



Orkney Islands Council

# Mobile Network Coverage in Orkney

Final Report

April 2025



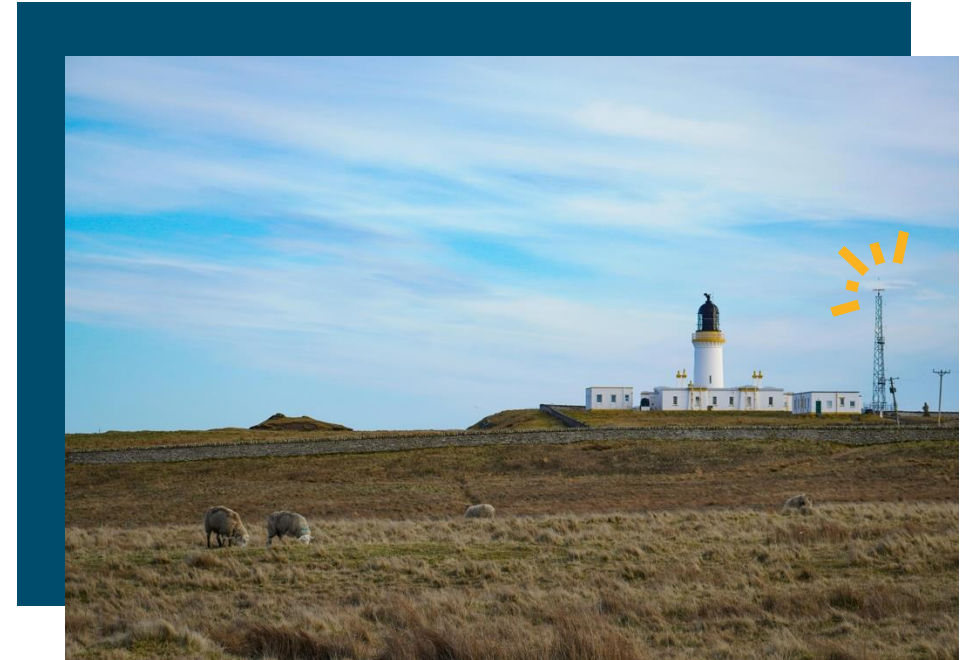
# Contents

<b>INTRODUCTION</b>	<b>3</b>
<b>COVERAGE RESULTS</b>	<b>5</b>
<b>USER SURVEY RESULTS</b>	<b>12</b>
<b>ECONOMIC IMPACT</b>	<b>15</b>
<b>CONCLUSIONS</b>	<b>17</b>



# Introduction

- Orkney Islands Council commissioned FarrPoint to investigate the mobile coverage of operators serving Kirkwall town centre and to determine if there was an economic impact from local businesses experiencing poor mobile performance.
- Anecdotal reports suggested that mobile performance was affected when cruise ships docked, and the large number of passengers using the local mobile networks resulted in the inability of local businesses to fully function, e.g. take card payments.



# The Approach

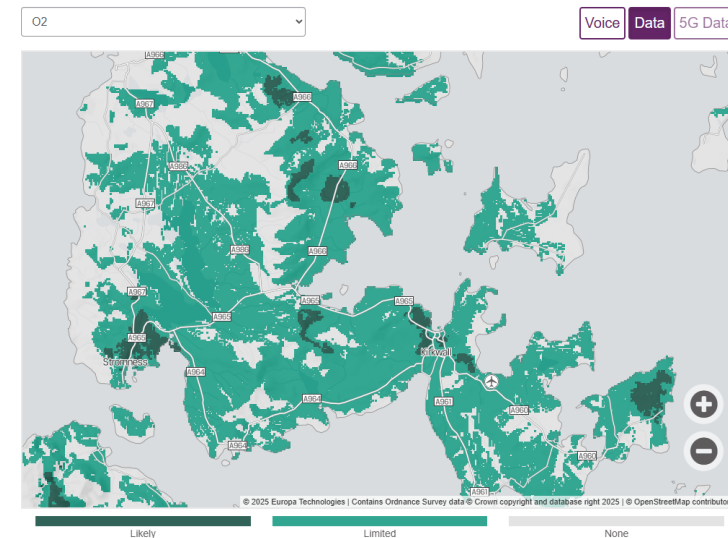
The approach covered the following stages:

- **Stage 1:** Provision of backpack coverage unit for town centre mobile performance checks
- **Stage 2:** Support for a local business survey to determine user experience.
- **Stage 3:** Economic Impact Analysis

This report presents the study's findings. It is focussed on specific areas of Orkney (e.g., Kirkwall), not the islands as a whole.



Data last updated: December 2024, based on the latest data available to Ofcom.





## STAGE 1: MOBILE COVERAGE MAPPING



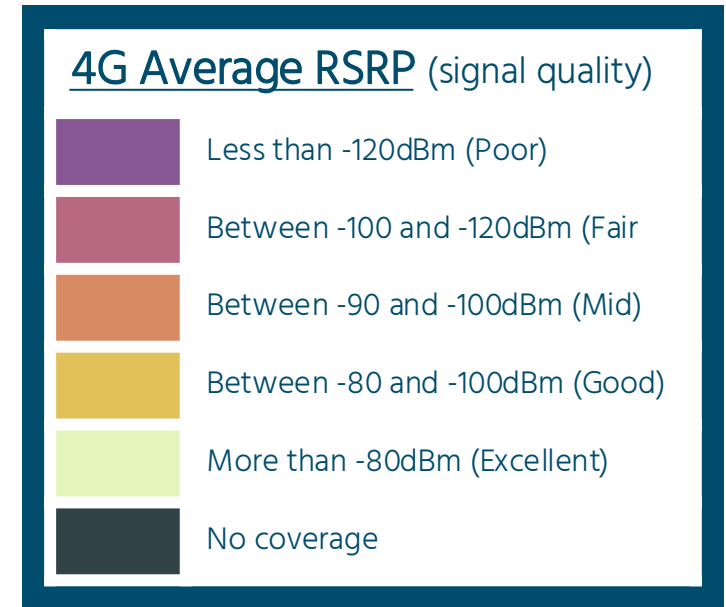
# The Results

The coverage results are presented on the following four pages, one page per operator.

For each operator, three coverage maps are provided

- **Map 1:** Stromness and surrounds
- **Map 2:** Kirkwall
- **Map 3:** St Margarets Hope to Holm

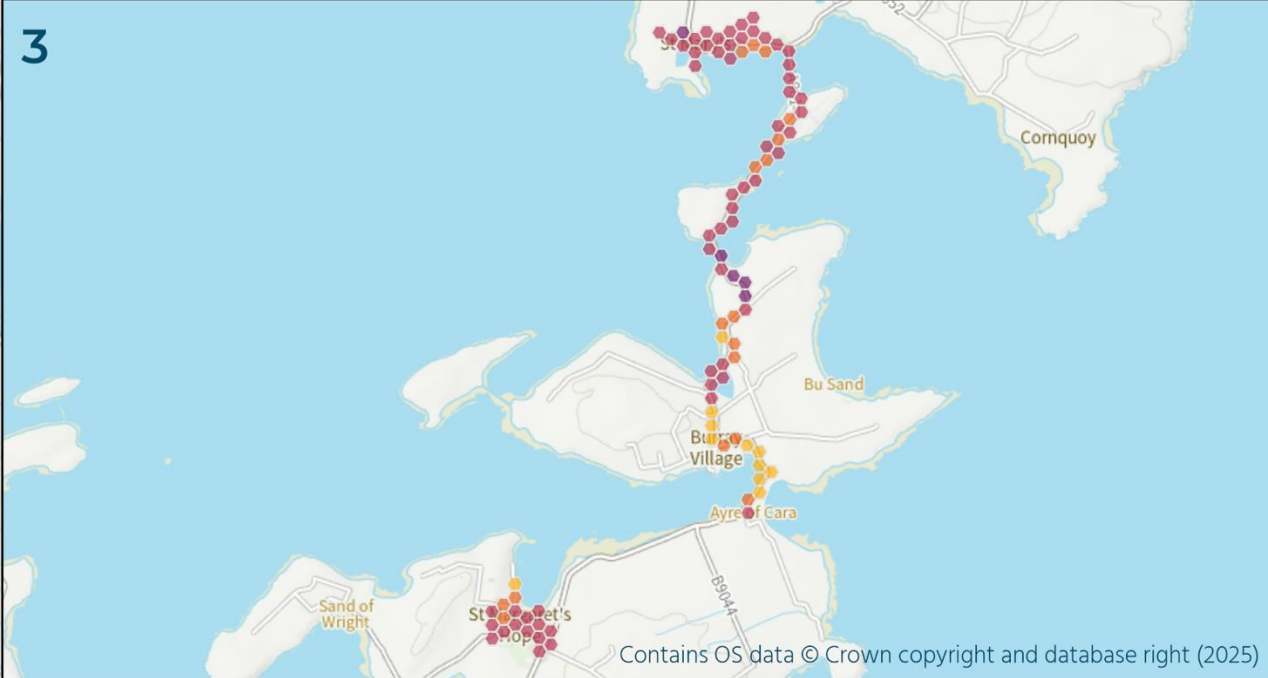
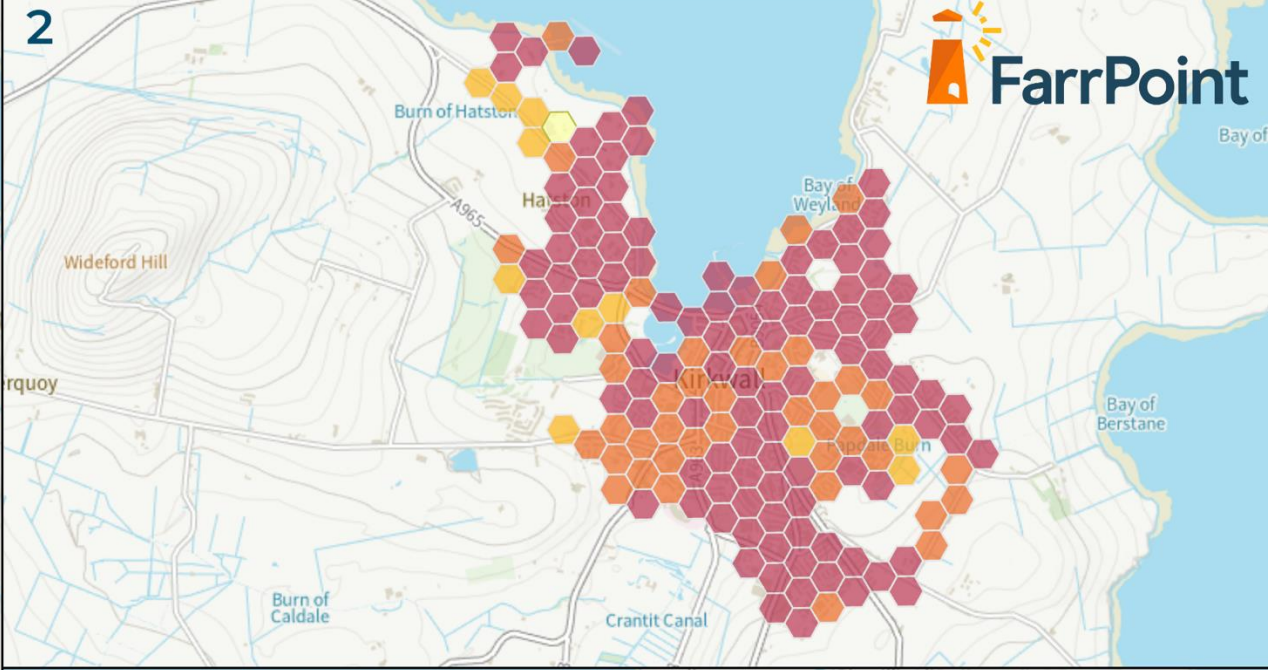
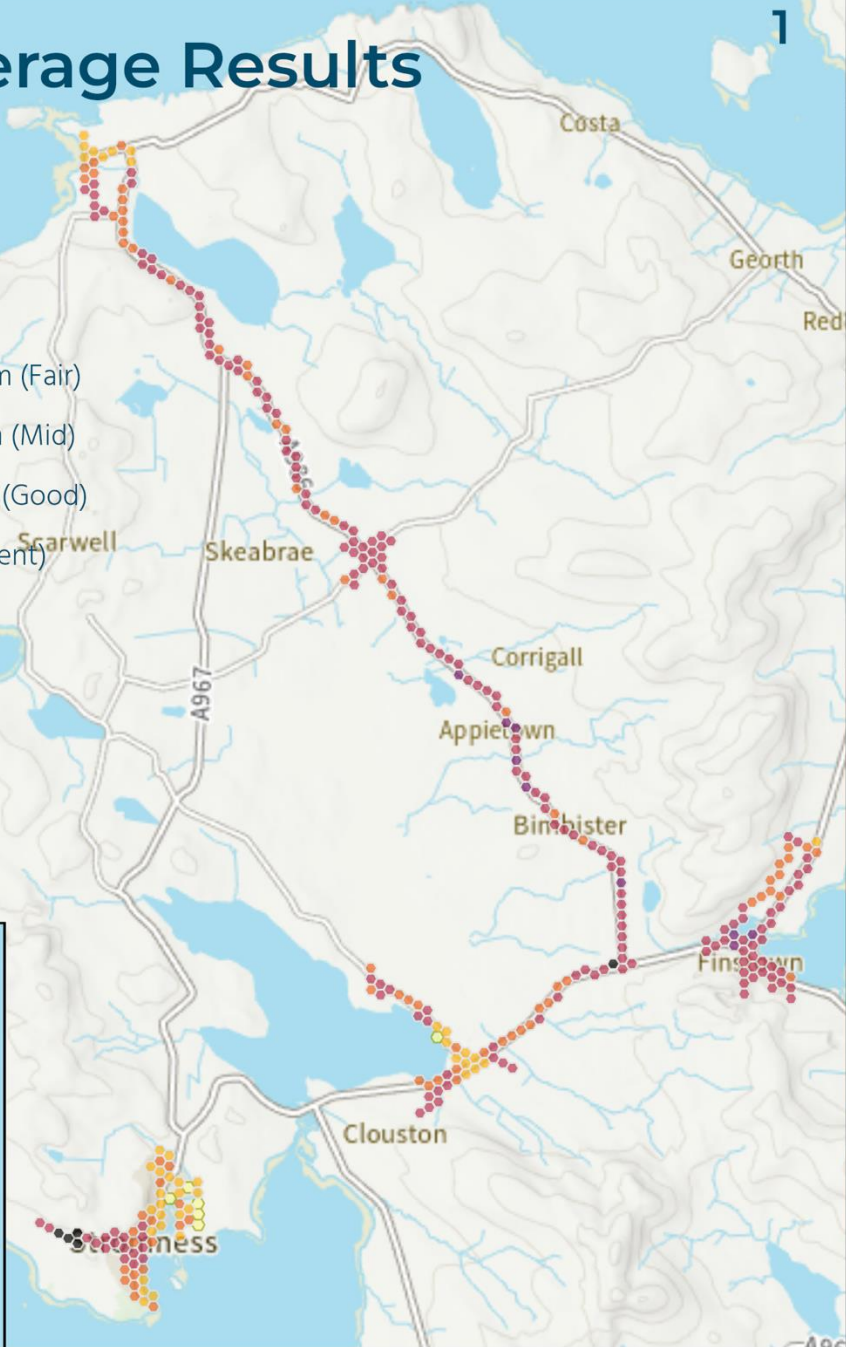
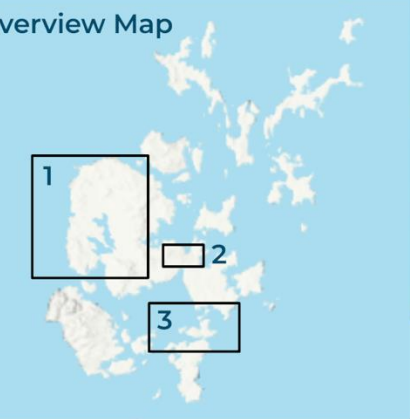
Coverage is graded by dark to light colour from no coverage to excellent



# Stage 1: Coverage Results

EE  
4G Average RSRP

- Less than -120dBm (Poor)
- Between -100 and -120dBm (Fair)
- Between -90 and -100dBm (Mid)
- Between -80 and -90dBm (Good)
- More than -80dBm (Excellent)
- No Coverage



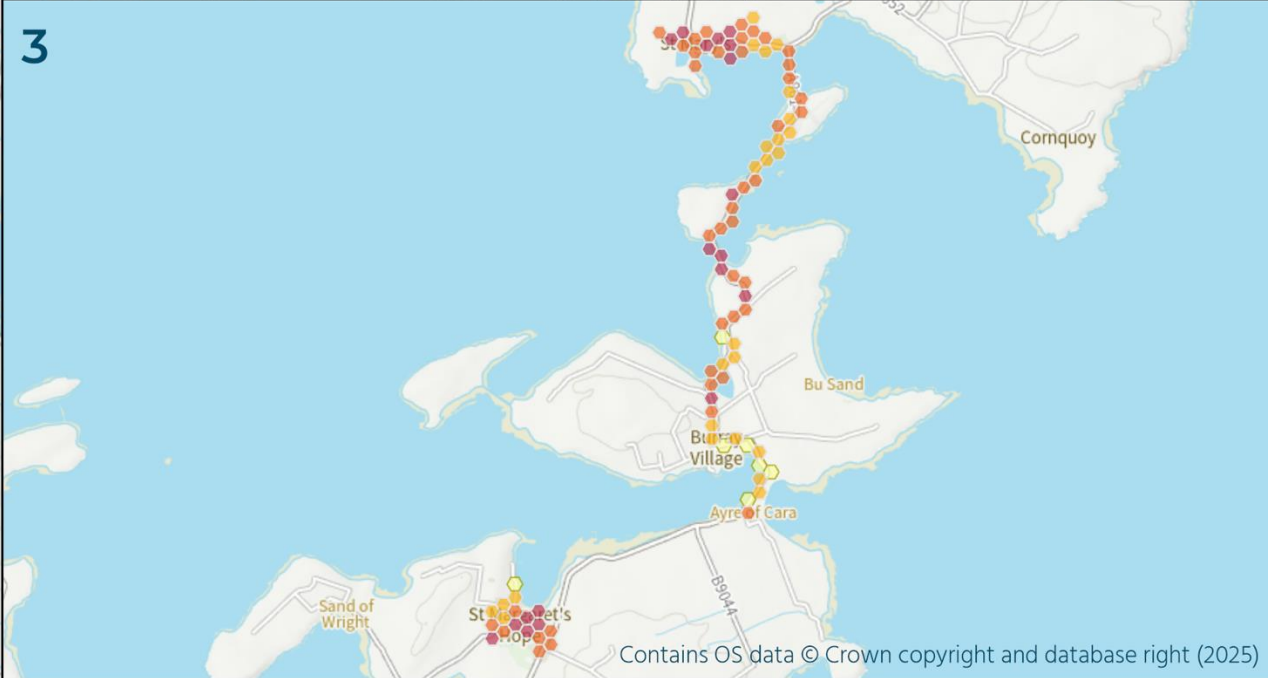
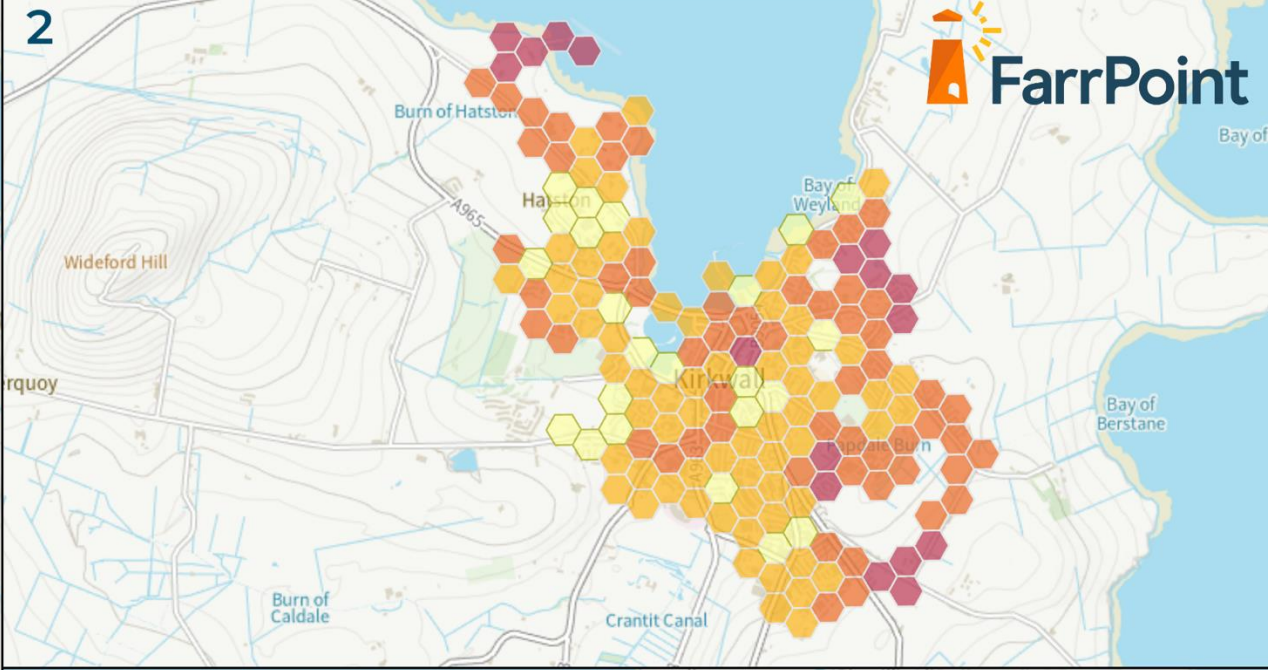
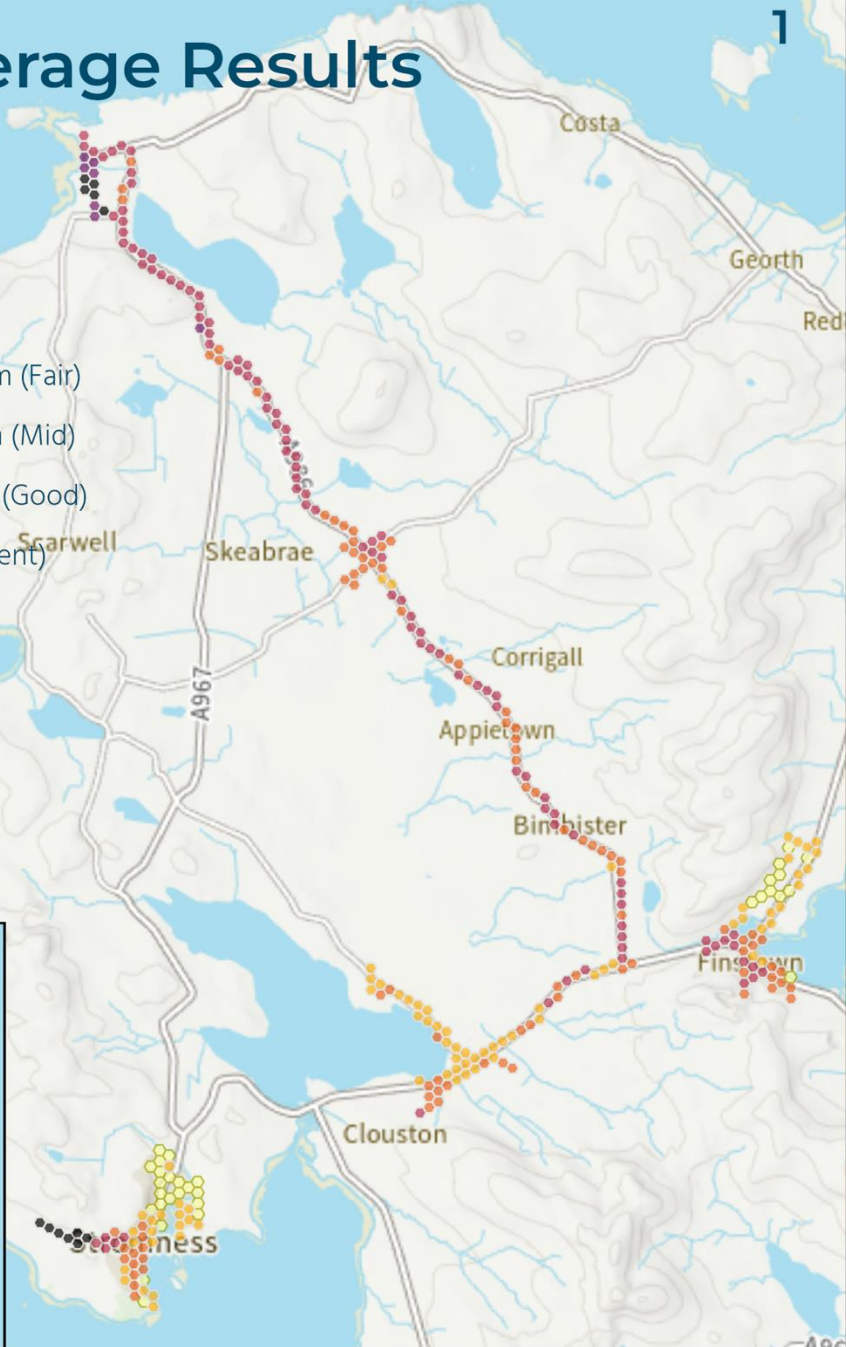
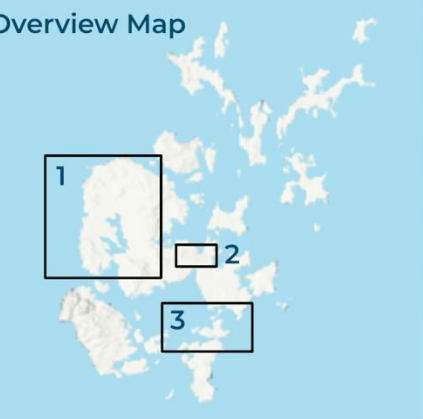
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# Stage 1: Coverage Results

Vodafone

4G Average RSRP

- Less than -120dBm (Poor)
- Between -100 and -120dBm (Fair)
- Between -90 and -100dBm (Mid)
- Between -80 and -90dBm (Good)
- More than -80dBm (Excellent)
- No Coverage



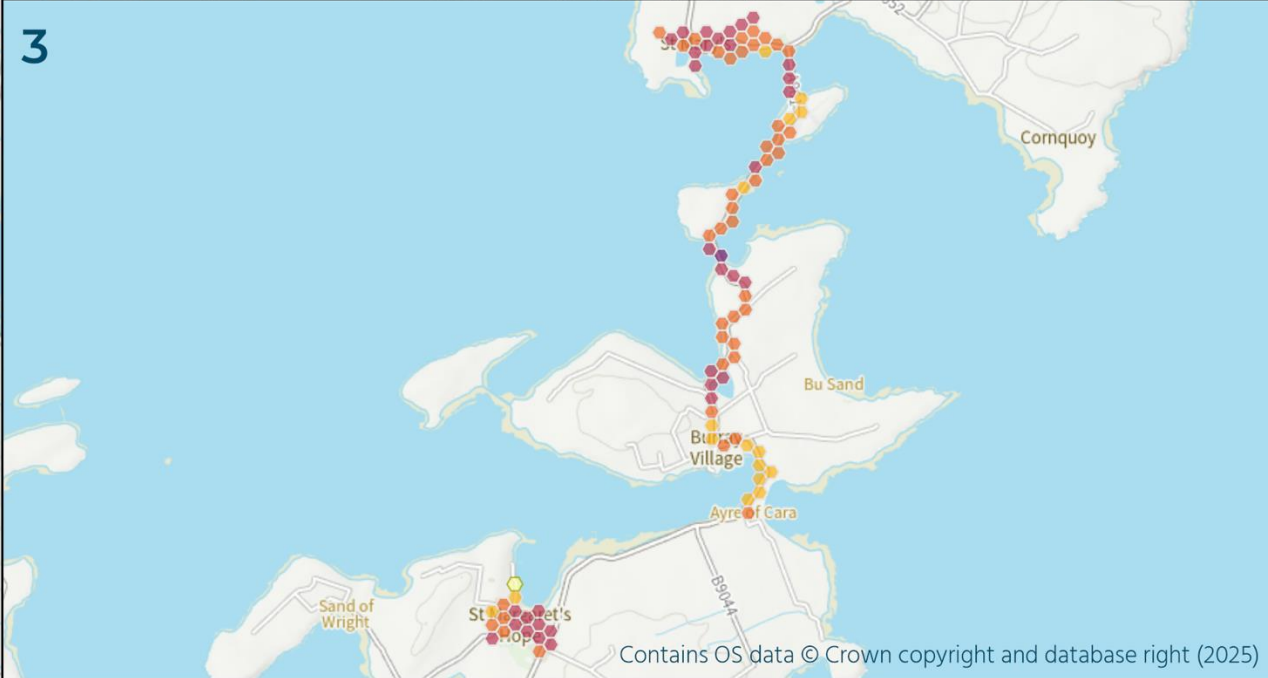
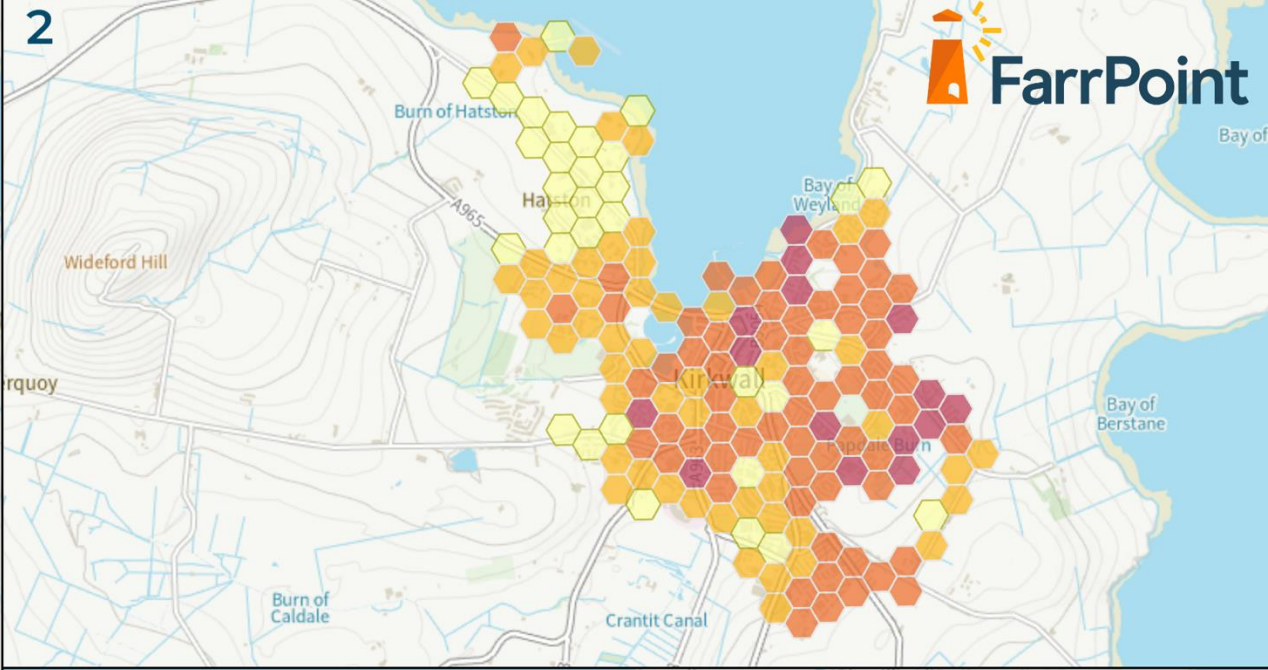
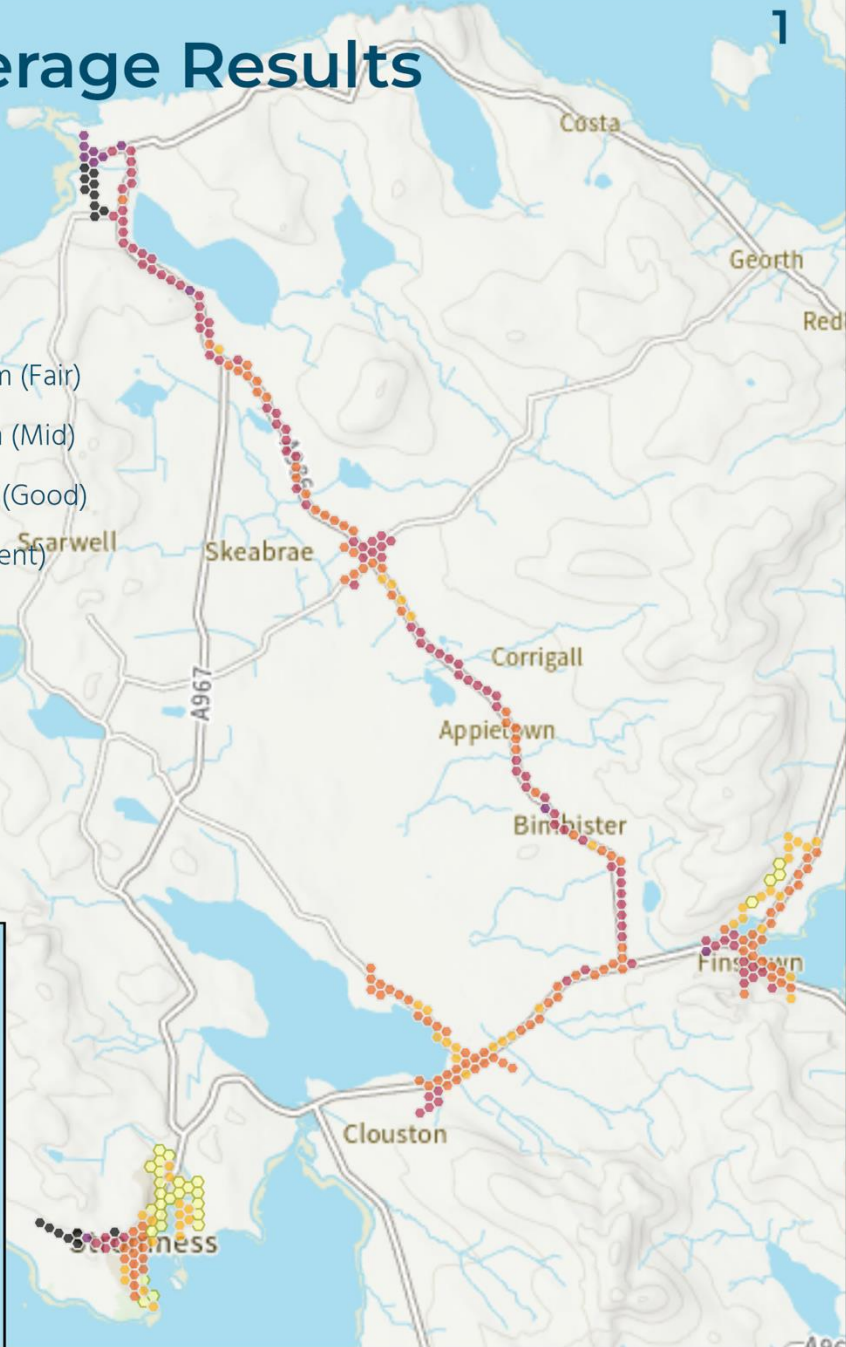
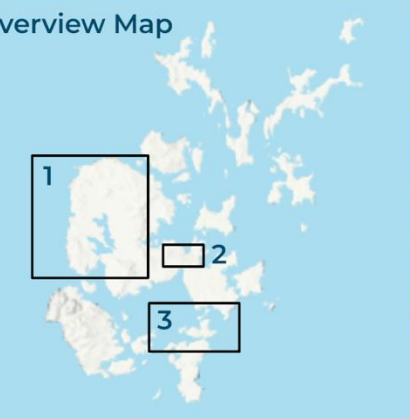


# Stage 1: Coverage Results

O2

4G Average RSRP

- Less than -120dBm (Poor)
- Between -100 and -120dBm (Fair)
- Between -90 and -100dBm (Mid)
- Between -80 and -90dBm (Good)
- More than -80dBm (Excellent)
- No Coverage



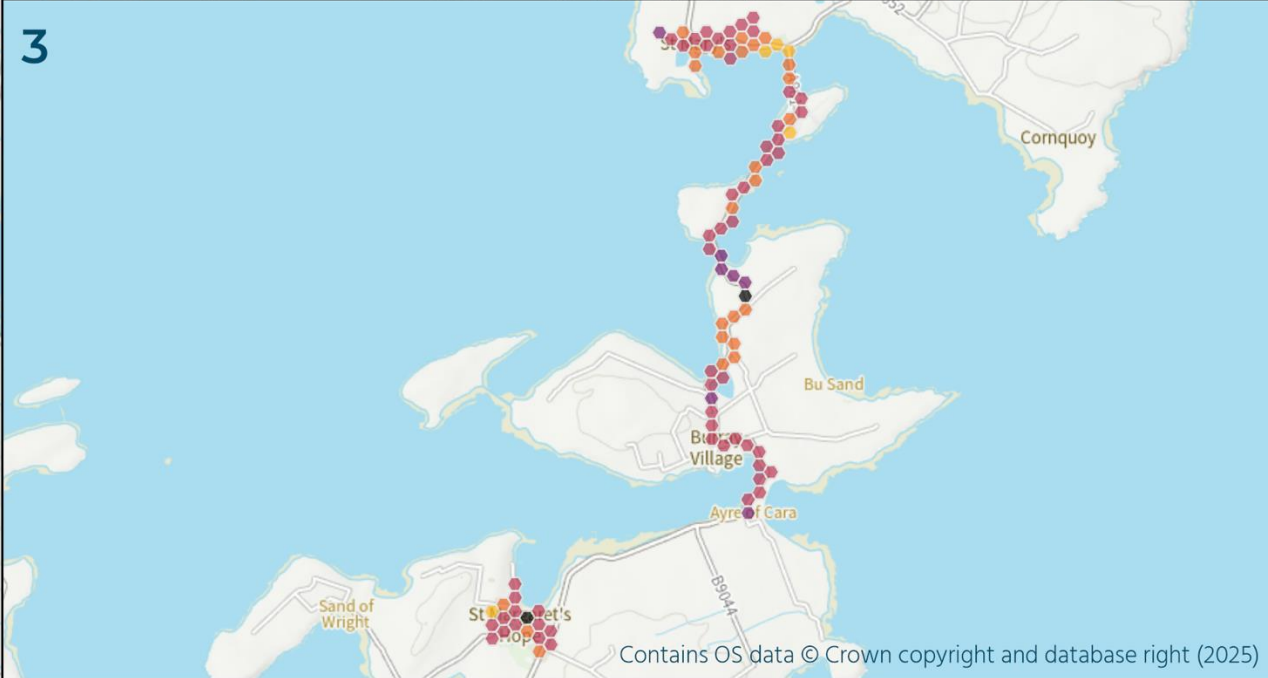
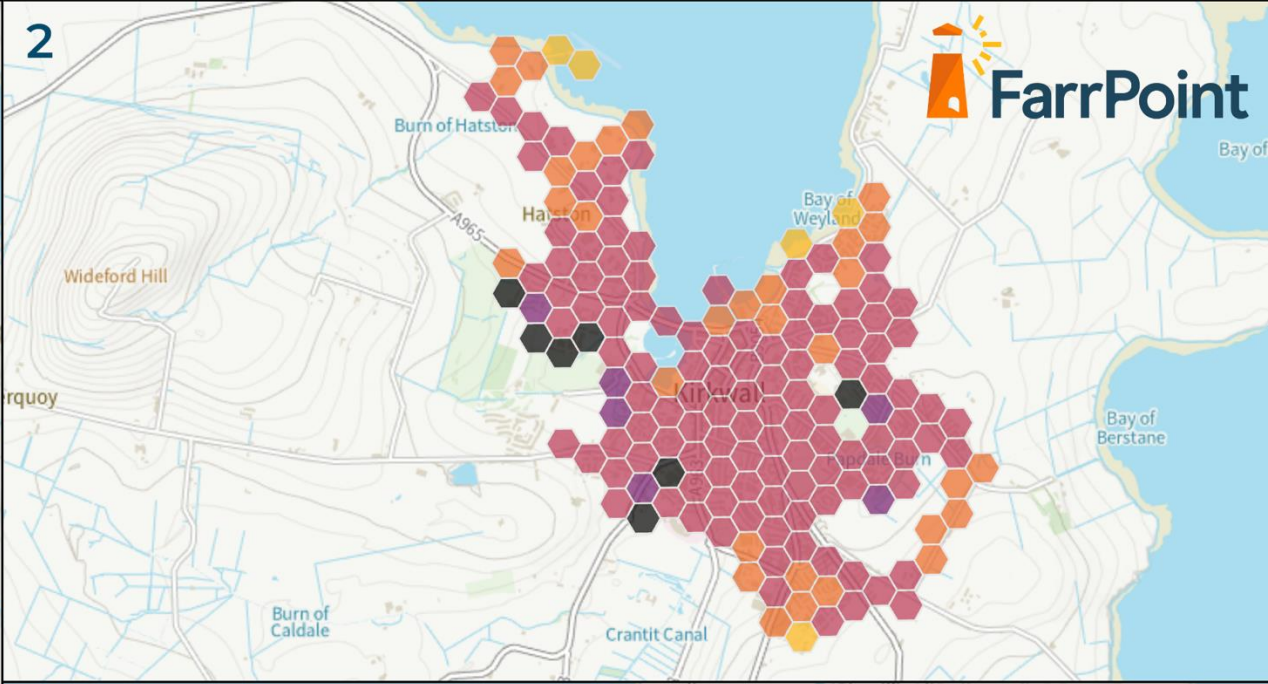
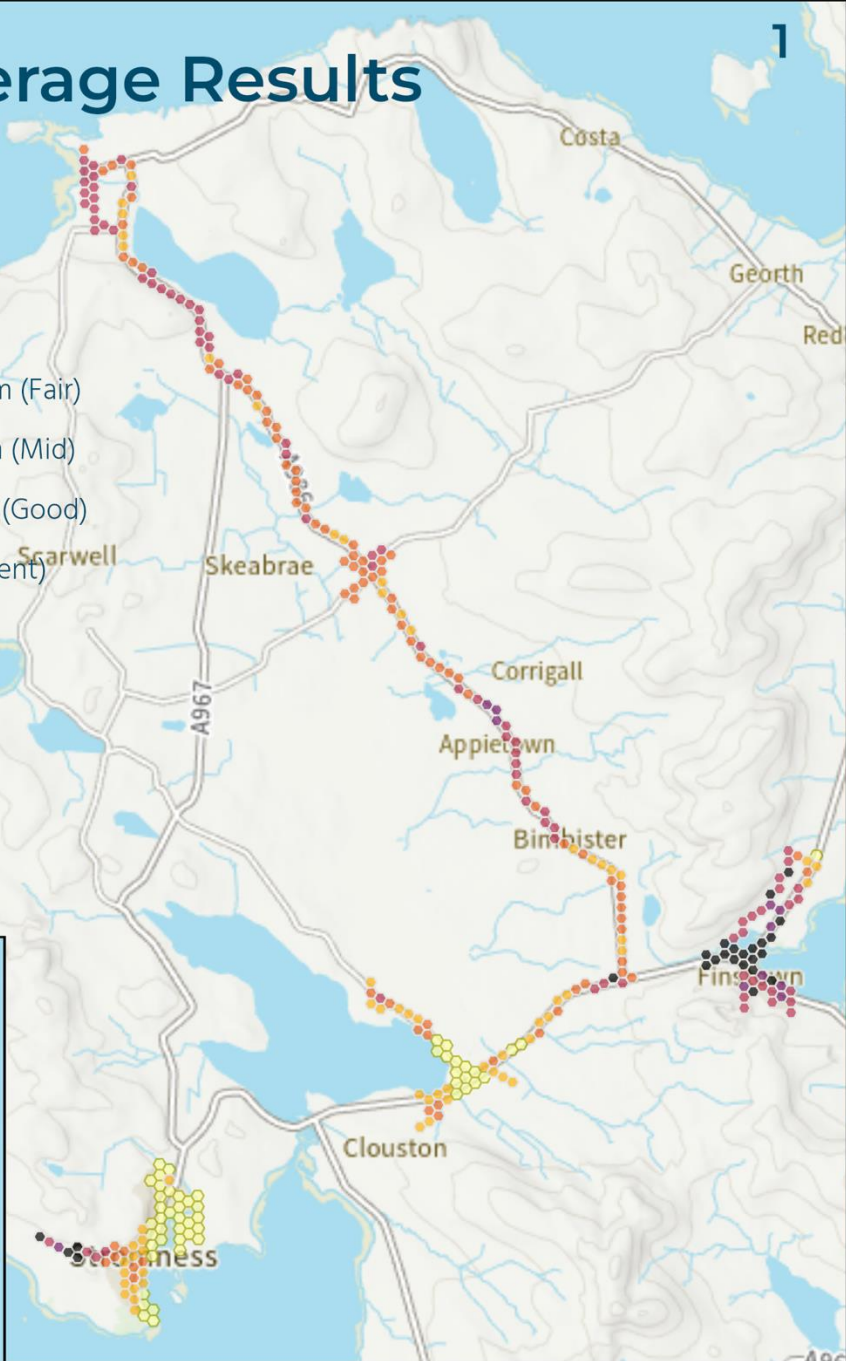
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# Stage 1: Coverage Results

Three

4G Average RSRP

- Less than -120dBm (Poor)
- Between -100 and -120dBm (Fair)
- Between -90 and -100dBm (Mid)
- Between -80 and -90dBm (Good)
- More than -80dBm (Excellent)
- No Coverage



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# Stage 1: Coverage Results

## Conclusions

- **EE** – Overall coverage is relatively poor in Kirkwall and across the barriers to St Margaret’s Hope, with slightly better coverage in the Stromness area.
- **Vodafone** – Coverage is generally good in all areas except the main road to the northwest, which has poor coverage to the north.
- **O2** – Coverage is good in Stromness and in some parts of Kirkwall. However, the road to the northwest and across the barriers, plus St Margaret’s Hope, has more mixed coverage.
- **Three** – Coverage is poor in most areas, with Finstown having almost no coverage. Stromness is the exception from Three, which has good coverage.

## Overall:

- Vodafone and O2 have the best coverage in the main areas surveyed. Three and EE have poorer coverage overall. EE and Three best serve the road heading to the northwest of the mainland.
- However, it is important to recognise that user experience is affected by both coverage and capacity. Where the data suggests reasonable coverage, if user issues remain, then capacity could be an issue that would require the operators to take action.
- Our survey recorded 4G coverage from all four operators, plus Ofcom indicates that O2 has some 5G coverage in Orkney. This will be non-standalone 5G, meaning that a sufficient 4G service is still required to enable access to the 5G network and potentially higher throughputs. Looking ahead, mobile networks will remain on 4G for a significant period of time and it is expected additional operators will deploy 5G in Orkney as networks are refreshed. 5G Standalone coverage will increase in urban areas, but may need further intervention if it was required in more rural areas.



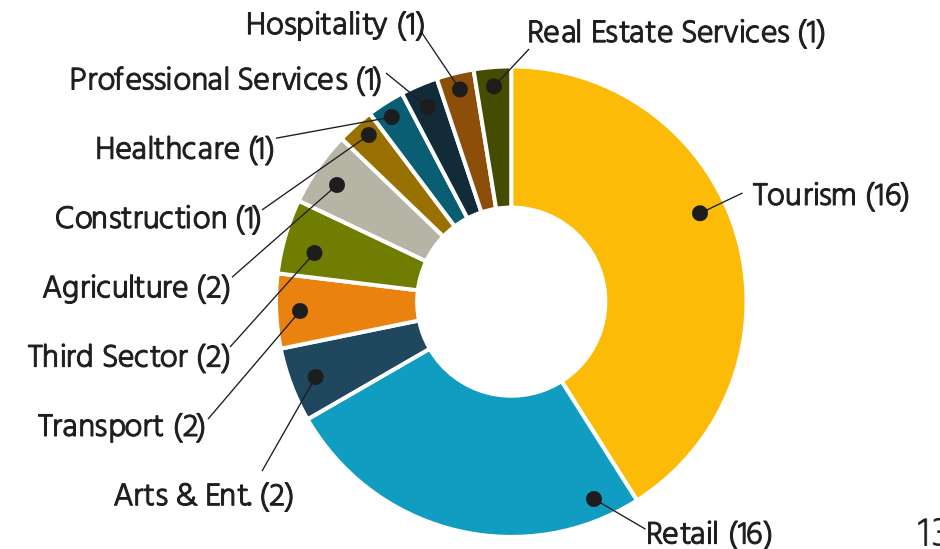
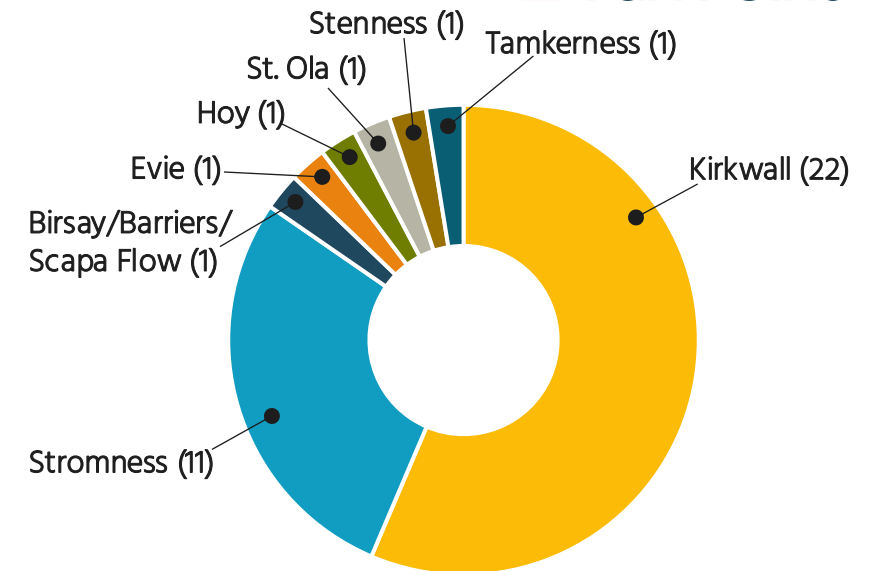
## STAGE 2: USER SURVEY

# Stage 2: User Survey

There were 39 respondents to the business survey, with the majority being based in Kirkwall and Stromness, and within the Tourism and Retail Sectors. All the businesses are SMEs – 44% 0-4 employees, 28% 5-9 employees, and 28% 10-49 employees.

The survey contained questions on:

- Impact of cruise ships being in port on sales revenue, and also whether there were any perceived impacts from more visitors
- Availability and quality of fixed connectivity and what it was used for within the business
- Availability and quality of mobile connectivity and what it was used for within the business
- Future connectivity needs and expectations



# Stage 2: User Survey

## Survey results:

- **No respondents** say cruise ships have a negative impact on revenue (16 positive, 23 no change).
- Only 1 **negative response** on impact of cruise ships (mobile caterer, who is reliant on mobile signal), all other businesses only had positive responses (e.g. one response said – *"I have never heard any business say then have had problems accepting payments."*).
- **Fixed connectivity** is used by most of the businesses for business activity (e.g. emails, online sales, marketing, suppliers/stock management, Point of Sales).
- Issues with fixed connectivity suggest that it is often technology related, with some issues reported on unreliable broadband connectivity, however, not linked to high visitor density days.
- **Mobile connectivity** is used by most businesses to supplement fixed broadband as an alternative connection.
- Looking to the future, key improvements for local connectivity would be based upon **faster speeds**, more **reliable** services and **lower costs**. Wider evidence shows demand for mobile data is not increasingly exponentially and in fact nationally the annual growth rate is reducing and starting to plateau.
- On mobile connectivity in particular, the key improvement was for **better signal strength**.



## STAGE 3: ECONOMIC IMPACT ASSESSMENT



# Stage 3: Economic Impact

## The results show ...

- There is limited impact on businesses from poor quality mobile connectivity due to the increase in people from cruise liners. Whilst there may be some capacity issues impacting the tourists themselves, the effect of this is not reported by the businesses themselves.
- Most businesses rely on fixed connectivity for business activity.
- The current use of digital connectivity by businesses is mostly day-to-day activity – e.g. emails, online sales, marketing, suppliers/stock management, Point of Sales. This does not require high bandwidth or low latency connectivity.
- Most businesses use mobile connectivity for resilience purposes rather than primary connectivity. There was only one mobile caterer that relied on it as a primary solution.
- Most businesses highlight a general need for better, more reliable connectivity.





# Conclusions

- There is a mixed picture across operators for mobile coverage. Vodafone and O2 have the best coverage in the main areas surveyed. Three and EE have worse coverage overall, apart from the road heading to the northwest of the mainland.
- The economic assessment showed that whilst poor mobile coverage may lead to issues for tourists and the local community when they are online, as the majority of business use cases require fixed connectivity, the impact of poor mobile connectivity on the local business community in Kirkwall appears limited.
- There are opportunities for improving mobile coverage across Orkney, although any improvements would not be driven by economic benefits to address issues from cruise ships.
- Improvements should be focused on coverage where there is a demonstrated need, capacity where this is an issue in town centres, and a review of overall resilience to ensure high availability of service.



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