

The fieldwork was carried out on Friday 7th July, Saturday 8th July and Monday 10th July. A weekend period in July was specifically selected to maximise the value of the fieldwork in encountering visitors to the area, given the reputation of the WHL as an important rail route for leisure and tourism, and the apparent peak in cycle bookings during this period as observed from ScotRail and Caledonian Sleeper reservation data.

UHI and HITRANS surveyors travelled on a number of WHL and Caledonian Sleeper services across this period, recording data on the number of bikes getting on and off services at each station, as well as carrying out short questionnaires with on-board passengers travelling with bikes. Surveyors travelled on 52 WHL journeys in total, and surveyed seven journeys on the Caledonian Sleeper (Fort William and Inverness). In total, 31 Sleeper passengers travelling with bikes were interviewed, and 100 passengers with bikes on the ScotRail WHL.

3.4.1 Observed counts – ScotRail WHL

Whilst the sample of counts is small, results suggest that there does appear to be a degree of informal cycle carriage occurring on the WHL. The observed number of bikes getting on and off trains has been compared to the formal ScotRail reservation data for each service. Given the small sample size, it is difficult to draw any firm conclusions on any trends in informal cycle carriage. Moreover, the way that the on-board count was carried out (recording people with bikes getting on and off the train) is not directly comparable to the ScotRail booking data provided which is per pre-defined journey leg.

It should be noted that there were few observed instances of people being unable to board with their bikes. This was only observed on four journeys:

- The 0821 on Friday 7th July from Glasgow to Oban (which ScotRail data shows was fully booked with six bikes);
- The 1211 from Oban (which only had two out of six bike spaces formally booked and only one bike observed as boarding at Oban so it is not clear why the bike could not get on at Connel Ferry);
- The 0857 from Oban to Glasgow on Monday 10th July which was fully booked, and where one bike could not board at Garelochhead;
- The 1037 from Glasgow to Oban on Friday 7th July where four bikes could not board at Arrochar and Tarbet despite booking data and observed data suggesting only four spaces were taken (it is possible they preferred to remain as a group).

Summary findings from the WHL count work are as follows:

- There were 390 available cycle spaces on all services surveyed over the three day period, and 133 of these were formally booked according to ScotRail reservation data (just over one third). In contrast, the UHI surveyors counted 189 bikes getting on trains, and 142 getting off (there is no single figure for the number of bikes on-board at any one time).
- Out of 53 counts across the WHL network over the three-day period, there were 21 instances where the ScotRail reservation data matched the counts carried out by UHI surveyors. There were 23 instances where there appeared to be more bikes carried on / off the train service in question that were booked on. There were nine instances where there appeared to be fewer bikes carried on / off the train service than formally booked.
- Generally speaking, there appears to be some informal carriage of bikes by passengers i.e. where they have not formally booked their bike on in advance. This correlates with the questionnaire findings (see below) where a proportion of passengers with bikes stated they had not booked their bike on in advance.
- It is however difficult to conclude if more bikes are being carried on trains than there is capacity for, due to the nature of the count carried out. The data shown on ScotRail cycle reservation spreadsheets (reservations per journey leg) is not directly comparable to the on-board counts carried out.
- Services to and from Oban in this small sample seem to be more likely to be 100% booked in advance than other routes.

3.4.2 Observed counts – Serco Caledonian Sleeper

The counts of bikes on Caledonian Sleeper services offers a snapshot view only, as six services to and from Inverness, and six to and from Fort William, were monitored over the same three day period as above.

Out of the six counts for the Inverness-Euston Sleeper service, there were two instances where observed bikes matched the number of cycle reservations for that service (data provided by Serco). Two further instances suggested more bikes turned

up than were booked on, with two taken by courier in one instance, and two fitted onto another part of the train at the conductor’s discretion; and two final instances where one less than booked turned up for the train.

Out of the six counts for the Fort William-Glasgow Sleeper service, only three could be matched with Caledonian Sleeper reservation data. From these three, two services had more bookings than actual bikes counted, with the third service having one bike counted and one bike reserved. Two out of the six services appeared to have users boarding and alighting at intermediate stops (Spean Bridge, Rannoch) and potentially using the Sleeper for short journeys to either Glasgow or Fort William. Overall, just under two bikes per service were counted (compared to around six bikes per service for the Inverness Sleeper services observed).

From this very small sample, it could be suggested there is a higher than expected degree of flexibility in cycle carriage on the Sleeper than expected. The survey data for Caledonian Sleeper passengers (see below) suggests that the vast majority booked their bike on in advance.

3.5 Qualitative on-board surveys, July 2017

3.5.1 ScotRail WHL surveys

Appendix B presents the survey used in this on-board train research carried out by UHI in July 2017. The survey was targeted at people accompanying bikes on board specified trains (identified by survey staff on the train), and aimed to find out about:

- Their journey purpose.
- Origin and destination and length of stay in the region.
- Whether they booked in advance to bring their bike, and their experiences of bikes on trains and the booking process.
- The role of bringing their bike on the train in their journey, whether they would have made the same journey without the ability to bring their bike on the train, and willingness to pay for cycle carriage in the future.

Trip characteristics

Oban was a popular destination by those interviewed. This may be a reflection in part of the services travelled on by surveyors, though it should be noted that Oban services generally seemed to enjoy high demand for cycle bookings during the period.

The vast majority travelling with bikes were on a cycling holiday or short break. 79% said they were on a cycling holiday / short break; 8% on a recreational day trip; whilst 6% said they were on a holiday or short break where cycling was not the main activity.

The most frequently cited length of stay was between four and seven nights (median of seven nights away). As the following table shows, only 11% were on a day trip compared to 27% planning to stay away for four to seven nights.

Table 3.9. Duration of stay by ScotRail WHL rail passengers

	0 nights	1-3 nights	4-7 nights	8-10 nights	11-13 nights	14+ nights
No. of responses	10	15	25	19	7	16
% of responses (n=92)	11%	16%	27%	21%	8%	17%

Around a quarter of respondents said they planned on cycling between 100 and 200 miles during their trip, the most frequently cited distance category.

Just over 38% of question respondents said this was their first trip to the region, suggesting the majority had visited previously.

When asked what attracted them to come cycling in the West Highlands, scenery was the largest response. Many stated that they brought their bike on the train out of necessity or for ease and convenience. The vast majority (80 out of 85 responses) said they would recommend the region for cycle tourism.

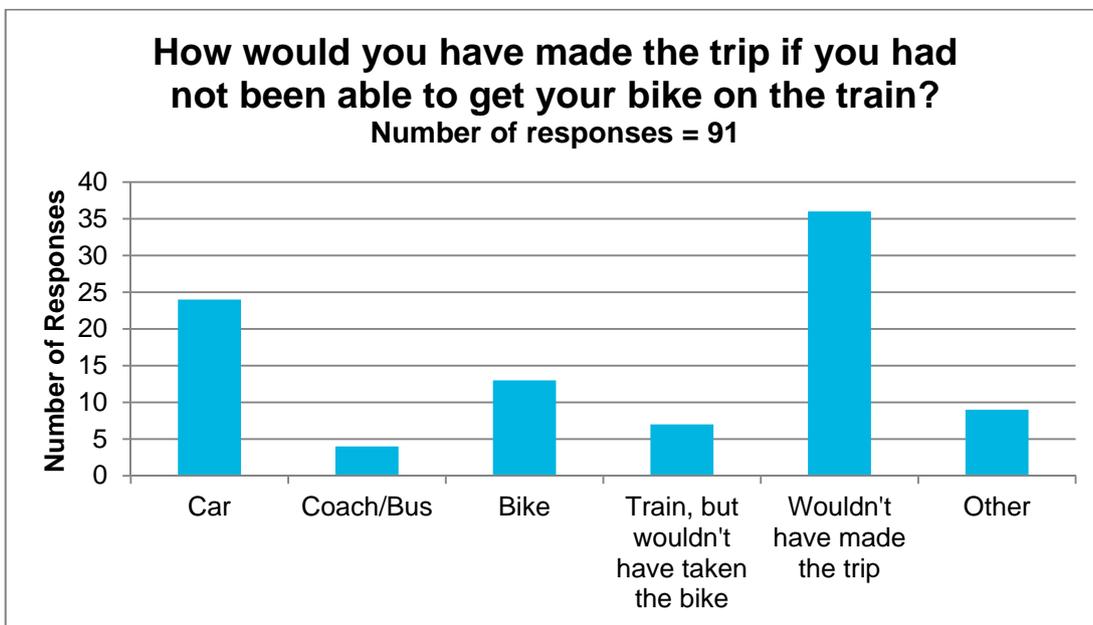
Almost three-quarters of those interviewed said they were planning on using a ferry during their trip, suggesting bikes on ferries is an important element of the overall cycling holiday experience in the West Highlands.

Bikes on trains

31% of question respondents said they have never brought a bike on a train previously (suggesting this was their first time). Just under a half of respondents had brought their bikes on a train more than three times previously. This suggests the majority of travellers had some prior experience of bringing bikes on trains in Scotland. There was a noticeable difference in responses to this question however based on interviewee origin. 65% of international interviewees said they had never brought a bike on a train in Scotland before, compared to 23% of UK interviewees. It should be noted the sample size was very small for international visitors in this survey (17 responses).

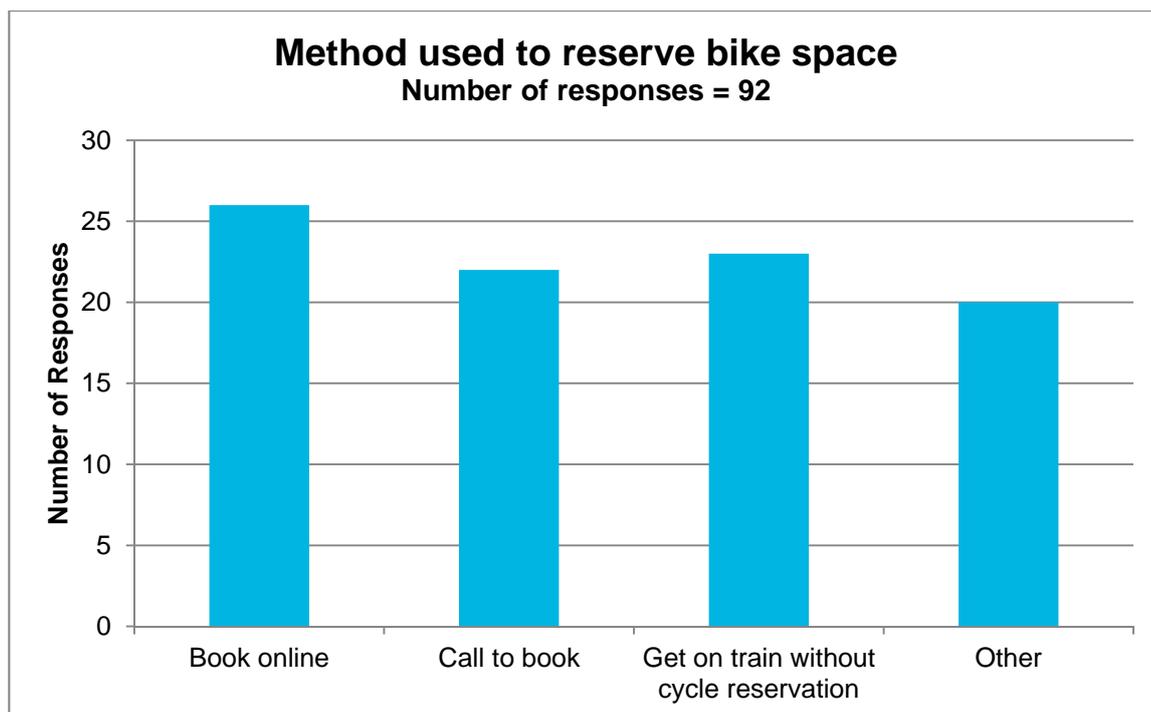
Over two-thirds of respondents said they were also making their return journey by train. Due to the way this question was asked. "Are you also returning from your trip by train?", this does not necessarily mean that respondents planned on replicating the exact journey (e.g. it is possible they were cycling part of a journey and joining the rail network elsewhere).

Around a third said they would not have made the trip if they had not been able to bring their bike on the train, with the next highest category of responses (around a quarter) saying they would have made the journey by car instead. Only 8% of question respondents said they would still have taken the train (without their bike).



Booking and taking bikes on trains

Around a half of respondents said they have booked their cycle space online or by phone, whilst almost a quarter said they had not made a booking.



Around two thirds of those who had booked in advance said they had booked up to 30 days in advance, whilst a third said they had booked even further in advance. This suggests a reasonable proportion of those travelling had planned their journey for some time. Almost two thirds were travelling on an advance ticket.

Almost half said they found the cycle booking process very easy. Of those who indicated it was not easy (around a third of respondents), many stated issues with using the website.

Some 50 out of 92 responses stated that they had experienced issues with carrying and /or reserving their bike on the train – it should be noted however that several of these comments related to connecting train services (e.g. Virgin) and not ScotRail specifically. From this set of 50 responses, analysis of textual comments suggests 27 responses were largely in relation to issues with lack of space and capacity on trains for bikes. Other comments included reference to the booking system being difficult, and lack of consistent information on cycle booking from staff on train or during phone bookings. Some comments also referred to space on board being limited due to luggage.

The most common type of bike brought on board was a touring bike, with the most common value of a bike cited as between £501 and £1000 (35% of question respondents). Overall, 63% of question respondents said their bike had a value of more than £500, and 28% said their bike was worth over £1001.

Payment for cycle carriage in the future?

Almost 60% of question respondents (94 respondents to this question) said they would be prepared to pay to carry their bike on the train – 21% said they were not sure, and 14% said they would not be prepared to pay. When asked how much they would be willing to pay, 66% of question respondents said they would be willing to pay up to £5, with a further 25% indicating up to £10. Of those who chose the “other” response to this question, comments included:

- “would pay for good provision”
- “percentage of fare” and “could vary by journey”
- “if guaranteed space”

Who completed the questionnaires?

There was a gender imbalance amongst respondents, and it is difficult to conclude if this was related to the people who were prepared to answer the survey or if it indeed reflects the nature of those travelling by bike. Around two-thirds of survey respondents were male, and the age group 25-34 was the most frequently cited age category. Sustrans have advised that this gender split is typical of that recorded among cyclists on the NCN in Scotland, suggesting this dataset is unlikely to reflect response bias.

17 out of the 100 WHL survey respondents came from outside of the UK including Europe and the USA. Less than half of the remainder gave origin information that could be mapped. 16 originated from the Central Belt of Scotland, whilst the remainder of those originating in the UK mostly came from urban cities across England.

3.5.2 Caledonian Sleeper surveys

A smaller sample of passengers was interviewed on Caledonian Sleeper services to both Fort William (seven survey respondents) and Inverness (24). Key differences in the survey responses of Caledonian Sleeper passengers as compared to WHL survey respondents were:

- Sleeper passengers were more likely to say they would not have made the trip at all if they had not been able to bring their bike on the train, compared to ScotRail WHL passengers.
- Sleeper passengers appeared to be willing to pay a higher amount to bring bikes on trains compared to ScotRail WHL passengers, which may be a reflection of the higher cost of Sleeper fares given the length of the journey from London to Scotland.
- Inverness Sleeper passengers were likely to be away from home for 11 nights on average, compared to seven for WHL passengers (six passengers who appeared to be travelling for several months were removed from the WHL average calculations).
- Whilst a small sample size, Sleeper passengers seemed more likely to book their bike on the train in advance compared to ScotRail WHL passengers. That said, the count work appeared to show some informal cycle carriage, which may in part be due to how passengers have booked their ticket.

Almost all Sleeper respondents were on a cycling holiday and planned on making their return journey by rail.

3.6 Summary

Demand for cycle carriage on both the Caledonian Sleeper and ScotRail West Highland Line services is highly seasonal. Some individual services seem to be in high demand (e.g. combined WHL services leaving Glasgow at 0821) and some services see a high proportion of on-board cycle capacity fully booked due to having only six spaces available (compared to 12 on other popular services). There also appears to be a reasonable degree of ad-hoc cycle carriage on-board both ScotRail and Caledonian Sleeper trains in this study, where people are not booking in advance, although limited evidence from the survey work in July 2017 of people with bikes being unable to board at all. Should capacity be reduced on WHL services in the future, it would not meet existing demand on a number of WHL services. Sleeper services are due to increase their on-board cycle capacity although they may still encounter periods of high demand during seasonal peaks.

Further detail on all the surveys is provided in Appendix B.

4. Factors driving future demand for bikes on trains in the West Highlands

4.1 Introduction

This section offers a brief overview of factors which may influence future demand for bikes on trains in the West Highlands. The types of issues that have been explored are those which may drive more or less demand for bikes on trains in the future, including usage of the rail network, tourism trends and stakeholder views.

4.2 Policy

The National Planning Framework (NPF) identifies the National Long Distance Cycling and Walking Network as a national development⁹. A number of planned improvements to NCN routes are identified in NPF3 though none will directly link to rail stations served by the West Highland Line. National developments are defined as projects identified as necessary to develop the Government Economic Strategy in Scotland.

Regionally and locally, HITRANS, Tactran and local authority policy frameworks support bike-rail integration and improved access to stations by bike.

The HITRANS Regional Transport Strategy (RTS) was approved in 2008, and is currently being updated (2017)¹⁰. A Regional Active Travel Strategy and individual Active Travel Town Masterplans form part of the overall RTS Delivery Plan. Active travel investment is a contributor to the high-level objectives set by the 2017 updated RTS, specifically:

- Support sustainable economic growth across the region.
- Reduce barriers to participation in employment, learning, social, leisure, health and cultural activities.

The HITRANS RTS (2017 update) also recognises the importance of tourism and leisure to economic growth across the region, and the vital role of transport to facilitate this, as evidenced by a Delivery Plan element “sustainable access to popular tourist sites around the region” (page 9).

As a further example, the Tactran Regional Transport Strategy Refresh contains policies to support non-motorised user access to rail stations, as well as on trains and buses¹¹:

“R10: Develop a partnership approach to passenger safety that considers the whole journey, including the safety of key walking and cycling routes to and from railway stations.

AT7: Public transport access: Support the provision of improved walking and cycling access at public transport interchanges and on trains/buses.”

4.3 Rail networks and station usage

The Office of Rail Regulation (ORR) produces annual station usage estimates which gives an indication of trends in use of stations on the rail network. The table below presents data for stations on the West Highland Line and Inverness. It should be noted there have been some timetable changes on the line to Oban in 2014, which improved service frequency, and may explain the substantive increase in passenger use at Oban and stations on this line since 2010/11.

Table 4.1: Rail usage data for WHL stations and Inverness

Station	Exits and Entries 2015/16	Exits and Entries 2014/15	% change 2015/16 over 2014/15	% change since 2010/11
Ardlui	5,072	5,074	0%	142%
Arisaig	7,058	7,596	-7%	-7%
Arrochar & Tarbet	15,236	13,618	12%	73%
Banavie	6,344	5,918	7%	25%
Beasdale	366	472	-22%	-3%

⁹ National Planning Framework 3, 2014, Scottish Government <http://www.gov.scot/Publications/2014/06/3539>

¹⁰ HITRANS Regional Transport Strategy Update, 2017 https://hitrans.org.uk/Strategy/Regional_Transport_Strategy

¹¹ Regional Transport Strategy Refresh, 2015-2036, Tactran <http://www.tactran.gov.uk/documents/RTSRefresh-FinalReport.pdf>

Station	Exits and Entries 2015/16	Exits and Entries 2014/15	% change 2015/16 over 2014/15	% change since 2010/11
Bridge Of Orchy	5,880	6,024	-2%	-5%
Connel Ferry	6,592	8,564	-23%	63%
Corpach	2,762	2,754	0%	8%
Corrour	11,156	12,856	-13%	-13%
Crianlarich	16,726	16,752	0%	23%
Dalmally	6,802	8,338	-18%	45%
Falls Of Cruachan	734	654	12%	267%
Fort William	139,808	144,106	-3%	3%
Garelochhead	7,806	6,920	13%	55%
Glenfinnan	9,418	8,778	7%	27%
Helensburgh Upper	15,127	15,731	-4%	-36%
Loch Awe	4,804	4,752	1%	52%
Loch Eil Outward Bound	478	632	-24%	-41%
Lochailort	1,706	1,960	-13%	-21%
Locheilside	492	530	-7%	32%
Mallaig	88,346	84,972	4%	3%
Morar	4,332	4,312	0%	6%
Oban	176,104	170,682	3%	45%
Rannoch For Kinloch Rannoch	8,378	9,434	-11%	-19%
Roy Bridge	4,172	4,520	-8%	8%
Spean Bridge	7,332	7,240	1%	15%
Taynuilt	22,226	21,968	1%	88%
Tulloch	1,804	1,998	-10%	-19%
Tyndrum Lower	5,488	5,334	3%	42%
Upper Tyndrum	4,790	4,562	5%	27%
Inverness	1,306,556	1,303,662	0%	16%

Source: <http://orr.gov.uk/statistics/published-stats/station-usage-estimates>

Stations on the WHL in close proximity to the strategic cycle network, the National Cycle Network (NCN), include Arrochar and Tarbet, Taynuilt, Oban and Fort William, as well as Inverness which offers good access to multiple NCN routes. In general, these stations have all grown in usage since 2010/11, although a few have seen a short-term dip in usage most recently. It cannot be assumed that proximity to cycling infrastructure is the reason for any passenger increase, and no NCN count data has been made available for this study. Fort William continues to grow annually. Inverness is one of the busiest stations in Scotland, whilst Fort William and Oban are some of the busiest in the Highlands and Islands.

4.3.1 West Highland Community Rail Partnership research

The West Highland Community Rail Partnership carried out a study with assistance from the University of Highlands and Islands in 2016/17, to research barriers to use of local rail services by locals and tourists¹².

Amongst local people who did not regularly use the West Highland rail line services and also for those who did, infrequency of services and cost were the two main barriers. The services not suiting their needs (e.g. commuting) and lack of integration were also cited as important barriers. The survey suggested that most respondents made occasional use of rail services as opposed to daily, and even with improvements, most would still use services occasionally (defined as once or twice a week or less). The survey suggested there was a good level of awareness of rail cards, and most accessed rail information online.

¹² West Highland Community Rail Partnership, Potential User Survey, Final report, February 2017

Amongst visitors to the area who took part in the research and had not arrived by train (90% travelled to the area by car), 74% said they had not considered travelling to the area by train. The need for flexibility and perception that a car offered this seemed to be a key reason.

The study concluded that there is scope to increase the frequency of use of rail services by locals, and by visitors to the area. A more commuter-friendly timetable might appeal to local users, whilst better marketing and information may lead to greater use of rail by visitors.

4.3.2 ScotRail and Transport Scotland approach

ScotRail already promotes the West Highland Line as a “Great Scenic Rail Journey”, labelling it as “the most scenic rail journey in the world”¹³. The proposed class 158 trains on the West Highland Line are part of the scenic trains rollout by ScotRail, offering seats aligned with windows to enhance views, better seating, air conditioning and quieter interiors.

That said, as set out in the Cycle Innovation Plan, Abellio ScotRail are committed to improving cycling infrastructure at stations (cycle hire and cycle parking) to support a door-to-door sustainable travel approach. There is a recognition however that scenic rail routes in Scotland have a different character to those predominantly used by commuters and residents making every-day journeys.

Worth referencing is the ‘Revolution in Rail’ announced by Scottish Ministers in 2016¹⁴. This promises 200 new services benefitting passengers across Tayside, Stirlingshire, Perthshire, Aberdeenshire, the Borders, Highlands and Moray from 2018. The timetable improvements are potentially possible by the decision by the Scottish Government to retain 13 additional Class 170 diesel trains (39 additional carriages) beyond the terms of their current leases, which were due to end on 2018. It is planned to use these extra trains to create the capacity to make timetable service improvements. It is not clear at the time of writing what impact, if any, this will have on trains in the West Highlands.

The Scottish Government’s Programme for Scotland 2017-18 has progressed the debate on potential solutions to address surplus demand for bikes on trains in the region¹⁵. A commitment is made in this Programme to take forward work on “introducing dedicated carriages for cycles and other outdoor sports equipment on rural routes in the north and west”(page 59).

4.4 Tourism

4.4.1 Overview

Tourism continues to be a major source of economic value and growth in the Highlands and Islands generally. Figures for the first quarter in 2017 suggest the number of international tourists to Scotland continues to grow, whilst domestic visitors have declined¹⁶. Outside of Glasgow and Edinburgh, the Highland Council area sees the highest employment linked to tourism (2015 data)¹⁷. Visitors to the Highland Council area tend to have the longest stays of any area in Scotland, averaging just over seven nights compared to less than six nights for the next highest authority area, City of Edinburgh (though visitors were found to spend less in the Highland area than in Edinburgh)¹⁸. Visitors to the Highlands and Islands appear to arrive predominantly by private car.

Visit Scotland research suggests cars are the most popular mode of transport used by domestic visitors to Scotland, although the use of trains has increased since the economic downturn¹⁹.

Visit Scotland’s “Trends 2017” publication offers a valuable insight into the trends that are developing within the tourism sector and may influence and shape Scottish tourism in years to come²⁰. Key trends are summarised in the Figure 4-1.

¹³ <https://www.ScotRail.co.uk/scotland-by-rail/great-scenic-rail-journeys/west-highland-line-glasgow-oban-and-fort-williammallaig>

¹⁴ <https://news.gov.scot/news/rail-revolution-announced>

¹⁵ <http://www.gov.scot/Publications/2017/09/8468>

¹⁶ http://www.visitscotland.org/pdf/2017_Q1_Stats_Summary.pdf

¹⁷ <http://www.visitscotland.org/pdf/ScotlandRegional%20-%20MarketStats%20Oct2016%20-Final.pdf>

¹⁸ http://www.visitscotland.org/pdf/GBtouristreport_2015.pdf

¹⁹ <http://mediacentre.visitscotland.org/pressreleases/tourism-on-road-to-ps16bn-investment-1739998>

²⁰ Visit Scotland Insight Department, November 2016, “Trends 2017” [http://www.visitscotland.org/pdf/Insights%20-%20Trends%202017\(2\).pdf](http://www.visitscotland.org/pdf/Insights%20-%20Trends%202017(2).pdf)

Several of these trends are of relevance to cycling in the West Highlands, in particular:

- Intrepid Travel, which covers wild camping within the overall concept of “getting off the beaten track”.
- Just In Time Inspiration, which recognises the growing role of smartphone technology and the desire by consumers to be constantly connected to information to support their choices.
- Fluid Itinerary Travel, which touches on the growing role of the “road trip” type of experience as opposed to static destinations. It highlights the growing role of the car in these kinds of trips in Scotland, linked to concepts like the North Coast 500. Whilst the car is focused on in this trend, the general concept is as applicable to rail-cycle-ferry journeys in Scotland.
- Silence Is Tartan, a trend that recognises the importance of health and wellbeing to a growing number of visitors.
- Hunt For Sustainability, which recognises that sustainability and being “green” is increasingly important to some consumers.



Figure 4-1: Visit Scotland Trends 2017

Argyll and Bute Council have recently developed a brand “Wild About Argyll”²¹. This campaign aims to brand Argyll & The Isles as Scotland’s Adventure Coast, and cycling plays a prominent role in marketing materials and messages (not least by the inclusion of professional cyclist Mark Beaumont as a brand ambassador).

Highlands and Islands Enterprise recognises the region as a top destination for extreme sports enthusiasts, another important group of visitors to the region²². The annual World Cup Mountain Bike Championships in Fort William has helped to cement the region’s reputation as a key destination for mountain biking enthusiasts.

An evaluation of the North Coast 500 (NC500) suggests that this 516 mile route created by the North Highland Initiative has led to a 26% increase in visitor numbers since the route’s launch, compared to 6% growth for the Highlands overall. The NC500 also promotes a cycling alternative to car travel, although it should be noted that this is not formally recognised as a long distance cycle route by HITRANS or Sustrans due to the varying nature of the route (some is on trunk roads) and lack of signage for people on bikes.

In terms of future growth, the European Traveller Insights Report from 2016 has identified Inverness as one of the top 15 predictions for major visitor growth in 2017²³.

4.4.2 Cycle tourism

Extensive work has previously been undertaken which investigates the value of cycle tourism in Scotland. Of particular relevance is The Value of Cycle Tourism produced by Transform Scotland in 2013²⁴. This report states that despite the negative impact of the global economic recession on tourism in many Western European countries, cycle tourism has continued to grow and may continue to increase. An important element of the report is the findings related to the economic values of four areas of economic contribution, detailed below.

Figure 4-2: Value of cycle tourism (Transform Scotland)

Economic Value	(£ millions) / year
Health benefits	4.0
Leisure cycle events	5.6

²¹ <http://www.wildaboutargyll.co.uk/>

²² <http://www.hie.co.uk/growth-sectors/tourism/overview.html>

²³ http://www.edreamsodigeo.com/wp-content/uploads/sites/19/2016/12/eDreams-ODIGEO_EuropeanTravellerInsightsReport2016.pdf

²⁴ The Value of Cycle Tourism, Opportunities for the Scottish Economy, Transform Scotland (2013). Available here: <http://transformscotland.org.uk/wp/wp-content/uploads/2014/12/The-Value-of-Cycle-Tourism-full-report.pdf>

Leisure cycle-related infrastructure	1.5
<hr/>	
Expenditure by leisure cyclists	106.2 – 228.2
<hr/>	
Total economic contribution	117.4 – 239.3

The Transform Scotland report advocates better bike-rail and bike-bus integration, and suggests the lack of bike spaces on-board many trains and the requirement to book in advance are constraints to cycle tourism growth.

Bespoke websites and local businesses have grown in recent years to take advantage of the growing demand for cycle tourism, offering access to bike hire as well as route information across the region. In some areas, a bike bus is offered by private operators as part of a local service from public transport points to destinations across the region.

Sustrans has recently produced a guide to leisure cycling for tourism businesses in Scotland, to help promote cycle access and benefit from the rising interest in cycle-related tourism²⁵.

Calmac have been engaged with during this study, and suggest that anecdotally, the volume of bikes on ferries appears to be increasing. Moreover, the introduction of RET pricing has led to increased demand across the network for passengers and vehicles and it is therefore potentially safe to assume cyclists have risen also. Calmac do not currently gather data on bikes on ferries routinely although a snapshot survey was carried out in 2017 and identified that some services are busier with bikes than others (see Section 3 for reference to Oban trains).

4.5 Infrastructure and usage

Sustrans estimated that in 2014, 121m trips were made on the NCN in Scotland, an increase of 13% over 2013 figures. In terms of monitoring of cycle trips on NCN78 which is in the vicinity of rail stations on the West Highland Line, Sustrans have stated for this study that automatic cycle counter data from comparable periods at three sites on NCN route 78 suggest levels of cycling in the area are on a long-term upwards trajectory, although there is not a consistent year on year increase at all sites.

Transport Scotland via Sustrans, and local authorities, have invested in new and improved cycling infrastructure in the region in recent years. Most notable has been the completion of NCN78, Caledonia Way from Campbeltown to Inverness via the West Highlands. Engagement with Argyll and Bute Council, HITRANS and Tacran as part of this study suggest that path improvements are ongoing in the region to support both local cycling and cycling for leisure and tourism. Improvements in recent years have included active travel infrastructure improvements to support access to railway stations of Dalmally, Taynuilt, Loch Awe and Connel Ferry (linked in part of a timetable change on the WHL services to Oban in 2014 to support rail access to Oban High School from surrounding communities).

Planned improvements to infrastructure include a proposed improved connection for walking and cycling between Helensburgh and Dumbarton, and between Tyndrum and Crianlarich. There are other planned improvements to cycling infrastructure across the region, and these are presented as examples of infrastructure that may promote further demand for bike access to and from rail stations.

From the survey of WHL passengers for this study, it is clear that a sizeable proportion planned on using NCN routes whilst in the region with their bike.

²⁵ <https://www.sustrans.org.uk/scotlandguide/>

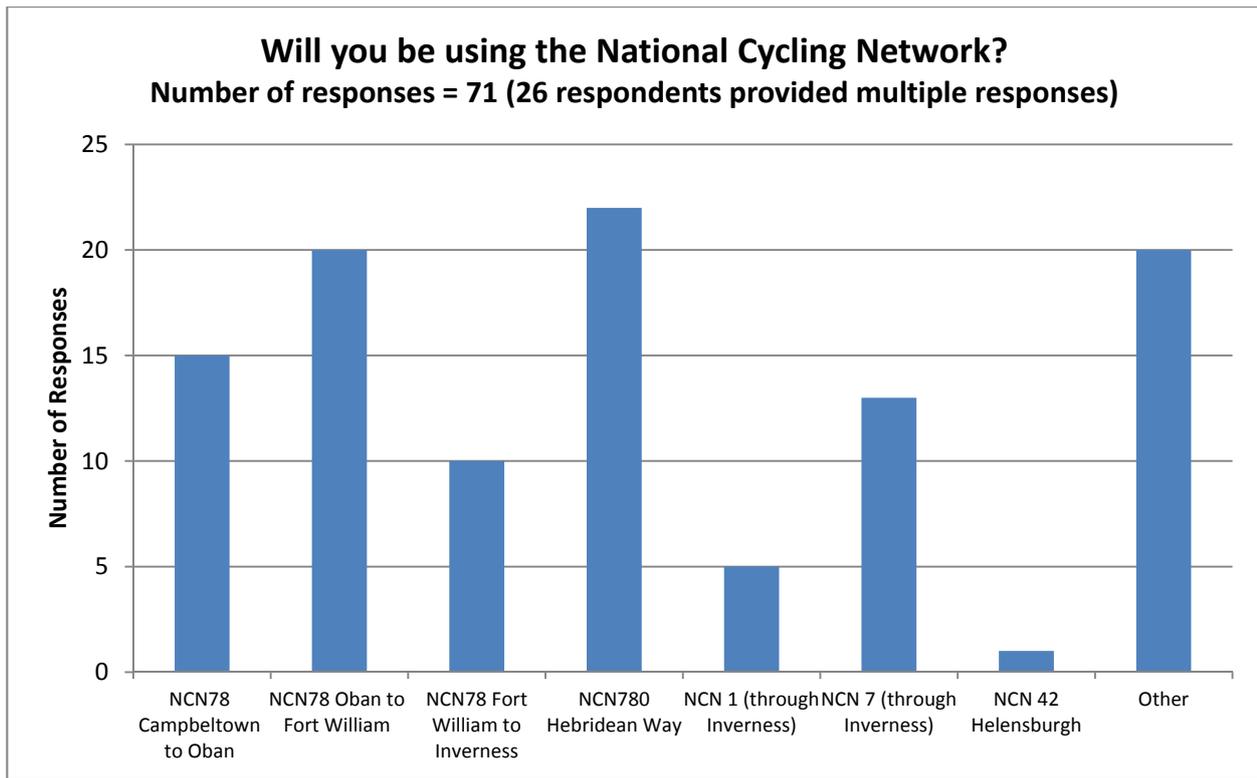


Figure 4-3: Usage of NCN whilst in the region with a bike (WHL rail passenger survey by UHI, July 2017)

4.6 Cycle hire, bike share and transport interchange

Arguably, cycle hire facilities are increasing across Scotland and the UK (and internationally). ScotRail have developed a number of Bike & Go cycle hire facilities at stations across Scotland, whereby anyone can hire a bike from 12 locations for less than £4 a day²⁶. Glasgow has seen the development of a public bike hire scheme across the city²⁷, run by NextBike, although this model of operation may be less well-suited to areas with smaller, dispersed populations in the Highlands and Islands.

Bike share is increasing in prominence as a concept in the UK, and new suppliers of mass, dockless cycle hire schemes are appearing in the UK market, suggesting there is a growing demand for such schemes as identified by commercial organisations²⁸.

Cycle hire is currently available at Inverness Rail Station via an Abellio ScotRail Bike & Go scheme, offering town bikes. Engagement with the Oban Business Improvement District for this work suggests a desire by the BID to see a local bike hire scheme, potentially incorporating electric bikes, and some bike hire is currently available via a local bike store. Bike hire is also available in Fort William. Argyll and Bute Council have been working with local partners to improve cycle hire options on islands and in Oban, and in partnership with Scottish Canals on cycle hire from Lochgilphead.

As the survey results presented in Section 3 of this report suggests however, there is a strong bias towards touring and road bikes by those who bring their bike on trains on the West Highland Line and the Caledonian Sleeper. If these passengers are to be encouraged to continue to travel by rail for their cycling trip but leave their bike at home, high quality touring and road bike hire may be required at key stations within the region.

HITRANS have piloted a transport integration solution, providing over 2000 bike bags at interchange points between ferry / bus and rail / bus to allow those who need to travel onwards to put their bikes in the luggage hold of buses.

²⁶ <https://www.scotrail.co.uk/scotland-by-rail/things-do/bike-go>

²⁷ <https://www.nextbike.co.uk/en/glasgow/>

²⁸ <https://www.theguardian.com/environment/bike-blog/2017/jul/12/londons-first-dockless-hire-bike-scheme-launches>

4.7 Engagement for this study

As mentioned elsewhere in this report, a number of organisations have been engaged with for this study. The table below sets out which organisations were approached for views to inform the study, and the summary of their comments.

Table 4.2: Consultation findings

	Main comments
Friends of the West Highland Line	Concerned about potential reduction of six cycle spaces to two cycle spaces on WHL. Feel strongly there should be more provision, not less, and this contradicts franchise commitments to the WHL as an important line for tourism. Would like to see more cycle hire at both town and wayside stations available. Discounts from ScotRail's cycle hire partners should be more widespread, and better promoted to ensure awareness. Charging for cycle carriage on trains should be considered, as long as there is a guaranteed space and quality provision. Caledonian Sleeper requirement for FW-bound passengers to physically move their bike between carriages at Edinburgh in the early hours of the morning must stop as it has a negative impact on the visitor experience.
Argyll and Bute Council	Rail services have improved to Oban significantly in recent years, and a specific service aimed at Oban High School students (Hands up Survey data suggests an increase in "other" category for journey to school since 2013/14). Council has been working on improving walking and cycling access to rail stations in area in partnership with Sustrans, including Dalmally, Taynuilt, Low Awe, Connel Ferry. Perceive an increase in demand for bikes on ferry network, and have improved cycle shelters at ferry terminals. Leisure and tourism industry is hugely important for A&B, and "Wild about Argyll" promotion reflects this. Some perceived issues with growing traffic in the region linked to tourism, including camper vans – perception that people may be more likely to bring bike if on a day trip rather than a longer stay. Have been attempts to improve cycle-public transport integration with carrying bikes in luggage area of buses, and the Loch Lomond Bike Bus (now discontinued). See bikes as an important part of the economic growth in the area.
Tactran	RTS is supportive of sustainable transport interchange and bikes on trains. Looking to help develop a path project between Tyndrum and Crianlarich subject to funding, with project led by Loch Lomond & Trossachs Countryside Trust. Station travel plans being developed by ScotRail for Stirling and Perth, and Tactran working with local authorities on active travel audits from some settlements in the area.
Oban BID	Tourism is a major element of Oban's economy, and Oban is a gateway to the islands and Argyll in general. View that cycle tourism is growing and will continue to grow. Oban is an important location for rail-cycle-ferry interchange. Not aware of any issues or complaints with cycle carriage on-board trains locally. May need better information on cycle space on-board trains and how to book it. Perception that visitors mainly come to Oban by car. Perception that the rail line is busy, and not of a high quality. Keen desire by Oban BID to develop a bike hire scheme locally.

In addition, HITRANS informed the Cycle-Rail forum in Scotland of the research in June 2017.

The concerns of interest groups and cycling organisations on the potential loss of cycle spaces on the West Highland Line (and other rail routes in Scotland) has been articulated in many forums (<http://www.spokes.org.uk/2016/03/cuts-coming-to-train-bike-spaces/> is an example). It is noted however that there may be a lack of clarity over how many bike spaces are currently available on WHL services due to the combination of two-car sets from Glasgow, which is understandable as this information does not seem to be in the public domain.

4.8 Conclusions

Cycle tourism appears to be growing in Scotland, and access to the 'wild' outdoors is a future tourism trend identified by Visit Scotland. Local, regional and national policy, linked to transport accessibility as well as economic growth, appears to recognise the importance of cycling infrastructure in both these areas as well as the economic value of cycle tourism. There is reason to believe that the demand to use bikes in the region will continue to grow in the future, though it is less clear how willing people will be to rely on trains to bring them. Cycle hire facilities are also increasing across Scotland, led by a number of organisations including ScotRail, local authorities and community organisations.

5. Approaches to carrying bikes on trains elsewhere

5.1 Introduction

The ScotRail and Caledonian Sleeper approach to bike carriage is presented in Section 2 above. The carriage of bikes on trains varies across the UK and internationally. The number of bikes which can be carried on a service, how much operators charge for the carriage of bikes, the booking process and how companies collaborate to provide optimum conditions for the carriage of cyclists all vary depending on the individual operating company and how the carriage of bicycles is perceived. To ascertain the differing approaches to the carriage of bikes around the UK and internationally, a high level review of approaches elsewhere has been undertaken.

5.2 United Kingdom

A useful summary of bike carriage on trains in the UK is provided at

http://www.nationalrail.co.uk/stations_destinations/cyclists.aspx.

A review of 16 operators across the UK for this study did not ascertain any examples of operators which charge for the carriage of bikes. However, conditions of carriage do differ by operator. For example, Translink in Northern Ireland does not permit bikes on trains prior to 09:30 Monday to Friday and only four full sized bikes are permitted on a service at any given time within a designated area. Space is also allocated on a first come first served basis and is at the discretion of the conductor. There is no reservation system in place.

Arriva Trains in Wales operate a slightly different service. Carriage of bikes is free, but a reservation system is available for services where seats are reservable; it is strongly recommended that bikes are reserved as far in advance as possible. On services where bikes cannot be reserved, admission is at the discretion of the conductor. One cycle related feature of some Arriva Trains is the presence of a bike symbol on carriage doors, which indicates the area where cyclists should board and place their bike in the designated area. This symbol is also present on some ScotRail train services though not all.

Great Western Railways operates train services between London and Wales and the West Country. Cycle carriage varies across its network, with services carrying between 2 and 6 bikes depending on the train – a useful customer-facing booklet sets out the number of cycle spaces per type of train (booklet is downloadable via <https://www.gwr.com/plan-journey/journey-information/on-board/cycles>). Reservations are mandatory on all High Speed Trains and on Night Riviera Sleeper services, whilst bike bookings cannot be made on some trains, for example those within the Reading area. Cycle reservations can be made in advance, either by phoning, via a local ticket office or online with ticket purchases. Bikes are not allowed on services arriving at and leaving London Paddington, and Reading, during AM and PM peak hours. The train operator advertises a local Brompton folding bike hire scheme at rail stations on-route, and bike repair services are available at selected stations.

5.3 Europe

There are many examples of rail operators carrying bicycles across Europe. A key difference between British and European operators (as well as operators outside of Europe) is that all operators reviewed as part of this study charge for the carriage of bikes. A very useful overview of bike carriage on trains in Europe is presented by the independent website, <https://www.seat61.com/bike-by-train.htm>.

The National Railway Company of Belgium (NMBS / SNCB) provides free carriage of folding bikes and a small charge of €5 per bike for a single trip or €8 for unlimited travel within Belgium for one day; this cost is in addition to a passenger ticket. Travel during peak hours is not discouraged but their website states that passengers may “travel more comfortably” with their bikes during off peak services. The operator also promotes the use of ‘Blue Bike’. The scheme is targeted at Belgian residents or frequent visitors to the country and allows people to rent a bike from over 50 stations to reach their final destination. Once registered, the scheme costs a €3 per bike per day.

Nederlandse Spoorwegen (NS) allows bikes to be transported in designated areas of the train but are not during peak hours (i.e. 06:30-09:00 and 16:00-18:30). A bike ticket is required, which costs €6.10 and can be purchased at ticket machines, service counters and other operator outlets. Further details are available at <http://www.holland-cycling.com/planning-your-trip/getting-around/rail>.

NSB in Norway offer a bike ticket to those wishing to travel with their bike. The fare for cycles is half the standard ticket price, up to a maximum of NOK 175, except on the Bergen Line in summer, from 18th May to 27th September, when there is a fixed

fare per bicycle of NOK 175. Bikes can be carried on all routes, and some require a reservation. Further information is available at <https://www.nsb.no/en/on-board/taking-luggage-on-board>,

Eurostar, from the UK to France and Belgium, carries a limited number of bikes and charges £30 each way. Bikes should be pre-booked to ensure they will travel on the same bike as the passenger. Availability and booking is via an email to EuroDespatch. Bikes can be carried fully assembled (limited spaces available for this) or partly disassembled and carried in a bike box provided by Eurostar. For last minute travel, and without a booking, a lower fee of £25 is charged although carriage on the same train as the passenger is not guaranteed. More information is available at <https://www.eurostar.com/uk-en/travel-info/travel-planning/luggage/bikes>.

5.4 Internationally

To gain a perspective from further afield, a brief review of bicycle carriage in New Zealand has been undertaken. As is the case with most operators in Europe, there is a cost attached to the carriage of bicycles on KiwiRail in the country; \$10 per bike, which are stored in the baggage carriage. Up to four bikes can be transported per train. Reserving a space is recommended, although no details are provided. Further details are available at <http://www.kiwirailscenic.co.nz/on-board/baggage-and-stowage/>.

Via Rail operates rail services across Canada. They carry up to 12 bikes per train, one per passenger, and bikes can only be carried on certain services listed on the company's website. Bikes are stored on bicycle racks within a baggage car. There is a fee of \$25 per direction of travel. If someone wants to bring a bike on a service outside of the listed services (and where there are no bike racks in a baggage car), the bike has to be dismantled and boxed, with the box purchased directly from the rail operator. Further details are available at <http://www.viarail.ca/en/bike>.

5.5 Bike hire related to train services

Bike & Go schemes are becoming more commonplace across the UK, whereby individuals register with the scheme and become eligible to unlock bikes at stations across the UK for hire. Bike & Go schemes currently operate at 11 stations in Scotland (including at Inverness) and at 59 other locations in England. Instances of other bike hire schemes operating in collaboration with rail companies / rail stations in other parts of the UK are less commonplace. However, examples include Lake District Cycling offering bike hire direct from Penrith Station in association with Virgin Trains²⁹.

Most stations in The Netherlands have a bike hire system. If in The Netherlands for a longer period of time, individuals can subscribe to the OV bicycle scheme (translated as Public Transport bicycle scheme); OV-bicycles can be hired at most train stations. Some of the smaller train stations have a self-service system, whereby you use a special pass to take the OV-bicycle out of a storage place or locker. Up to two bikes can be rented at a time with one pass. There is a nominal €0.01 fee for a seasonal pass, which is required before individuals can rent. The cost for hire for a 24 hour period is €3.85.

5.6 Summary

This brief review of approaches to bikes on trains in comparable areas suggests that:

- Carrying bikes on trains is generally possible but there are many examples of peak-time travel being discouraged, particularly on busy lines or in urban areas.
- Booking bikes on trains in advance appears to be common, and paying a small fee to carry bikes also appears to be relatively widespread.

²⁹ <http://www.lakedistrictcycling.co.uk/cyclehire.html>

6. Potential solutions to addressing demand for bikes on trains

6.1 Introduction

The main aim of this study has been to consider demand for cycle carriage on trains travelling on the West Highland Line. Whilst there is spare capacity on-board trains for bikes when the network is considered as a whole, it is clear there are instances during seasonal peak periods where demand is high for cycle carriage.

This section of the report therefore presents an initial review of potential options for tackling demand for cycle carriage on trains. It considers operational and rolling stock solutions, solutions linked to information and charging, and solutions to tackle demand for cycling in the region linked to the rail network. This is a complex area and the feasibility and cost of potential options to cope with peak demand should be considered in further detail in partnership with rail operators, as there are a number of competing demands on space within trains on the West Highland Line.

It should be noted this section of the report does not consider options for Caledonian Sleeper rolling stock specifically, in part due to the planned extra cycle capacity already planned for new rolling stock being introduced for those services.

6.2 Operational and rolling stock review

As part of this study, a review was carried out of the existing and proposed arrangements for ScotRail rolling stock on the West Highland Line, encompassing Glasgow Queen Street to Fort William, Crianlarich to Oban and Fort William to Mallaig. The context of this review is to consider bike transport provision and any amendments or alterations that could be made to permit a greater number of bikes to be accommodated on services.

In 2019, the Class 156 units will be replaced by Class 158s as part of the Scenic Trains roll-out. The latter currently have four reservable bike spaces. New legislation on Persons of Restricted Mobility requires a second disabled/wheelchair space to be provided in the area that provided the 3rd and 4th reservable bike spaces. Disabled users have priority use of the second disabled space and thus there is a potential 66% diminution in bike carrying capacity compared to the current situation.

It is assumed that trains will run as standard four car sets to Crianlarich and thereafter two car sets to Oban and Fort William. Trains to Mallaig will continue to be two car sets. It should be noted combined services have increased cars in the summer currently, with generally four continuing to Mallaig.

The current arrangement for bike transportation on Class 158 sets is shown below.



Figure 6-1: Bike storage on a Class 158

This arrangement constrains the number of bikes based on ensuring safe passage past the bike and the physical space available is limited by the bulkhead dimensions. The number of bikes capable of being safely secured on the “Calyx” storage system is normally two, although units have been observed (anecdotally) carrying three cycles with luggage removed.

6.3 Consideration of options for additional bike carrying space

There are number of options to enhancing bike storage that range in both complexity and cost, and are discussed below. These options have been based on:

- Technical expertise within AECOM.

- Engagement carried out for this study.
- A high-level review of practice elsewhere carried out for this study.

6.3.1 Option 1: Re-design existing Class 158 bike storage arrangements

Anecdotally, some passengers in the region report that some current trains on the WHL carry more bikes on-board than the formal limit. This may be down to the discretion of the conductor in some cases, and may involve informal bike parking arrangements at various points in the train, or additional bikes being fitted into the existing space. It is hard to conclude from the on-board count research for this study if this is definitively the case, though it is possible it is happening on occasion.

In light of this, the space proposed on Class 158s could be reviewed to see if more bikes can be stored than previously thought, and conductors could be trained on how to deal with additional bikes being brought on board to ensure consistency across all services. That said, ScotRail have advised that a thorough review of this issue has been undertaken in 2016. The need for luggage space, seat numbers and wheelchair spaces means there is no easy solution. Furthermore, whilst informal bike carriage (with no prior reservation) has been observed during surveys for this study, it is surmised that passengers need guaranteed spaces on the whole and the certainty of getting their bike on-board. In addition, any changes to the design of 158s would affect all such units across Scotland as they operate as a common / interchangeable fleet.

One option to maximise the existing available space is to adopt the Class 156 model, where bikes would be stored vertically rather than horizontally. This model is not uncommon in Europe.



Figure 2-2: Vertical bike storage

Fold down seating could be maintained or removed to create additional bike spaces. However, this would lead to loss of seat capacity and may not lead to significantly more bike spaces (potentially one or two additional spaces). It would therefore need further investigation in terms of financial feasibility and public acceptability, particularly as it is understood summer services carry higher levels of passengers on this line. This option is considered to be in the low range of costs to implement.

6.3.2 Option 2: Removal of seats to create further bike spaces

Austrian Railways have implemented a scheme whereby seating is removed to create further bike spaces in dedicated areas of the coach. This is illustrated below:



Figure 3-3: Austrian Railways bike transportation solution

The Austrian model would provide an opportunity to use the Class 158 seating configuration, although it should be noted this study has not considered passenger capacity or occupancy on West Highland Line trains. A number of two seat facing or trailing combinations could be utilised to provide the bike storage. As an additional consideration utilising this with the vertical storage would provide a greater number of spaces over a smaller footprint. That said, the design of class 158s (sloping sides) may make alternative bike configurations difficult to deliver. The cost of conversion would not be prohibitive but would have to be weighed up against the costs of any reduction in seat capacity and the commercial impacts this would have, alongside public acceptability issues amongst non-bike carrying passengers.

6.3.3 Option 3: Retention of existing Class 156 rolling stock on West Highland Line

Whilst not thought to be a viable solution at the time of writing this report, the retention of the existing Class 156 rolling stock on the West Highland Line would ensure that the existing cycle capacity remains the same. This option would require a change to the current franchise contract where existing Committed Obligation 7.1 refers to Refurbishment of Class 158 Rolling Stock and contains specific reference to the use on Scenic Trains (which will operate on the West Highland Line) and the Highland Rural Lines. It should be noted though that ScotRail plans to introduce 158s as part of the roll-out of Scenic Trains on this line.

6.3.4 Option 4: Dedicated bike vehicle

Transporting bikes as unaccompanied luggage in a dedicated vehicle is an option for consideration. The option of dedicated bike vehicles on train services linked to cycle tourism has been raised in the Scottish Government's Programme for Government (2017)³⁰. Rather than utilise a freight vehicle, consideration should be given to the conversion of suitable rolling stock, for example 153 sprinter units that will be shortly available to provide this facility. The use of such a vehicle may require additional station dwell time included in stopping patterns at stations to allow unloading and loading of the bikes. 153 units are currently gauge cleared for the routes under review and infrastructure changes are therefore considered unnecessary but will require confirmation.

Consideration could also be given to a bike van utilising a freight vehicle. Changes to coupling and brake pipe arrangements would be required as well as additional operating time however. This option may also be restricted by platform length on-route and would again impact on station dwell-times to load and off-load bikes.

The development design and implementation of this proposal is considered to be in the medium to high range of cost options.

6.3.5 Option 5: Expansion of proposed HST (2+5) trains to WHL

It is the intention to introduce HST in a shortened formation on the Perth to Inverness and Aberdeen to Inverness lines of route. In general, these trains will have cycle carrying capacity in power cars and saloons. These trains could be available for use on the WHL.

However there are a number of infrastructural and logistical issues that would require to be addressed in this option, including:

- Confirmation of what bike space will be available on HSTs;
- Confirmation that station platforms could accommodate the full train (probably not an issue but worthy of confirmation);
- Confirmation that RETB radio sets and antenna can be fitted to HSTs without introducing EMC issues;
- That sufficient RETB radios are available for fitment; and
- Training of drivers and conductors on HST operation.

It is also unlikely that HSTs would be available for use elsewhere in the Scottish rail network outside of weekends, and Sundays in particular when service frequency will be less and some spare capacity may be available. Sunday only use on the WHL would not offer a substantial improvement for those carrying bikes, as demand for bike carriage tends to extend across the weekend, and into Fridays and Mondays.

³⁰ Ibid

6.3.6 Option 6: Removal of toilet facilities from 158 units

Whilst the removal of a toilet facility to create additional bike space on-board 158 trains is considered as a possible option in this study, there is likely to be significant public acceptability issues if it involves the loss of a toilet facility on a journey that can take up to 5.5 hours. The resilience of the service would also be affected if restricted to only one toilet facility on some journeys. Furthermore, it may be challenging in the context of promoting the line to visitors and tourists who may expect higher quality and comfort. It is unlikely to receive support from passengers or stakeholders, and is not considered to be a viable solution.

6.4 Supporting rail-cycle interchange solutions

6.4.1 Option 7: Movement of surplus bikes by road transportation

The movement of bikes by road following the train is not considered ideal unless the bikes are transported the day before and deposited in secure storage at the train station or other agreed point. On the day transportation would be challenging due to the mileage and classification of roads with the risk of train and road vehicle being several hours out of synchronisation. That said, on-road transport of bikes is currently offered by Serco for surplus bike bookings on the Caledonian Sleeper from London to Scotland.

One solution could be previous day delivery. Costs for the operator (and potentially the user) would be associated with the provision of storage facilities and vehicles. The arrangement would require bikes to be booked into the service 24 to 48 hours prior to travel. This is not considered to be high cost arrangement, though clearly has disadvantages in terms of the environmental cost of road-borne transport.

6.4.2 Option 8: Bikes on buses, and special bike buses

There are currently examples of bikes being carried in the luggage compartments of coach and bus services in parts of Scotland, including along the west coast. The HITRANS pilot cited in Section 4 above provides bike bags to enable integration between bikes and public transport. Bikes are treated as luggage, and often have to be packed into a specific bike bag before being stored in the general luggage area underneath buses. West Coast Motors provides such a service

In addition, there has been an example of a specific bus running with a trailer dedicated to bikes in the Loch Lomond area in recent years³¹. A bike bus with space for 16 passengers and up to 12 bikes ran between Balloch and Ardgarten, connecting with train services at Balloch and Arrochar. The service was supported with funding from Transport Scotland's Bus Investment Fund and was run by a commercial operator on behalf of Argyll and Bute Council and SPT.

It is understood this service no longer operates (at time of writing in summer 2017). This kind of service however could be an option to cope with peak demand for cycle carriage on certain lines during the summer months, in particular for services to Oban which appear to be in demand. Such a solution would be supplementary to bikes on trains, as opposed to a replacement.

6.4.3 Option 9: Discounted bike hire

ScotRail currently subsidise bike hire from a local bike hire operator in Oban for ScotRail passengers. This model could be expanded upon to other areas, though financial sustainability would need to be explored. Greater promotion of the existing bike hire discount with a rail ticket is advised, as consultation with stakeholders during the study suggested it was not well known about.

Given the current nature of demand for bikes on trains, as highlighted in the on-board surveys, any bike hire linked to rail travel may need to consider the types of bikes on offer. There is clearly a high demand for use of touring bikes in the region by current rail-cycle travellers, and it is not clear if this kind of bike is widely available in local cycle hire options.

6.5 Information and charging

6.5.1 Option 10: Charging for cycle carriage

Several elements of this research suggest that charging passengers a fee to carry bikes on trains may be an option worthy of consideration by ScotRail on the WHL and Caledonian Sleeper services in the future. Engagement with some

³¹ <https://www.argyll-bute.gov.uk/news/2015/jul/bike-bus-boost-cyclists>

stakeholders, including rail interest groups in the region, suggests there may be support locally for this option but only if it guarantees a space for bikes on trains, and a quality space at that. The on-board survey showed that the majority of respondents agreed this would be prepared to pay a fee, potentially up to £10 (though most indicated up to £5) for ScotRail passengers and up to £30 for Caledonian Sleeper passengers. This differential may be proportional to how much an individual has paid for their ticket. It should be noted however that under current rail franchise agreements in Scotland, it is not possible for the franchisee to change charging arrangements for reserving a cycle without consent from Transport Scotland.

The review of practice elsewhere (see Section 5) shows that outside of the UK, charging for cycle carriage is relatively commonplace. Fees vary but are generally around a value of £10.

If a fee were to be charged however, there are a number of issues that would have to be addressed:

- The extent of informal cycle carriage on board without a booking would need reviewed, as free carriage by those boarding without booking in advance would not be fair to passengers who have paid a fee. On-board conductors may have to play a greater role in enforcement.
- There still needs to be space available for bikes on trains in the first place, and the potential reduction in cycle spaces in Class 158s on the WHL is problematic in this regard.
- Passengers may have higher expectations of a reasonable space to store their bike securely during their journey if they are paying for it.
- As noted above, the rail franchisee must seek consent from Transport Scotland for changes to charging arrangements. Furthermore, charging for bikes on trains goes against the UK norm of free cycle carriage.

6.5.2 Option 11: Information on cycle spaces on board

There seems to be a common, public perception that there are only six cycle spaces available on trains on the WHL (with reference to cycle lobby group online discussions). However, data from ScotRail made available during this study shows that some trains are leaving Glasgow Queen Street with up to 18 cycle spaces on board as far as Crianlarich, and trains going to Fort William and Mallaig sometimes have up to 12 on board (Oban generally has only six). This is due to the formation of train services from two-car units, each with six cycle spaces.

In an age of intelligent mobility and open source data, it is advised that consideration be given to a system that provides updated information on the number of bike spaces available per service. As many currently book in advance (from analysis of ScotRail data and the fieldwork for this research), it is suggested that the number of cycle spaces on board is clearly displayed on the ScotRail ticket booking site alongside each service.

In addition, it may be worthwhile considering real-time information on the number of un-booked cycle spaces on board each train alongside real-time information on train arrivals and departures, at least online, though this may not be feasible at stations due to the need to re-configure information on screens.

Finally, finding a space for a bike on-board a rail service could be part of an intelligent mobility / Mobility as a Service (MaaS) solution which combines multiple datasets and systems for a user-friendly website and app to help people make sustainable travel choices, as well as flexible payment options. Such a system could potentially even use crowd-sourced data from rail travellers already on board who identify space cycle spaces on their train.

6.6 Summary of options

A summary of the options to cope with peak demand are presented in the following table. It is not the role of this study to recommend preferred solutions, but it is likely a combination of options could be explored further. Moreover, it is important that the best solution for all customers is considered within the challenging context of commercial rail operations.

Table 6.1. Summary of all options considered in this section to cope with cycle carriage demand

Option	Public acceptability?	Technical feasibility
Option 1: Re-design existing Class 158 bike storage arrangements	May be well-received if creates additional bike spaces, though some people may struggle physically to life bikes vertically and this may act as a deterrent.	Re-configuration so broadly feasible though may not significantly increase no. of bike spaces. Should be noted any change would have to done across whole 158 fleet operating across Scotland.

Option	Public acceptability?	Technical feasibility
Option 2: Removal of seats to create further bike spaces	Could be negative reaction, particularly as WHL is a scenic line with an expectation of quality. Could impact on growth in patronage and be detrimental to tourism and economic growth aspirations.	Removing rather than constructing so broadly feasible. However, if removal of seats for bikes, could be loss of revenue and quality experience for non-bike carrying passengers.
Option 3 Retention of existing rolling stock (Class 156s)	May be well-received.	Existing rolling stock so no issues.
Option 4: Dedicated bike van / carriage	May be well-received if creates additional bike spaces.	Technical challenges potentially.
Option 5: Expansion of proposed HST (2+5) trains to WHL	Clarification would be needed on the number of cycle spaces available on HSTs	Technical challenges. Confirmation required as to any infrastructure changes required and fitment costs for RETB. Uncertainty over availability of sets.
Option 6: Removal of toilet facilities	Could be negative reaction, particularly as WHL is a scenic line with an expectation of quality.	Technical challenges potentially, very unlikely to be acceptable.
Option 7: Movement of surplus bikes by road transportation	Could be supported if does not impact upon the passenger experience (i.e. a seamless experience with no delay in obtaining bike upon arrival at destination).	Logistical challenges, passenger inconvenience and wider environmental costs.
Option 8: Bikes on buses, and special bike buses	Could be supported if it creates more bike space though this option may only suit specific needs and journeys.	Deliverable but may struggle to be financially viable.
Option 9: Discounted bike hire	Could be increasingly popular with visitors, though may not be a popular alternative for those who already have expensive and / or specialist bikes and wish to take them to the region to use.	Deliverable and existing example of discounted bike hire with ScotRail ticket, though accountability risks associated with financially supporting private businesses and limited control over quality.
Option 10: Charging for cycle carriage	Research for this study suggests this may be an acceptable option, though users may expect enhanced quality of service.	Likely to be relatively easy to do via existing booking systems. Administrative costs set against any potential revenue. May require investment in better cycle carriage facilities to ensure people feel the payment is worthwhile (as evidenced by survey work for this study). Requires government consent.
Option 11: Information on cycle spaces on board	Likely to be welcomed by the public and users.	Technical challenges in how to keep this information up to date in the public view – potentially best as part of a broader mobility package for the region.

7. Conclusions

This study has aimed to take an evidence-based view of demand for carriage of bikes on West Highland Line trains. Both ScotRail train services from Glasgow to Oban / Fort William / Mallaig, and Caledonian Sleeper services to Inverness and Fort William, have been considered in this study.

Key findings from the study are as follows:

- The ScotRail booking data analysed for this study suggests there is spare capacity for bikes on trains when the network is taken as a whole. However, scrutiny of individual services suggests there are particularly busy services, and services to Oban and Crianlarich are more regularly fully booked with bikes than other journey legs.
- Demand is highly seasonal, and surveys for this study (undertaken in July 2017) suggest people carrying bikes on the ScotRail and Sleeper services at this time are largely cycle tourists. The survey work appears to suggest rail+bike passengers are more likely to be male with relatively expensive bikes, and touring bikes as opposed to everyday bikes. The median stay for ScotRail passengers interviewed was between seven and ten nights, and it can therefore be assumed there is a reasonable economic contribution occurring from these trips (in terms of food and accommodation). It does suggest these lines have a particular and unique role in terms of tourism and the economy, and solutions for bike carriage therefore need to reflect this.
- Notwithstanding the spare capacity suggested by the ScotRail cycle booking data, survey work with passengers suggests there is a substantial amount of informal cycle carriage happening. It is possible the booking data may understate actual demand.
- Should cycle spaces reduce by up to two-thirds on ScotRail services on the WHL, as has been advertised with the change to rolling stock on this line, the proportion of journey legs on one of the busiest journey legs for cycle bookings, Crianlarich to Oban, where demand would exceed supply based on current booking figures could be 15% of legs (as context, some 4% of journey legs on this section are currently fully booked).
- New Caledonian Sleeper rolling stock will see an increase from six to ten cycle spaces on-board. This may reduce the use of the road courier service to an extent, although there may still be regular instances of surplus bikes on the Highland Sleeper between Euston and Inverness during the summer peak, and to a lesser extent, on the Euston – Fort William route.
- There seems to be a reasonable appetite to pay for cycle carriage by rail passengers. This appears to be in proportion to the fare they have paid for their ticket, but some have made the point they would expect good quality in return and a guaranteed space.

A number of possible options have been considered to deal with excess demand, which are infrastructural and operational in nature. It is recommended that these are explored in further detail to assess feasibility and deliverability:

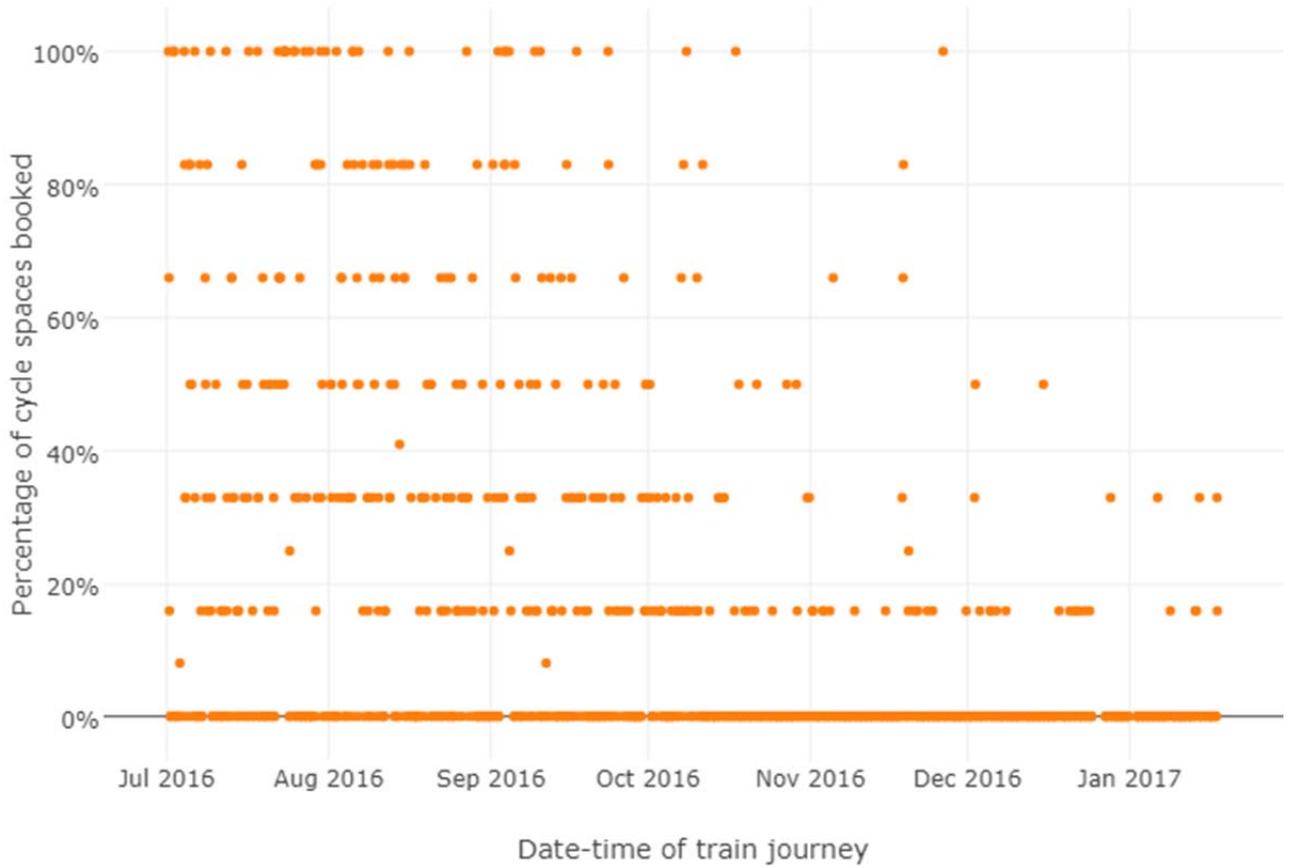
- The re-design of proposed Class 158 rolling stock to accommodate more cycle spaces or the retention of existing Class 156 rolling stock; and the potential for dedicated cycle carriages.
- Further work to promote bikes on buses, and even potentially dedicated “bike buses”.
- More formal partnerships between rail operators and local bike hire operators to give discounted bike hire for rail passengers.
- A review of cycle reservation systems to allow passengers to see how many bike spaces are available on-board their requested service. Such information could also be part of a wider Mobility as a Service approach in the future in the West Highlands.
- Improved communications and training of staff to ensure consistency and clarity of information on bikes on trains. Despite reservations being required on most WHL services, there is clearly flexibility already being shown by ScotRail and Caledonian Sleeper staff in terms of passengers bringing bikes without a reservation, and this may be currently working in the interests of passengers which is positive. That said, this flexibility may raise expectations of future passengers and may be unmanageable in the long-term if demand increases. It does suggest however there is potentially more space for bikes being found on trains than is formally advertised.

Appendix A Cycle capacity graphs (by month)

This Appendix presents analysis of cycle bookings per journey leg as contained within six months of ScotRail reservation data (July 2016-January 2017). Station names are as follows:

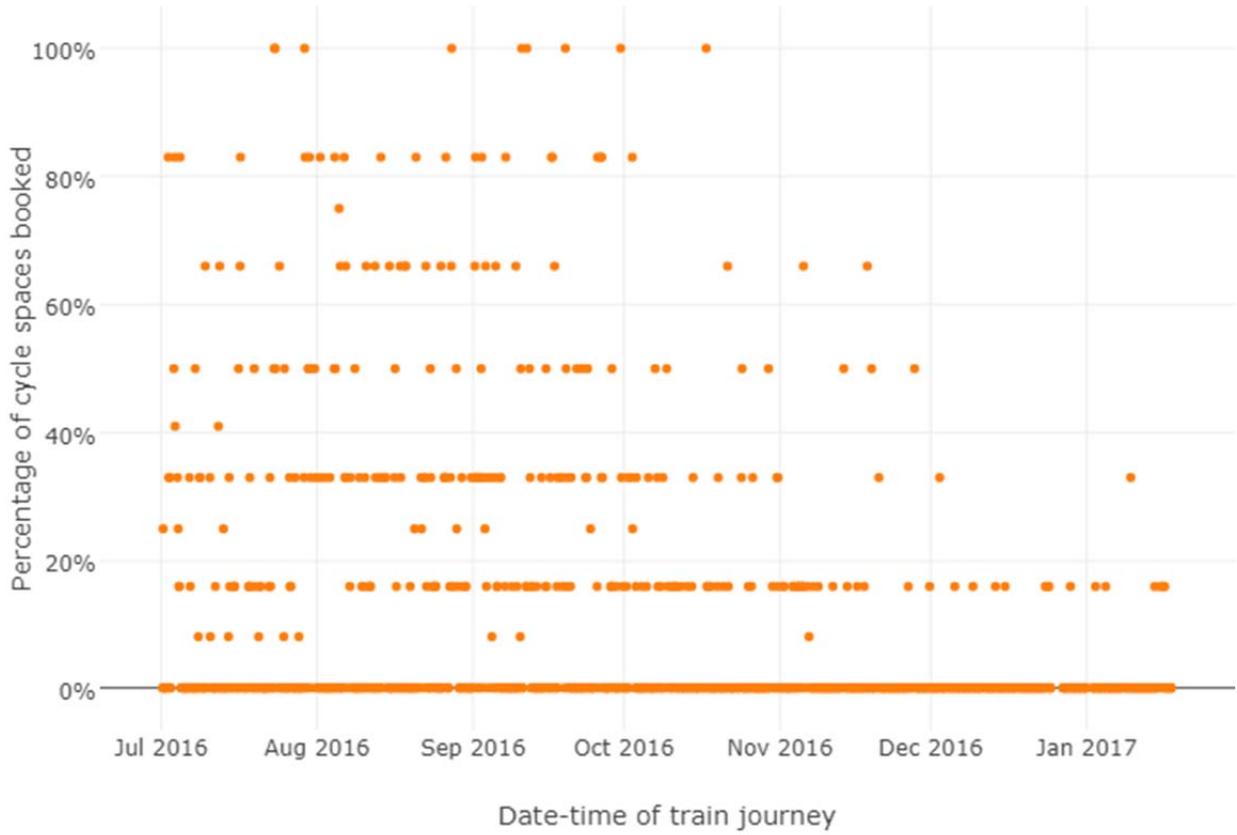
- GLQ = Glasgow
- CNR = Crianlarich
- OBN = Oban
- FTW = Fort William
- MLG = Mallaig
- GLF = Glenfinnan

GLQ-CNR



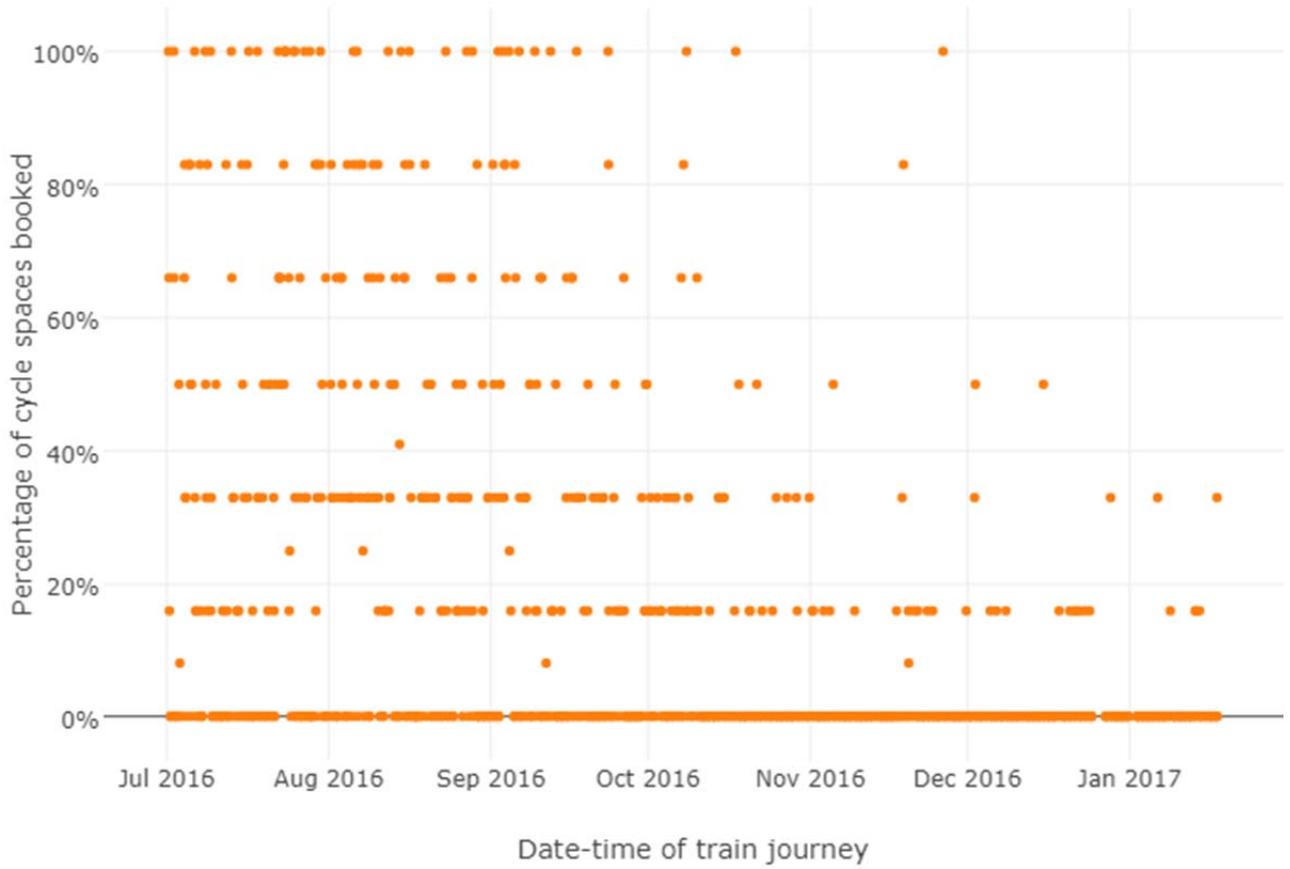
Percentage of cycle spaces booked	Frequency
0	604
8	2
16	102
25	3
33	80
41	1
50	45
66	31
83	30
100	38

CNR-GLQ



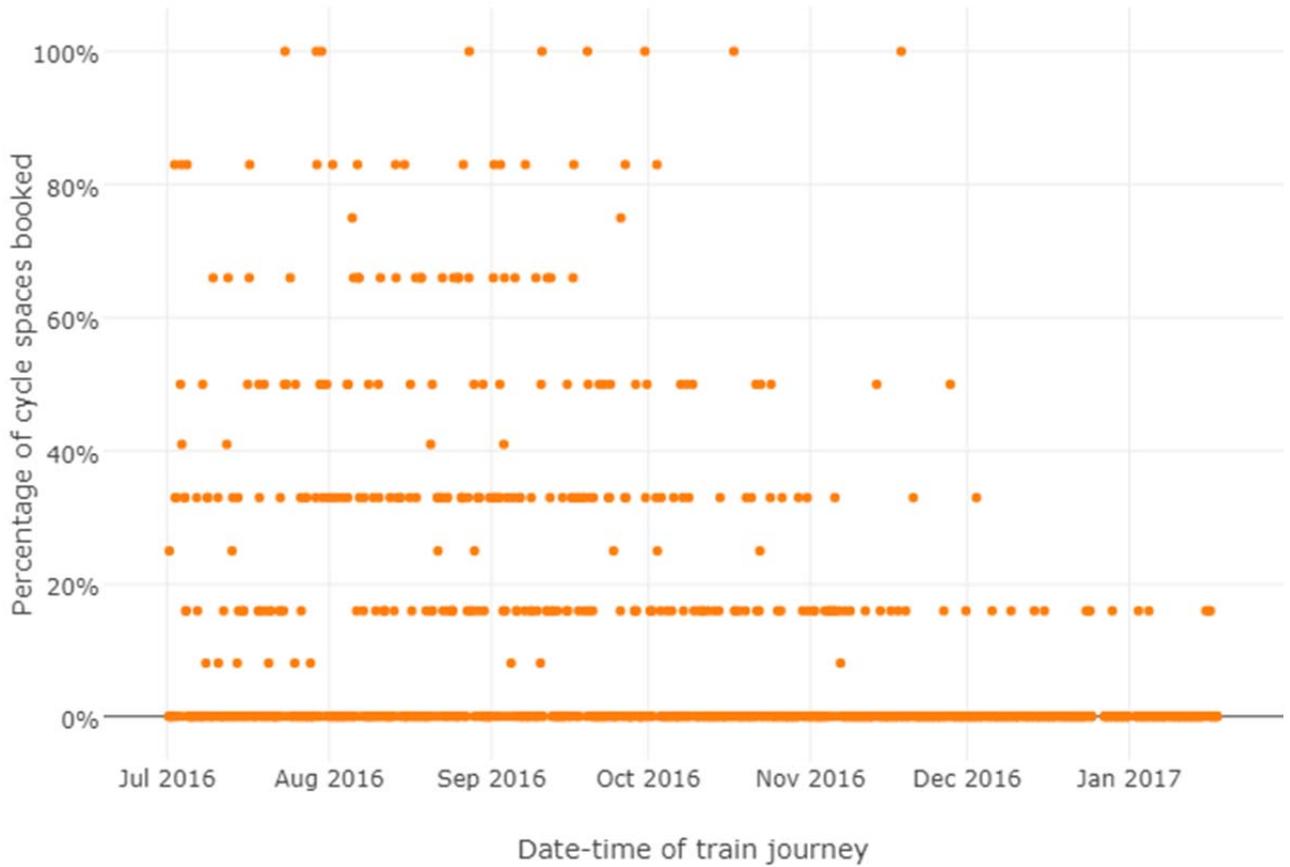
Percentage of cycle spaces booked	Frequency
0	804
8	9
16	117
25	9
33	79
41	2
50	33
66	23
75	1
83	21
100	9

CNR-OBN



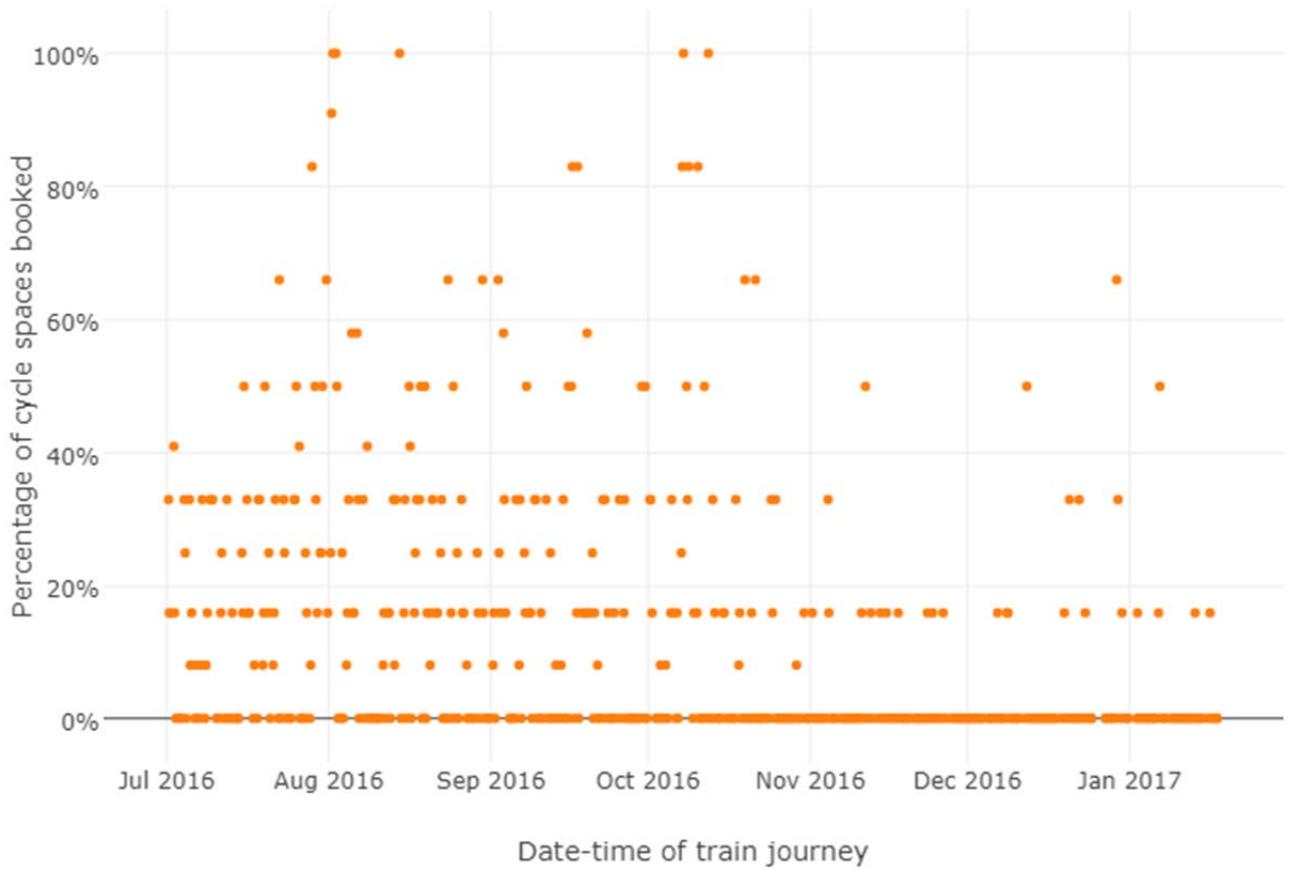
Percentage of cycle spaces booked	Frequency
0	611
8	3
16	97
25	3
33	90
41	1
50	41
66	33
83	30
100	36

OBN-CNR



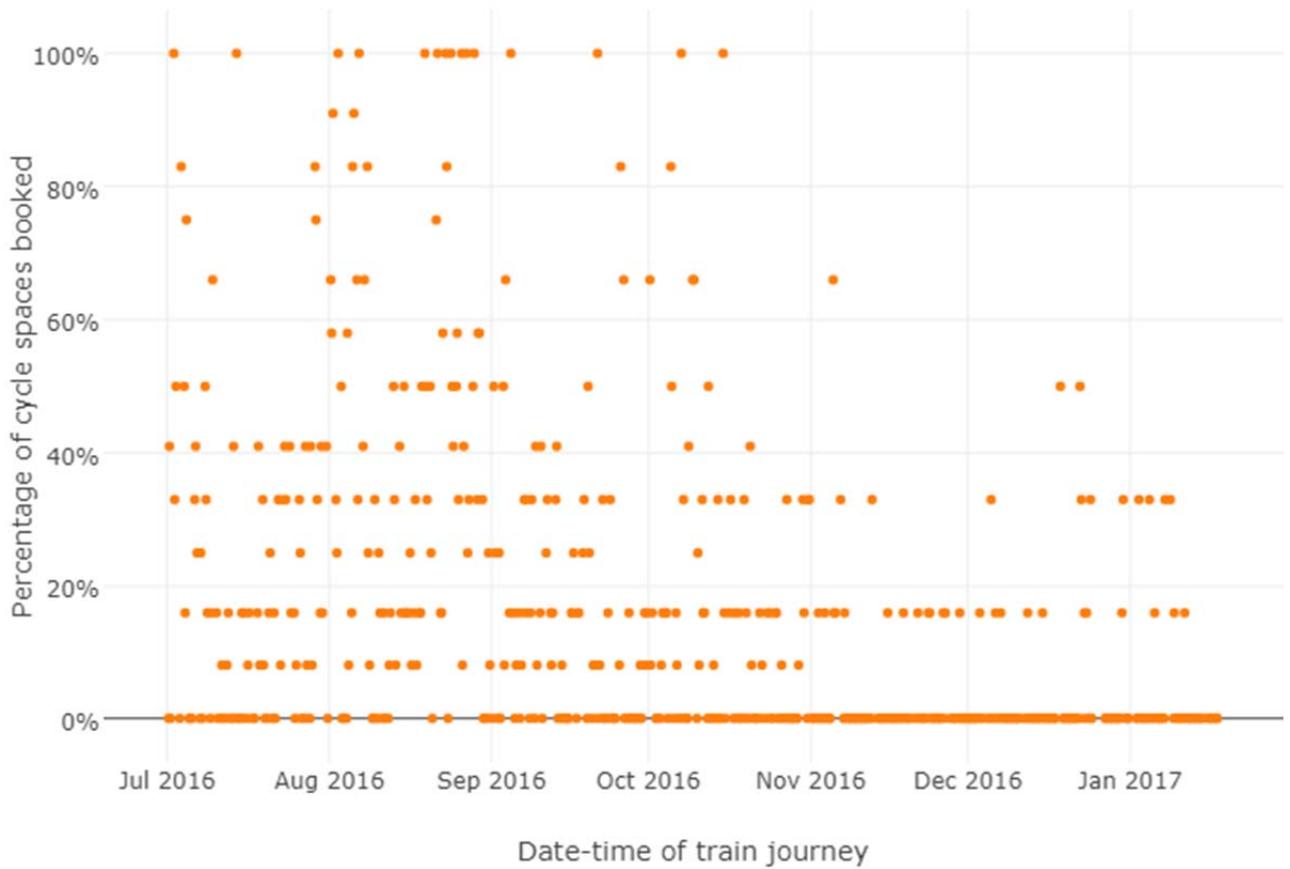
Percentage of cycle spaces booked	Frequency
0	803
8	9
16	117
25	7
33	87
41	4
50	38
66	24
75	2
83	16
100	9

GLQ-FTW



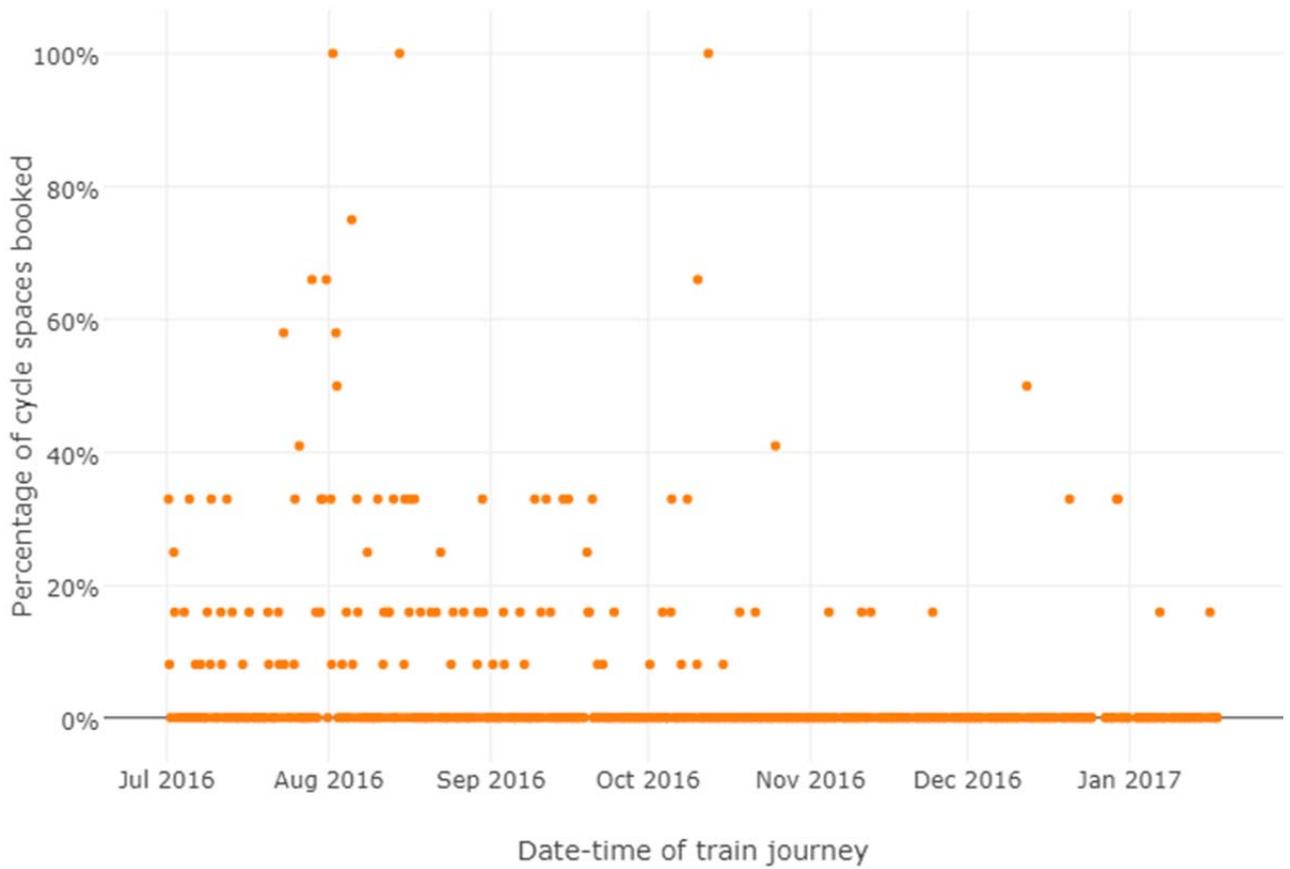
Percentage of cycle spaces booked	Frequency
0	337
8	22
16	82
25	19
33	50
41	4
50	20
58	4
66	8
83	6
91	1
100	5

FTW-GLQ



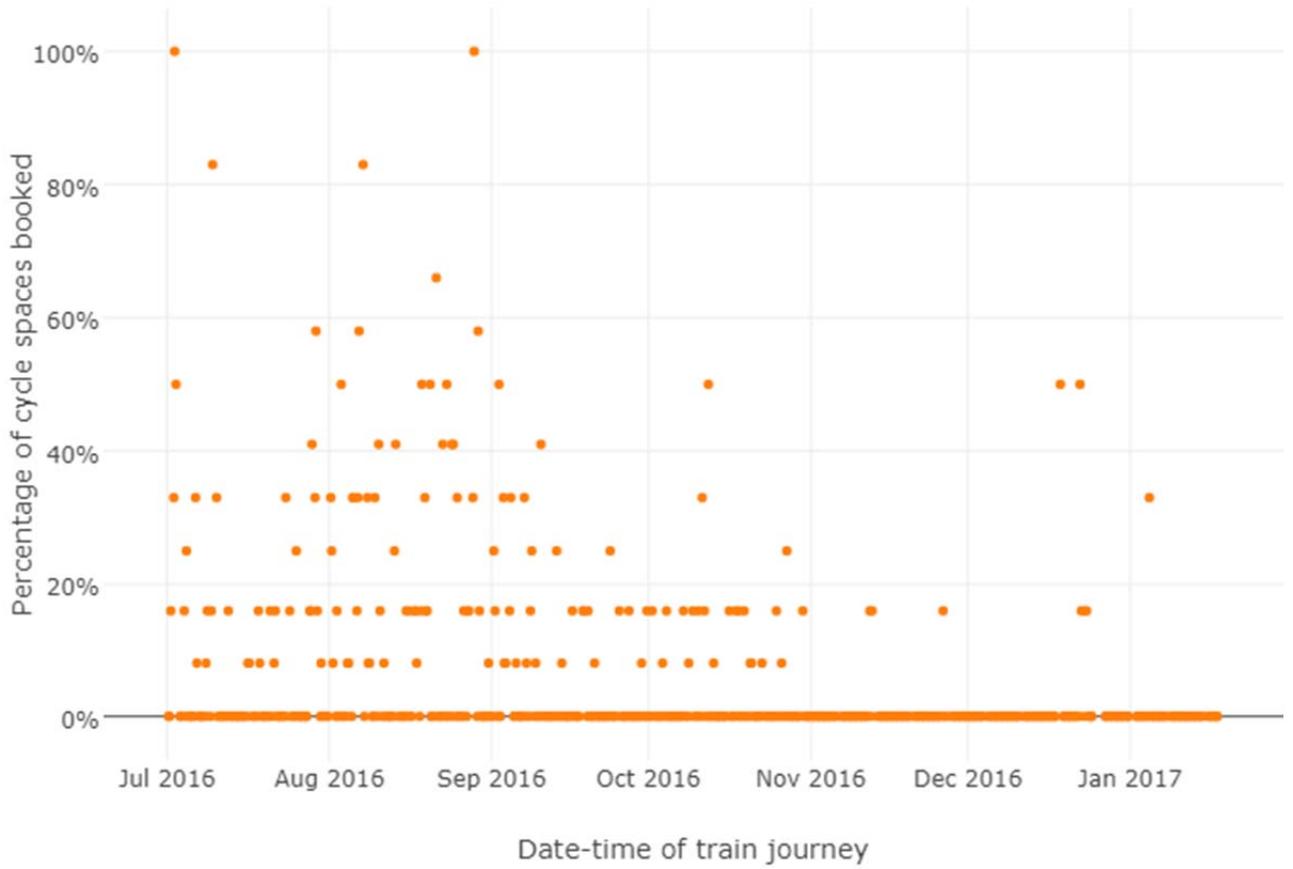
Percentage of cycle spaces booked	Frequency
0	288
8	38
16	86
25	18
33	47
41	19
50	19
58	6
66	10
75	3
83	7
91	2
100	15

FTW-MLG



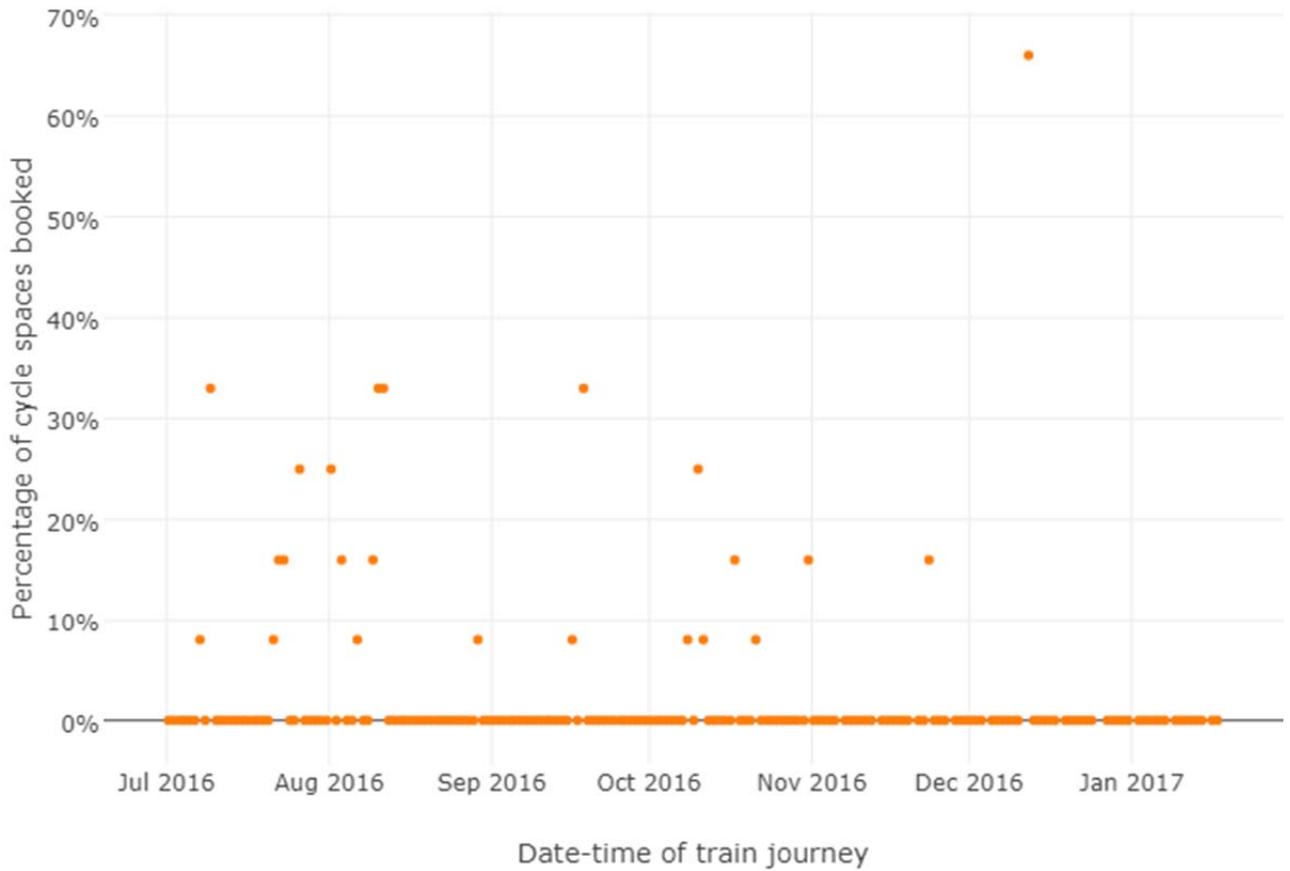
Percentage of cycle spaces booked	Frequency
0	450
8	26
16	40
25	4
33	25
41	2
50	2
58	2
66	3
75	1
100	3

MLG-FTW



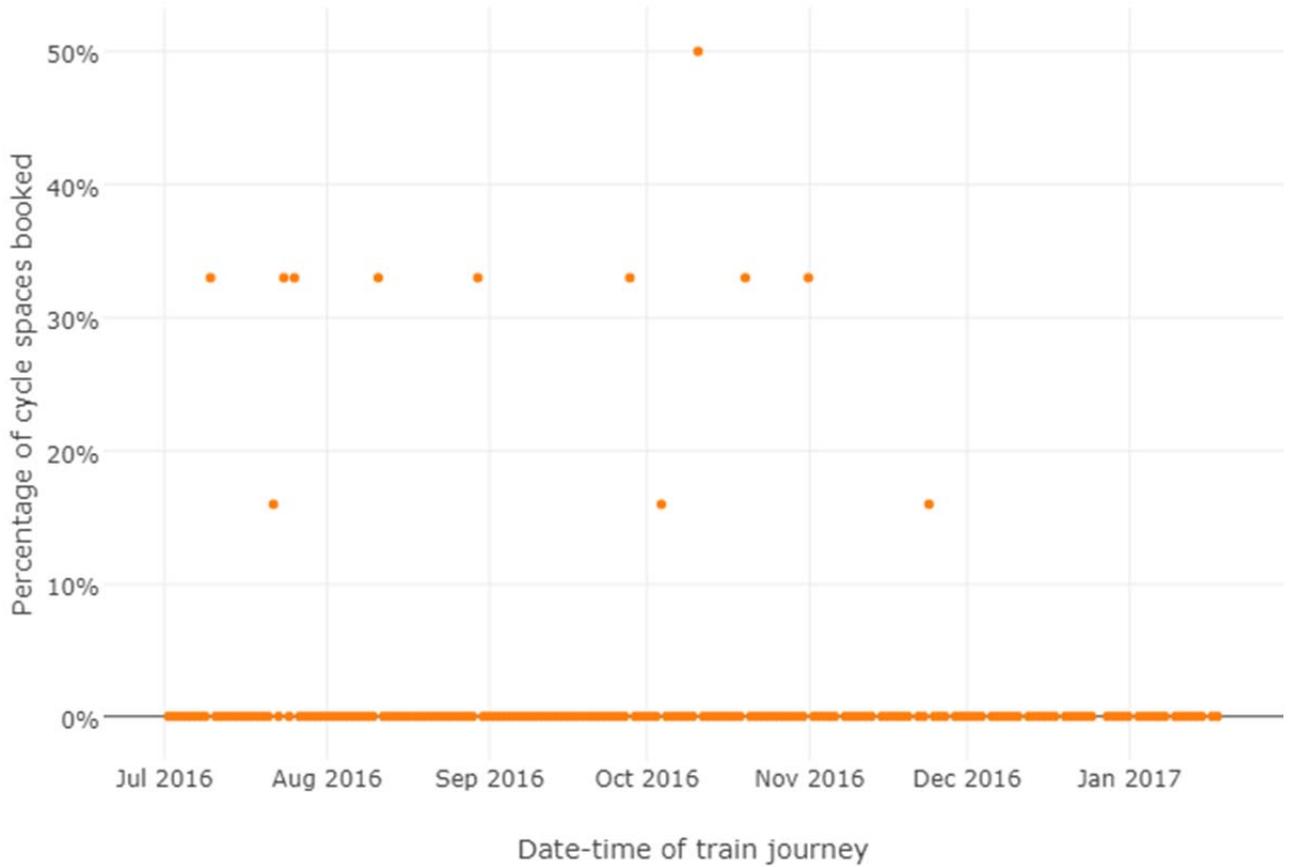
Percentage of cycle spaces booked	Frequency
0	422
8	30
16	54
25	9
33	19
41	7
50	9
58	3
66	1
83	2
100	2

FTW-GLF



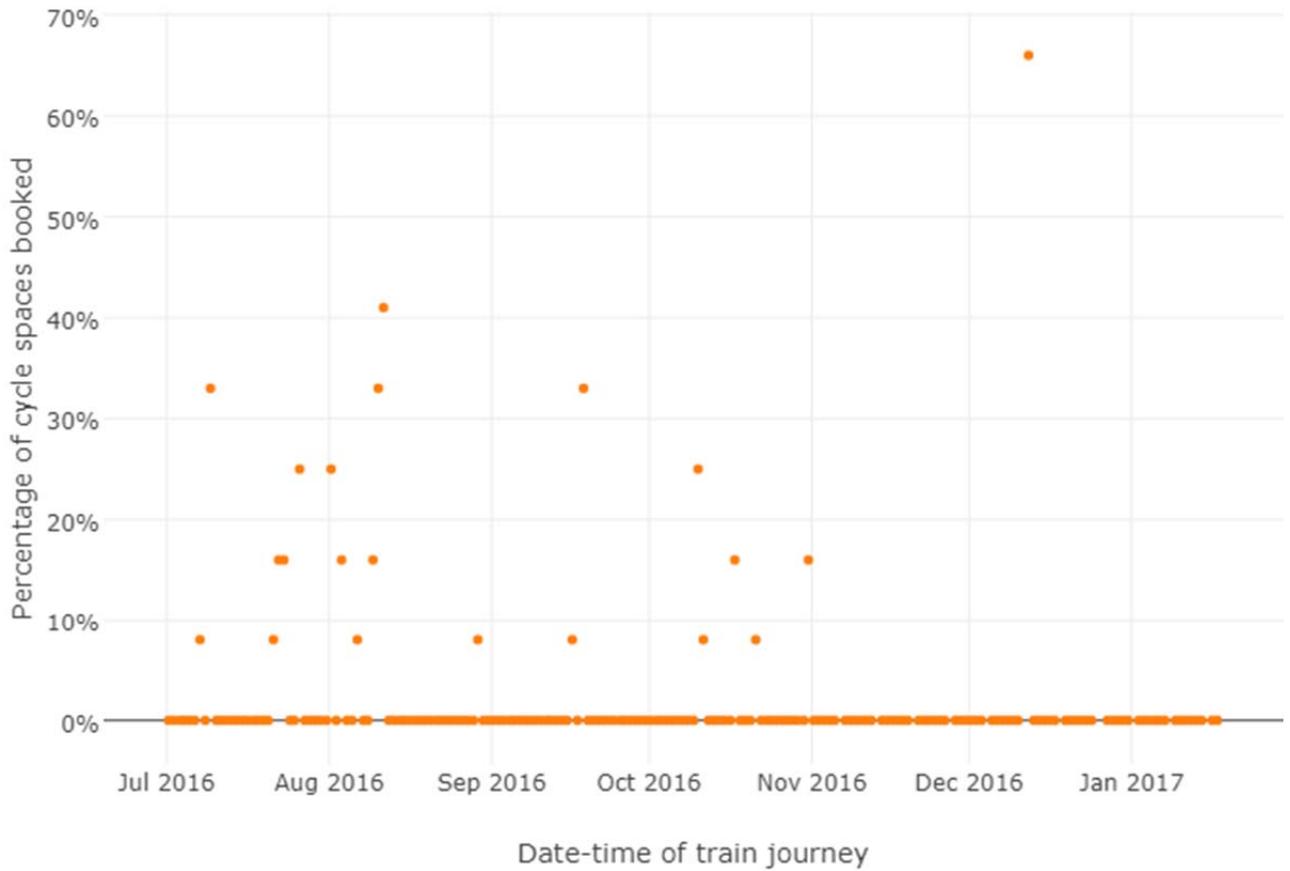
Percentage of cycle spaces booked	Frequency
0	166
8	8
16	7
25	3
33	4
66	1

GLF-FTW



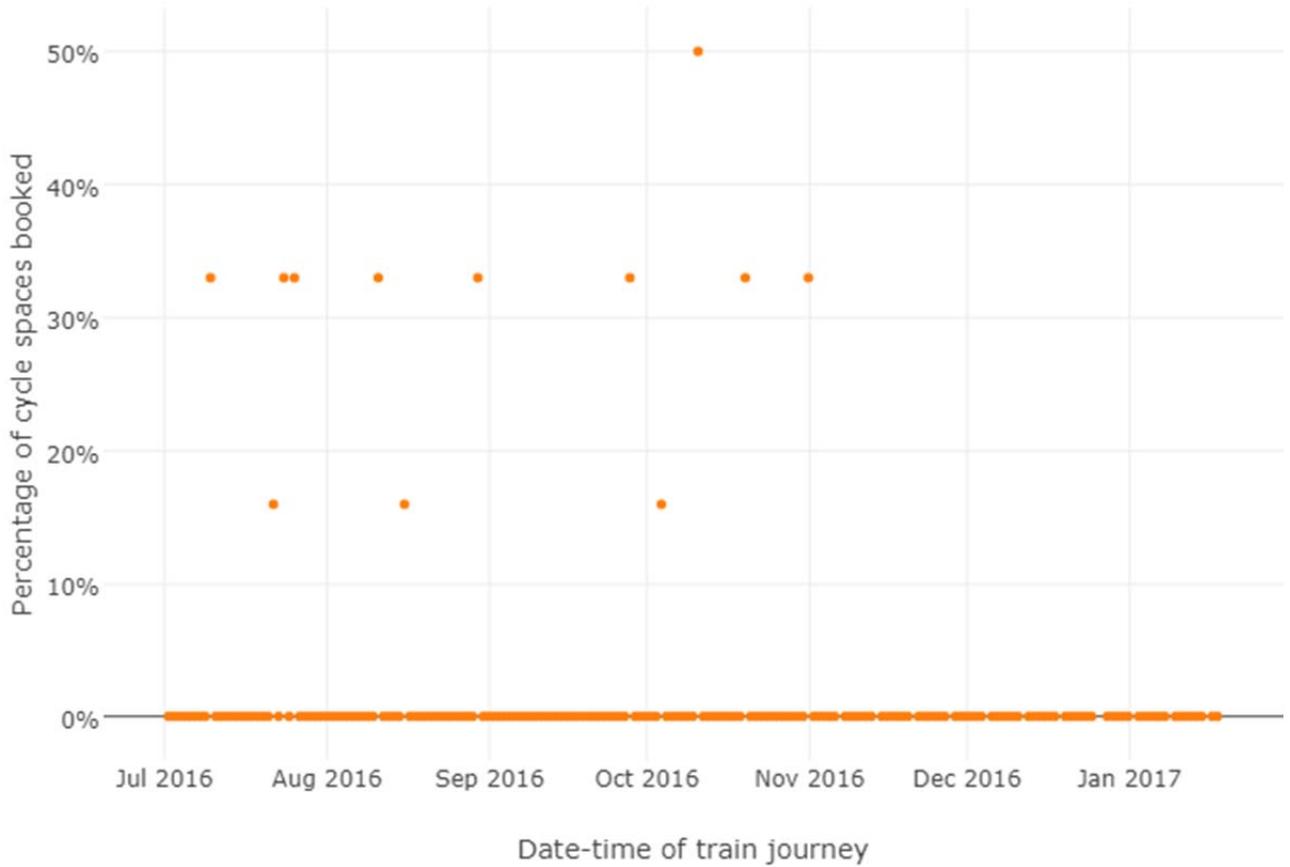
Percentage of cycle spaces booked	Frequency
0	177
16	3
33	8
50	1

GLF-MLG



Percentage of cycle spaces booked	Frequency
0	168
8	7
16	6
25	3
33	3
41	1
66	1

MLG-GLF



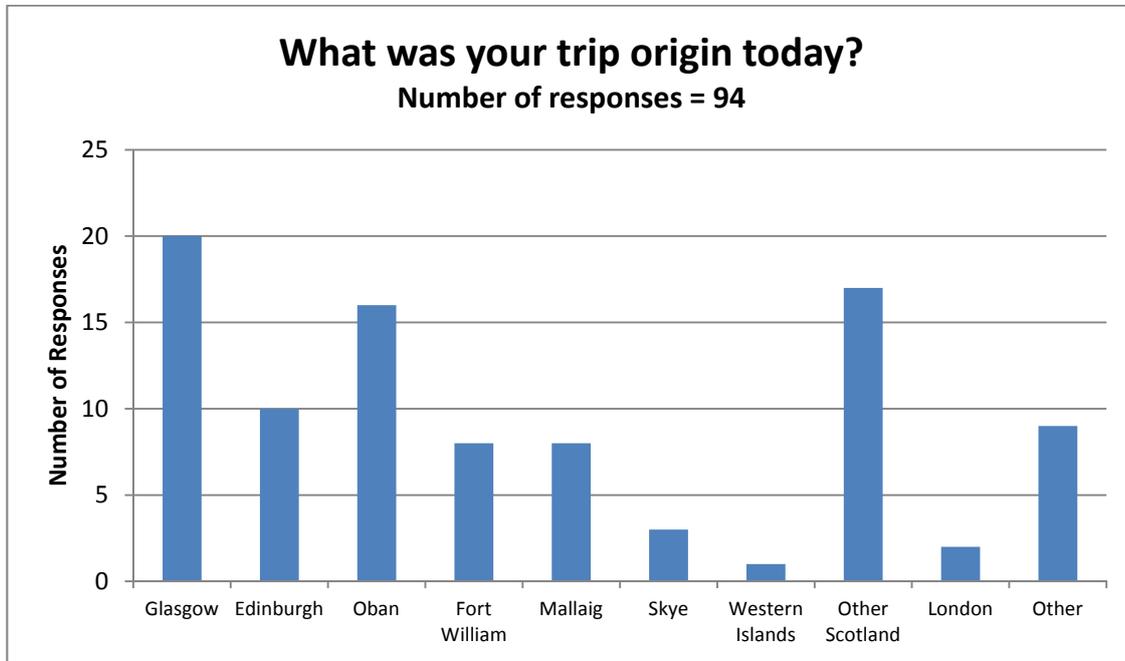
Percentage of cycle spaces booked	Frequency
0	177
16	3
33	8
50	1

Appendix B On train survey

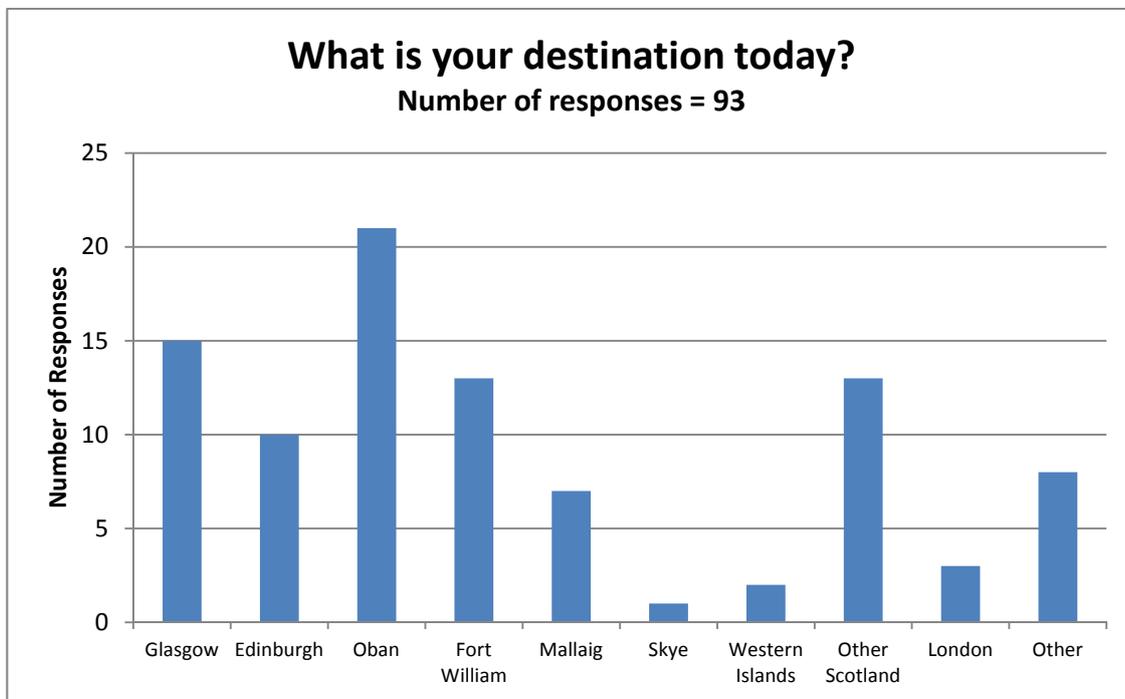
This Appendix presents further detail of the UHI survey of bike-carrying passengers on the West Highland Line, carried out on-board trains during three days in early July 2017.

West Highland Line ScotRail Survey Responses

Q1) What was your trip origin today?

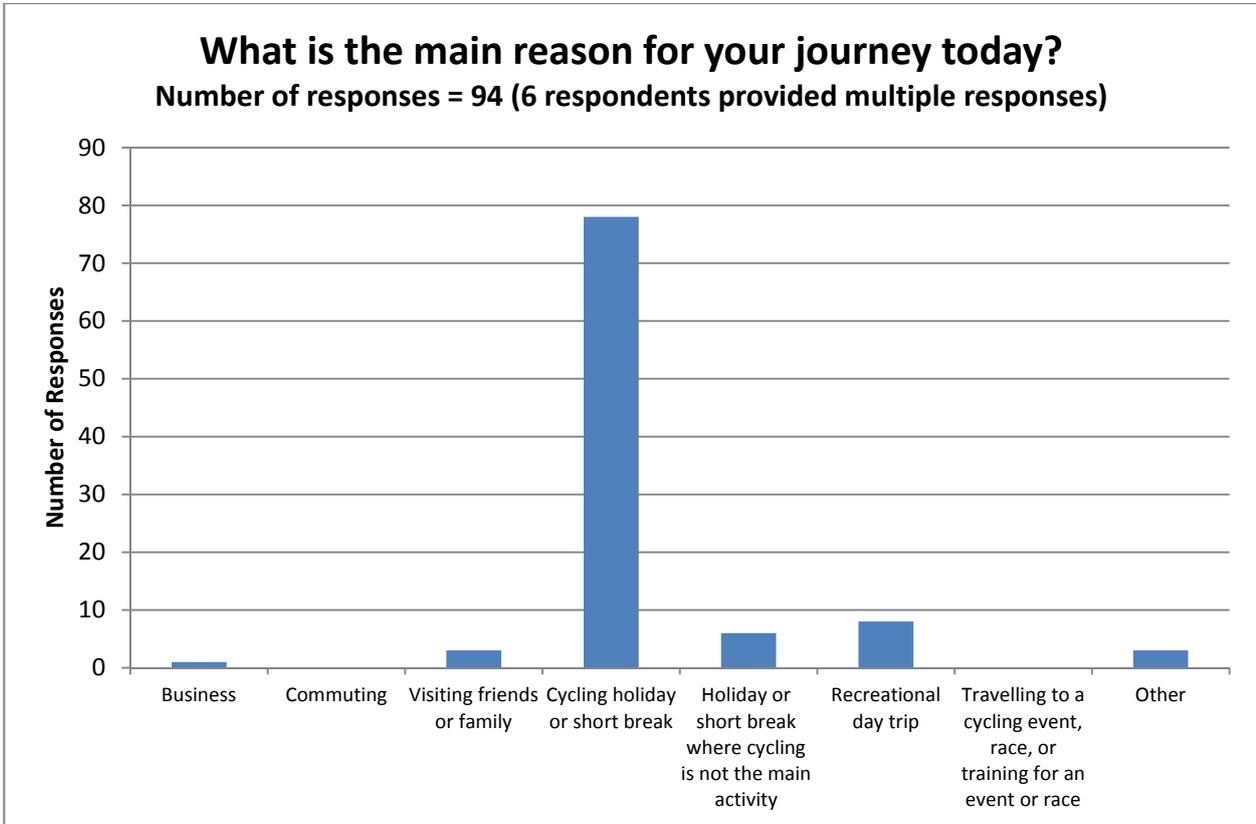


Q2) What is your destination today?

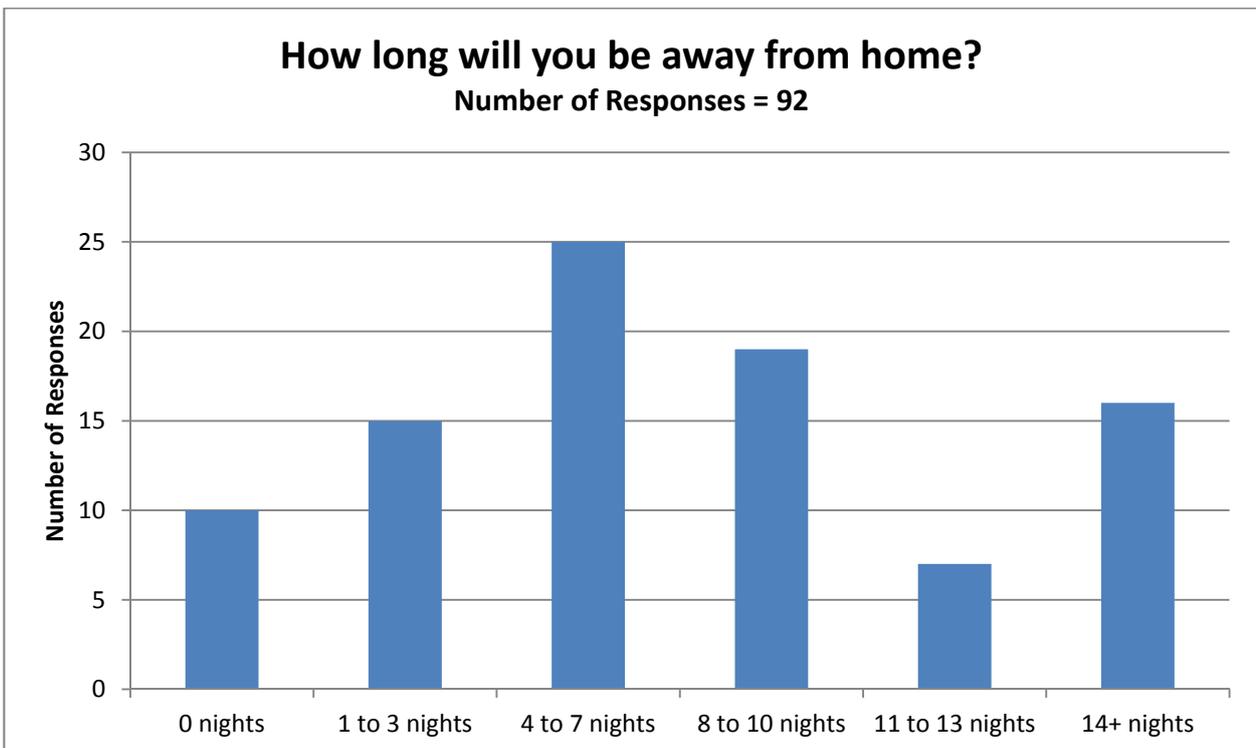


Q3) What is your postcode? [not presented to protect privacy of respondents]

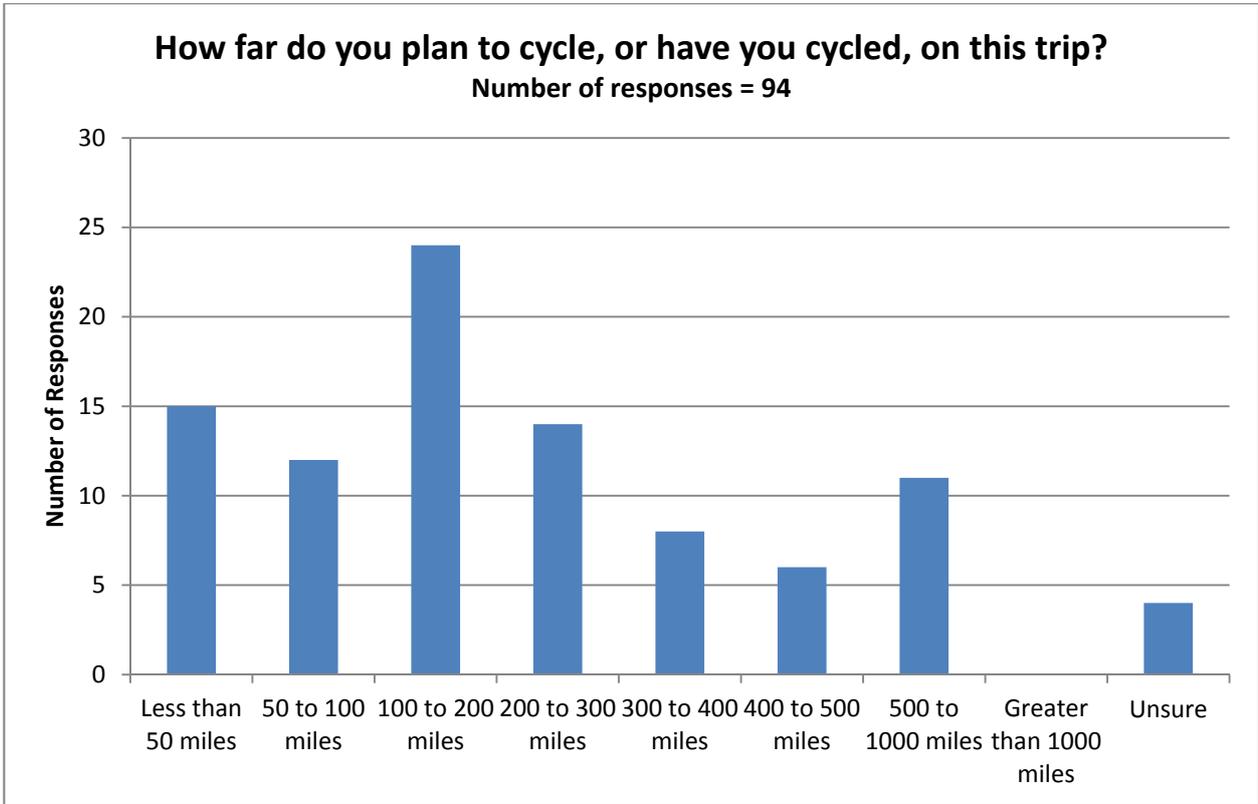
Q4) What is the main reason for your journey today?



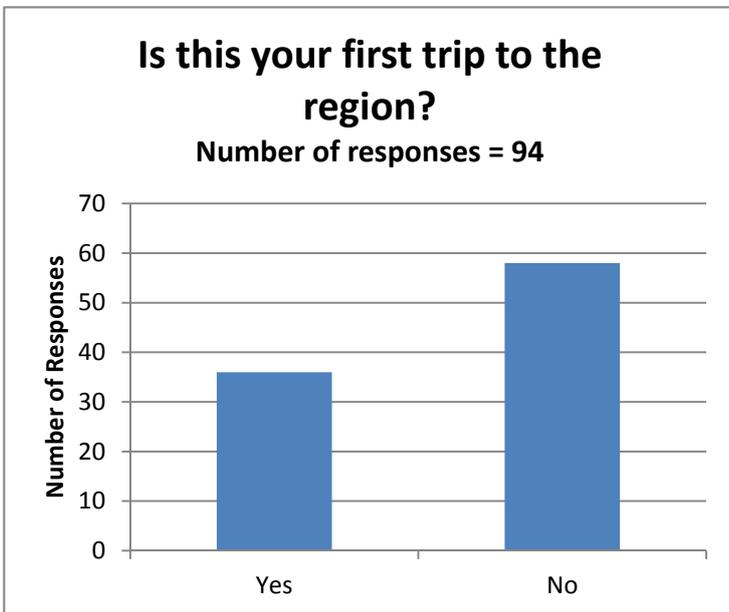
Q5) How long will you be away from home? (Responses grouped)



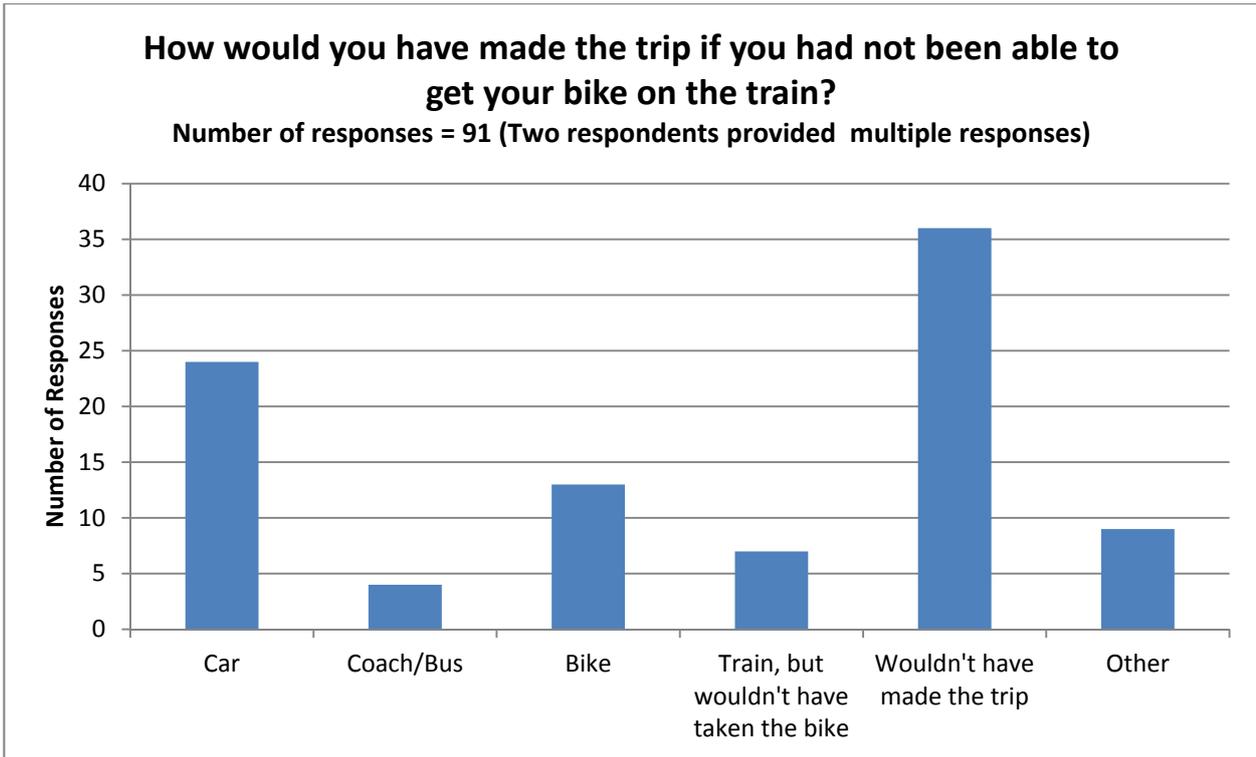
Q6) How far do you plan to cycle, or have you cycled, on this trip? (Responses grouped)



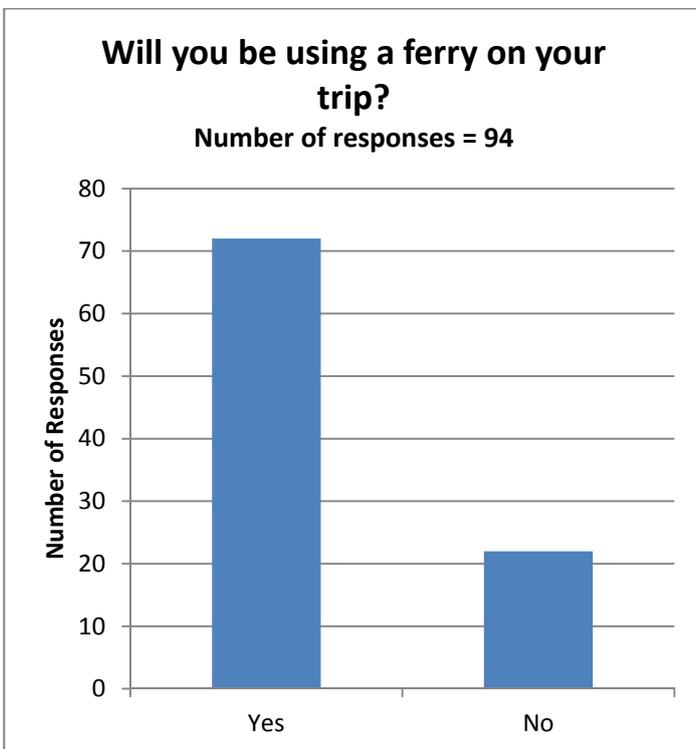
Q7) Is this your first trip to the region? (Excluding commuters)



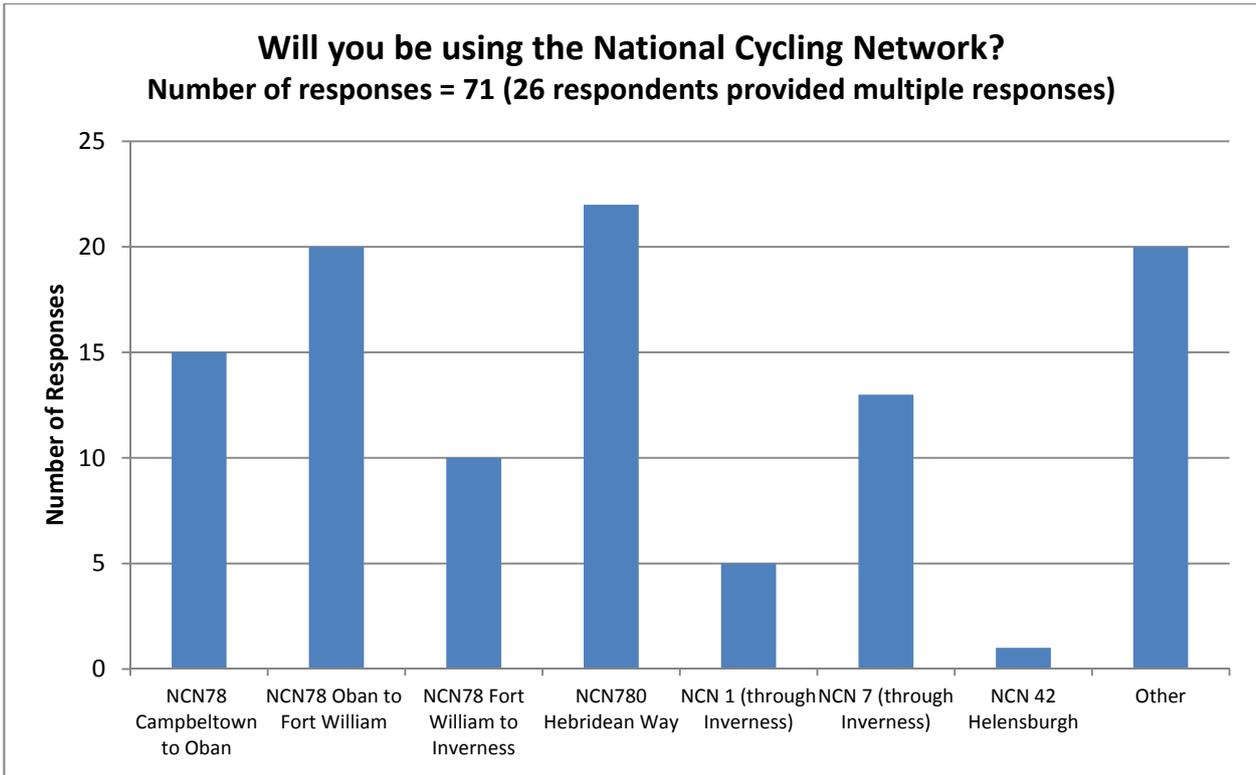
Q8) How would you have made the trip if you had not been able to get your bike on the train?



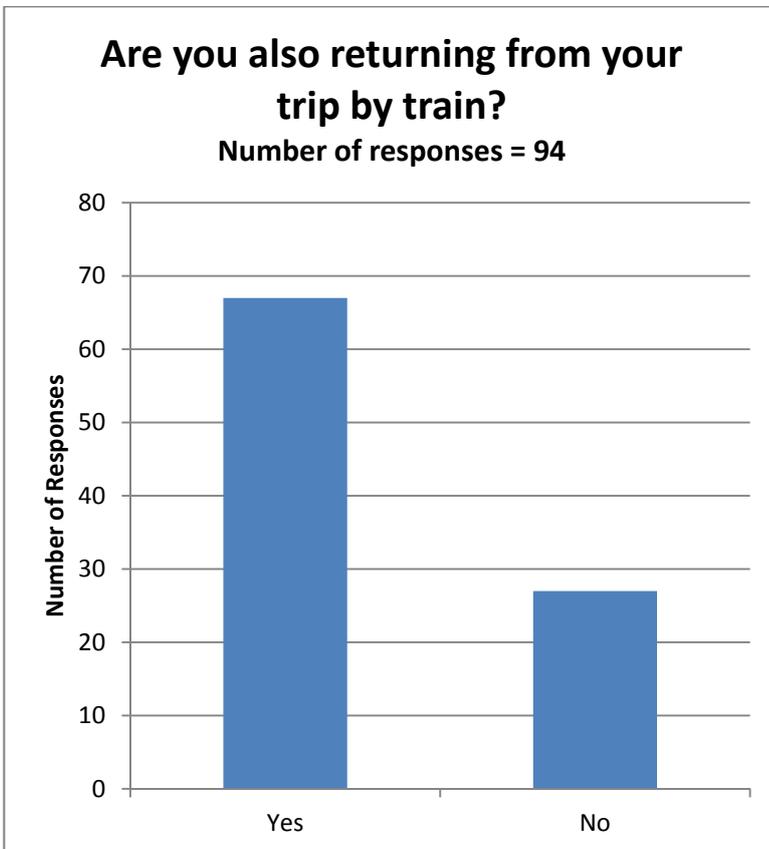
Q9) Will you be using a ferry on your trip?



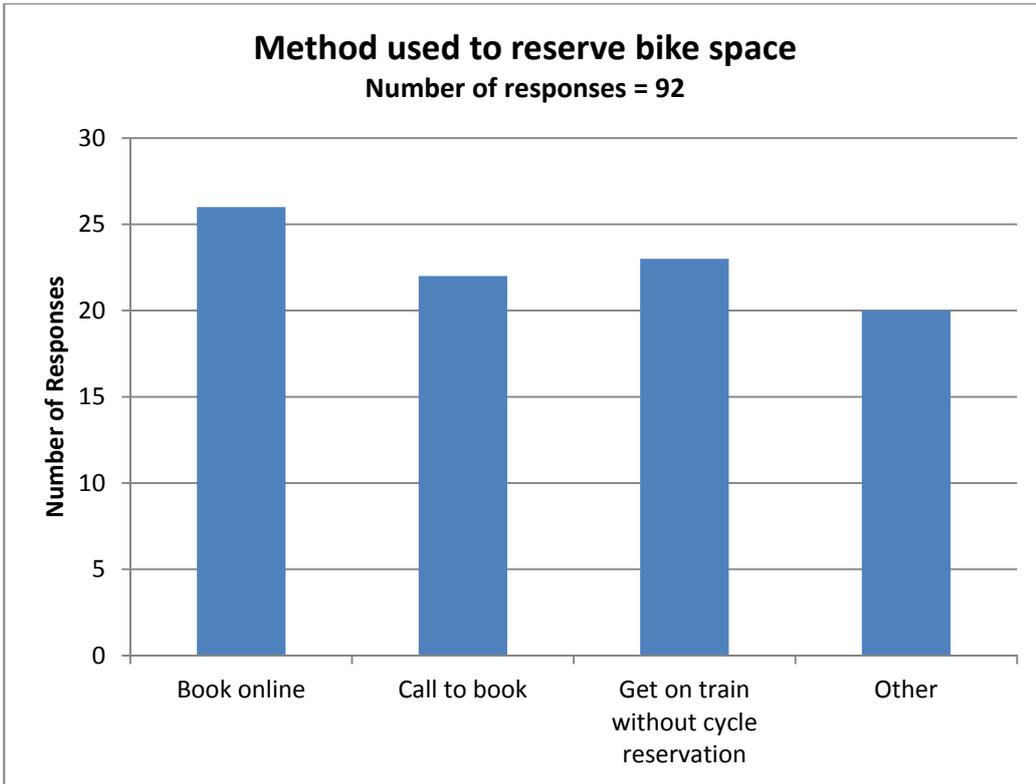
Q10) Will you be using the National Cycling Network?



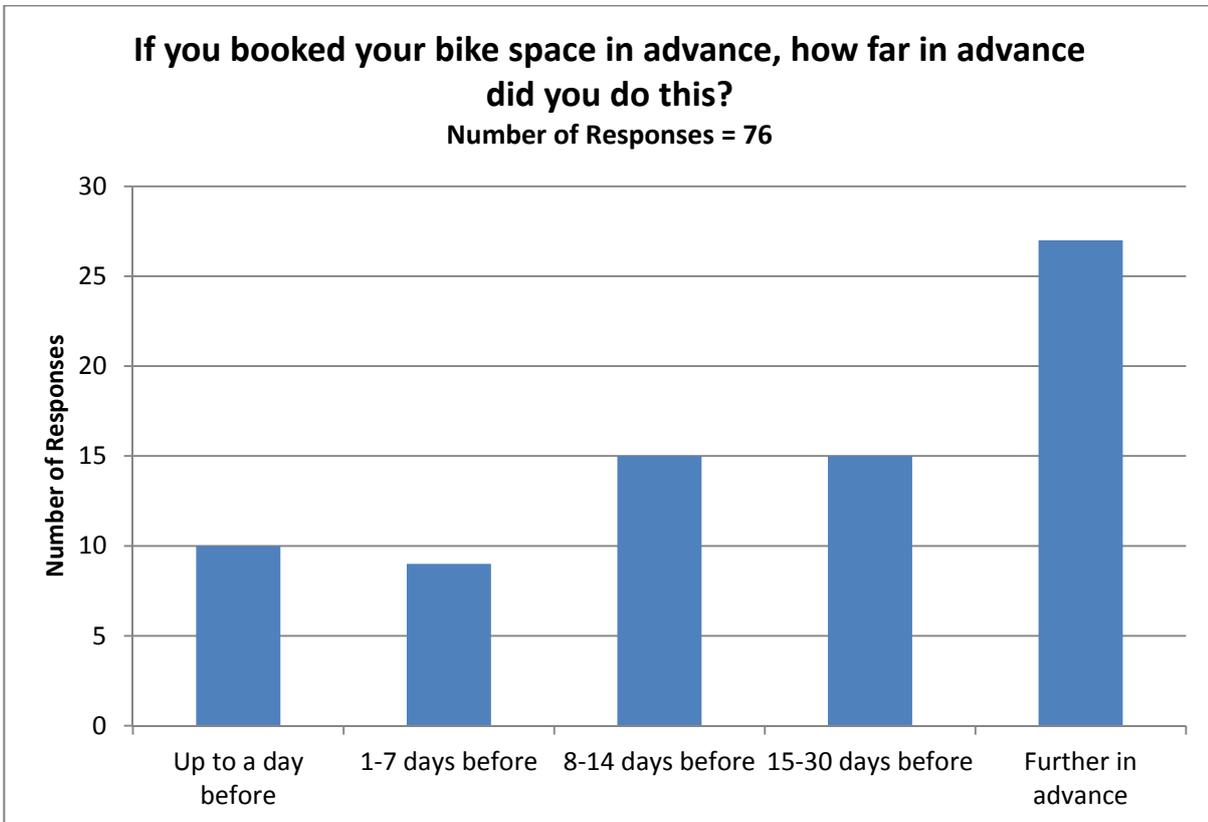
Q11) Are you also returning from your trip by train?



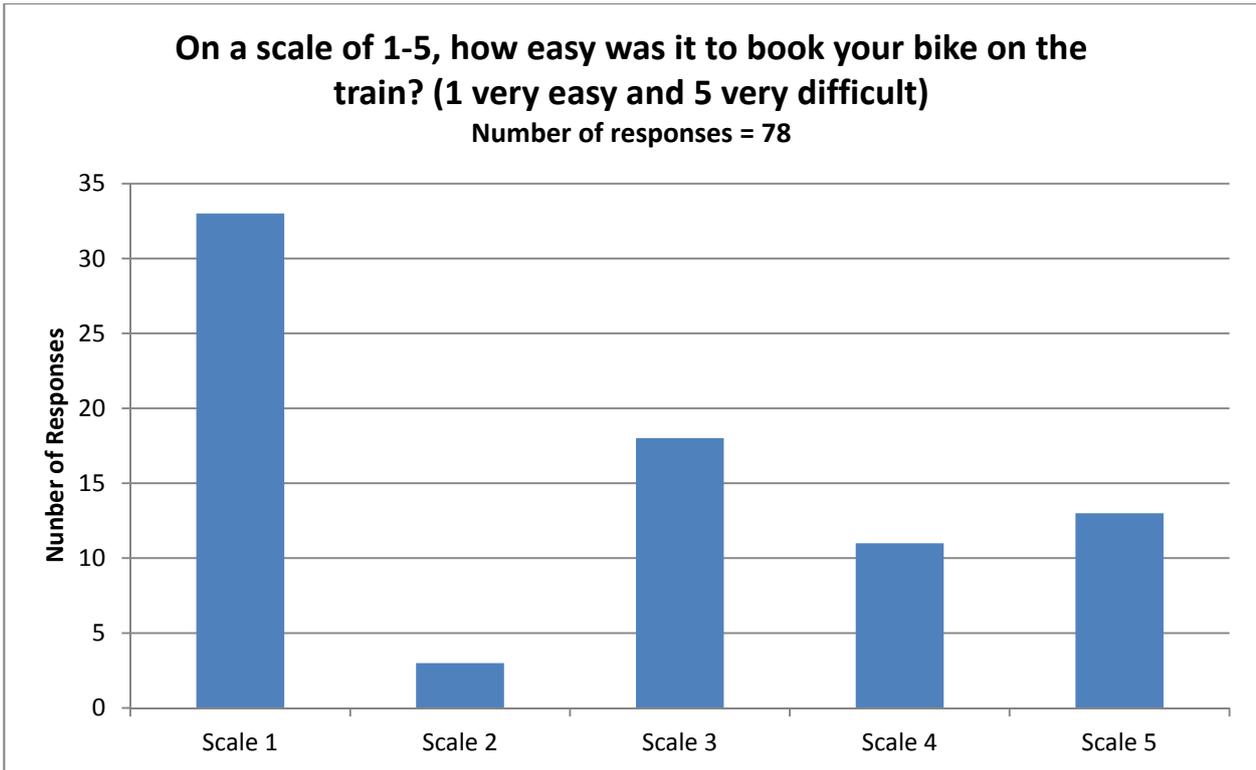
Q12) How did you reserve a space for your bike on the train?



Q13) If you booked your bike space in advance, how far in advance?

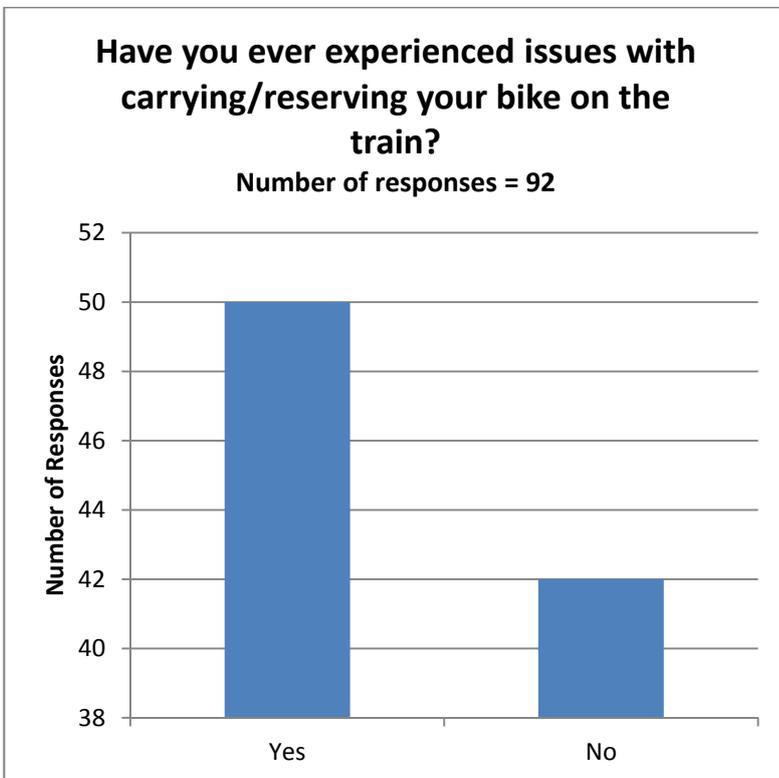


Q14) On a scale of 1-5 (where 1 is very easy and 5 is very difficult) how easy was it to book your bike on the train?

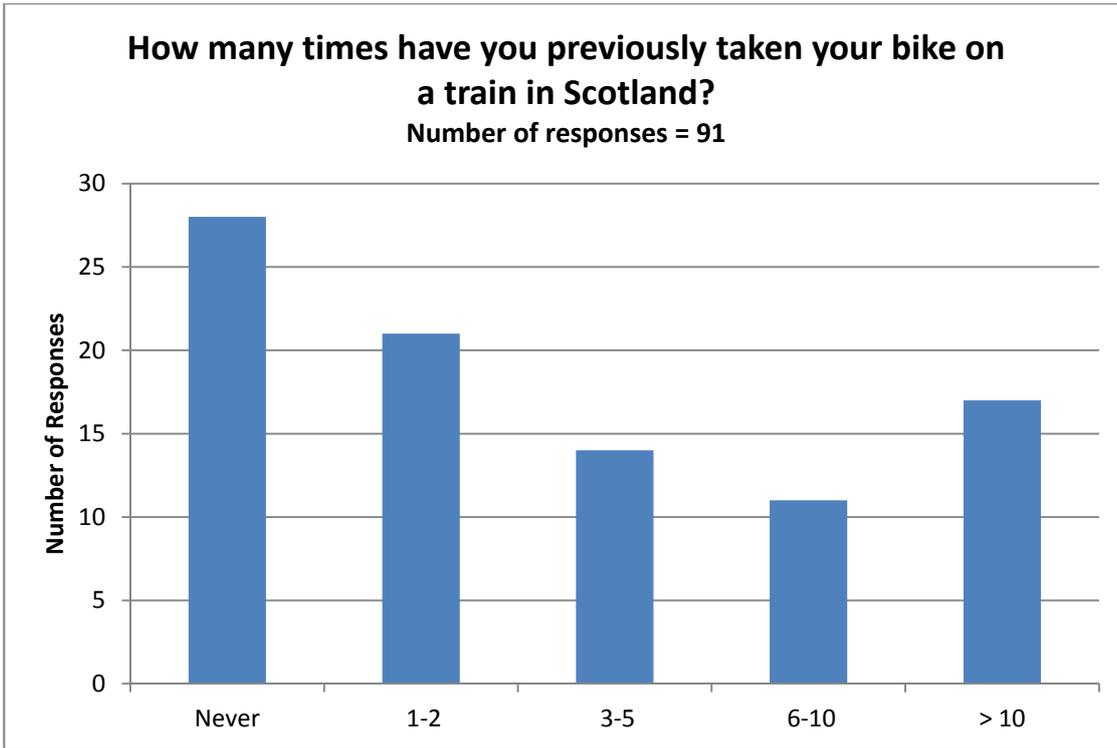


Of those which responded with '4' or '5', the most common comment was related to the website not being straightforward to use.

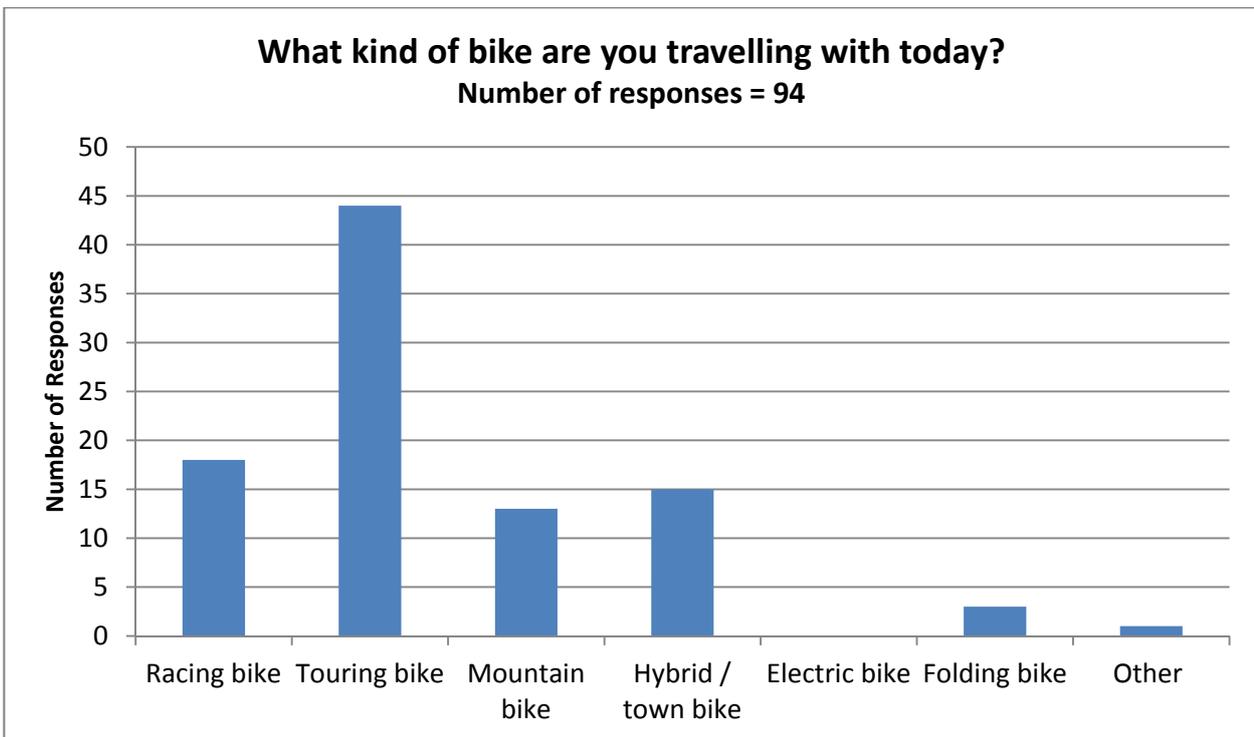
Q15) Have you ever experienced issues with carrying/reserving your bike on the train?



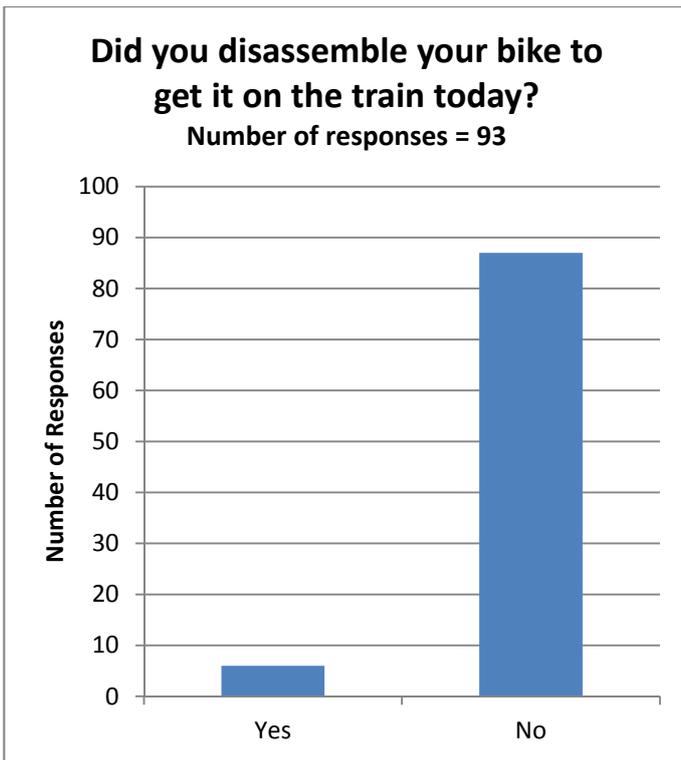
Q16) How many times have you previously taken your bike on a train in Scotland?



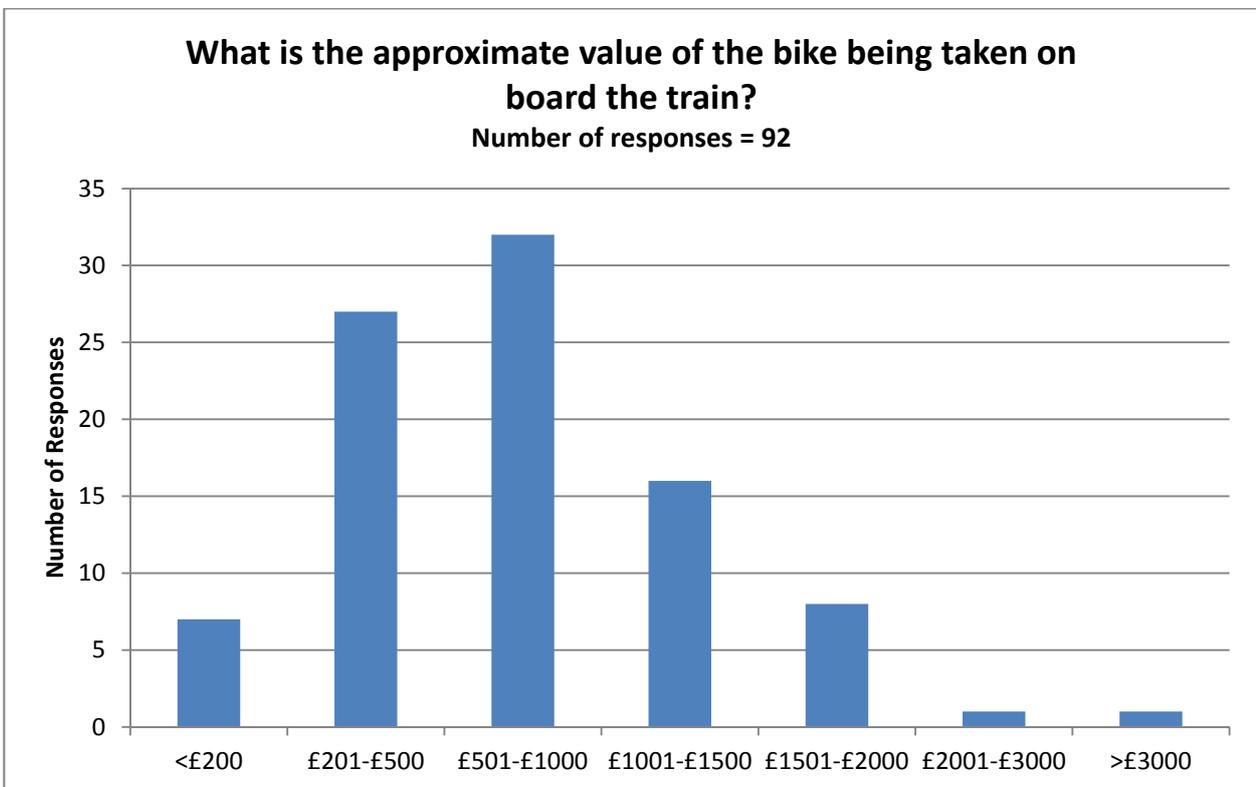
Q17) What kind of bike are you travelling with today?



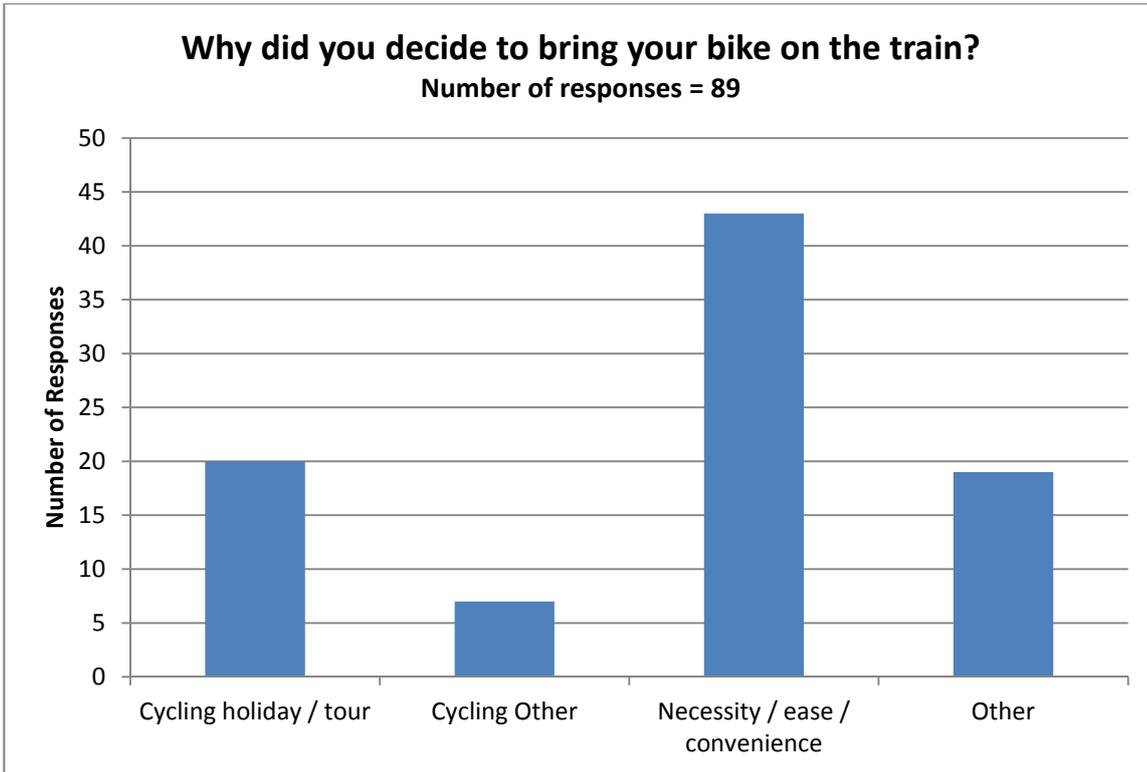
Q18) Did you disassemble your bike to get it on the train today?



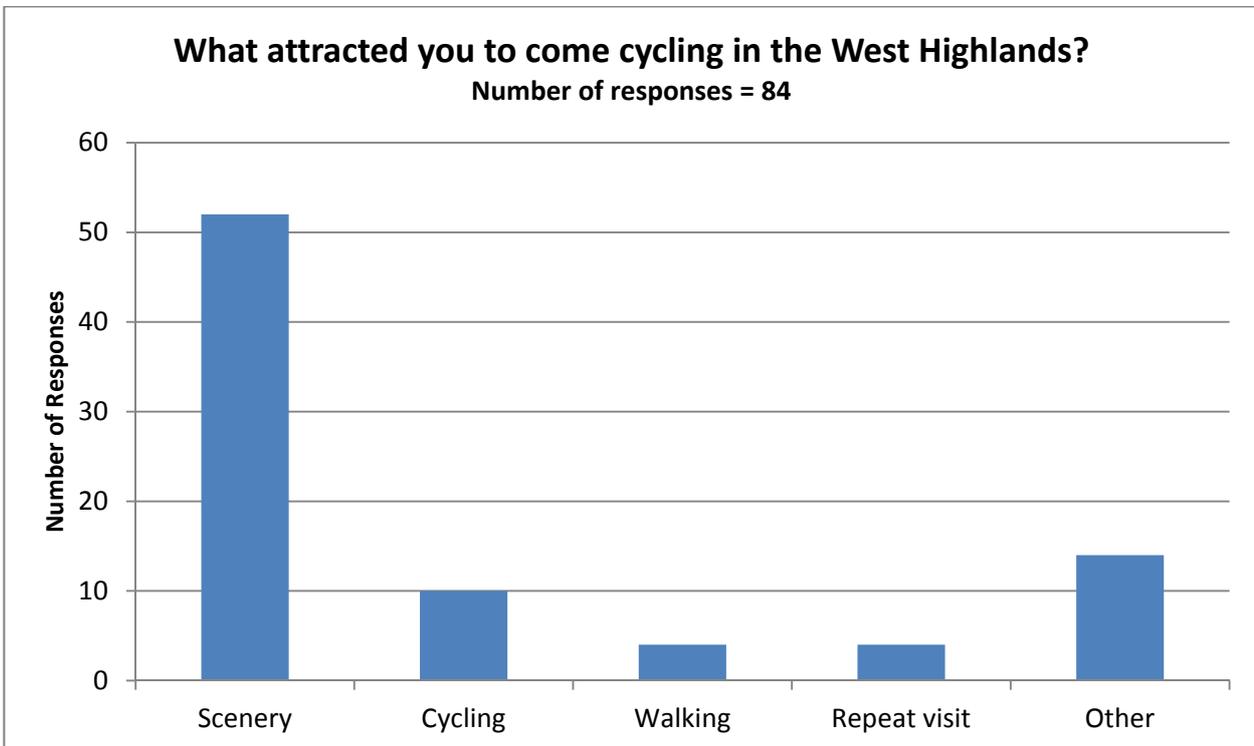
Q19) What is the approximate value of the bike being taken on board the train?



Q20) Why did you decide to bring your bike on the train? (Responses grouped thematically)



Q21) What attracted you to come cycling in the West Highlands? (Responses grouped thematically)



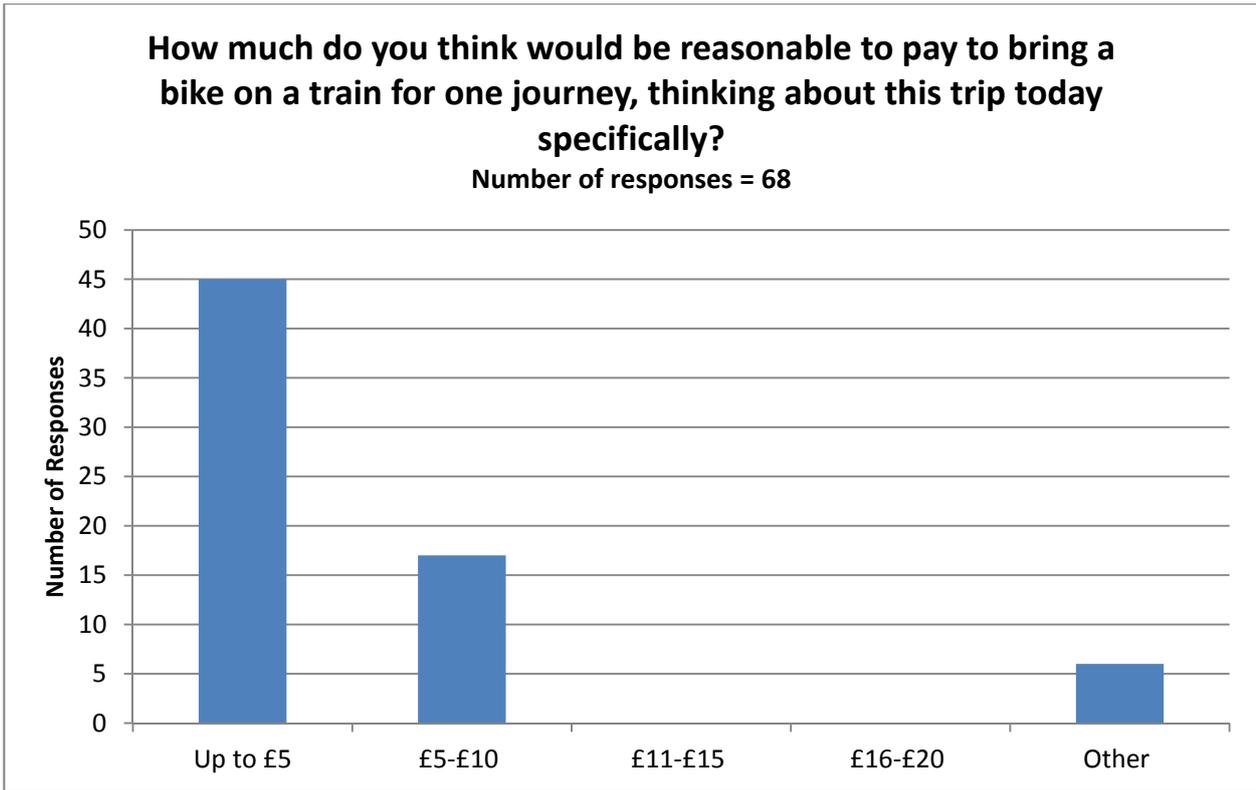
Q22) Based on your experience, would you recommend the region for cycle tourism?



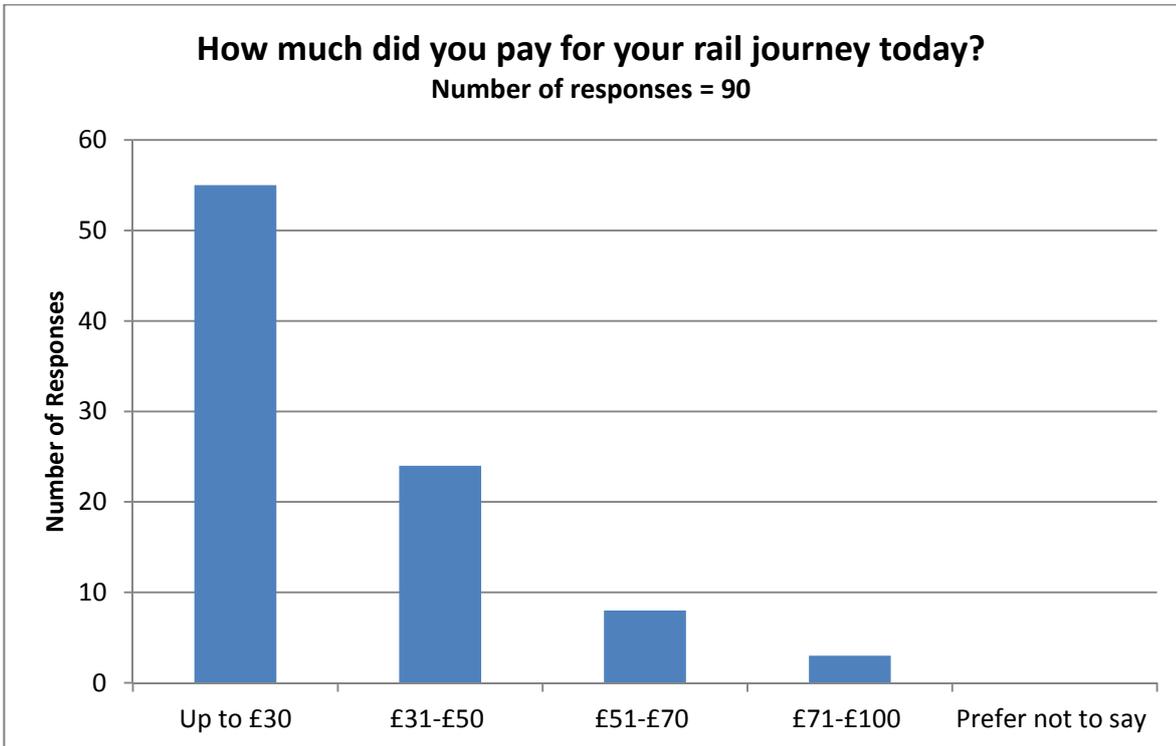
Q23) Would you be prepared to pay to carry your bike on the train?



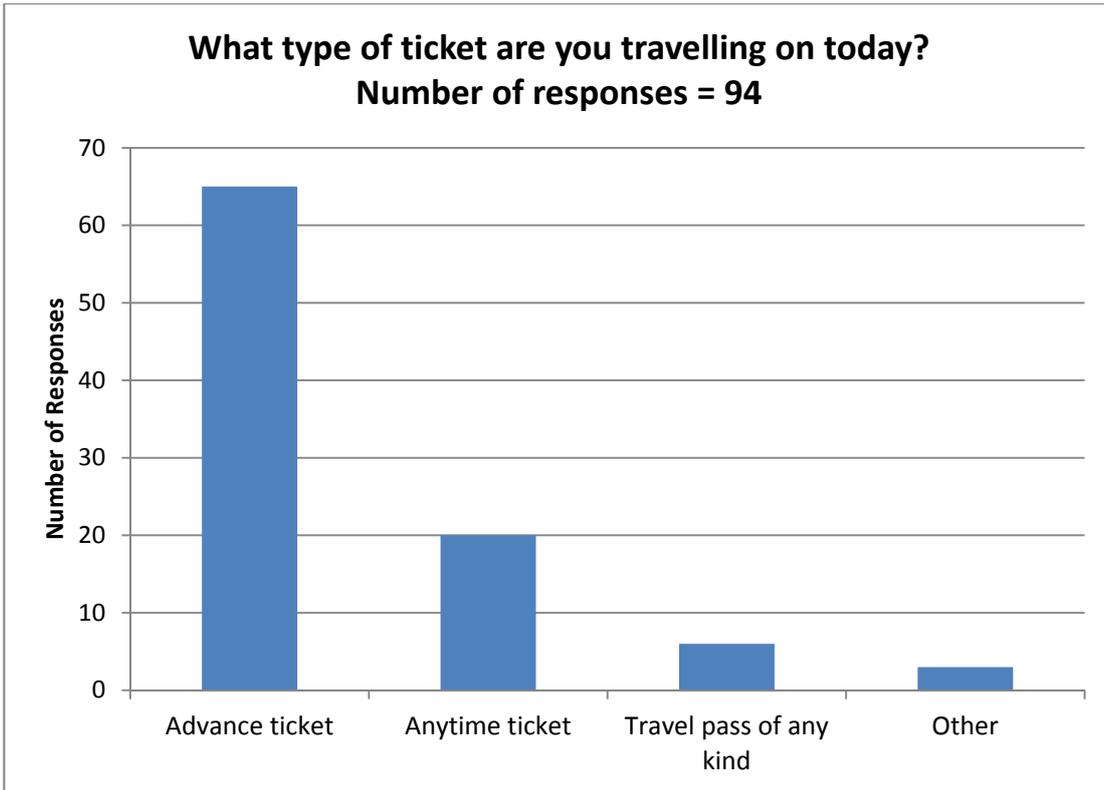
If yes to Q23, how much do you think would be reasonable to pay to bring on a train for one journey, thinking about this trip today specifically?



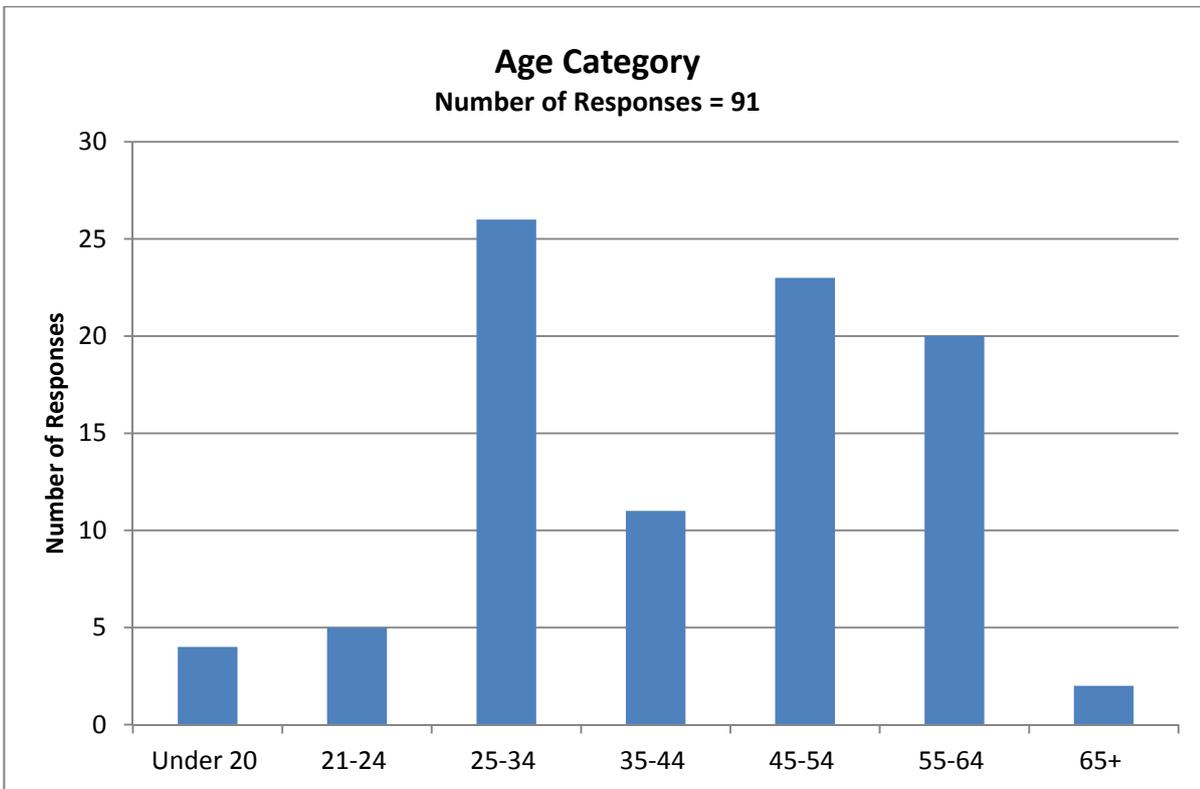
Q24) Can you tell us how much you paid for your rail journey today?



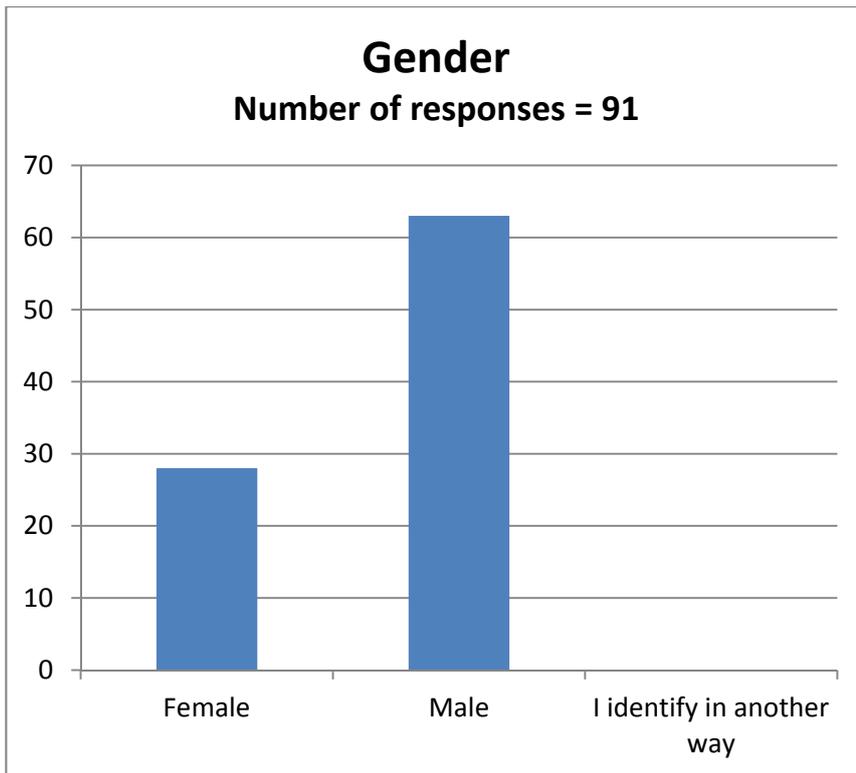
Q25) What type of ticket you are travelling on today?



Q26) Please select your age category.



Q27) Which gender is applicable to you?



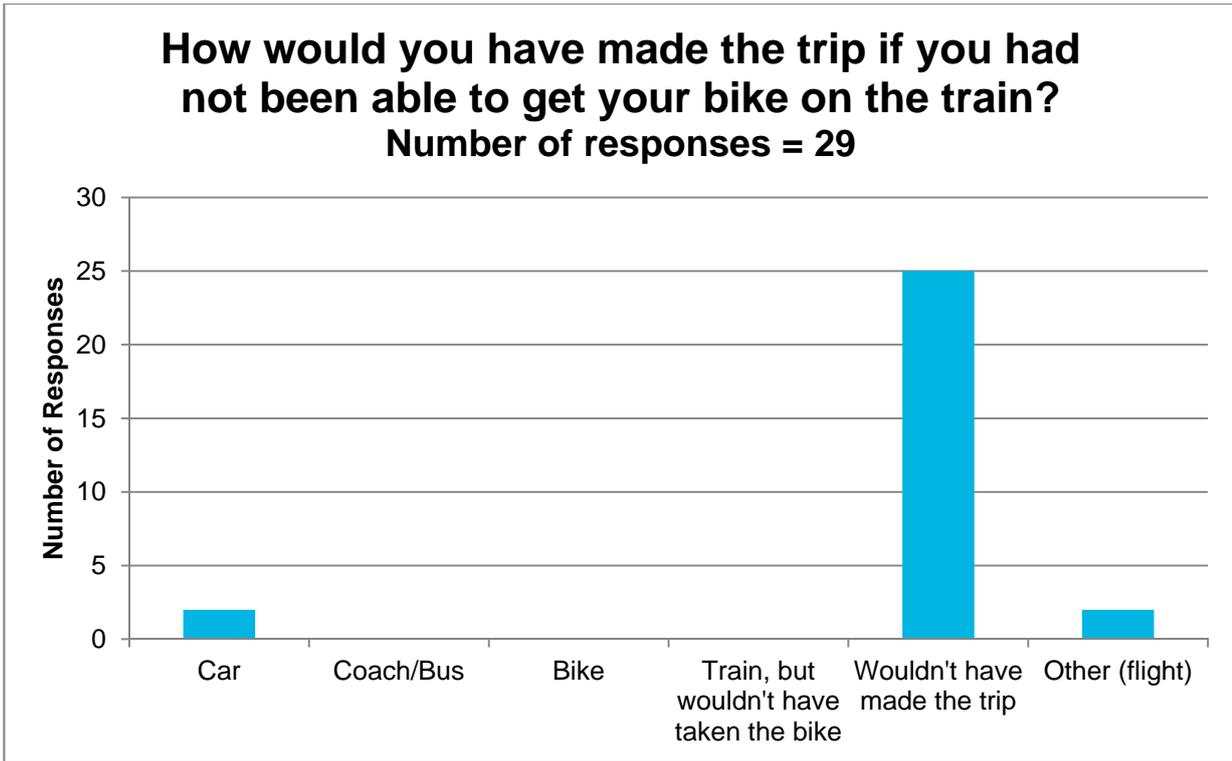
Fort William and Inverness Sleeper Survey Responses

The most relevant findings to this study from respondents travelling on the Fort William sleeper service are provided below.

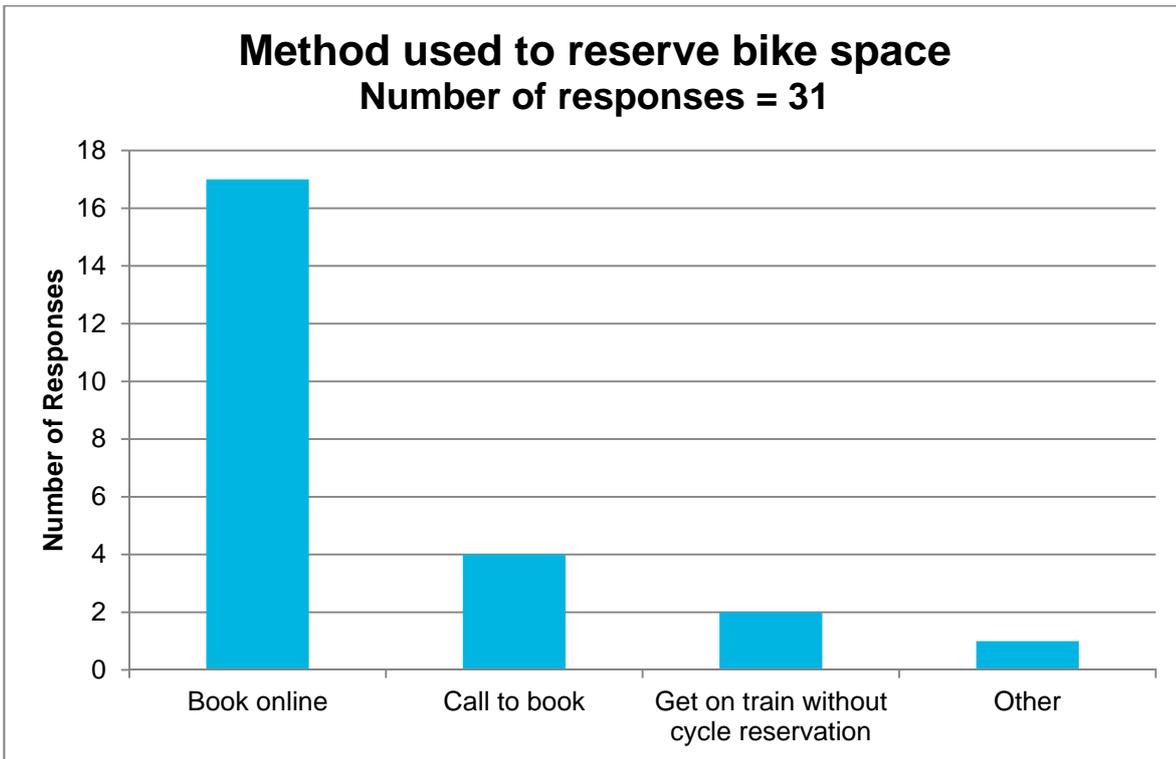
Q4) What is the main reason for your journey today?

All 30 responses to this question selected "cycling holiday or short break".

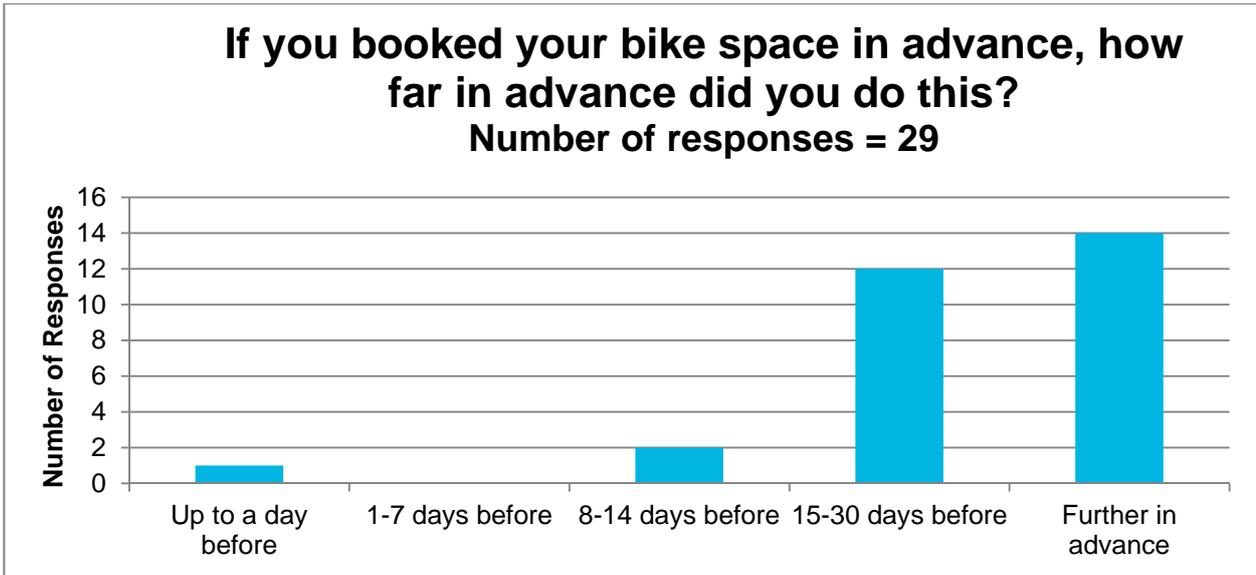
Q8) How would you have made the trip if you had not been able to get your bike on the train?



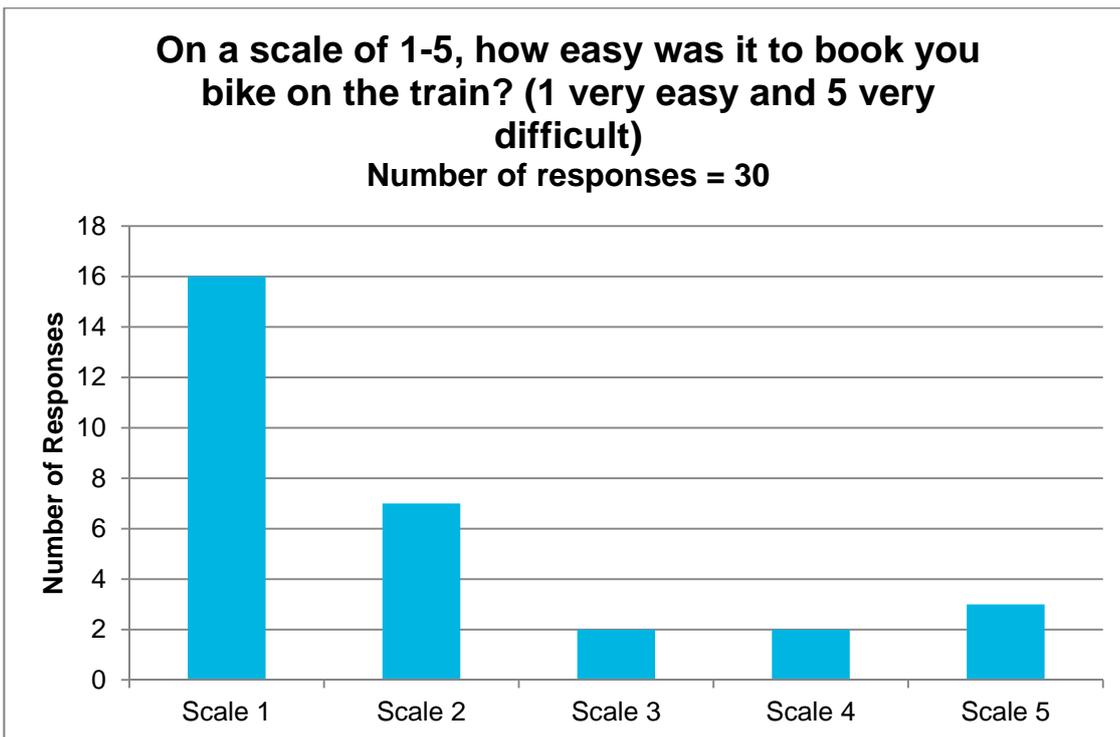
Q12) How did you reserve a space for your bike on the train?



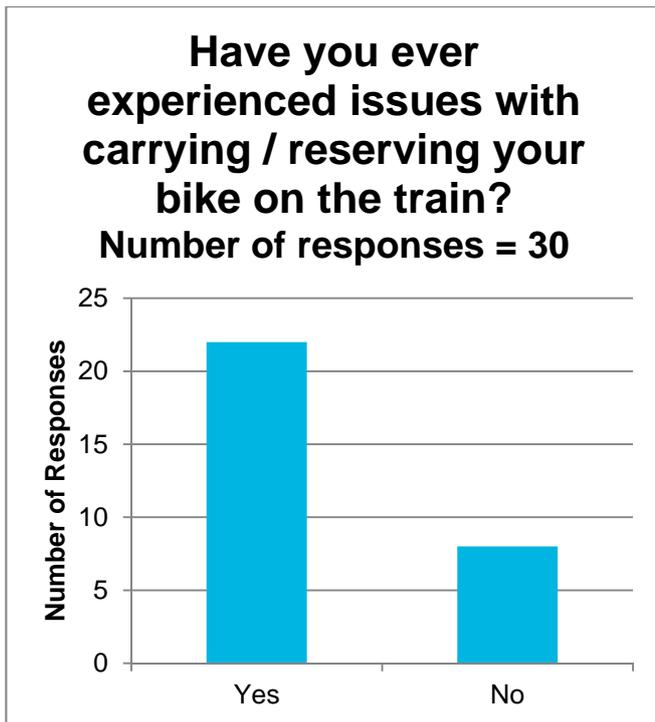
Q13) If you booked your bike space in advance, how far in advance?



Q14) On a scale of 1-5 (where 1 is very easy and 5 is very difficult) how easy was it to book your bike on the train?



Q15) Have you ever experienced issues with carrying/reserving your bike on the train?

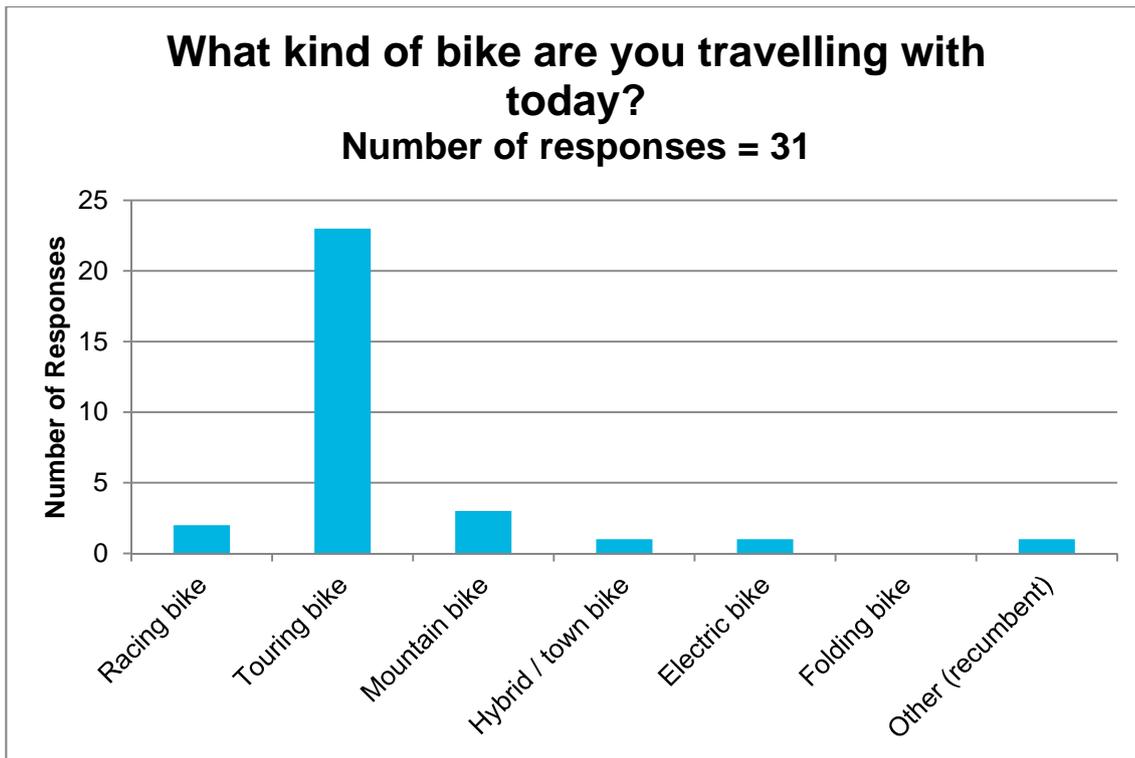


It should be noted that upon investigation of the reasons people gave for selecting “yes” to the question above, six people out of the 22 gave reasons that were associated with other train operators, and not specifically issues they encountered on the Caledonian Sleeper. Other reasons pertained to lack of space, difficulty moving bikes around stations in London and difficulty getting access.

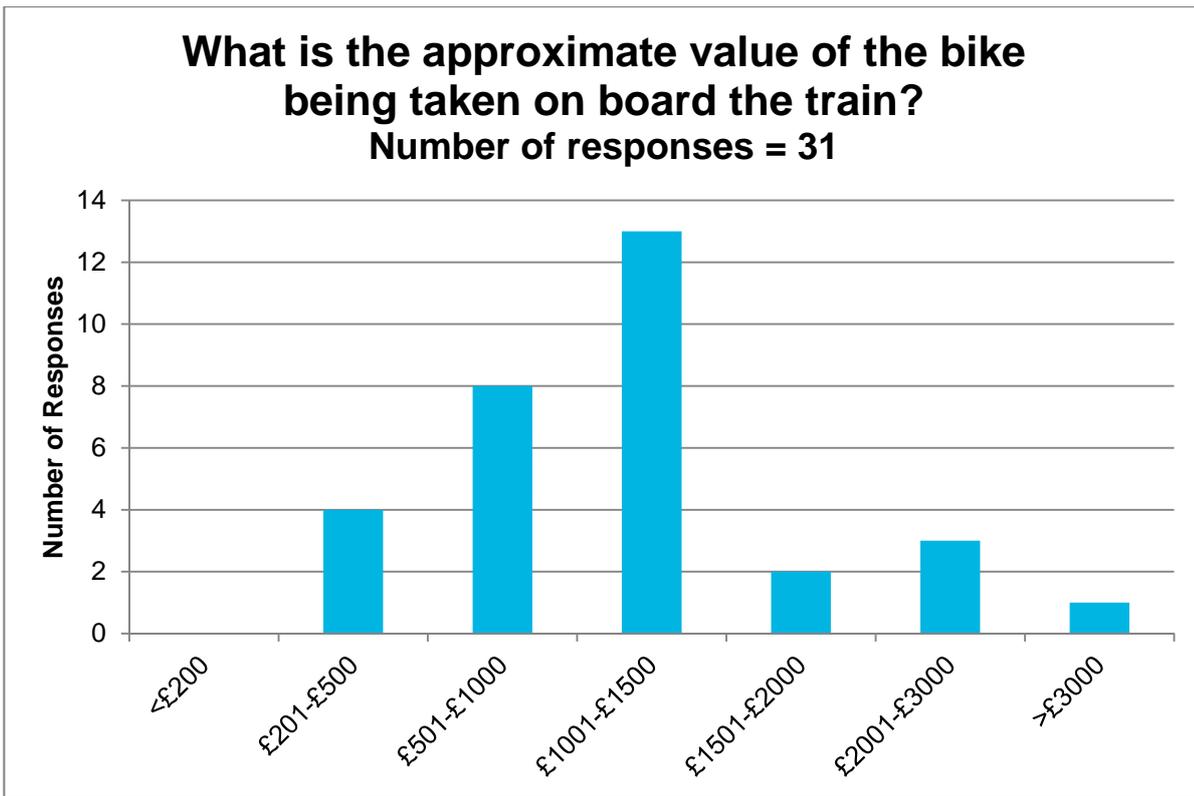
Q16) How many times have you previously taken your bike on a train in Scotland?

Half of respondents said they have never previously taken their bike on a train in Scotland, whilst the next highest category (6 out of 30) said they had taken their bike over 10 times to Scotland.

Q17) What kind of bike are you travelling with today?



Q19) What is the approximate value of the bike being taken on board the train?



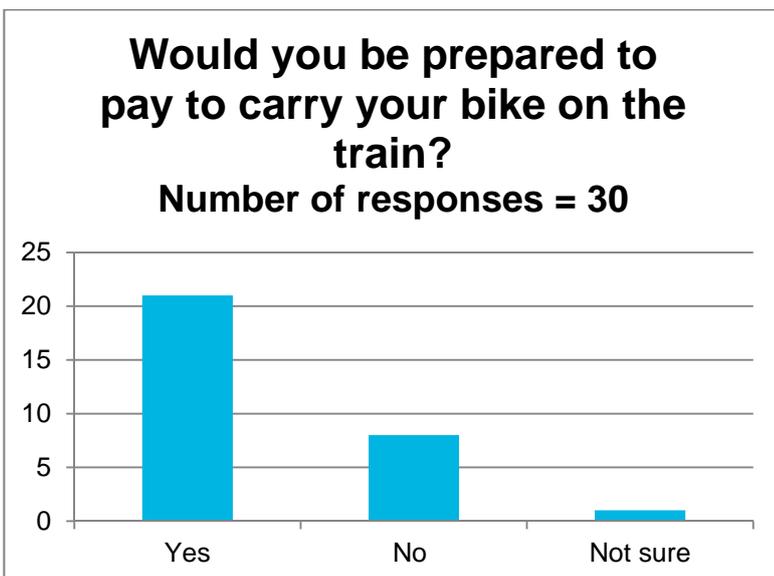
Q20) Why did you decide to bring your bike on the train?

Most of the responses to this referenced the convenience and ease of travelling such a long distance by rail instead of by car. A few commented that travelling by rail was more environmentally friendly than by car.

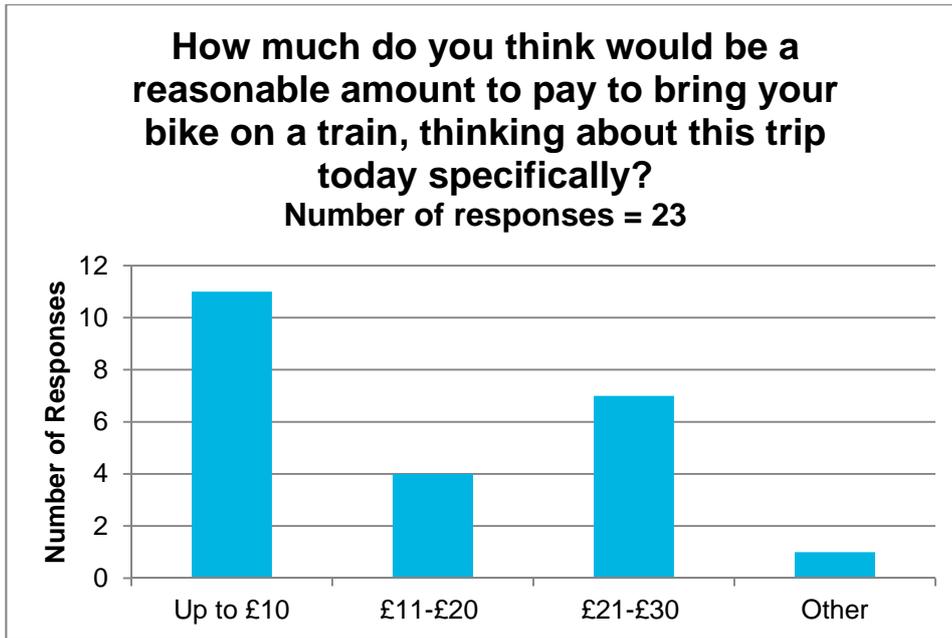
Q22) Based on your experience, would you recommend the region for cycle tourism?

All 21 responses to this question indicated “yes”, they would recommend the region for cycle tourism. The majority of comments as to why related to the beauty and scenic value of the region.

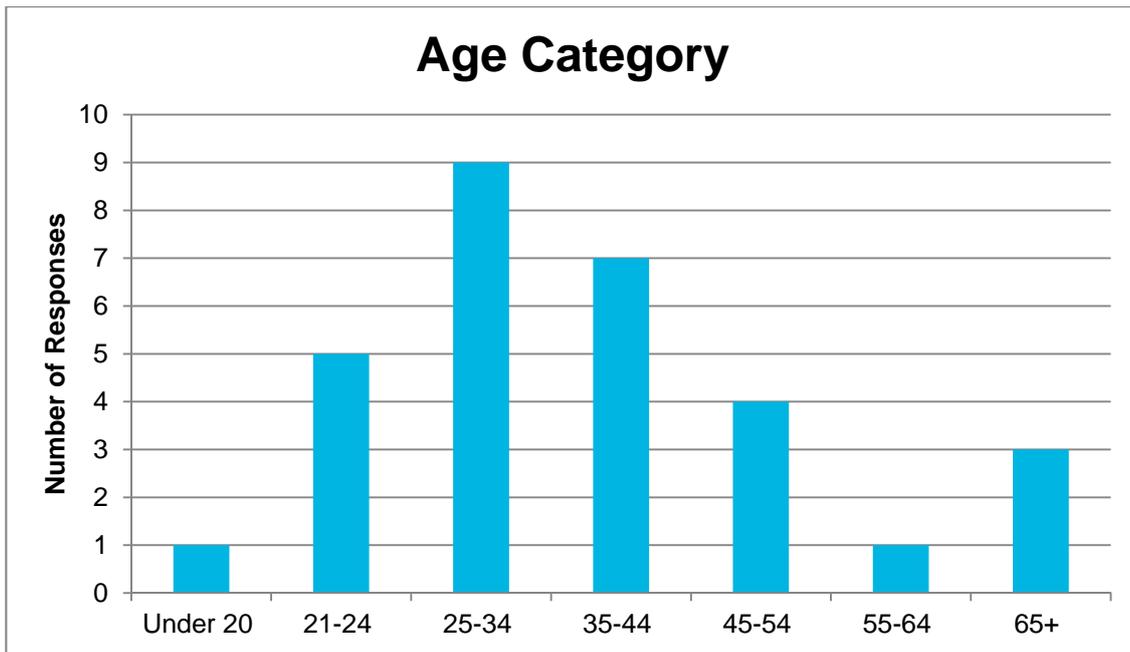
Q23) In many countries, you have to pay a small fee to carry bikes on trains. Would you be prepared to pay to carry your bike on the train?



If yes to Q23, how much do you think would be reasonable to pay to bring on a train for one journey, thinking about this trip today specifically?



Q26) Please select your age category.



Q27) Which gender is applicable to you?

