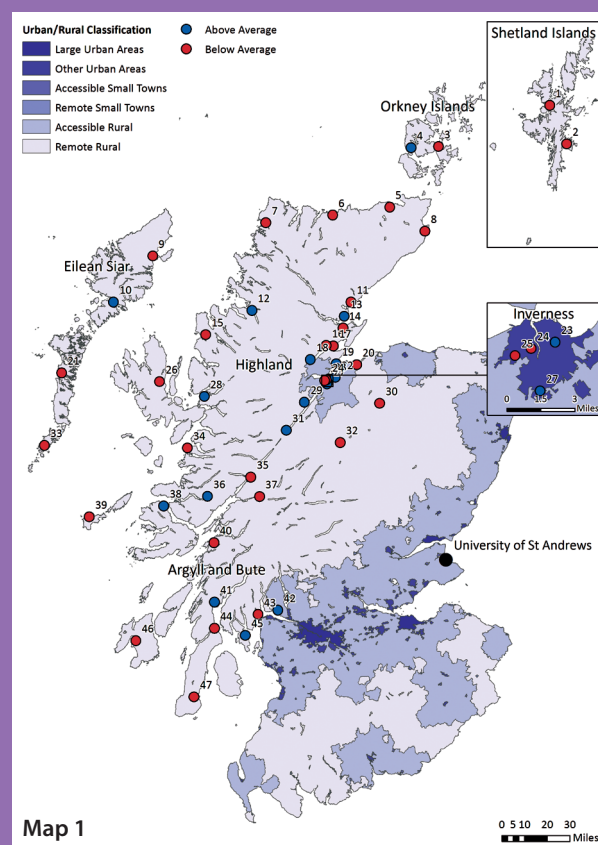# Report

Access to Higher Education for Rural Communities
An exploratory analysis

Traditional socio-economic factors cannot solely explain why state secondary schools located in Scottish rural communities tend to have (i) greater variation of progressions to Higher Education (HE) year on year than other areas of Scotland, (ii) a lower three-year average progression rate to HE than the national average of 36%.

This exploratory research examines some of the unique issues in accessing HE of pupils living in Scottish rural communities, in particular Argyll & Bute, Highland, Eilean Siar (Western Isles), Orkney Islands and Shetland Islands. Many of these communities are hard-to-reach and in some of the least deprived areas of Scotland. Despite this, some pupils come from disadvantaged socio-economic backgrounds. All pupils face large pecuniary and non-pecuniary costs to study at HE.

This map represents Scotland according to the degree of rurality (six-fold classification). It also shows the 47 state secondary schools in Argyll & Bute, Highland, Eilean Siar, Orkney Islands and Shetland Islands. The latter are distinguished by their three-year average progression rate to HE. In blue are those above the national average. In red are those that are equal or below the national average.

Map 1

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More information at: www.st-andrews.ac.uk/study/access/school-college-projects/arc

Acknowledgements

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Disclaimer

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Summary finding and guiding principles

Traditional socio-economic factors cannot solely explain why state secondary schools located in Scottish rural communities tend to have:

- greater variation of progression to higher education (HE) year on year than other areas of Scotland
- a lower three-year average progression rate to HE than the national average of 36%.

This exploratory research examines some of the unique issues in accessing HE for pupils living in Scottish rural communities, in particular Argyll & Bute, Highland, Eilean Siar (Western Isles), Orkney Islands and Shetland Islands. Many of these communities are hard to reach and in some of the least deprived areas of Scotland. Despite this, some pupils come from disadvantaged socio-economic backgrounds. All pupils face large pecuniary and non-pecuniary costs to study in HE.

This research was funded by the University of St Andrews, the Scottish Funding Council and the Scottish Government. It is one of the two components of the ARC (Access for Rural Communities) project, a pioneering project aimed at supporting and enabling young learners from these rural communities on their journey into university. The second component is a platform for pupils to explore opportunities in HE.

This report gathers some evidence to gain a better understanding of the perception of access to HE from the Scottish rural communities, in particular those located in Argyll & Bute, Highland, Eilean Siar (Western Isles), Orkney Islands and Shetland Islands, i.e. the ARC region.

It proposes **five guiding principles** to ensure that young people living in these rural communities have equal opportunities to attend highly competitive courses offered at Scottish institutions and in turn to realise a positive destination.

The first two guiding principles are limited to the ARC region. They aim to increase participation in HE by pupils coming from this region.

1. Support ARC as a future access outreach project

This innovative approach of targeting rural areas has allowed the University of St Andrews to approach S4-S6 pupils, parents and carers, teaching and support staff from the ARC region. These local authorities are in areas beyond the University's 'natural' catchment areas in terms of widening participation (WP) activities.

We recommend that all operational and project work is continued in order to build on the initial project and to increase participation in HE by pupils coming from the ARC region.

2. Reduce the financial barriers for prospective students from the ARC region

The main barrier to HE for those in the ARC region is financial. Pupils (and staff) feel that they face additional financial costs to access HE and succeed in HE.

We recommend that measures such as travel and accommodation bursaries are put in place to reduce the financial costs of travelling to and attending university, in order to promote:
- better access for university open days and HE and career conventions
- undertaking undergraduate studies at universities outside the pupils' current frame of reference.

The following three guiding principles are not limited to the ARC region. They aim to increase clear communication between secondary schools, in particular those from rural communities, and Scottish HE institutions.

3. Encourage Scottish HE institutions to consider rurality in their outreach activities

Some pupils living in rural communities need extra support in accessing HE. However, as they do not live in SIMD20 or SIMD40 or do not form 'large' pools of prospective students, they are not seen as 'traditional' targets for student recruitment or WP activities.

We recommend that a coordinated outreach initiative is put in place for pupils (and their parents or carers, teaching and support staff) from all remote Scottish areas.

This would bring the benefit of accessing HE institutions beyond their natural destination. Overall, more pupils from remote areas would be enrolled across more Scottish HE institutions.

4. Develop a cultural awareness towards HE from the applicants' perspective

To improve transition to HE and prevent non-progression of undergraduate studies, pupils should have a clearer idea about subjects they could study at university and what these subjects lead to in terms of professions. Information about subjects, degree programmes and professions should be explored by prospective students in their own time and according to their preferences.

We recommend that the development of the study choice portal continues and that it is tested by secondary pupils.

5. Measuring remoteness in a contextualised admissions system at institutional level

Applications from students in all remote Scottish rural communities should be contextualised at the admissions stage and their applications viewed in light of the barriers that come with living in such rural areas.

The current urban/rural classification is not satisfactory as it does not capture the reduced curriculum issue and the perception of distance.

We recommend that information on reduced subject choice in rural secondary schools is gathered at national level through a school curriculum database and that each Scottish HE institution evaluates the perception of distance according to the criteria highlighted in the report.

This would in turn enable contextualised offers to be made in the same way as for more urban access applicants.

Introduction

This exploratory research examines some of the unique issues in accessing HE faced by pupils living in Scottish rural communities, in particular Argyll & Bute, Highland, Eilean Siar, Orkney Islands and Shetland Islands, i.e. the ARC region. It assesses the effect of rurality on access to HE in Scotland, in particular to the University of St Andrews. It gathers evidence to gain a better understanding of the perception of access to HE from these rural communities. It proposes five guiding principles to ensure that young people living there have equal opportunities to attend highly competitive courses offered at Scottish institutions and in turn to realise a positive destination.

The research shows that many of these communities are hard to reach and in some of the least deprived areas of Scotland. Despite this, some pupils come from disadvantaged socio-economic backgrounds. All pupils face large pecuniary and non-pecuniary costs in studying at HE. Some of these can be higher than those of their peers living in more urban settings.

This research was articulated around:
- the University of St Andrews' proximity to these Scottish rural communities
- how to capture the difficulty of geographical access to an HE institution from these Scottish rural communities.

- **The University of St Andrews' proximity to Scottish rural communities**

Our aim was to have a better understanding of the perception of access to HE, in particular to the University of St Andrews, from the pupils living in the ARC region. Our objectives were:
- o to list the obstacles to HE, in particular competitive HE courses, from the perspective of pupils living in these rural communities
- o to provide simple representations of secondary school characteristics in these rural areas and the proximity of the University of St Andrews to these rural communities
- o to provide evidence to outreach managers to work more effectively with pupils and school liaisons in these rural communities
- o to disseminate our findings to all stakeholders.

This perception was analysed from mixed research methods.

On the one hand, questionnaires were designed to establish students' attitudes towards HE, in particular towards the University of St Andrews. Their analysis allowed us to evaluate the young people's attitudes towards the labour market and education and the pupils' perception of barriers to HE, in particular to the University of St Andrews.

On the other hand, maps were developed to represent the perception of geographical, monetary and transportation distance between the ARC region and the University of St Andrews. Specifically, these representations were in terms of mileage distance, journey duration, fare, or any of their combination.

- **How to capture the difficulty of geographical access to an HE institution from these Scottish rural communities?**

Our aim was to develop an index reflecting the level of geographical access to HE from Scottish rural communities. This index had to depart from rural/urban classification to reflect these barriers. It would be added to various indicators used in contextualised admissions. Our objectives were:
- o to combine measures of remoteness to develop an index reflecting the level of access to the University of St Andrews
- o to establish a metric from these indicators which could be used to flag applications from students living in these rural communities
- o to make these indicators meaningful to all stakeholders.

This report is structured in six chapters.

Chapter 1 gives the main facts about the ARC region and the state secondary schools located in the ARC region. First, it highlights that the SIMD criterion is not adequate to measure deprivation in rural Scotland. Second, there is a lower three-year average progression rate to HE in the ARC region than the national average of 36%. Finally, there are great variations of progression to HE among schools in the ARC region.

Chapter 2 provides more detailed information about university destinations and subjects studied at university from Scottish students studying on a full-time course at a UK institution in 2012-13. All were domiciled in Scotland prior to the commencement of their studies in HE. We compare the destinations and subjects of all students and those of students who attended a school located in the ARC region. In both cases, we show that there exist some discrepancies depending on the area they were coming from and the type of school they attended.

Chapter 3 provides representations of the perception of geographical, monetary and transportation distance between secondary state schools in the ARC region and the University of St Andrews. Specifically, these representations are in terms of mileage distance, journey duration, fare, or any combination of these factors. From these, we create two indexes that reflect the difficulty of geographical access to the University of St Andrews.

Chapters 4 and 5 gather evidence that aims to provide a better understanding of the perception of access to HE from the people living in the ARC region who experience it directly (pupils) or indirectly (school staff and quality improvement officers). We highlight that young people from the ARC region face similar access issues to their peers, i.e. pecuniary and non-pecuniary costs. However, some of these costs are larger for them than for their peers because of where they live. They are felt to be even higher for those living in the Scottish islands. Barriers to the University of St Andrews are perceived to be higher than the barriers to other universities. These barriers might not be geographical or financial, but educational.

From the start, the ARC project has motivated the development of new tools to support young learners in their journey to HE. Our research, the research component of the ARC project, participates in this development and proposes a new electronic tool to assist young learners in their course choice.

Chapter 6 provides an overview of the exploratory phase of a study choice portal matching interests, professions and degree programmes. As chapters 4 and 5 highlight, there seems to be a need for more information about HE courses provided in Scotland. This portal aims to assist Scottish secondary students aspiring to pursue their education in HE in Scotland to choose the courses they wish to study at university. It allows students to explore at their own pace links between academic subjects that they may choose to study at university (e.g. Economics, Divinity, Computer Science), activities that they may enjoy or are willing to try (e.g. collecting data, giving travel advice) and professions that they would like to do or are willing to try (e.g. architect, nurse).

Please note that chapters 3, 4 and 6 begin with citations of some young people living in the ARC region collected in the research interviews.

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1.   ARC region in figures

- Five local authorities mostly in remote rural areas
- 47 state secondary schools (thereafter 'ARC schools') and one independent school
- 10 ARC schools in Argyll & Bute, four in Eilean Siar, 29 in Highland, two in Orkney Islands and two in Shetland Islands
- 10 ARC schools located in the 40% most deprived areas of Scotland
- 19 ARC schools located in the 40% least deprived areas of Scotland
- A progression rate to HE below the national average

ARC region – basic facts (cf. Map 1 and Table 1.1)

The ARC region comprises five local authorities: Argyll & Bute, Eilean Siar, Highland, Orkney Islands and Shetland Islands.

The 47 state secondary schools and one independent school are located in one of the most rural areas within Scotland.

The majority of these ARC schools are not located in the 20% or 40% most deprived areas in Scotland (thereafter 'SIMD20' or 'SIMD40') and have a lower than average progression rate to HE.

SIMD (Scottish Index of Multiple Deprivation)

No ARC school is in SIMD20.

10 ARC schools, i.e. 21%, are in SIMD40.

19 ARC schools, i.e. 41%, are among the 40% least deprived areas in Scotland and four ARC schools, i.e. 9%, among the 20% least deprived areas in Scotland.

This discrepancy is reflected at the local authority level.

A fifth of the ARC schools in Argyll & Bute and a quarter of the ARC schools in either Eilean Siar or Highland are in SIMD40. 70% of the ARC schools in SIMD40 are in Highland.

The vast majority of ARC schools in the 40% least deprived areas in Scotland are in Highland, i.e. 10 out of 15. No ARC schools in Eilean Siar are in the 40% least deprived areas in Scotland.

All four ARC schools in the 20% least deprived areas in Scotland are in Highland.

It is well known that the SIMD indicator better captures areas of deprivation in urban areas than rural areas (Rural Scotland in Focus report, 2014, p 79, www.sruc.ac.uk). In Argyll & Bute, there are only 33 SIMD20 and SIMD40 out of 123 zones; in Eilean Siar, 14 out of 36; in Highland, 81 out of 292; in Orkney Islands, 5 out of 27; in Shetland Islands, 1 out of 30. 'Eilean Siar, (…) Orkney Islands and Shetland Islands do not have any data zones in the 15% most deprived in the SIMD2012 - this does not mean that there is no deprivation in these areas; rather that it is not concentrated in small areas.'(Scottish Government, 2012, p 7, http://simd.scotland.gov.uk/publication-2012).

Three-year average progression rate to HE (2010-11 / 2012-13)

The three-year Scottish average progression rate to HE is 36%.

In the ARC region, the percentage is below the national rate and is equal to 34%.

In two local authorities of the ARC region, the percentage is above the national rate. It is equal to 37% in Eilean Siar and 38% in Orkney Islands.

In the remaining three local authorities, the percentage is equal to or less than the national rate. It is equal to 36% in Argyll & Bute, 34% in Highland and 28% in Shetland Islands.

This discrepancy is also reflected at the school level.

17 ARC schools, i.e. 36% of the 47 ARC schools, have a higher than average progression rate to HE. They are marked in blue in Map 1 and Table 1.1.

28 schools across the ARC region have a lower than average rate to HE and two schools have just attained 36%. These are marked in red in Map 1 and Table 1.1.

Table 1.1: The 47 ARC schools

Map #	ARC school name	LA	% Pg to HE	SIMD quintile
1	Brae High School	SI	22	4
2	Anderson High School	SI	33	3
3	Kirkwall Grammar School	OI	36	3
4	Stromness Academy	OI	39	4
5	Thurso High School	H	34	2
6	Farr High School	H	35	3
7	Kinlochbervie High School	H	34	3
8	Wick High School	H	34	2
9	The Nicolson Institute	ES	35	2
10	Sir E Scott School	ES	45	3
11	Golspie High School	H	26	3
12	Ullapool High School	H	43	4
13	Dornoch Academy	H	47	4
14	Tain Royal Academy	H	24	2
15	Gairloch High School	H	34	3
16	Alness Academy	H	12	2
17	Invergordon Academy	H	23	3
18	Dingwall Academy	H	38	3
19	Fortrose Academy	H	51	5
20	Nairn Academy	H	31	3
21	Sgoil Lionacleit	ES	35	3
22	Culloden Academy	H	37	5
23	Millburn Academy	H	43	3
24	Inverness High School	H	14	4
25	Charleston Academy	H	36	2
26	Portree High School	H	29	2
27	Inverness Royal Academy	H	41	5
28	Plockton High School	H	42	4
29	Glen Urquhart High School	H	49	4
30	Grantown Grammar School	H	28	4
31	Kilchuimen Academy	H	43	4
32	Kingussie High School	H	24	5
33	Castlebay Community School	ES	32	3
34	Mallaig High School	H	31	4
35	Lochaber High School	H	29	4
36	Ardnamurchan High School	H	43	4
37	Kinlochleven High School	H	24	2
38	Tobermory High School	A & B	49	4
39	Tiree High School	A & B	27	3
40	Oban High School	A & B	31	2
41	Lochgilphead High School	A & B	44	3
42	Hermitage Academy	A & B	41	4
43	Dunoon Grammar School	A & B	35	3
44	Tarbert Academy	A & B	35	4
45	Rothesay Academy	A & B	41	2
46	Islay High School	A & B	24	3
47	Campbeltown Grammar School	A & B	34	3

Map #:   ARC schools are numbered by latitude.
LA: Local authority. A & B: Argyll & Bute. ES: Eilean Siar. H: Highland. OI: Orkney Islands.
                SI: Shetland Islands
% Pg to HE: three-year average progression rate to HE (2010-11 / 2012-13). In blue are the ARC schools
                above the national average. In red are those equal to or below the national average.
SIMD quintile: 1 = 20% most deprived areas in Scotland; 5 = 20% least deprived areas in Scotland.
Shaded in light red are the ARC schools whose postcodes are in the 40% most deprived areas in Scotland.

2.   ARC region in context

Destination of full-time students from the ARC region in 2012-13

- 5,868 full-time students (entrants or returners) from the ARC region studying a course in UK institutions, i.e. 7% of full-time Scottish students studying a course in UK institutions
  - Preferred HE institution destination: the University of Highlands and Islands
- 4,712 full-time students (entrants or returners) drawn from an ARC school studying a course in a Scottish institution, i.e. 9.4% of full-time Scottish students drawn from state secondary schools
  - Preferred HE institution destination: universities in Glasgow
- 61.7% full-time students studying a full-time course from the ARC region attended an ARC school in Highland, 18.7% in Argyll & Bute, 7.5% Eilean Siar, 6.5% Shetland Islands and 5.6% Orkney Islands.

ARC region vs Scotland – all UK HE institution destinations regardless of secondary schools

In 2012-13, full-time students who had a domicile in the ARC region prior to the commencement of their studies in HE were more likely than their Scottish counterparts:

- to have attended a state secondary school, in particular in Highland
- to be enrolled in a Scottish institution, in particular the University of Highlands and Islands.

As indicated in Table 2.1, most students coming from the ARC region were in the state sector prior to the commencement of their studies in HE. Indeed, there is only one independent school in the ARC region (in Argyll & Bute). A few students attended a Further Education (FE) college prior to the commencement of their studies in HE.

In terms of HE institution destination, whereas 4.1% of 82,242 students attended a non-Scottish HE institution, only 2.4% did so from the ARC region (cf. Table 2.1). Their top three HE institution destinations are identical, with a slight change in ranking: Newcastle University, the University of Cambridge and the University of Oxford.

ARC region vs Scotland – Scottish university destination and state secondary school provenance

In 2012-13, there are similar patterns in terms of Scottish HE institution destinations between full-time students who had a domicile in the ARC region and their Scottish counterparts.

As indicated in Table 2.2, their top three Scottish HE institutions are identical, but there are some differences in terms of proportion. The fourth and the fifth institutions are different.

Whereas 14.2% and 14.1% of Scottish students were registered at the University of Glasgow and the University of Strathclyde, there were 11.6% and 11.1% of students from the ARC region, a difference of three percentage points.

10% of the students from the ARC region were registered at the University of Highlands and Islands and only 2.1% of the Scottish students.

Discrepancies in terms of Scottish university destination are noticeable between the local authorities within the ARC region (cf. Table 2.3)

The university destination seems to be dependent on the transport links (cf. Map 3.1) and on the opportunities offered by one of the colleges and learning centres of the University of Highlands and Islands.

A large proportion of students coming from the west of Scotland go to the Glasgow area; those from Highland, Orkney Islands and Shetland Islands go to the Aberdeen area, the University of Highlands and Islands and to a lesser extent the Edinburgh area.

Indeed, more than 40% of students from Argyll & Bute and almost 40% from Eilean Siar were attracted to universities located in Glasgow.

Similar proportions of students from Highland, Shetland Islands and Orkney Islands were attracted to universities located in the Aberdeen area.

Similar proportions of students from those who lived in Highland, Eilean Siar and Shetland Islands were registered at the University of Highlands and Islands.

More than 20% of students from Orkney Islands were registered in a university located in Edinburgh.

Table 2.1: Scottish students studying on a full-time course at a UK institution in 2012-13.
They were domiciled in Scotland prior to the commencement of their studies in HE.

Domicile	Scotland	ARC region
Number of students	84,242	5,868
Type of previous institution: – State schools – Independent schools – Further education colleges	61% 11% 26%	82% 3% 13%
Top 5 local authorities	14% Glasgow 12% Edinburgh 5% Fife 5% Aberdeen 4% Highland *7% The ARC region*	63% Highland 18% Argyll & Bute 8% Eilean Siar 6% Shetland Islands 5% Orkney Islands
HE destination: – Scottish institution – Rest of UK institution	96% 4%	98% 2%
Top 5 Scottish university destinations	12% The University of Glasgow 11% The University of Strathclyde 10% Glasgow Caledonian University 10% The University of the West of Scotland 9% The University of Edinburgh	15% The University of the Highlands and Islands 10% The University of Strathclyde 10% The University of Glasgow 9% Robert Gordon University 9% The University of Edinburgh

Tables 2.2 and 2.3: Scottish students studying for a full-time course at a Scottish institution in 2012-13.
They were domiciled in Scotland and attended a state secondary school prior to the commencement of their studies in HE.

ARC REGION

Number of students: 4,712

Top 5 university destinations
Strathclyde – 12%
Glasgow – 11%
Edinburgh – 10%
Highlands and Islands – 10%
Robert Gordon – 9%

SCOTLAND

Number of students: 50,130

Top 5 university destinations
Strathclyde – 14%
Glasgow – 14%
Edinburgh – 10%
Glasgow Caledonian – 9%
Aberdeen – 7%

Source: Higher Education Statistics Agency (2014)
and HESA (2014) thereafter.

EILEAN SIAR
Number of students: 355
Top 5 university destinations
Strathclyde – 20%
Glasgow – 18%
Highlands and Islands – 13%
Stirling – 10%
Glasgow Caledonian – 9%

ORKNEY ISLANDS
Number of students: 264
Top 5 university destinations
Edinburgh – 14%
Robert Gordon – 12%
Aberdeen – 10%
Heriot-Watt – 8%
Edinburgh Napier – 7%
Stirling – 7%
Strathclyde – 7%
Glasgow – 7%

HIGHLAND
Number of students: 2905
Top 5 university destinations
Highlands and Islands – 12%
Edinburgh – 11%
Robert Gordon – 11%
Glasgow – 10%
Strathclyde – 10%

SHETLAND ISLANDS
Number of students: 305
Top 5 university destinations
Strathclyde – 13%
Highlands and Islands – 12%
Edinburgh – 12%
Aberdeen – 11%
Stirling – 9%
Robert Gordon – 9%

ARGYLL & BUTE
Number of students: 883
Top 5 university destinations
Strathclyde – 15%
Glasgow – 15%
Glasgow Caledonian – 13%
Stirling – 10%
West of Scotland – 8%

Created by Duncan Stewart.

Subjects studied by full-time students from the ARC region in 2012-13
- 5,868 full-time students (entrants or returners) from the ARC region reading a course in UK institutions, i.e. 7% of full-time Scottish students
  - Preferred degree subjects:[1] Business & administrative studies, Engineering & technology, Subjects allied to medicine and Biological studies
- 4,712 full-time students (entrants or returners) reading a course in a Scottish institution drawn from an ARC school, i.e. 9.4% of full-time Scottish students drawn from state schools
  - Preferred degree subjects:[2] Engineering & technology, Biological sciences, Business & administrative studies and Subjects allied to medicine

[1,2]: *This category needs to be analysed with caution. The percentages were given in FTE (full-time equivalent). Courses that students aim for may contain more than one subject, e.g. Chemistry and Physics.*

ARC region vs Scotland – subjects regardless of secondary schools (cf. Table 2.4)
In 2012-13, full-time students who had a domicile in the ARC region prior to the commencement of their studies in HE were more likely than their Scottish counterparts to study Engineering & technology.

ARC region vs Scotland – subjects and state secondary school provenance (cf. Table 2.5)
In 2012-13, there are similar patterns between full-time students who had a domicile in the ARC region and their Scottish counterparts.

As indicated in Table 2.5, the top four degree subjects are identical between both categories of students, only their ranking differs.

No discrepancies in terms of subjects are noticeable between the local authorities within the ARC region (cf. Table 2.6)

No large discrepancies in terms of degree subjects are noticeable between the local authorities within the ARC Region. Science subjects are clear favourites, in particular Engineering & technology and Biological sciences. If we restrict the number of subjects to four, Business & administrative studies is the only non-Science subject common to all local authorities within the ARC region.

Table 2.4: Scottish students studying on a full-time course at a UK institution in 2012-13. They were domiciled in Scotland prior to the commencement of their studies in HE.

Domicile	Scotland	ARC region
Number of students	84,242	5,868

Top 5 subjects[3]	13.1% Business & administrative studies (BusAdm)
	12.6% Subjects allied to medicine (SubMed)
	11.4% Biological sciences (BioSci)
	  9.8% Engineering & technology (EngTech)
	  8.5% Social studies (SocStu)
		12.5% BusAdm
		12.4% EngTech
		12.4% SubMed
		11.2% BioSci
		  8.0% SocStu

Table 2.5: Scottish students studying on a full-time course at a UK institution in 2012-13. They were domiciled in Scotland and attended a state secondary school prior to the commencement of their studies in HE.

Domicile	Scotland	ARC region
Number of students	50,310	4,712

Top 5 subjects[3]	13.1% BusAdm
	12.4% BioSci
	11.3% EngTech
	10.1% SubMed
	  7.3% SocStu
		12.6% EngTech
		12.0% BioSci
		12.0% BusAdm
		11.7% SubMed
		  7.7% Physical sciences (PhySci)

Table 2.6: Scottish students studying on a full-time course at a UK institution in 2012-13. They were domiciled in Scotland and attended a state secondary school prior to the commencement of their studies in HE.

Domicile	Argyll & Bute	Eilean Siar	Highland	Orkney Islands	Shetland Islands
Number of students	883	355	2,905	264	305

Top 5 subjects[3]	12.9% SubMed
	12.6% BioSci
	12.3% EngTech
	12.2% BusAdm
	  6.9% SocStu
		14.6% EngTech
		13.7% SubMed
		  9.8% BusAdm
		  9.0% BioSci
		  8.4% Languages
			12.8% BusAdm
			12.2% EngTech
			11.6% SubMed
			11.6% BioSci
			  8.0% PhySci
				13.6% BioSci
				11.4% EngTech
				10.8% SubMed
				  9.5% BusAdm
				  9.4% PhySci
					16.9% BioSci
					15.4% EngTech
					  8.3% PhySci
					  8.1% BusAdm
					  8.0% SocStu

[3]: *This category needs to be analysed with caution. The percentages were given in FTE (full-time equivalent). Courses that students aim for may contain more than one subject, e.g. Chemistry and Physics.*

Source: HESA (2014)

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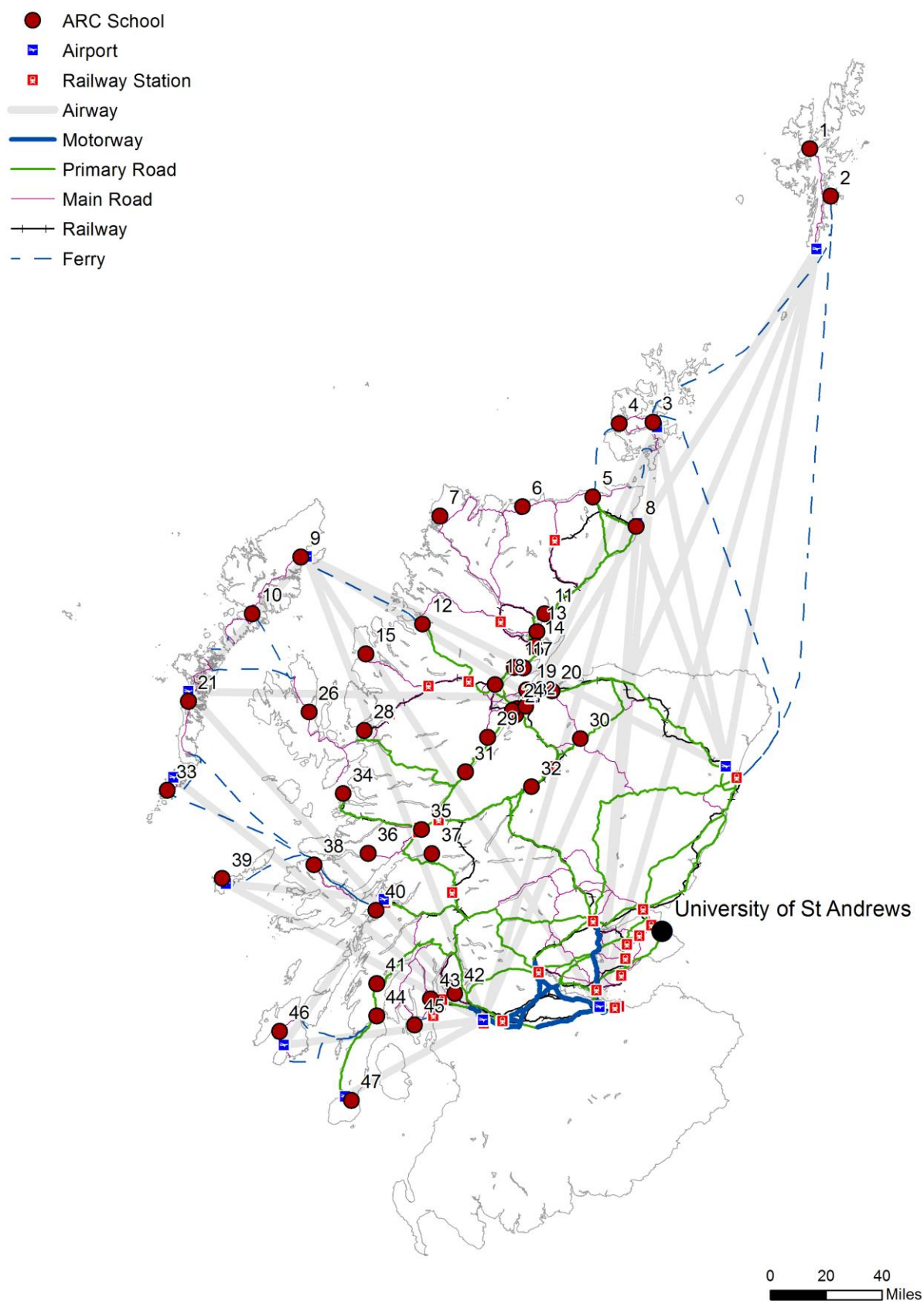
Map 3.1: Transport networks between each ARC school and the University of St Andrews

'It's difficult to get to all the open days that I wanted to, but I only managed to get to one because it's quite expensive and there are limited buses. I applied to Dundee and Edinburgh, but even it was difficult getting there, that'd be 3 buses or something. I went to Strathclyde's open day and I spent £20 on a return bus journey, plus because of the awkward times of the buses, it meant I had to hang around for ages as well. It's sort of a bad point as well about living here.'
(Male pupil, S6, ARC school, February 2015)

'I'd rather go to Glasgow [Strathclyde] than Edinburgh or somewhere and I think it's handy for me as well because it's next to the train and the bus station, I can get home if I need to, see my mum and dad quite easily.'
(Male pupil, S6, ARC school, February 2015)

3. Hard to reach communities and hard to reach university

Chapter 3 provides representations of the perception of geographical, monetary and transportation distance between the ARC schools and the University of St Andrews. Specifically, these representations are in terms of mileage, journey duration, fare, or any combination of these factors. From these, we create two indexes that reflect the difficulty of geographical access to the University of St Andrews.

Transport mileage
- All ARC schools are closer to St Andrews in a straight line than London is from St Andrews.
- Two ARC schools are further from St Andrews by road mileage than London is from St Andrews.

Transport duration
- The journey duration from two ARC schools to St Andrews takes longer by private transport than that taken from London to St Andrews.
- The journey duration from 20 ARC schools to St Andrews takes longer by public transport than that taken from London to St Andrews.

Transport cost
- Eight ARC schools are twice as expensive to travel to St Andrews by public transport as by private transport.
- Five ARC schools are two times less expensive to travel to St Andrews by public transport than by private transport.

Access from the University of St Andrews to the ARC schools
- It is impossible to travel by public transport from St Andrews to 17 ARC schools for a weekend.
- For 15 ARC schools, the duration of the weekend at home is more than 36 hours.
- For three ARC schools, the duration of the journey is longer than the length of time at home.

Representing geographical access in a HE context
- The most reliable elements are transport mileage and transport duration.
- The representation should be based on the location of the school in relation to the location of the HE institution.

3.1   Introduction – notion of proximity in terms of mileage, journey duration and cost

Briefly speaking, when people think about distance or travel, they take various factors and their means of transport into account. The three most commonly used factors are the road mileage, the cost of the journey and the journey duration. When making the decision of travelling by private transport or by public transport, people will most likely weigh the cost and duration of the former with that of the latter.

The University of St Andrews is located in a small town on the north-east coast of rural Fife. St Andrews has a population of 16,870 (2011 census). The University population (staff and students) numbers nearly 9,000. The bus station is situated near the town centre. It links the town to all Fife and Dundee, Edinburgh and Glasgow. The closest train railway station is in Leuchars (5 miles) which is on the main line between Edinburgh and Aberdeen. The location of St Andrews and the absence of a railway station are often interpreted as geographical isolation and could represent a geographical barrier (cf. Appendix 3.1).

How far is far?
The easiest way to represent the 'distance' between the 47 ARC schools and the University of St Andrews is to indicate their location on a map. However, without transport links, journey costs or journey duration, Map 1 can be misleading.

Example: school 5 and school 39
Mileage
In a straight line, school 5 is as far away from the University of St Andrews as school 39, i.e. almost 160 miles. But in terms of road mileage, school 39 is much closer, 196 miles against 257.

Journey duration
If the travel is undertaken by private transport, the journey from school 5 to the University of St Andrews takes six hours, whereas the journey from school 39 takes almost seven hours.
If the travel is undertaken by public transport, the journey from school 5 to the University takes almost seven hours, whereas the journey from school 39 takes almost 13 hours.
Travelling by public transport from the University to school 5 for an October weekend is possible, but it is impossible to do so for school 39.

Journey cost
Travelling by private transport from school 5 to the University of St Andrews costs only £34, but almost £84 from school 39. Travelling by public transport from school 39 is much cheaper, it only costs £42, i.e. £13 less than from school 5.

Some people would say that school 5 is further from the university because of road mileage. Others would say that school 39 is further because of the travel duration. But if the journey must be done by the cheapest form of public transport, school 5 becomes further.

3.2   Comparing mileage, journey duration and journey cost

3.2.1   Data and research methods
Data are provided by National Records of Scotland (NRS) data © Crown copyright and database right 2014, Ordnance Survey data © Crown Copyright and database right 2014; ViaMichelin Maps and route planner (2014); Traveline Scotland (2014).

As this is exploratory research, the ARC school postcode was used for origin and the St Andrews bus station was used for destination. The journey origin can be misleading as the school catchment area can be very large. The journey destination is less problematic. St Andrews bus station represents a place most evenly accessible to university halls of residence and place of registration.

The Euclidean distance (or straight line) was calculated in ArcMap after identifying the OS coordinates of the main ARC school buildings and College Gate of the University of St Andrews, College Gate being the contact address of the University of St Andrews.

The calculations of the road mileage and cost by private transport were done by using ViaMichelin. The following conditions were applied: 'quickest route', 'type of car: hatchback', 'currency: GBP', 'fuel type: petrol', 'fuel cost per litre: 130p'. Ferry miles and traffic and ferry timetables were excluded.

Journey durations and journey costs by public transport were calculated using Traveline Scotland. Both were computed in September 2014 and in October 2014.
In September, we follow the University calendar. Students have to arrive in St Andrews for the official registration process in Orientation Week. To meet this condition, they have to depart from their ARC school after 5pm on Friday 5 September or after 7am on Saturday 6 September.
The October journey rationale is simple. After a few weeks, students may wish to go home for a weekend. Their means of transport is public transport. Students have to depart after 5pm on Friday 24 October or after 7am on Saturday 25 October and return to St Andrews before 9am on Monday 27 October. The additional following conditions were applied:

- The travel time that gives the longest duration at the ARC school was always chosen.
- In the event that multiple results were given, the route with the fewest changes was always selected.

The difference between private and public transport costs needs to be interpreted with caution. In this analysis, priority on public transport choice was given to duration over distance and cost. This difference may be less extreme if greater priority had been given to the cost than the duration of the journeys.

3.2.2 Euclidean distance (ED) vs road mileage

- **All ARC schools are further from St Andrews by road mileage than in a straight line.**
- **All ARC schools are further from St Andrews in a straight line or by road mileage than Edinburgh is from St Andrews.**
- **All ARC schools are closer to St Andrews in a straight line than London is from St Andrews.**
- **Two ARC schools are further from St Andrews by road mileage than London is from St Andrews.**

ED
According to the table below, a third of the schools are less than 100 miles in a straight line and almost three-quarters are within 150 miles. To put these numbers into perspective, let us add that the straight line between London and St Andrews is a little bit more than 350 miles and that between Edinburgh and St Andrews is around 30 miles. A visual representation of these Euclidean distances is given by Map 3.2.

Number of ARC schools	ED in miles
16, i.e 34.0%	0-100.0
19, i.e. 40.4%	100.1-150.0
10, i.e. 21.3%	150.1-200.0
0, i.e. 0%	200.1-250.0
2, i.e. 4.3%	250.1 and above

The five secondary schools located in the ARC region and closest to St Andrews are located in Highland and Argyll & Bute and are all less than 87 miles in a straight line from St Andrews. The closest is Kingussie High School (#32, 69.7 miles), followed by Grantown Grammar School (#30, 75.1), Hermitage Academy (#42, 77.1), Dunoon Grammar School (#43, 86) and Kinlochleven High School (#37, 86.7). No ARC school is closer to St Andrews in a straight line than Edinburgh is from St Andrews.

The five furthest are located in Shetland Islands and Eilean Siar and are all more than 185 miles in a straight line from St Andrews. The furthest is Brae High School (#1, 285.5), followed by Anderson High School (#2, 270.4), Sgoil Lionacleit (#21, 188.3), The Nicolson Institute (#9, 186.2) and Sir E Scott School (#10, 185.5). All these schools are still closer to St Andrews in a straight line than London is from St Andrews. It is important to note that the two secondary schools located in Orkney Islands have similar ED to those in Eilean Siar (182 miles). Finally, while the difference between the furthest school and the fifth furthest school is rather large, i.e. around 100 miles, the difference between the closest school and the fifth closest school is less than 20 miles.

It is worth pointing out some large differences between the secondary schools located in the remaining two remaining local authorities of the ARC region, i.e. Highland and Argyll & Bute. In the Highland case, the difference between the furthest school (Kinlochbervie High School, #7) and the closest school (Kingussie High School, #32) is about 100 miles. In the Argyll & Bute case, the difference between Tiree High School (#39) and Hermitage Academy (#42) is around 80 miles.

Let us note that schools in both local authorities are still closer to St Andrews than those in Eilean Siar, Orkney Islands and Shetland Islands.
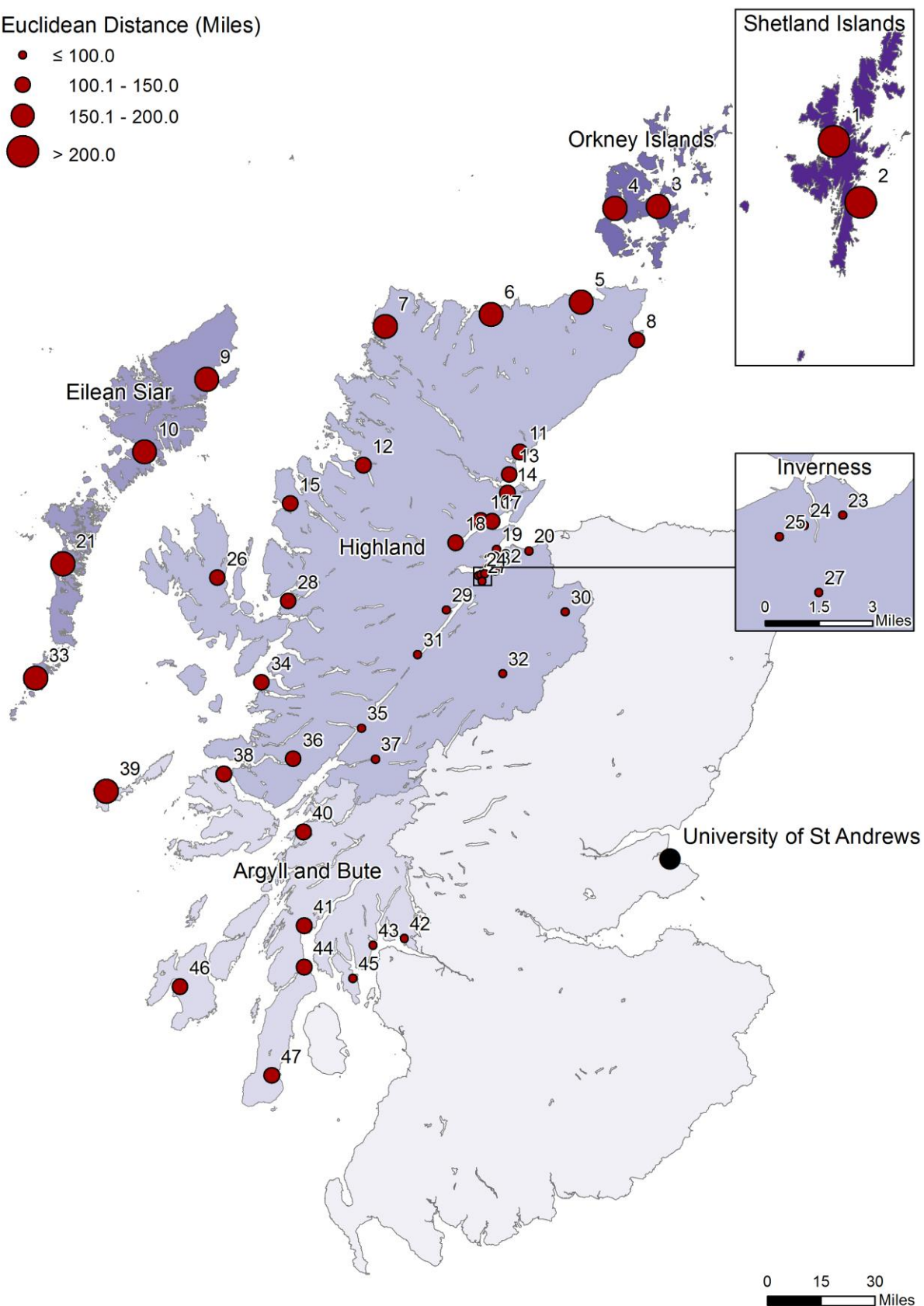
Map 3.2: Euclidean distance between each ARC school and the University of St Andrews (in miles)

Road mileage (or road distance)
According to the table below, no school is less than 100 miles from St Andrews in terms of road mileage, a fifth are within 150 miles, almost two-thirds within 200 miles and more than a third over 200 miles. To put these numbers into perspective, let us add that the road mileage between London and St Andrews is 456 miles and that between Edinburgh and St Andrews is around 50 miles. A visual representation of these road distances is given by Map 3.3.

Number of ARC schools	Road mileage
0	0-100.0
10, i.e. 21.3%	100.1-150.0
20, i.e 42.6%	150.1-200.0
9, i.e. 19.1%	200.1-250.0
8, i.e. 17.0%	250.1 and above

If we now consider the road distance between each secondary school belonging to the ARC region and St Andrews, the five closest to St Andrews are located in Highland and in Argyll & Bute (as in the ED case). They are all over 100 miles and less than 135 and four out of five were also in our top five in terms of ED. The closest is Kingussie High School (#32, 109 miles), followed by Hermitage Academy (#42, 109), Oban High School (#40, 130), Kinlochleven High School (#37, 131) and Grantown Grammar School (#30, 134). No ARC school is closer to St Andrews by road mileage than Edinburgh is from St Andrews.

The five furthest are located in Shetland Islands, Orkney Islands and Eilean Siar and all are between 289 miles and 440 miles from St Andrews. The furthest is Brae High School (#1, 440), followed by Anderson High School (#2, 420), Kirkwall High School (#3, 304, Sgoil Lionacleit (#21, 297) and Stromness Academy (#4, 289). There is a greater distance in terms of road mileage for the two Shetland schools. First, they are as far away from St Andrews as London is from St Andrews. Second, there are more than 100 miles between the two furthest schools and the school which is third furthest away. Three out of four secondary schools in Eilean Siar, i.e. Sgoil Lionacleit (#21), Sir E Scott School (#10) and the Nicolson Institute (#9) have similar road mileages to those in Orkney Islands, i.e. between 250 miles and 300 miles. Let us note that Wick High School (#8) and Thurso High School (#5), both in Highland, are also as far away as these.

It is worth pointing out some large differences between the secondary schools located in the remaining two local authorities of the ARC region, i.e. Highland and Argyll & Bute. In the Highland case, the difference between the furthest school (Thurso High School, #5) and the closest school (Kingussie High School, #32) is about 150 miles. In the Argyll & Bute case, the mileage difference between Islay High School (#46) and Hermitage Academy (#42) is 120. Let us note that for both local authorities the furthest are still closer to St Andrews than those in Eilean Siar, Orkney Islands and Shetland Islands.

Road Distance (Miles)
- 100.1 - 150.0
- 150.1 - 200.0
- > 200.0

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

0　1.5　3 Miles

University of St Andrews

Argyll and Bute

0　15　30 Miles
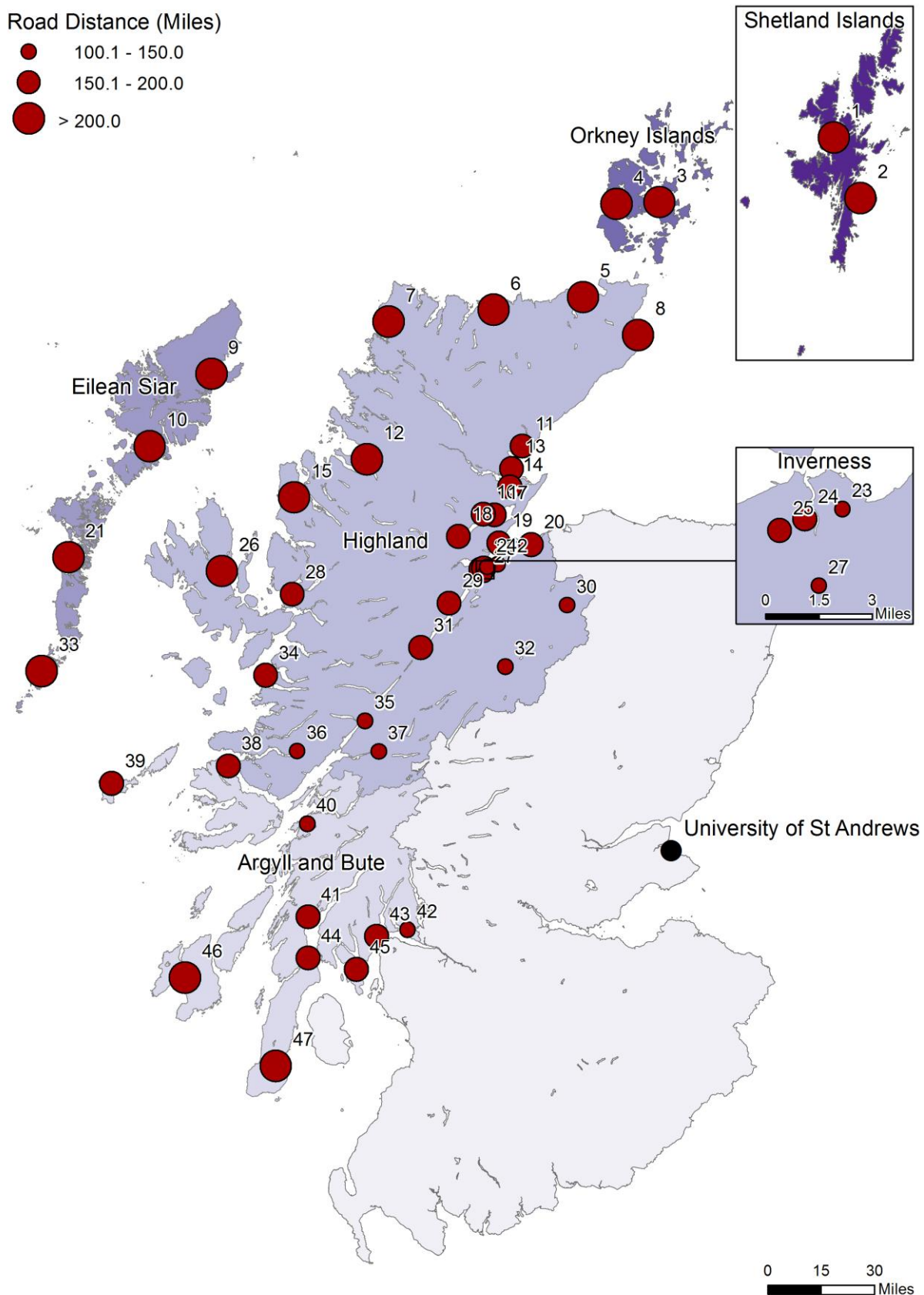
Map 3.3: Road distance between each ARC school and the University of St Andrews (in miles)

Comparing ED and road distance (cf. Map 3.4 and Table 3.1 in Appendix 3.2)

Whatever ARC school we consider, the straight line is always less than the road distance. The difference between both measures is large, e.g. from 28 miles to 155 miles (cf. Table 3.1 in Appendix 3.2 and Map 3.4). As one can see in Map 3.4, the closest schools (less than a difference of 50 miles) coloured in green are 'horizontal' to St Andrews. The furthest (in red) are in the north-east of Scotland and Sgoil Lionacleit (#21) in Eilean Siar due to the lack of straight road to reach them.

The difference between the ED and the road mileage can be easily explained by the road network (cf. Map 3.1). The road network is confronted with the Scottish natural barriers, e.g. lochs and hills. Measuring distance without the road network (e.g. by using Map 1) is misleading. Indeed, some schools closer to St Andrews by a straight line are less attainable by road, e.g. Campbeltown Grammar School (#47) in Argyll & Bute. If one uses the ED concept to evaluate distance, Campbeltown Grammar School is as close to St Andrews as Mallaig High School (#34), Tobermory High School (#38) or Plockton High School (#28). If one considers the road distance concept, it is as far away from St Andrews as Castlebay Community School (#33) or Islay High School (#46).

Difference Between Euclidean and Road Distances (Miles)

- 🔴 > 100.0
- 🟠 75.1 - 100.0
- 🟡 50.1 - 75.0
- 🟢 ≤ 50.0

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

Argyll and Bute

University of St Andrews
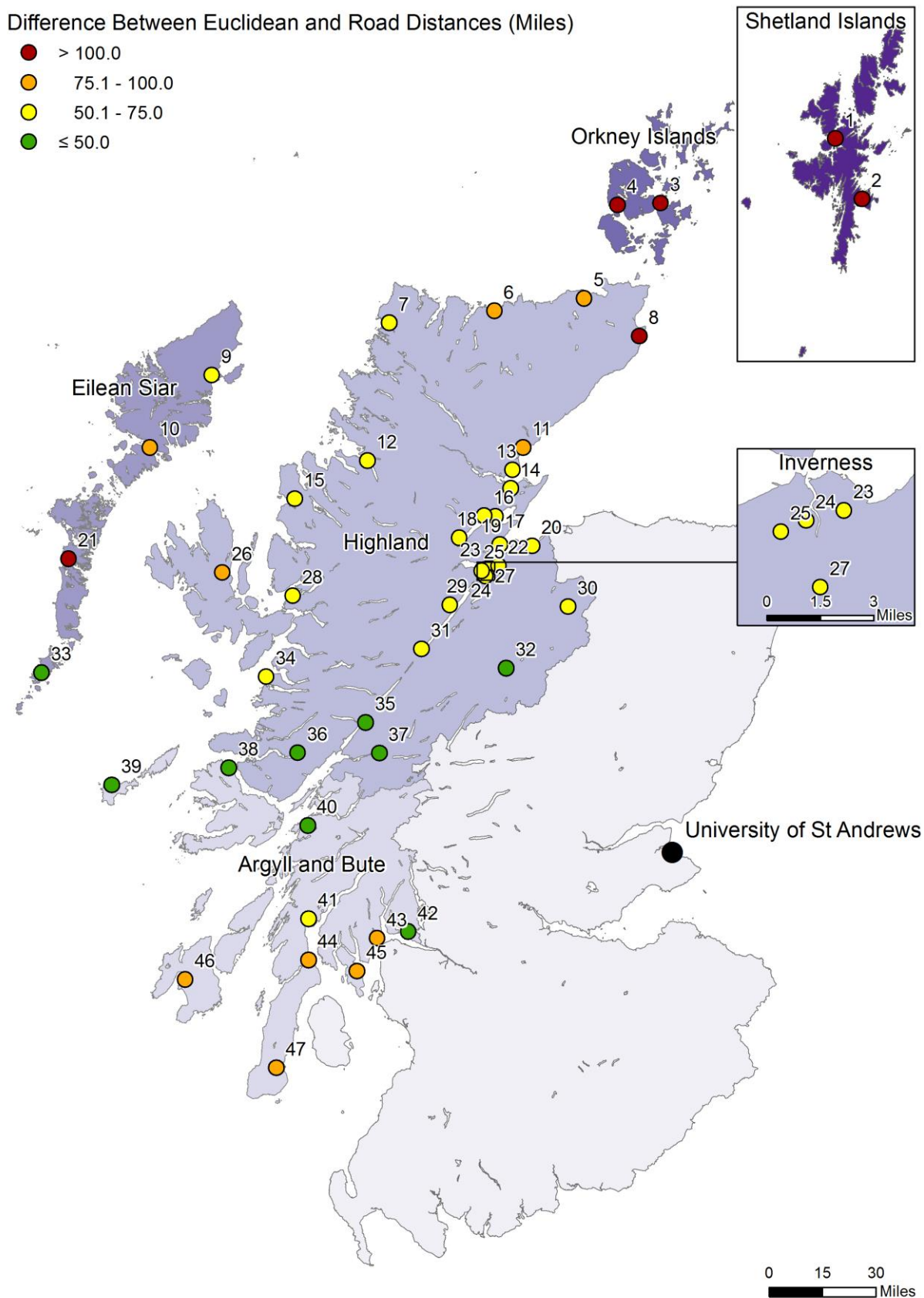
Map 3.4: Difference between Euclidean and road distances between each ARC school and the University of St Andrews (in miles)

3.2.3 Private vs public transport durations

- **The journey duration from all ARC schools to St Andrews takes longer by public transport than by private transport.**
- **The journey duration from all ARC schools to St Andrews takes longer by private transport or public transport than than taken from Edinburgh to St Andrews.**
- **The journey duration from two ARC schools to St Andrews takes longer by private transport than that taken from London to St Andrews.**
- **The journey duration from 20 ARC schools to St Andrews takes longer by public transport than that taken from London to St Andrews.**

Private transport

According to the table below, only two schools are less than three hours away from St Andrews by car. The majority of schools are more than four hours away from St Andrews by car. To put these numbers into perspective, let us add that the duration of the journey by car between London and St Andrews is 522 minutes and that between Edinburgh and St Andrews is 95 minutes. A visual representation of these durations is given by Map 3.5.

Number of ARC schools	Private transport duration
2, i.e 4.3.0%	Less than 3h01, i.e. 181 minutes
19, i.e. 40.4%	From 3h01 to less than 4h01, i.e. 241 minutes
15, i.e 31.9%	From 4h01 to less than 6h01, i.e. 361 minutes
7, i.e. 14.9%	From 6h01 to less than 8h01, i.e. 481 minutes
4, i.e. 8.5%	Above 8 hours

The five shortest journeys to St Andrews by car are all less than four hours, with the shortest a little bit more than two hours. All five ARC schools are further from St Andrews than Edinburgh. They are mostly located in Highland. The closest is Kingussie High School (#32, 149 minutes), followed by Hermitage Academy (#42, 150), Grantown Grammar School (#30, 182), Lochaber High School (#35, 195), Culloden Academy (#22, 197) and Millburn Academy (#23, 197). Let us note nevertheless that the difference in travel duration between the top five schools is quite large, about 50 minutes.

The five longest are located in Shetland Islands, Orkney Islands and Eilean Siar and all are more than 7h40 from St Andrews. The furthest is Brae High School (#1, 839 minutes), followed by Anderson High School (#2, 802), Sgoil Lionacleit (#21, 492), Kirkwall High School (#3, 487) and Castlebay Community School (#33, 463). Brae High School and Anderson High School are further from St Andrews than St Andrews is from London, i.e. 522 minutes (8h42).

The travel difference between the closest and the furthest schools is enormous, i.e. more than 12 hours. The journey duration from Brae High School (#1) to St Andrews is more than five times higher than that from Kingussie High School (#32). The journey duration from Kingussie High School (#32) to St Andrews is only 1.5 times higher (i.e. 50% more) than that from St Andrews to Edinburgh.

The two secondary schools located in Shetland Islands are the furthest, more than 13 hours for each. There is a greater time taken in relation to the journey duration for both schools. First, they are farther from St Andrews than London is from St Andrews. Second, there are more than five hours between the two furthest schools and the school which is third furthest away. Between six and eight hours of travel are required for the schools in Orkney Islands and in Eilean Siar. To these must be added Islay High School (#46) and Tiree High School (#39) for Argyll & Bute and Thurso High School (#5) and Wick High School (#8) for Highland. All have similar journey duration, i.e. between six and eight hours.

We can highlight that Campbeltown Grammar School (#47) and Tobermory High School (#38) in Argyll & Bute have similar travel journey duration to Portree High School (#26) or Farr High School (#6) in Highland, i.e. between 4.5 hours and six hours.

It is worth pointing out some large differences between the schools located in Highland and in Argyll & Bute. In the Highland case, the travel difference between the closest and the furthest is 1.5 hours i.e. between Kingussie High School (#32) and Thurso High School (#5). In the Argyll & Bute case, the travel difference is more than four hours i.e. between Hermitage Academy (#42) and Campbeltown Grammar School (#47).

Private Transport Duration

- ● ≤ 3h00
- ● 3h01 - 6h00
- ● 6h01 - 9h00
- ● > 9h00

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

Argyll and Bute

University of St Andrews
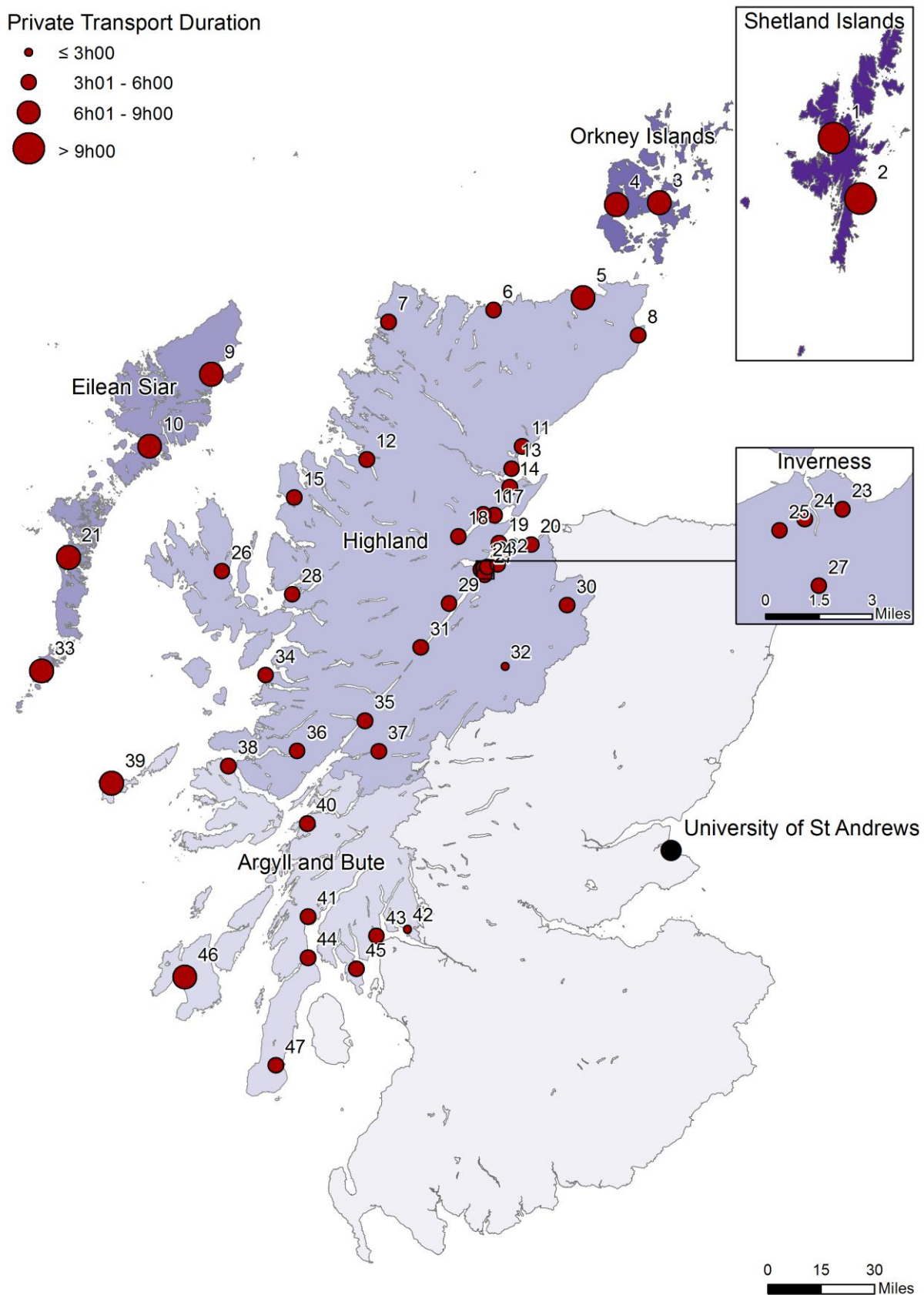
Map 3.5: Private transport duration between each ARC school and the University of St Andrews (in hours)

Public transport

According to the table below, only one school is less than three hours away from St Andrews by public transport. More than 90% of the schools are more than four hours away from St Andrews. More than a quarter of the schools are more than eight hours away. To put these numbers into perspective, let us add that the duration of the journey by car between London and St Andrews is 402 minutes (i.e. 6h42) and that between Edinburgh and St Andrews is slightly less than two hours. A visual representation of these durations is given by Map 3.6.

Number of ARC schools	Public transport duration
1, i.e 2.1%	Less than 3h01, i.e. 181 minutes
3, i.e. 6.4%	From 3h01 to less than 4h01, i.e. 241 minutes
21, i.e. 44.7%	From 4h01 to less than 6h01, i.e. 361 minutes
10, i.e. 21.3%	From 6h01 to less than 8h01, i.e. 481 minutes
12, i.e. 25.5%	Above 8 hours

The five shortest journeys to St Andrews by public transport are less than or only just over four hours. They are mostly located in Highland. The closest is Kingussie High School (#32, 161 minutes), followed by Hermitage Academy (#42, 221), Inverness High School (#24, 221), Millburn Academy (#23, 230) and Culloden Academy (#22, 242). Let us note nevertheless firstly that the travel length difference between the top five schools is quite large, i.e. about 80 minutes and secondly that Edinburgh is closer to St Andrews than these five schools.

The five furthest are located in Shetland Islands, Eilean Siar and Argyll & Bute and all are more than 11h30 from St Andrews. The furthest is Anderson High School (#2, 975 minutes), followed by Brae High School (#1, 971), Sgoil Lionacleit (#21, 857), Tiree High School (#39, 771) and Sir E Scott School (#10, 692). All are further from St Andrews by public transport than London. In practice, 20 ARC schools (42% of our schools) are further than London!

The travel difference between the closest and the furthest schools is enormous, i.e. more than 13 hours and 30 minutes. The journey duration from Anderson High School to St Andrews is more than six times longer than that from Kingussie High School.

The secondary schools located in Shetland Islands are the furthest, more than 16 hours for each. More than 10 hours of travel are required for the schools in Orkney Islands and in Eilean Siar. To this must be added Farr High School (#6) in Highland and Tiree High School (#39) for Argyll & Bute (Islay High School (#46) takes slightly less than 10 hours).

It is interesting to note that Campbeltown Grammar School (#47) in Argyll & Bute is as far from St Andrews as Kinlochleven High School (#37) and Ardnarurchan High School (#36) in Highland. It will take a little more than seven hours to reach these schools from St Andrews. But Campbeltown Grammar School is closer to St Andrews than Mallaig High School (#34) or Kinlochbervie High School (#7). It would take almost eight hours to reach these two latter schools from St Andrews.

However, it is worth pointing out some large differences between the schools located in Highland and Argyll & Bute. In the Highland case, the travel difference between the closest school, Kingussie High School (#32), and the furthest school Farr High School (#6) is almost eight hours. In the Argyll & Bute case, the travel difference between Hermitage Academy (#42) and Tiree High School (#39) is more than nine hours.

Public Transport Duration

- ● ≤ 3h00
- ● 3h01 - 6h00
- ● 6h01 - 9h00
- ● > 9h00

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

Argyll and Bute

University of St Andrews
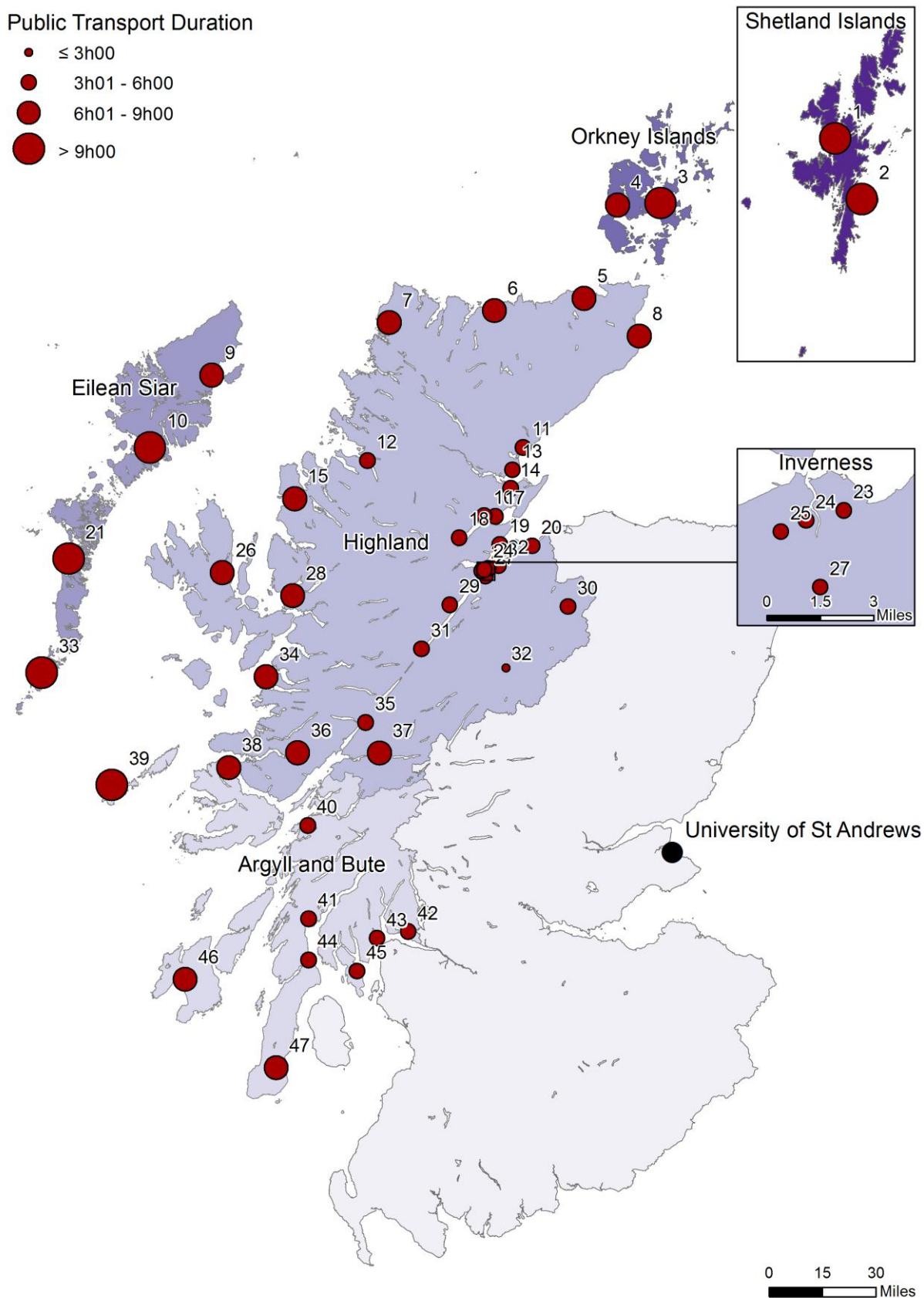
Map 3.6: Public transport duration between each ARC school and the University of St Andrews (in hours)

Comparing the journey duration by car and the journey duration by public transport (cf. Map 3.7)

The difference between the car journey duration and the public transport duration varies between less than 30 minutes for two ARC schools and more than three hours for eight ARC schools.

The journey by car is always quicker than the journey by public transport. The smallest difference between public transport and car is for Kingussie High School (#32, 12 minutes), followed by Inverness High School (#24, 19), Millburn Academy (#23, 33), Charleston Academy (#25, 35) and Wick High School (#8, 43). The largest difference is for Tiree High School (#39, 6h15), followed by Sgoil Lionacleit (#21, 6h05), Farr High School (#6, 4h40), Tobermory High School (#38, 4h17)) and Sir E Scott School (#10, 4h05).

The difference between the car journey duration and the public transport journey duration is simple to explain (cf. Map 3.1). If the school is located in an area where there is a railway station, the difference between the journeys is relatively small. It is particularly true for schools located in the vicinity of a railway station of the Perth – Inverness – Wick/Thurso railway line. As soon as the journey is west-east or the use of a ferry is required, the car journey usually becomes shorter than the public transport journey.

Transport Duration Difference

- 🔴 > 3h00
- 🟠 2h01 - 3h00
- 🟡 1h00 - 2h00
- 🟢 < 1h00

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

Argyll and Bute

University of St Andrews
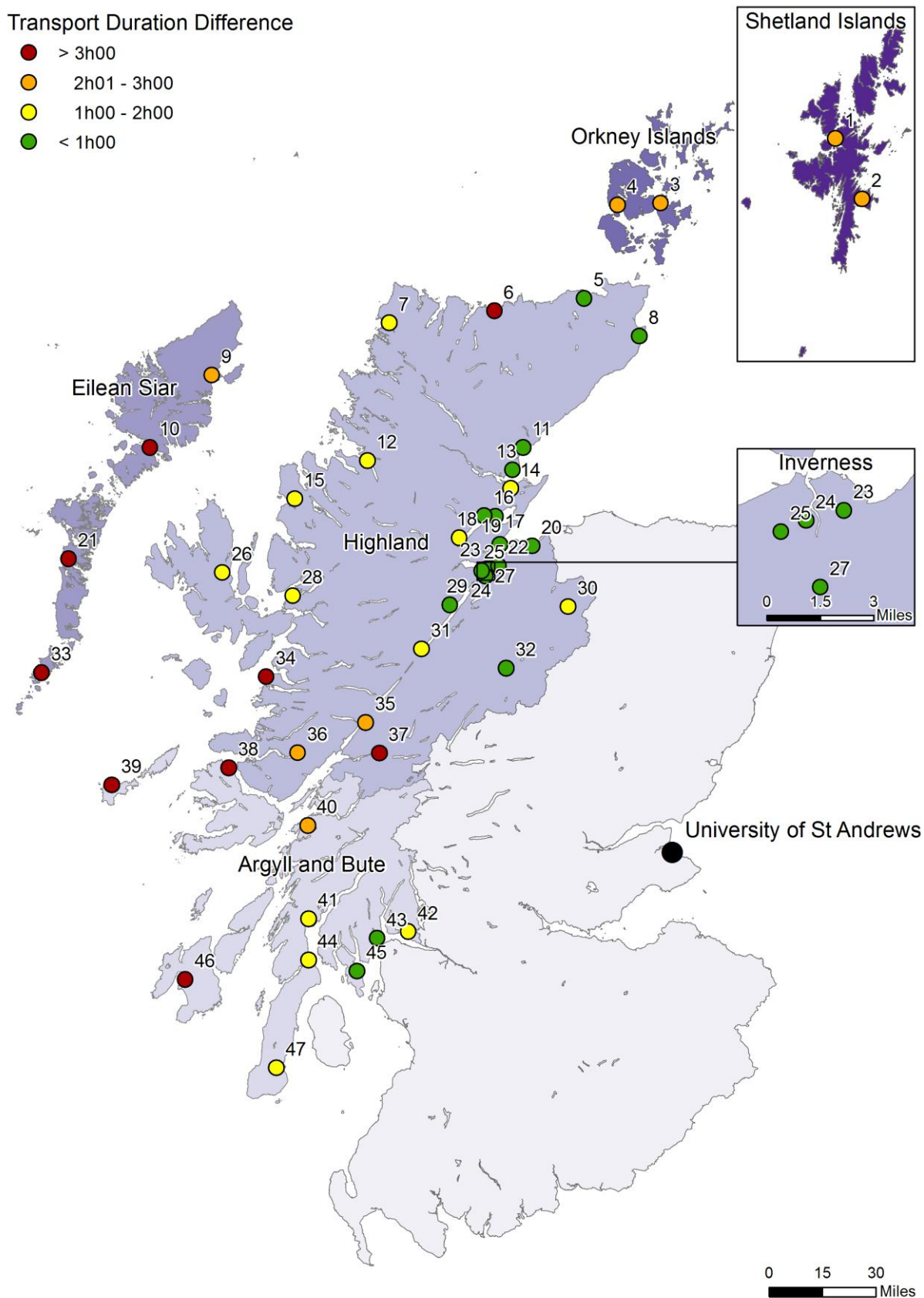
Map 3.7: Transport duration difference between each ARC school and the University of St Andrews (in hours)

3.2.4 Private vs public transport costs

- **One ARC school costs the same to travel to St Andrews by private transport and by public transport.**
- **Eight ARC schools are twice as expensive to travel to St Andrews by public transport as by private transport.**
- **Five ARC schools are two times less expensive to travel to St Andrews by public transport than by private transport.**

<u>Private transport</u>
According to the table below, it costs less than £25 to travel to St Andrews for more than half the schools and less than £50 for three-quarters. A visual representation of these transport costs by car is given by Map 3.8.

Number of ARC schools	Private transport costs
24, i.e 51.1%	Less than £25.01
12, i.e. 25.5%	£25.01-£50.00
7, i.e 14.9%	£50.01-£100.00
4, i.e. 8.5%	£100.01 and above

The five cheapest journeys to St Andrews by car transport are all less than £20, with the cheapest costing less than £15. They are mostly located in Highland. The cheapest is Kingussie High School (#32, £14.28), followed by Hermitage Academy (#42, £15.99), Grantown Grammar School (#30, £17.55), Lochaber High School (#35, £18.42) and Kinlochleven High School (#37, £18.74). Let us note that although the travel costs seem pretty similar between the five schools at a first glance, it is nevertheless more than 30% more expensive to travel from Kinlochleven High School to St Andrews than from Kingussie.

The five most expensive are located in Shetland Islands, Orkney Islands and Eilean Siar. The most expensive journey is from Anderson High School (#2, £217.90), followed by Brae High School (#1, £149.34), Kirkwall Grammar School (#3, £108.41), Stromness Academy (#4, £105.80) and Castlebay Community School (#33, £98.29). The difference between these five schools is large. It is more than 120% more expensive to travel from Anderson High School to St Andrews than from Castlebay Community School (2.2 times more). If we compare Kingussie High School and Anderson High School, the numbers are more striking and are respectively 1425% and 15.3 times more.

However, it is worth pointing out some large differences between the schools located in Highland and Argyll & Bute. In the Highland case, it is 2.4 times as expensive to travel to Thurso High School (#5) than to Kingussie High School (#32). In the Argyll & Bute case, it is 5.3 times as expensive to travel to Tiree High School (#39) than to Hermitage Academy (#42).

Private Transport Cost (GBP)

- • ≤ 25.00
- ● 25.01 - 50.00
- ⬤ 50.01 - 75.00
- ⬤ > 75.00

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

University of St Andrews

Argyll and Bute

0   15   30
Miles
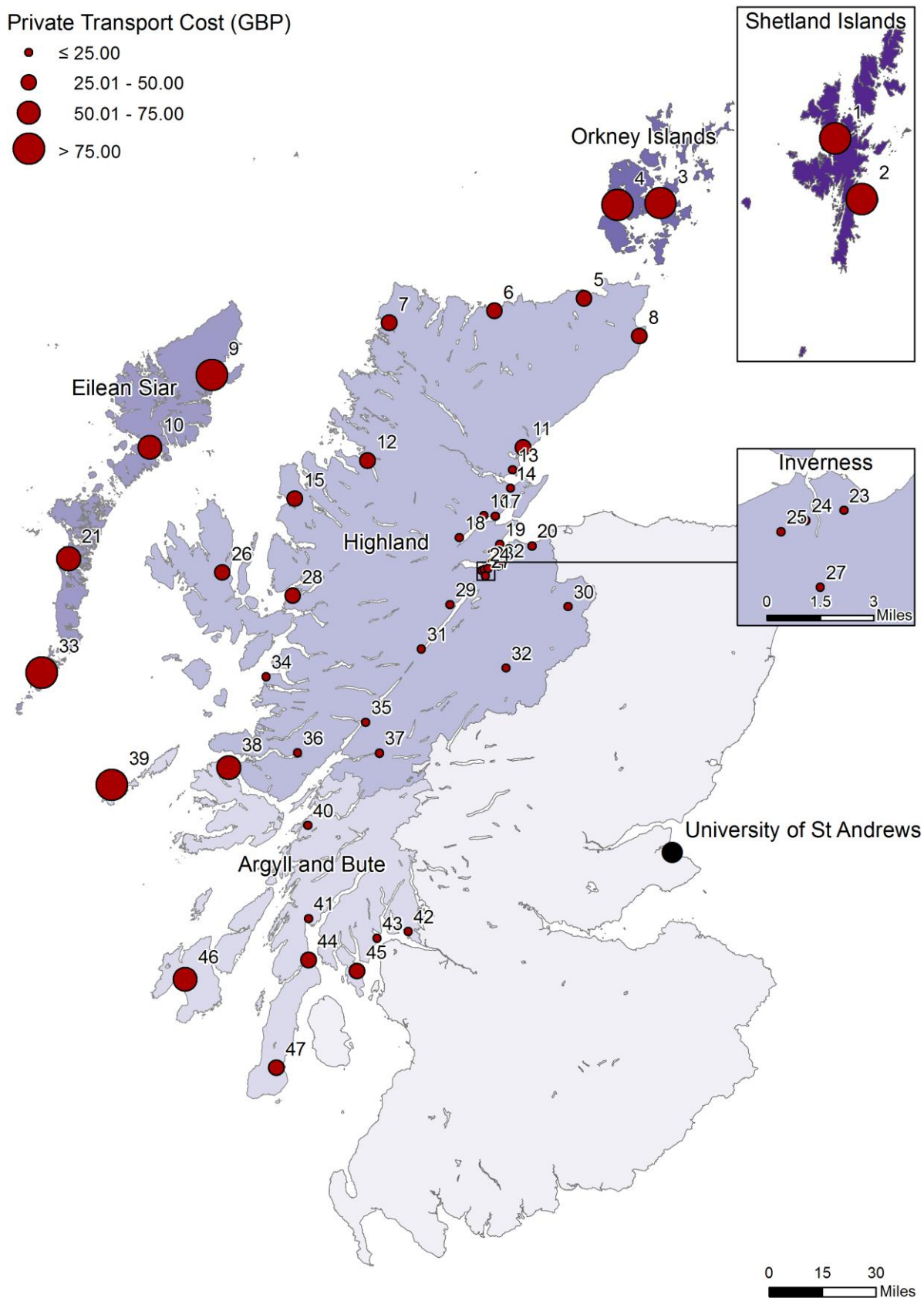
Map 3.8: Private transport costs between each ARC school and the University of St Andrews (in GBP)

<u>Public transport</u>
According to the table below, only one school costs less than £25 by public transport and none are above £100. 70% cost less than £50. A visual representation of these travel costs by public transport is given by Map 3.9.

Number of ARC schools	Public tansport costs
1, i.e 2.1%	Less than £25.01
33, i.e. 70.2%	£25.01-£50.00
13, i.e 27.7%	£50.01-£100.00
0, i.e. 0%	£100.01 and above

The five cheapest journeys to St Andrews by public transport are all less than £36, with the cheapest equal to £24. They are mostly located in Highland. The cheapest is Plockton High School (#28, £24), followed by Hermitage Academy (#42, £28.40), Invergordon Academy (#17, £29.70), Inverness High School (#24, £35.30) and Kingussie High School (#32, £35.50). Let us note that the travel costs are not equivalent among these five schools. It is almost 50% more expensive to travel from Kingussie High School than from Plockton High School.

The five most expensive are located in Highland, Orkney Islands and Eilean Siar. The most expensive journey is from Sgoil Lionacleit (#21, £78.40), followed by Stromness Academy (#4, £65.28), Mallaig High School (#34, £65.10), Farr High School (#6, £60.05) and Portree High School (#26, £59.50). The difference between these five schools is quite large. It is more than 32% more expensive to travel from Sgoil Lionacleit to St Andrews than from Portree High School (1.3 times more). If we compare Plockton High School and Sgoil Lionacleit, the numbers are large and are respectively 227% and 3.3 times more. Both are smaller figures than those found in the case of private transport.

However, it is worth pointing out some large differences between the schools located in Highland and Argyll & Bute. In the Highland case, it is 2.7 times as expensive to travel to Mallaig High School (#34) than to Plockton High School (#28). In the Argyll & Bute case, it is twice as expensive to travel to Tobermory High School (#38) than to Hermitage Academy (#42).

Public Transport Cost (GBP)
- • ≤ 25.00
- • 25.01 - 50.00
- ● 50.01 - 75.00
- ● > 75.00

Shetland Islands

Orkney Islands

Eilean Siar

Highland

Inverness

0   1.5   3
Miles

Argyll and Bute

University of St Andrews

0   15   30
Miles
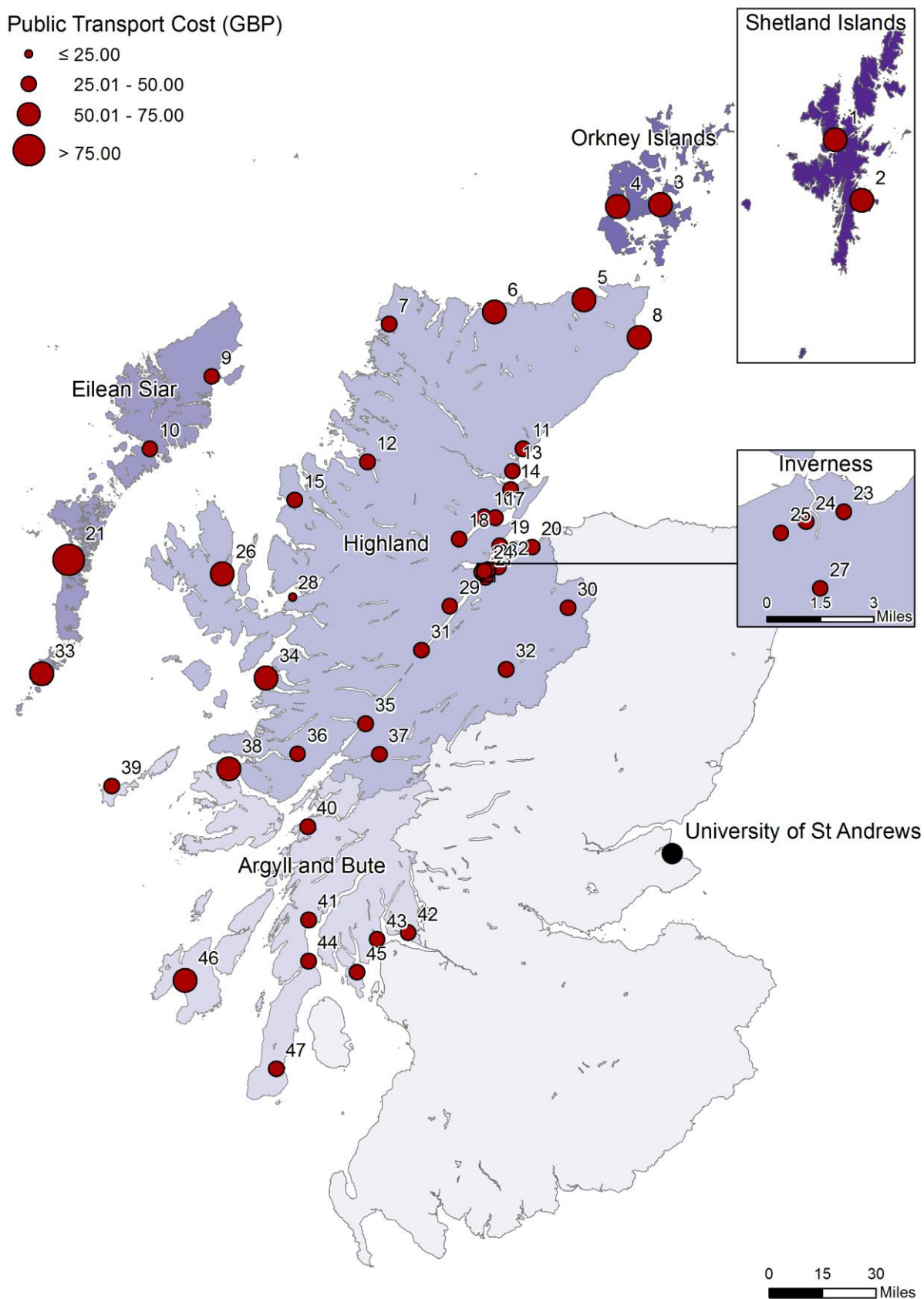
Map 3.9: Public transport cost between each ARC school and the University of St Andrews (in GBP)

Comparing the journey cost by car and the journey cost by public transport (cf. Map 3.10)

It is not always cheaper to use a car to travel from an ARC school to the University of St Andrews.

The largest difference in favour of the car is for the journey from Mallaig High School (#34) to St Andrews. It can be £41 cheaper to use the car. The following four largest differences in favour of the car are Kinlochleven High School (#37, £28.86), Portree High School (#26, £28.36), Ardnamurchan High School (#36, £27.95) and Farr High School (#6, £26.62).

The largest difference in favour of public transport is for the journey from Anderson High School (#2) to St Andrews. It can be £168 cheaper to use public transport. The following four largest differences in favour of public transport are Brae High School (#1, £97.59), Kirkwall Grammar School (#3, £55.91), The Nicolson Institute (#9, £42.61) and Tiree High School (#39, £42.10).

There are three locations where the use of a car and the use of public transport are pretty equivalent in terms of cost, i.e. Invergordon Academy (#17) and Sgoil Lionacleit (#21) in favour of private transport and Plockton High School (#28) in favour of public transport.
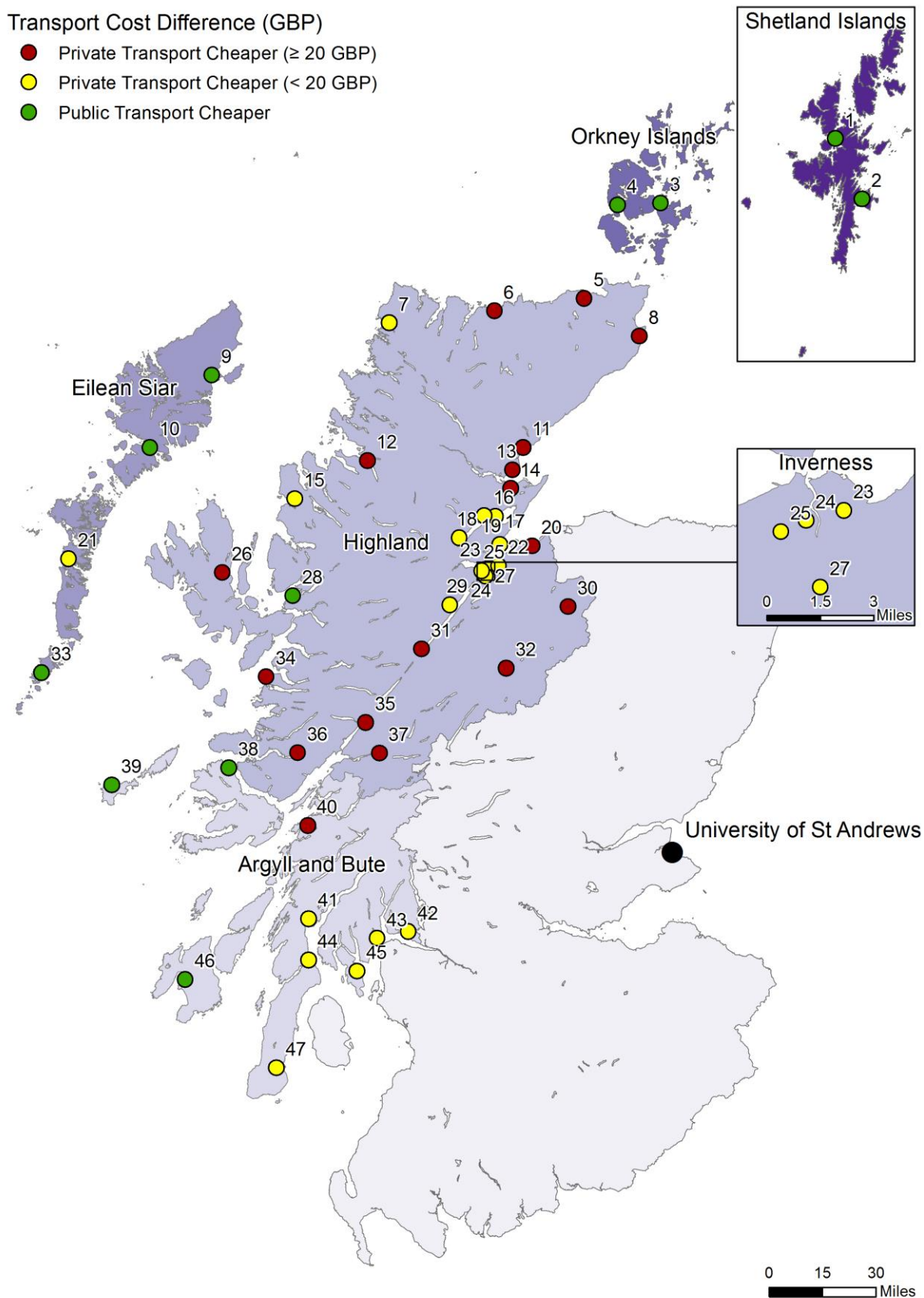
Map 3.10: Transport cost difference between each ARC school and the University of St Andrews (in GBP)

3.3   Case study – an October weekend at home

- **It is impossible to travel by public transport from St Andrews to 17 ARC schools for a weekend.**
- **For 15 ARC schools, the duration of the weekend at home is more than 36 hours.**
- **For three ARC schools, the duration of the journey is longer than the length of time at home.**

We consider that students wish to spend a weekend at home in October. This journey will be done by public transport. They need to leave St Andrews after 5pm on Friday afternoon or after 7am on Saturday morning. They have to be back by 9am on the following Monday.

All local authorities comprising the ARC region allow the journey in geographical terms. However, not all secondary schools in the ARC region are accessible.

For more than a third of the ARC schools, it is impossible to do this journey. These are crossed in Map 3.11. This can be due to two reasons: (1) either the return journey takes more hours than the number of hours in the weekend, or (2) even if it is possible to do the outward journey by public transport, it is impossible to come back to St Andrews for the 9am lecture/tutorial/seminar or laboratory.

(1) There are eight schools in this case. They are Ardnamurchan High School (#36), Sgoil Lionacleit (#21), Islay High School (#46), Kinlochbervie High School (#7), Campbeltown Grammar School (#47), Sir E Scott School (#10), Tiree High School (#39) and The Nicolson Institute (#9).

(2) There are nine schools in this case. They are Kinlochleven High School (#37), Farr High School (#6), Kilchuimen Academy (#31), Ullapool High School (#12), Glen Urquhart High School (#29), Gairloch High School (#15), Brae High School (#1), Tarbert Academy (#44) and Lochgilphead High School (#41).

So out of 47 schools, only 30 allow a short break.

For three ARC schools, the stay at home is shorter than the length of the journey. These schools are on the west coast of Scotland and necessitate the use of various means of public transport in order to be reached. The time spent travelling is 13h30 more than the stay at home for Castlebay Community School (#33), 7h06 more for Portree High School (#26) and 48 minutes more for Mallaig High School (#34).

For some ARC schools, the stay at home can be more than 36 hours. These schools are either in the Inverness area or close to Glasgow. In most cases, a railway station is close by. The additional time spent at home relative to the travel journey is 38h38 for Hermitage Academy (#42), 38h30 for Kingussie High School (#32), 35h42 for Inverness High School (#24), 35h12 for Millburn Academy (#23) and 34h30 for Culloden Academy (#22).

Those highlighted in yellow in Map 3.11 are always more than 24 hours.

If we now consider the cost of travel by public transport at that time of the year, the three cheapest journeys are for school 22 (£49), school 42 (£57) and school 24 (£64). The three most expensive are for school 4 (£162), school 2 (£136) and school 8 (£133). Note that it costs 3.3 times as much to go by public transport from St Andrews to school 4 than to school 22 for a weekend.

If we now consider the cost of the travel between secondary schools belonging to one of the local authorities of the ARC region and St Andrews by public transport at that time of the year, the five cheapest journeys to St Andrews are for Culloden Academy (#22, £49.30), Hermitage Academy (#42, £56.80), Inverness High School (#24, £64.23), Millburn Academy (#23, £67.03) and Kingussie High School (#32, £67.60).

The five most expensive are for Stromness Academy (#23, £162.45) , Anderson High School (#23, £136.32), Wick High School (#23, £133.4), Thurso High School (#23, £133.4) and Kirkwall Grammar School (#23, £130.97). In these five cases, the stay at home is slightly longer than the journey (between six and 14 hours…). It costs 3.3 times as much to go to Stromness than to Culloden for a weekend from St Andrews by using public transport.

Difference Between Home and Travel Duration

- 🔴 Transport Duration > Home Duration
- ✕ No Journey Possible
- 🟠 Home Duration < 12h00
- 🟡 Home Duration   12h00 - 24h00
- 🟢 Home Duration > 24h00
- ⬛ Transport Cost ≥ 100 GBP
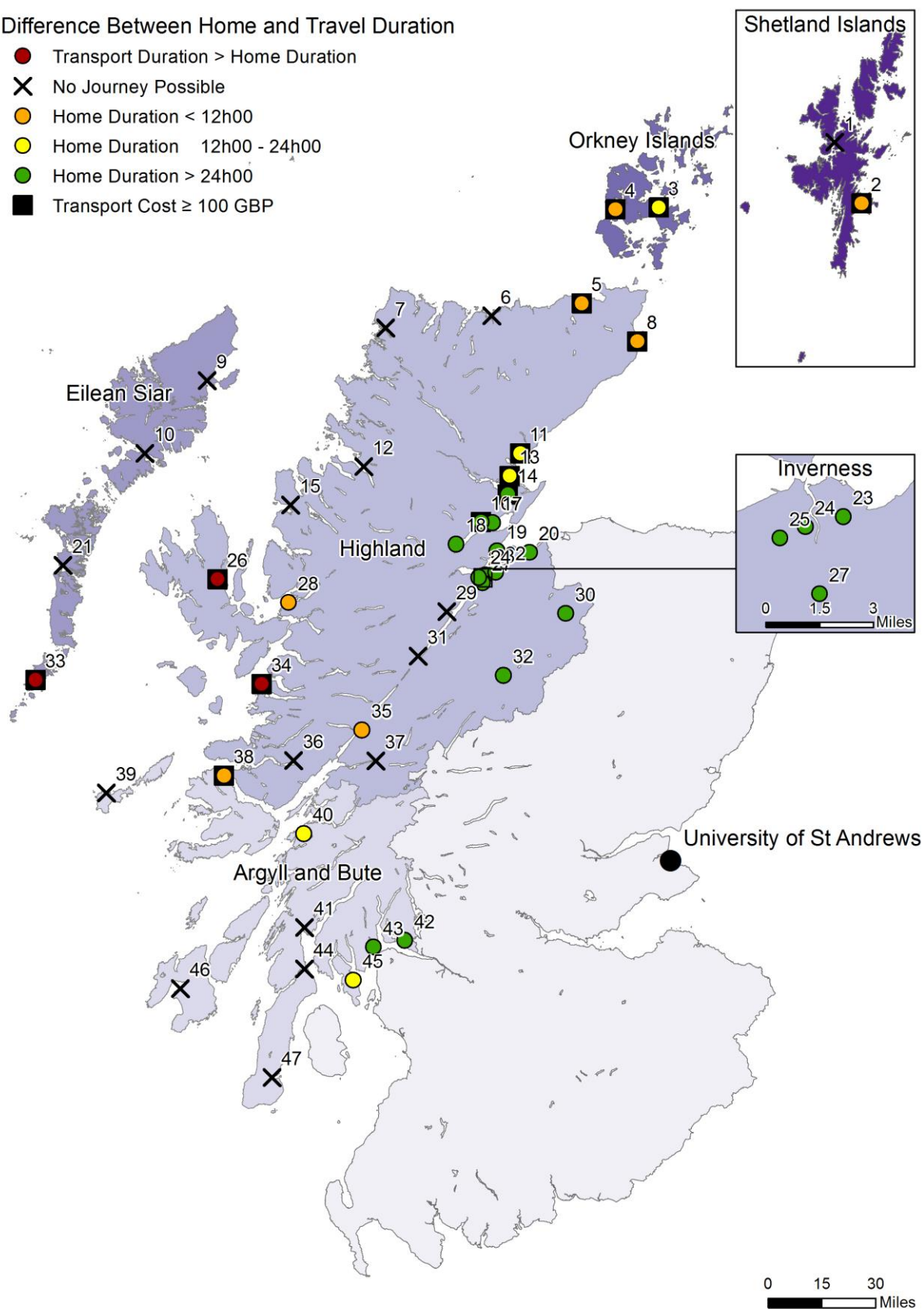
Map 3.11: Travelling from the University of St Andrews to one of the ARC Schools by public transport for a weekend in October 2014

3.4   An alternative visual representation of the notion of distance between an ARC school and the University of St Andrews

Let us combine the three possible perceptions of distance into a simple representation. The representation is created according to the ratio between each concept we have considered: ED vs road mileage, journey duration by car vs journey duration by public transport and journey cost by car vs journey cost by public transport.

Three ratios giving the perception of distance were calculated for each ARC school:
- the ratio between the road mileage and the straight line mileage
- the ratio between the journey duration by public transport and the journey duration by private transport
- the ratio between the journey cost by public transport and the journey cost by private transport.

The *mileage ratio* is the ratio between the road mileage and the straight line mileage. It captures the misleading visual perception of proximity derived from Map 1 (the scale of the map being in miles).

The *duration ratio* is the ratio between the journey duration by public transport and the journey duration by private transport. It captures the opportunity cost in terms of duration to take public transport.

The *cost ratio* is the ratio between the journey cost by public transport and the journey cost by private transport. It captures the opportunity cost in terms of cost to take public transport.

The *mileage ratio*
- **No ARC school is twice as far from the University by road than in a straight line**
- **Five ARC schools are more than 1.8 times further by road than in a straight line.**

If we consider the mileage ratio (cf. Table 3.1 in Appendix 3.2 and Map 3.12), the rankings change. If we consider a mileage ratio of more than 1.75, the 'furthest' schools are located in the south-west of Scotland, in Argyll & Bute and around Inverness. For instance, the road mileage from St Andrews to Dunoon Grammar School is 1.88 times the ED between St Andrews and Dunoon Grammar School. The smaller ratios are usually found for the schools with the smallest difference between the Euclidean and road distances (cf. Map 3.4). If we consider ratios whose values are between 1.19 and 1.50, the schools located in the north of Eilean Siar and those in the north-west of Highland are also relatively 'close'.
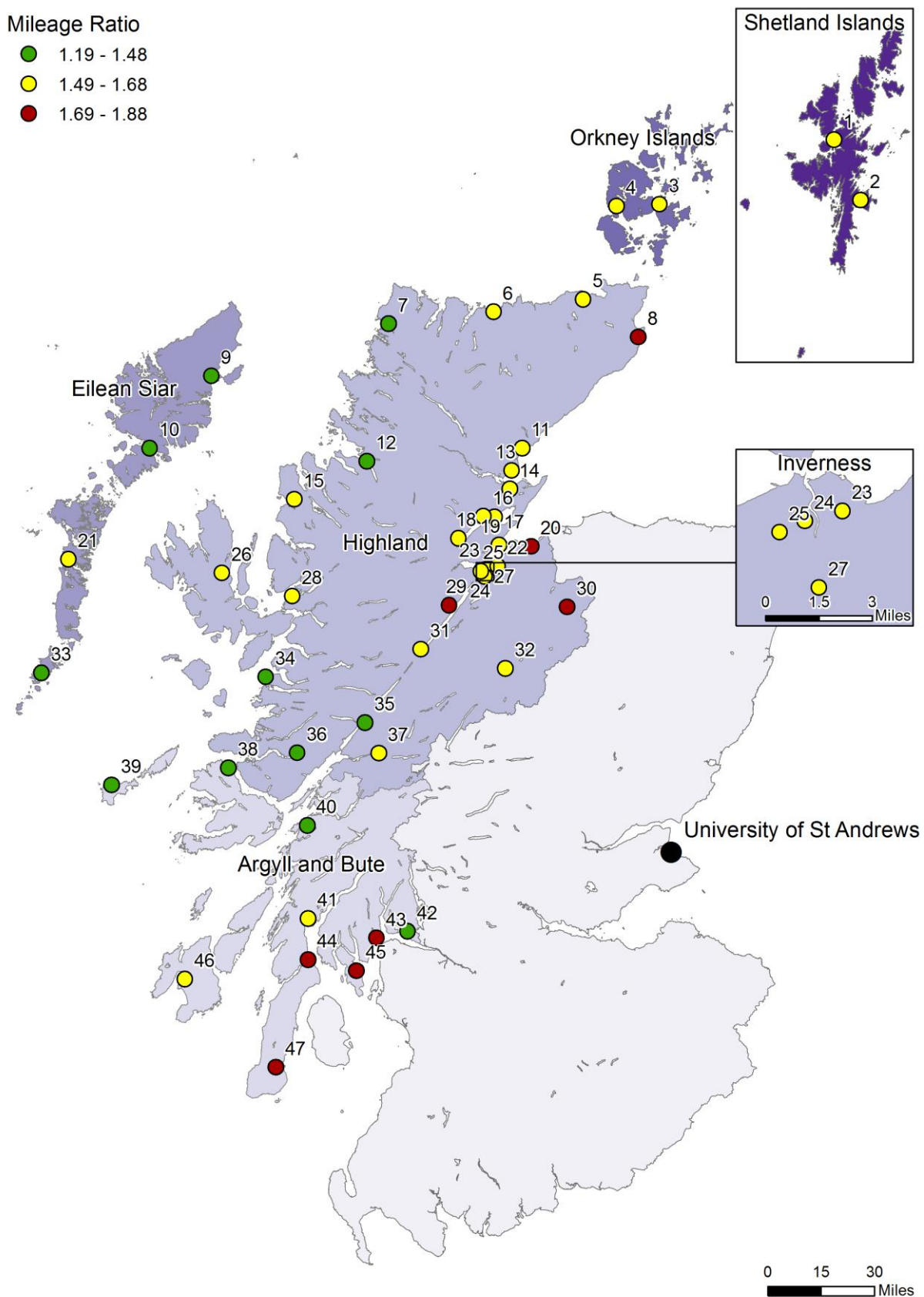
Map 3.12: The ratio road mileage vs ED for each ARC school

The *duration ratio*

- **Eight ARC schools are more than twice as far by public transport than by private transport.**

If we consider the duration ratio between the car journey and the public transport duration (cf. Table 3.3 in Appendix 3.2 and Map 3.13), the rankings are different from those found in terms of transport duration difference, i.e. the difference between the car journey duration and the public transport duration (cf. Map 3.7). If we consider a ratio of more than 1.75 between the duration of the car journey and the public transport journey, the furthest schools by public transport are located in the west of Highland and Argyll & Bute. For instance, the ratio for Kinlochleven High School (#37) is 2.03, i.e. it takes twice as much time to travel from this school to St Andrews by public transport than by car. The smaller ratios are usually found for the ARC schools located in Inverness and in the north-east of Highland.
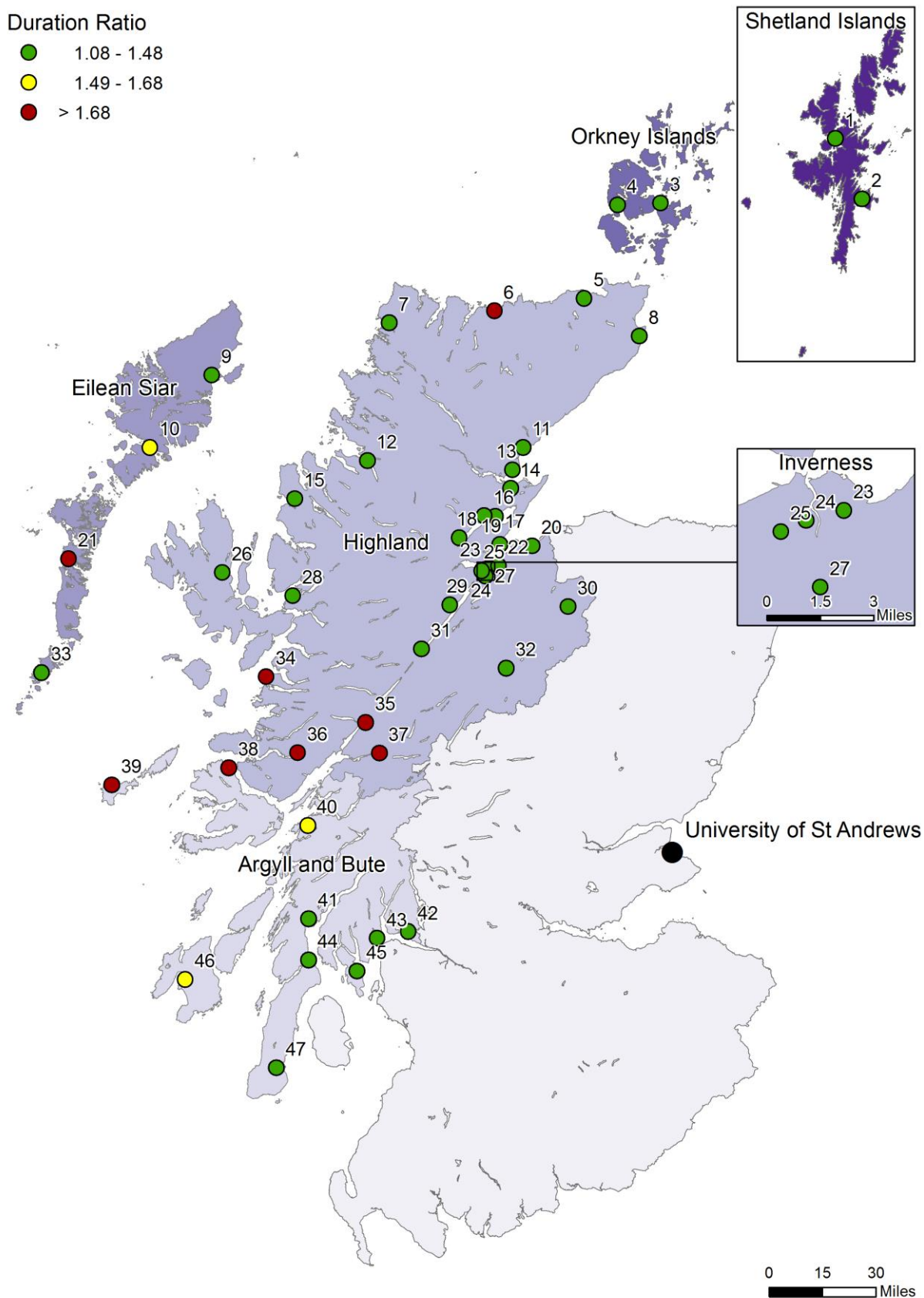
Map 3.13: The ratio public transport duration vs private transport duration for each ARC school

The *cost ratio*
- **One ARC school costs the same to travel to St Andrews by private transport and by public transport.**
- **Eight ARC schools are twice as expensive to travel by public transport as by private transport.**
- **Five ARC schools are two times less expensive to travel by public transport than by private transport.**

If we consider the cost ratio (cf. Table 3.1 in Appendix 3.2 and Map 3.14), the rankings are different from those found in terms of transport cost difference, i.e. the difference between the private transport cost and the public transport cost (cf. Map 3.10). In our case, this ratio can be lower or greater than one.

First, when the cost ratio is less than one, the cost of using public transport is then always less than the cost of using private transport. The ARC schools requiring the use of the ferry have usually a ratio less than one. Indeed, travelling on foot is always cheaper than travelling with a car in this situation. It can be two times less expensive to travel by public transport than by car for Anderson High School (#2), Brae High School (#1), Kirkwall Grammar School (#3), The Nicolson Institute (#9), Tiree High School (#39) and Castlebay Community School (#33).

Second, the cost ratio is almost one for one ARC school (Sgoil Lionacleit, #21).

Finally, some are very expensive by public transport and cost more than twice the cost by car. Most are in Highland with the exception of one school located in Argyll & Bute: Kilchuimen Academy (#31), Grantown Grammar School (#30), Oban High School (#40), Ardnamurchan High School (#36), Lochaber High School (#35), Kingussie High School (#32), Kinlochleven High School (#37) and Mallaig High School (#34). The larger cost ratios are usually for ARC schools located in the north-west or west areas in Highland.
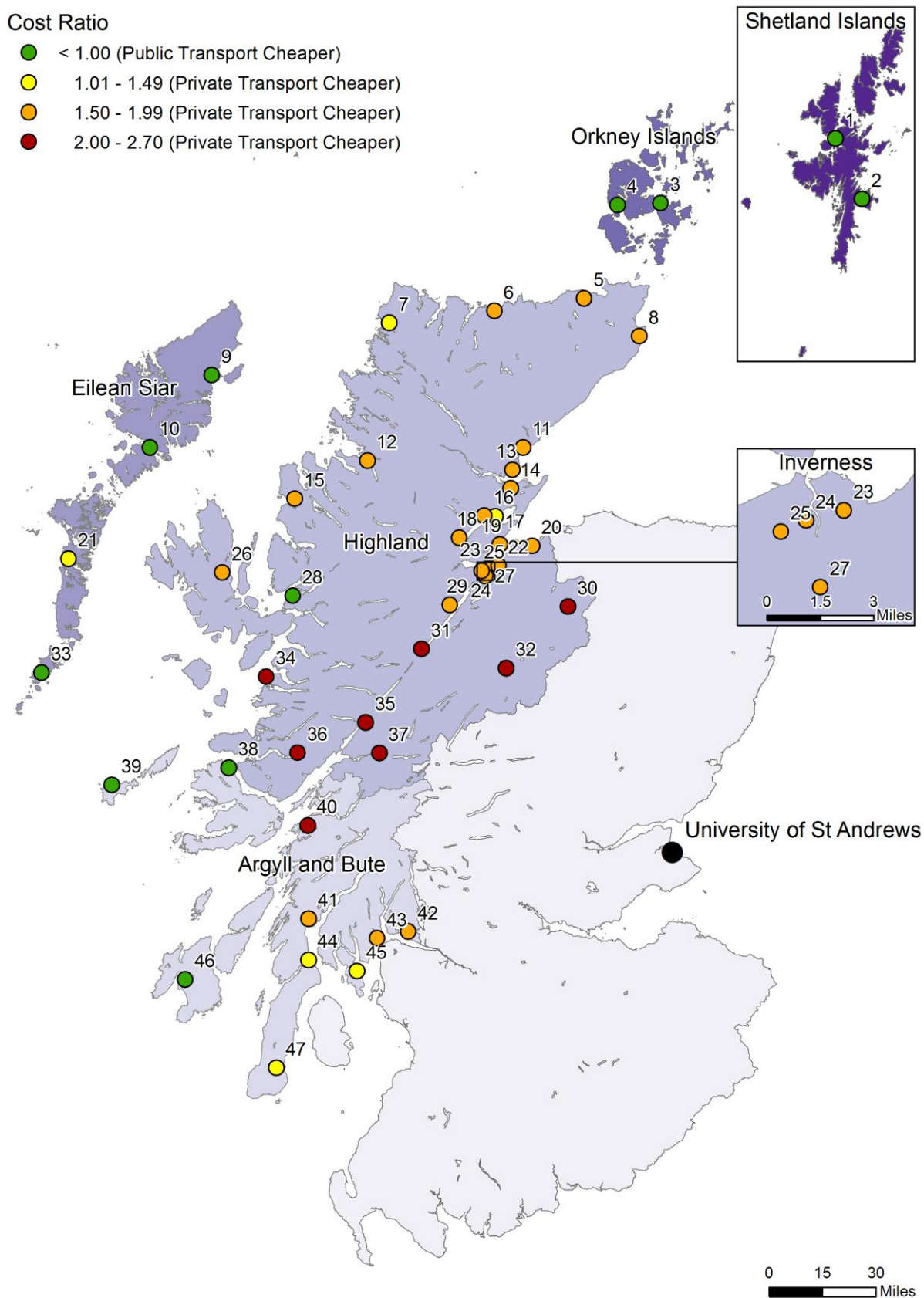
Map 3.14: The ratio public transport cost vs private transport cost for each ARC school

3.5   Constructing an index capturing people's perception of distance from a visual representation

Our alternative visual representation to the notion of distance is derived from the three ratios explained above. From them, we create two indexes capturing people's perception of remoteness. Our aim is to depart from characterising the schools according to their local authority.

3.5.1. The visual representation (cf. opposite page)

All ARC schools are first distinguished by the cost ratio. The first category gathers all ARC schools whose public transport costs are smaller than or almost equivalent to private transport costs. This category is represented by Spider 1. The second category gathers all ARC schools whose public transport costs are at least twice as expensive as private transport, i.e. Spider 2. The third category gathers all ARC schools whose public transport costs are slightly more expensive than private transport but no more than twice as expensive, i.e. Spider 3.

In each category, the ARC schools are then distinguished by the difference between the duration ratio and the mileage ratio. The ARC schools whose mileage ratio is higher than the duration ratio are first grouped together. This captures the idea that the ARC school may not be as far as people think. Indeed, the opportunity cost of travelling by public transport is not large, but the road mileage is relatively large compared with the ED.

This visual representation gathers information on relative mileage, duration and cost. It allows an alternative grouping of schools, independent of the local authorities.

An alternative visual representation to the notion of distance:

The cost of using public transport is cheaper (<1), equivalent to (1) or more expensive (>1) than the cost of using a car.

The road mileage is always greater than the straight line mileage.

The journey duration using public transport is always greater or equivalent to the journey duration of using a car.

Spider 1

These ARC schools (21, 33, 38, 39) are further than people think.

These ARC schools (1, 2, 4, 3, 28) are not as far as people think.

These ARC schools (9, 10, 46) are neither further nor closer than people think.

Spider 2

These ARC schools (30, 32) are not as far as people think.
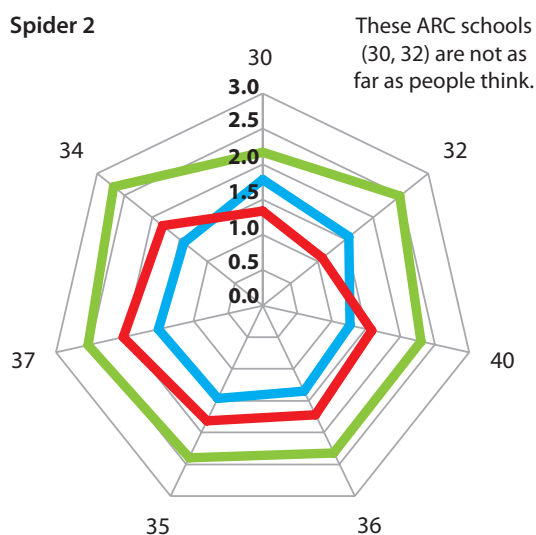
These ARC schools (40, 36, 35, 37, 34) are further than people think.

Spider 3

These ARC schools (7, 42) are neither further nor closer than people think.

This ARC school (6) is further than people think.

These ARC schools (17, 47, 45, 44, 15, 41, 5, 16, 8, 29, 43, 18, 12, 24, 19, 11, 25, 13, 23, 27, 26, 22, 14, 20, 31) are not as far as people think.

Sources: Contains NRS data © Crown copyright and database right 2014 and Ordnance Survey Data © Crown copyright and database right 2014.
Created by Dr Laurence Lasselle and Robert Macpherson.

3.5.2   Two suggested indexes

<u>First index</u>

We could group the schools according to the cost ratio. This new grouping is derived from the visual representation of the opposite page, i.e. the spiders. The index is given by the spider number, "1", "2" and "3". Map 3.15 illustrates this first index. The spider number of each school is given in Table 3.1.

This index leads to a few remarks. First, as highlighted in Table 3.1, it does not depend on the local authority, nor the SIMD quintile, nor the percentage rate of progression to HE. We note that the index value of all schools located in Eilean Siar, Orkney Islands and Shetland Islands is the same, e.g. "1". Two schools from Argyll & Bute and one from Highland also have an index value of "1". The two other index values have schools from only two local authorities, i.e. Argyll & Bute and Highland. Second, the schools with an index value of "2" might be perceived as the "furthest". The cost of using private transport compared with the cost of using public transport is very high. Third, Map 3.15 looks similar to Map 3.14. This is not surprising. The index value is based on the cost ratio, i.e. the ratio between the costs of using public transport to the cost of using private transport.

Example: school 5 and school 39

According to this index, the value of the index is 3 for school 5 and 1 for school 39. We can deduce that:

- the cost of using public transport is more expensive but not overly expensive for school 5
- the cost of using public transport is always cheaper than using private transport for school 39.

We would recommend that this index is used with caution. Indeed, as indicated earlier:

> *The difference between private and public transport costs needs to be interpreted with caution. In this analysis, priority on public transport choice was given to duration over distance and cost. This difference may be less extreme if greater priority had been given to the cost than the duration of the journeys.*

Spider Category
- 🟢 1
- 🔴 2
- 🟡 3

Shetland Islands

Orkney Islands

Eilean Siar

Inverness

Highland

Argyll and Bute

University of St Andrews

0   15   30
Miles
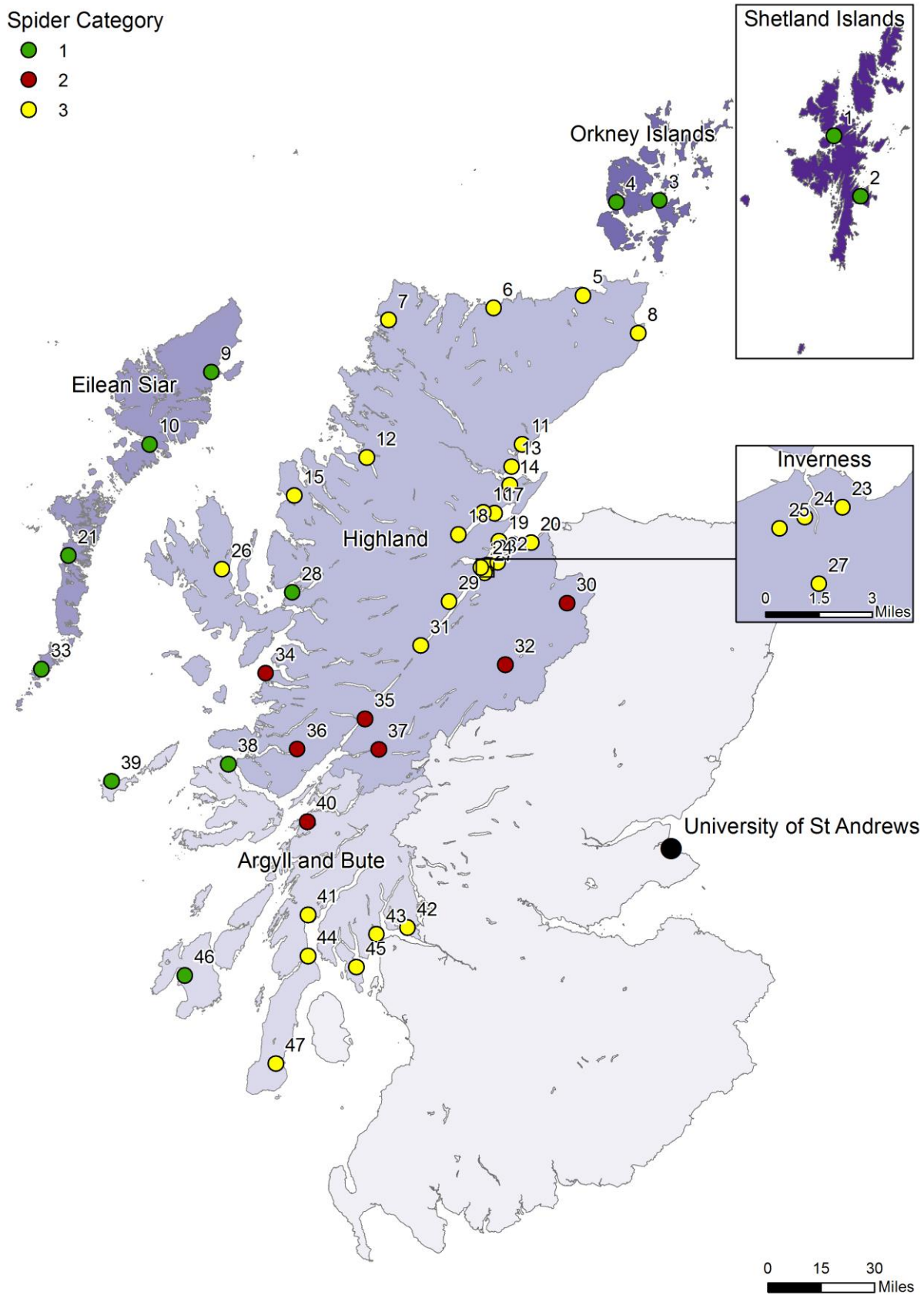
Map 3.15: ARC schools according to the spider category

Second index

We could group schools according to people's perception regarding mileage and duration. This new grouping is also issued from the spiders. But rather than considering the cost ratio, we gather schools according to the way people perceive distance, i.e. "further than people think", "not as far as people think" and "closer than people think". Map 3.16 illustrates this second index and Table 3.1 clearly indicates the category with which each school is associated. This index has the main advantage of combining information given by the mileage ratio and the duration ratio. As one can notice, Map 3.16 combines the information given separately by Map 3.12 and Map 3.13.

As Table 3.1 highlights, this second index does not depend on the local authority, nor the SIMD quintile, nor the percentage rate of progression to HE. Nevertheless, we have to stress that only the schools located in Orkney Islands and in Shetland Islands belong to the same category, i.e. 'not as far'. According to Map 3.16, regardless of the costs, the schools that might be perceived by people further than they think are those on the same line as St Andrews with the exception of Farr High School (#6). These schools are located in the north part of Argyll & Bute, in the south-west part of Highland and the bottom half of Eilean Siar. Travelling west-east by public transport is never straightforward in Scotland (cf. Map 3.1).

Example: school 5 and school 39

According to this index, the category is 'not as far' for school 5 and 'further' for school 39. We can deduce that:
- school 5 is not as far as people think
- school 39 is further than people think.

Perception of Distance
- ○ Equivalent (yellow)
- ● Further (dark red)
- ● Not as far (green)

Shetland Islands

1

2

Orkney Islands

4 3

5

6

8

7

Eilean Siar

9

10

11

12

13

14

15

117

18

19 20

Highland

26

28

29

24 22

30

Inverness

25 24 23

27

0   1.5   3
Miles

21

33

34

35

36 37

31

32

38

39

40

Argyll and Bute

University of St Andrews

41

43 42

44

45

46

47

0   15   30
Miles
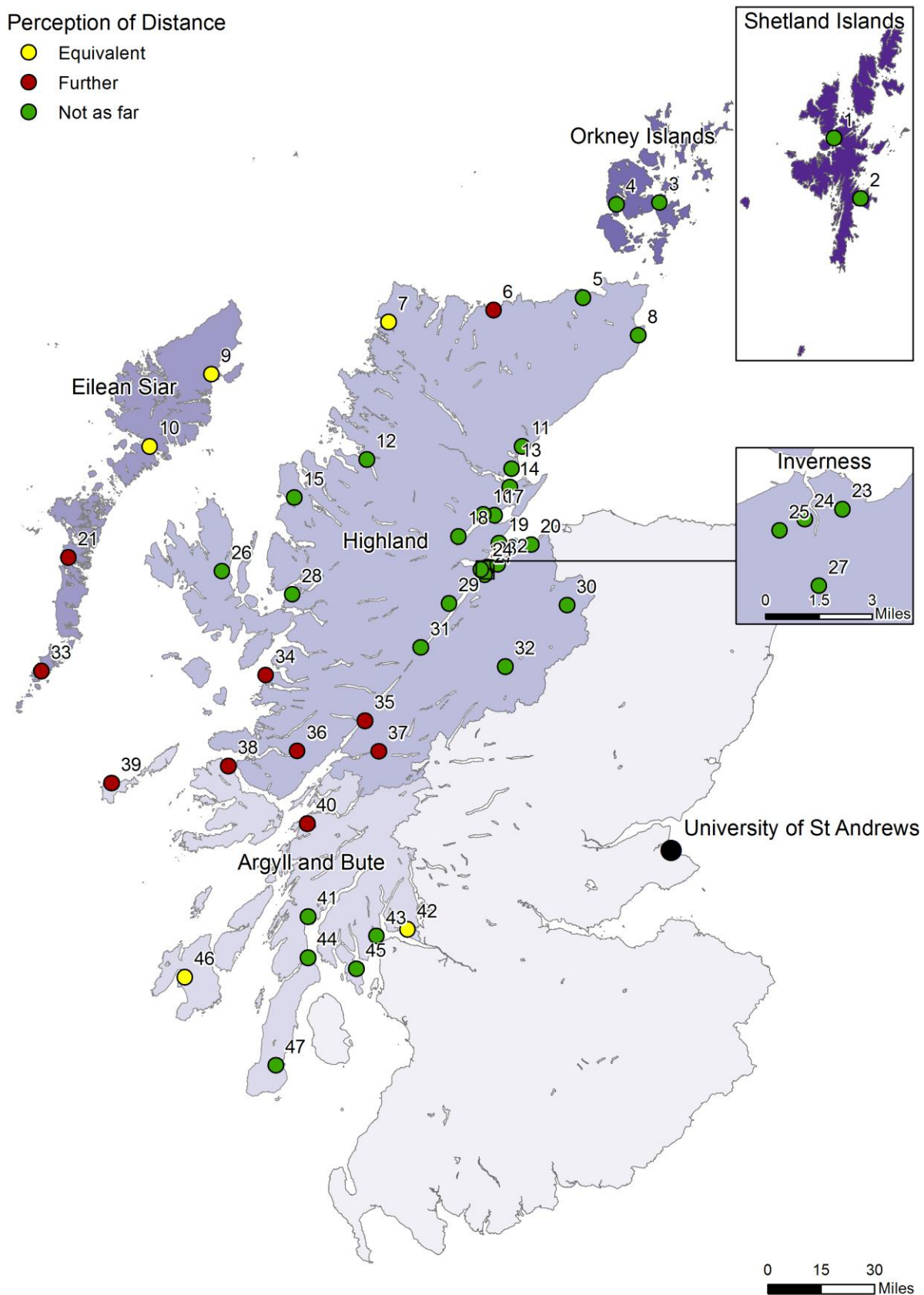
Map 3.16: ARC schools according to the perception of distance

3.6   Conclusion and further work

The notion of distance is not straightforward. The duration of the journey, the means of transport and the cost of the journey are all essential factors that a person takes into account when making a decision about the journey from A to B. This chapter pointed out that the factors led to different notions of distance.

We have no doubt that many Scottish university students use all of the above factors when making a travel decision. However, we suspect that they consider an additional factor: the time of year the journey is made.

The use of private transport is most likely to occur at the start and the end of the academic session. Students are more likely to be driven by a relative or a friend. The volume of luggage might also make the car option preferable. At other times of the year, the use of public transport is more likely. It is then perhaps that the remoteness of St Andrews might be most keenly felt. This chapter pointed out that coming back home for a weekend in October was not a possibility for many students coming from areas in the vicinity of an ARC school. This might influence their decision whether to apply to the University of St Andrews.

The chapter proposed two visual representations to the notion of distance. The first representation depends on the cost of using public transport vs private transport. In our case, it might not be ideal because of the way data were collected. The second representation depends on objective factors, namely mileage and journey duration.

The research will continue in two directions.

First, it seems essential to expand these visual representations to Dundee and Edinburgh. The visual representation to the notion of distance will then be available to HE institutions located in these two cities.

Second, the catchment area of the school should be taken into account rather than the school postcode. We justified the use of school postcode by the exploratory phase of our research. The next natural step is to represent visually the distance according to the pupil's location and not the school's location.

Appendix 3.1 – List of websites

http://www.thesaint-online.com/2014/08/how-to-get-to-st-andrews/
http://www.thesaint-online.com/2013/11/further-pleas-for-st-andrews-train-station/
http://www.enhancementthemes.ac.uk/docs/report/dsc-final-report---university-of-st-andrews.pdf?sfvrsn=12.
https://standrewsrarebooks.wordpress.com/2014/02/21/600-years-of-book-collecting-issue-5-geography-exploration-coming-soon/

Appendix 3.2 – Table 3.1: ARC schools distance data

Map #	ARC school name	LA	% Pg to HE	SIMD quintile	Mileage difference	Mileage ratio	Duration difference	Duration ratio	Cost difference	Cost ratio	Spider category	Perception of distance
1	Brae High School	SI	22	4	-154.5	1.54	-132	1.16	97.59	0.35	1	not as far
2	Anderson High School	SI	33	3	-149.6	1.55	-173	1.22	167.75	0.23	1	not as far
3	Kirkwall Grammar School	OI	36	3	-121.4	1.66	-170	1.35	55.91	0.48	1	not as far
4	Stromness Academy	OI	39	4	-106.3	1.58	-156	1.34	40.52	0.62	1	not as far
5	Thurso High School	H	34	2	-99.2	1.63	-53	1.15	-21.2	1.63	3	not as far
6	Farr High School	H	35	3	-80.8	1.50	-280	1.82	-26.62	1.80	3	further
7	Kinlochbervie High School	H	34	3	-72.3	1.43	-120	1.35	-13.56	1.40	3	equivalent
8	Wick High School	H	34	2	-104.5	1.72	-43	1.12	-21.97	1.67	3	not as far
9	The Nicolson Institute	ES	35	2	-69.8	1.37	-178	1.42	42.61	0.49	1	equivalent
10	Sir E Scott School	ES	45	3	-87.5	1.47	-245	1.55	24.17	0.65	1	equivalent
11	Golspie High School	H	26	3	-76.7	1.63	-49	1.19	-21.42	1.84	3	not as far
12	Ullapool High School	H	43	4	-64.6	1.46	-67	1.25	-21.39	1.80	3	not as far
13	Dornoch Academy	H	47	4	-73.5	1.63	-50	1.20	-21.01	1.86	3	not as far
14	Tain Royal Academy	H	24	2	-69.0	1.62	-62	1.26	-21.74	1.93	3	not as far
15	Gairloch High School	H	34	3	-71.7	1.49	-101	1.33	-16.27	1.55	3	not as far
16	Alness Academy	H	12	2	-60.6	1.56	-50	1.23	-14.08	1.65	3	not as far
17	Invergordon Academy	H	23	3	-65.2	1.61	-58	1.26	-7.52	1.34	3	not as far
18	Dingwall Academy	H	38	3	-55.3	1.52	-80	1.38	-14.88	1.71	3	not as far
19	Fortrose Academy	H	51	5	-61.8	1.62	-51	1.24	-17.26	1.82	3	not as far
20	Nairn Academy	H	31	3	-66.2	1.70	-57	1.27	-20.08	1.97	3	not as far
21	Sgoil Lionacleit	ES	35	3	-108.7	1.58	-365	1.74	-6.48	1.09	1	further
22	Culloden Academy	H	37	5	-55.8	1.59	-45	1.23	-18.05	1.93	3	not as far
23	Millburn Academy	H	43	3	-53.9	1.57	-33	1.17	-17.45	1.91	3	not as far
24	Inverness High School	H	14	4	-55.5	1.58	-19	1.09	-15.66	1.80	3	not as far
25	Charleston Academy	H	36	2	-56.4	1.59	-35	1.17	-16.9	1.84	3	not as far
26	Portree High School	H	29	2	-80.4	1.54	-106	1.31	-28.36	1.91	3	not as far
27	Inverness Royal Academy	H	41	5	-56.3	1.60	-58	1.29	-17.48	1.90	3	not as far
28	Plockton High School	H	42	4	-67.5	1.53	-96	1.33	3.05	0.89	1	not as far
29	Glen Urquhart High School	H	49	4	-72.5	1.78	-53	1.23	-16.92	1.77	3	not as far
30	Grantown Grammar School	H	28	4	-58.9	1.79	-61	1.34	-20.45	2.17	2	not as far
31	Kilchuimen Academy	H	43	4	-61.4	1.68	-92	1.42	-20.66	2.01	3	not as far
32	Kingussie High School	H	24	5	-39.3	1.56	-12	1.08	-21.22	2.49	2	not as far
33	Castlebay Community School	ES	32	3	-35.1	1.19	-193	1.42	40.44	0.59	1	further
34	Mallaig High School	H	31	4	-52.9	1.43	-210	1.82	-40.97	2.70	2	further
35	Lochaber High School	H	29	4	-43.7	1.47	-159	1.82	-25.73	2.40	2	further

Map #	ARC school name	LA	% Pg to HE	SIMD quintile	Mileage difference	Mileage ratio	Duration difference	Duration ratio	Cost difference	Cost ratio	Spider category	Perception of distance
36	Ardnamurchan High School	H	43	4	-38.4	1.35	-178	1.72	-27.95	2.32	2	further
37	Kinlochleven High School	H	24	2	-44.3	1.51	-215	2.03	-28.86	2.54	2	further
38	Tobermory High School	A & B	49	4	-34.5	1.27	-257	1.88	10.82	0.84	1	further
39	Tiree High School	A & B	27	3	-37.8	1.24	-375	1.95	42.1	0.50	1	further
40	Oban High School	A & B	31	2	-27.6	1.27	-128	1.58	-24.65	2.30	2	further
41	Lochgilphead High School	A & B	44	3	-65.5	1.63	-70	1.30	-12.49	1.52	3	not as far
42	Hermitage Academy	A & B	41	4	-31.9	1.41	-71	1.47	-12.41	1.78	3	equivalent
43	Dunoon Grammar School	A & B	35	3	-76.0	1.88	-53	1.23	-17.24	1.73	3	not as far
44	Tarbert Academy	A & B	35	4	-76.8	1.72	-67	1.26	-11.56	1.44	3	not as far
45	Rothesay Academy	A & B	41	2	-80.7	1.86	-50	1.19	-10.83	1.42	3	not as far
46	Islay High School	A & B	24	3	-88.0	1.62	-214	1.57	14.76	0.78	1	equivalent
47	Campbeltown Grammar School	A & B	34	3	-94.8	1.75	-103	1.32	-12.88	1.40	3	not as far

Mileage difference: the difference between the Euclidean distance and the road mileage
Duration difference: the difference between the journey duration by private transport and the journey duration by public transport
Cost difference: the difference between the journey cost by private transport and the journey cost by public transport

Mileage ratio: the ratio between the road mileage and the Euclidean distance
Duration ratio: the ratio between the journey duration by public transport and the journey duration by private transport
Cost ratio: the ratio between the journey cost by public transport and the journey cost by private transport

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Chapters 4 and 5 – Summary of analyses

The perception of access to HE is related to the level of barriers to entry to HE. If the barriers are high, people will perceive that access to HE is difficult. On the contrary, if the barriers are small or non-existent, people will perceive that access is easy. The types of barriers that people think about are multiple. They can be financial barriers, i.e. the cost to attend university is too high. They can also be educational barriers, i.e. the pupil's achievement in terms of Highers might not meet the minimum entry requirements of a degree programme. They can be geographical, i.e. there is no HE institution in the proximity of the pupil's home. All barriers can be linked to several features, in particular socio-economic backgrounds, e.g. parental income, and personal factors, e.g. lack of confidence. In addition, the perception of these barriers depends on the person. Young people's perception may be different from their educators' perception or that of their parents.

The following two chapters provide preliminary evidence that aims to promote a better understanding of the perception of access to HE by the people living in the ARC region, i.e. pupils, school staff and quality improvement officers.

The chapters highlight the fact that young people's perception and adults' perception are sometimes different. These differences depend on the nature of the barriers. They point out that all participants agree that young people from the ARC region face similar access issues to their peers, i.e. pecuniary and non-pecuniary costs. However, some of these costs are higher than for their peers because of where they live. They are felt to be even larger for those living in the Scottish isles.

Chapter 4 provides a summary of the exploratory quantitative analysis. On two occasions S5 and S6 pupils enrolled in three ARC schools filled in a serial questionnaire about barriers to HE. Our analysis reveals that perceived barriers to university may be financial and tend to decrease over time. Barriers to the University of St Andrews are perceived as being higher than those to other universities, but young people felt that these barriers might not be geographical or financial, but educational.

Chapter 5 provides a summary of the exploratory qualitative analysis and allows us to substantiate some elements of the quantitative analysis.

From these two exploratory analyses, it is clear that the perceived barriers to HE from those living in rural areas are similar to the perceived barriers to HE from those living in urban settings. They are pecuniary and non-pecuniary. However, people generally felt that these barriers were higher because of additional costs due to the rural factor. These analyses also highlight the need for better information about access to HE and better communication about the transition between secondary schools and HE institutions for all.

"You need to pay a lot for accommodation, and most of us don't have that kind of money so you're relying on your mum and dad, or you have to get a student loan. But then again that's the same for a lot of people, but then we have the added costs of transport and travel."

(Female pupil, S6, ARC school, February 2015)

4.   Young people's voices – an exploratory quantitative analysis

This chapter provides an overview of the exploratory quantitative analysis of a serial questionnaire which was filled in by some S5 and S6 pupils enrolled in three ARC schools in November 2014 and March 2015.

Young people's voices regarding 'university'
- Barriers to university may not be geographical.
- Costs or qualifications may not be obstacles to university.
- Perceived obstacles to university tend to decrease over time.
- Overwhelming enthusiasm from parents and schools about going to university.

Young people's voices regarding 'the University of St Andrews'
- Barriers to the University of St Andrews are perceived to be higher than the barriers to other universities.
- Obstacles to the University of St Andrews may not be geographical.
- Costs may not be an obstacle to the University of St Andrews, but qualifications are.
- Parents, schools and peers are perceived as less enthusiastic about the University of St Andrews.

4.1   Research methods

A questionnaire was designed to establish students' attitudes towards HE, in particular towards the University of St Andrews. It comprised two sections. The first section evaluated young people's attitudes towards the labour market and education once they completed their Highers. The second section addressed the pupils' perception of barriers to HE, in particular to the University of St Andrews.

The questionnaire was distributed in November 2014 (cf. Tables 4.1 and 4.2) and in March 2015. The questions about the University of St Andrews were not repeated in March.

At the time of the first round, S6 pupils and some S5 pupils wishing to enter into HE were in the process of completing their UCAS application form. The submission deadline to UCAS was 15 January 2015. At the time of the second round, most knew if their application was either rejected or accepted with or without conditions.

Table 4.1: First extract from the questionnaire (November 2014)

ARC – Access for Rural Communities – November 2014		
Last Name:		
First Name:		
Letter	**Number**	
✂--		
	Number	
I would like to know about your hopes and intentions in relation to Higher Education. For this purpose, you are invited to complete this questionnaire today and you will be invited to fill in another questionnaire in March or April 2015. **All the information given will be treated with the strictest confidence: your identity will not be revealed. This information will only be used for research purposes by one member of the University of St Andrews.** **Please tick the box (√) or cross (X) against the response that most closely reflects your own.**		
1. What is your gender?		
	Male	□
	Female	□

4.2   Data

218 S5 and S6 pupils from three ARC schools responded to the questionnaire. Each school has a three-year average
progression rate to HE equal to or less than 36%.

The majority of these participants were in S5 (57.3%), 16 years old (59.6%) and female (50.9%).
Almost all pupils lived with their parents or guardians during weekdays and weekends during school term.
A minority of parents or guardians, i.e. 27.1% had gone to university and completed a degree course at university. 17.0%
of the pupils were unable to say if one of their parents or guardians had attended university and 23.9% were unable to
say if one of their parents or guardians had completed a degree course at university. 70.6% of the pupils had one of
their relatives who had gone to university.
Finally, the vast majority of pupils had both parents or guardians in paid work.

All participants who gave blank responses or those who did not follow the instructions were excluded from the dataset.
⇒ 161 participants responded to all questions regarding 'university' in general in November 2014 and March 2015.
This sample is similar to the original dataset.
⇒ 126 participants responded to all questions regarding 'university' and 'the University of St Andrews' in November 2014.
The sample is similar to the original dataset in terms of class, age and gender. However, the proportion of relatives
who went to university is much higher. Indeed, 37.3% of parents or guardians of pupils went to university and
completed a degree course. Only 9.5% of the pupils were unable to say if one of their parents or guardians had gone
to university and 13.5% were unable to say if one of their parents or guardians had completed a degree course at
university. Finally, 81% of the pupils had at least one relative who went to or had been to university.

Table 4.2: Second extract from the questionnaire (November 2014)

On a scale of 1-5, with 1 being 'Strongly Agree' and 5 being 'Strongly Disagree', please provide a response that best reflects how strongly you agree or disagree with the following statements.				
21. I do not feel that there are any obstacles to my going to university. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
22. I would like to attend a university as close to home as possible. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
23. I am motivated to go to university. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
24. My parents are enthusiastic about me going to university. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
25. My peers are enthusiastic about me going to university. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
26. I feel support for me going to university within my general community. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
27. My school is enthusiastic about me going to university. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
28. I feel concerned that it will cost too much money for me to go to university. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□
29. I do not need a degree to do what I want to do in my life. **Strongly agree**				**Strongly disagree**
1.□	**2.**□	**3.**□	**4.**□	**5.**□

4.3 Changes in perceived barriers and attitudes over time

Sample: 161 S5 and S6 students attending three ARC schools. Data collected in November 2014 and March 2015. (Figures given as percentages and percentage difference over a given time period)

Perceived barriers: Whilst overall and over time our participants did not seem to have changed their perception about obstacles to going to university, their perception of geographical, qualifications or pecuniary obstacles seemed to have declined in March 2015. This decline could be explained twofold. Firstly, our participants might have decided not to go to university. Secondly, they might have received offers from the universities they had applied for. In both cases, the obstacles became less of an issue.

The level of **personal enthusiasm and motivation** about going to university is high. Indeed, a strong majority of participants felt that they would enjoy going to university and were motivated to go to university in November 2014. This feeling declined over time and could be explained twofold. If the participant's application was rejected in March 2015 or if the conditional offer was unlikely to be met, the motivation or enthusiasm could only decrease. If the participant's application was accepted, the motivation and enthusiasm would decrease as the goal to receive an offer had been met.

Support: The level of enthusiasm about going to university perceived as being felt by parents, the school and peers is high. Indeed, a large majority of participants felt that their parents were enthusiastic about them going to university. This feeling declined over time in favour of the 'undecided' category. The majority of participants felt that their peers were enthusiastic about them going to university. This feeling increased over time at the expense of the 'disagree/strongly disagree' category.

The majority of participants felt that their school was enthusiastic about them going to university. This feeling increased over time at the expense of the 'undecided' category. As time went by, the decline in perceived enthusiasm levels coming from parents may be explained by the outcomes of the university applications or the participants' decisions regarding HE (see above). The increase in perceived enthusiasm levels coming from the school may be explained by the fact that the school might give more information about university to current S5 pupils in March 2015 or the looming examinations period.

"I do not feel that there are any obstacles to my going to university"

	November 2014	March 2015
Strongly agree / agree	39.1	+0.0
Disagree / strongly disagree	28.6	-0.6

"I would like to attend a university as close to home as possible"

	November 2014	March 2015
Strongly agree / agree	25.5	-1.2
Disagree / strongly disagree	46.6	+5.0

"I feel concerned that it will cost too much money for me to go to university"

	November 2014	March 2015
Strongly agree / agree	52.2	-8.1
Disagree / strongly disagree	23.0	+8.1

"I do not think I will have the right qualifications to go to university"

	November 2014	March 2015
Strongly agree / agree	32.9	-3.1
Disagree / strongly disagree	37.9	+1.9

"My _____ are/is enthusiastic about me going to university"

	November 2014	March 2015
Parents: Strongly agree / agree	70.2	-5.0
Peers: Strongly agree / agree	49.7	+1.9
School: Strongly agree / agree	58.4	+6.8

"I feel that I will enjoy going to university"

	November 2014	March 2015
Strongly agree / agree	73.9	-6.2
Disagree/strongly disagree	8.1	+8.1

"I am motivated to go to university"

	November 2014	March 2015
Strongly agree / agree	64.6	-3.7
Disagree/strongly disagree	19.9	+7.5

4.4 Changes in perceived barriers and attitudes between the University of St Andrews and 'university'

Sample: 126 S5 and S6 students attending three ARC schools. Data collected in November 2014.
(Figures given as percentages and percentage difference between the generic statement and the St Andrews statement)

"I do not feel that there are any obstacles to my going to _____ ."

	University	University of St Andrews
Strongly agree / agree	42.9	-19.0
Disagree / strongly disagree	23	+18.3

"I would like to attend a university as close to home as possible / I would like to attend a university as close to home as possible and the University of St Andrews is too far from me"

	University	University of St Andrews
Strongly agree / agree	21.4	+11.1
Disagree / strongly disagree	55.6	+18.3

"I feel concerned that it will cost too much money for me to _____ ."

	University	University of St Andrews
Strongly agree / agree	46.8	-9.5
Disagree / strongly disagree	26.2	+9.5

"I do not think I will have the right qualifications to go to _____ ."

	University	University of St Andrews
Strongly agree / agree	23.0	+16.7
Disagree / strongly disagree	49.2	-21.4

"My _____ are/is enthusiastic about me going to _____ ."

	University	University of St Andrews
Parents: Strongly agree / agree	84.9	-66.7
Peers: Strongly agree / agree	59.5	-50.0
School: Strongly agree / agree	68.3	-52.4

"I feel that I will enjoy going to _____ ."

	University	University of St Andrews
Strongly agree / agree	90.5	-50.8
Disagree/strongly disagree	2.4	+16.7

"I am motivated to go to _____ ."

	University	University of St Andrews
Strongly agree / agree	86.5	-63.5
Disagree/strongly disagree	4.0	+50.0

Perceived barriers

Our participants felt that there were more obstacles to the University of St Andrews than to other universities. However, these barriers were not geographical. Almost three quarters did not feel that St Andrews is too far from home. These barriers were not pecuniary. Fewer pupils felt concerned that it will cost too much to go to the University of St Andrews compared with going to another university. But a larger proportion of pupils did not think that they had the right qualifications to go to the University of St Andrews as opposed to another university.

Personal enthusiasm and motivation

The combination of various factors may explain why they felt that they were less motivated to attend the University of St Andrews or that they would not enjoy going to this university. As we emphasised above, more pupils did not think they would meet the University of St Andrews entrance qualifications.

This needs to be read alongside two additional figures and the image of the University of St Andrews. Firstly, almost 40% felt that the University of St Andrews did not offer the degree that they wished to study. Secondly, more than 55% indicated that they did not know enough about the University of St Andrews. Finally, the University of St Andrews is a highly competitive and cosmopolitan university in a non-urban location. These three elements might not attract these pupils.

Support

This lack of enthusiasm or motivation may be explained by a feeling that their parents, peers and school were less enthusiastic about them going to the University of St Andrews.

5.   People's voices – an exploratory qualitative analysis

This chapter provides an overview of the exploratory analysis of the research interviews with pupils and educators from some ARC schools. It allows us to put into perspective the results of the exploratory quantitative analysis.

Barriers to HE according to pupils
- Barriers to university are financial.
- Living in the ARC region may have some disadvantages in terms of:
  - added travel journey and accommodation costs
  - educational and job opportunities
  - being far from family while at university.

Barriers to HE according to educators
- Young people living in the ARC region face specific disadvantages, including added costs, no (large) HE institution in their proximity, no (large) urban area in their vicinity.
- Disadvantages are more stringent for the islanders.

5.1   Research methods

The researcher visited eight schools in the ARC region between January 2015 and March 2015. Each visit included research interviews with adults and young pupils. Adults were head teachers, deputy head teachers, teachers, support learning officers, guidance teachers, careers advisers and quality improvement officers. Young people were S5 and S6 pupils. The list of possible questions (cf. Tables 5.1 and 5.2) was given to the interviewees prior to the meeting with the researcher. On the one hand, the questions dealt with the barriers to higher education. On the other hand, they were about the role of skills and qualifications in progression to HE or labour markets. As each research interview had to last 30 minutes, not all questions could be systematically asked.

In what follows, there is no indication of gender, location and job title.

Table 5.1: Extract from the pupils' questionnaire

1. Please give a brief description of yourself and your current level at school.
2. What roles are played by skills or qualifications in the job market?
3. What roles are played by the family and friends in the job market?
4. In your opinion, what were the main obstacles for your access to HE?
5. In your opinion, what are the main barriers for young people like you to access successfully HE?
6. Can you give me a detailed description of one or more positive or successful examples of access?
7. Can you give me a detailed description of one or more unfavourable examples?

Table 5.2: Extract from the educators' questionnaire

1. Please give a brief description of the tasks and functions.
2. What do you see as the main obstacles (mobility, motivation, salary expectations, and qualifications)?
3. Do you cooperate with HE institutions? With which institutions do you cooperate? How could this cooperation be improved?
4. What role is played by the qualifications of those young people? What is expected of them?
5. Where do you see the greatest need for action?
6. Could you give me a detailed description of one or more positive or successful examples of access?
7. Could you give me a detailed description of one or more unfavourable examples?

5.2   Comments from pupils on perceived barriers to access HE successfully

Participants were asked 'what are the main barriers for young people like [them] to access HE successfully?' in their opinion. Their answers could be gathered into four key themes describing financial barriers, geographical barriers, educational barriers and personal factors.

Financial costs

The vast majority of participants felt that **financial barriers** were the most important barriers. On a few occasions, they expressed their fear of getting into debt. Some mentioned that they would take a gap year to pay for their university studies.
- '*Finances are a massive thing.*'
- '*Because obviously university is quite expensive.*'
- '*The money will be really tough. I know I'll definitely have to take out a loan and that'll be horrible to pay that back.*'
- '*I'm going to be applying to halls and that's part of the reason why I'm taking a gap year. So I can gain some funds before I go and then maybe be a bit more in control in my first year.*'

Many stressed that they felt that they faced **higher financial costs** than their peers. They would not be able to come home every evening or every weekend because of the travel distance or the travel costs.
- '*The accommodation would probably be the same as most students but the fact that we'd even have to pay for a plane ticket or a boat ticket to home, we can't just take a bus.*'
- '*You need to pay for the accommodation because you cannot stay at home.*'
- '*You need to pay a lot for accommodation, and most of us don't have that kind of money so you're relying on your mum and dad, or you have to get a student loan. But then again that's the same for a lot of people, but then we have the added costs of transport and travel.*'
- '*It would cost so much to get back if you were staying on the mainland.*'

Distance and geographical barriers were not perceived as a disadvantage by everyone.

Some participants mentioned that '*distance is the main thing*', '*where [they] live is an obstacle*'   or *'[They] would prefer to stay closer to home.*' Not being able to see the family on a regular basis was a consideration for many.
- '*The fact that you would not be able to go back and see family as regularly as I'd want. That would be the biggest thing.*'

Some indicated '*[they didn't] think that geographical location would really hold [them] back*'. Many were quite keen to leave their local communities to experience life, have new job or educational opportunities. A few indicated that their university choice depends on how easy coming back home would be.
- '*I feel like I want to get away from the country and my home life and go to the city.*'
- '*I know I wouldn't want to get a job here. I want to move away.*'
- '*There is not a lot of opportunities down here. So you'd have to go to cities to get better jobs.*'
- '*I know that [name of the location] is so limiting. (…) If you have a degree, you can go anywhere, you can travel the world and you can go to different places. If you stay in [name of the location], that doesn't give you the opportunities that university gives you.*'
- '*The problem is when you've got that big qualification at the end of university, there's nothing down here you can use it for. There is nothing up at that level.*'
- '*[Name of the local college] does not offer a wide range of courses.*'
- '*I'd rather go to Glasgow [Strathclyde] than Edinburgh or somewhere and I think it's handy for me as well because it's next to the train and the bus station, I can get home if I need to, see my mum and dad quite easily.*'

On a few occasions, the attractions of the **big city** were linked to problems in progression of studies.
- '*I think a downfall for people from [name of the location] would be them getting really excited to be in a big city and going out the whole time, and not passing their exams, failing their coursework because they're enjoying being in a big city too much.*'
- '*I suppose when people go to visit Glasgow and they can be quite taken aback by the size, and spend a lot of time going out because they're not used to it, rather than focusing on education.*'

Quite a few would nevertheless indicate that they felt that they **missed opportunities** in terms of visiting days and interviews, in particular those not living in mainland Scotland.

- *'I think people from mainland Scotland get to visit a lot of universities before they apply, we don't get much of an opportunity to do it. (…) You're also going on school hours, it's usually on a school day. If you go down on a Tuesday night and come back on a Thursday, that's three days you've missed of school already. (…) You are at disadvantage if you apply and if you can't go and make the interview [because the boat won't sail].'*
- *'The only other thing [first thing was finance] I'd say would be travelling to see the open days and things when you're deciding which one you want to go to. It's pretty difficult from here to go to places like St Andrews and Edinburgh. Glasgow's not too bad, just a train journey away but it's a long way, bit of a trek to go for a one-day trip.'*

A small minority reported that their location would affect their HE destination.

- *'I think it comes down to where you live and also what school you went to.'*

Although for some, geographical barriers would be described as only transitory.

- *'Once you get into university and you settle in, I don't think it really matters where you are from.'*

Educational barriers

Many participants would not see **qualifications** as an obstacle and stressed the importance of thinking ahead.

- *'If you really want [to go to HE] then [qualification] is not really an obstacle. If it's something you want to do, then you'll do it and you'll work around the other obstacles. (…) I think that if I really wanted to get that degree, I would apply to everything that I could to get that degree.'*
- *'A lot of people think about sixth year as a kind of relaxing year, you take all of the easy subjects whereas you should be thinking about what you need if you haven't got it this year.'*

Some regretted that they did not have access to '*full range of subjects available*' in their secondary education. The **range of subjects** available to islanders was thought to be even more restrictive.

- *'Mainland Scotland they have much more specialised choices of courses that they can do during school.'*
- *'I guess most subjects are offered, but I know from other schools like on the islands, there are so many subjects that aren't offered. So you would not be able to go just because you can't get the qualifications.'*

This would usually lead some of them to consider college.

- *'College is a transition to go to university.'*
- *'If it was my choice, I would always go to university straight away, but if I needed to get a HND to go to university, I would'.*

Whereas some knew the subject they were applying for, a few seemed confused. Some reported that **more information** is required.

- *'Well, not everyone knows what they want to if they want to do university, we're not aware of what courses are available, and what subjects and qualifications are needed to actually get to them. I'm just kind of going by what I like and not by what I actually need. I know some that I think I need.'*
- *'I think just giving people the information to go out and find out entry requirements and stuff, because lots of people say 'these are my grades, I'm not going to get into uni' but they never actually look into what grades they need and things like that.''*

But most knew that they needed to be awarded a **number of Highers** to progress into HE and quite a few knew the type of courses they wanted to study.

- *'I still have to finish a couple of Highers to actually get into university because last year I kind of did really badly. (…) I know I am going to do better this year, because I want to do a [subject] course, but I only either want to go to [name of the university] or [name of the university], because they're the best ones.'*
- *'The universities don't really care that I am doing that course. They just want me to pass the two Highers that I am doing at school and then they'll take me.'*
- *'I wasn't thinking about going to university before I came to [name of the school] and when I got the grades I thought I'll go to uni now.'*
- *'The grades for me aren't very good, so I've had to rule out some universities and go for ones that are lower.'*

Although in some cases, the subject choice was still uncertain.
- *'It is hard to be motivated to go for more unusual course, like [name of the course] when you've always hearing these horror stories in the news about 'OK I did such and such a course for five years and now I am working in a bank'. (…) It is hard to keep your motivation when you are not sure you're going to get the job you want.'*
- *'This year I decided not to apply to uni or college. I had initially but because I wasn't too sure that the course I had set out to do was right for me. I've decided to spend a year working at home just to figure out what I want to study.'*

On a few occasions, some elaborated on the **entry requirements**. They would usually note that these have increased.
- *'The minimum requirements for universities have gone up over the years, so that's quite an issue for some. Probably the course that [name of a pupil] wants to do, he probably would've gotten an unconditional [offer] a few years ago but that's gone up.'*
- *'For [name of the university] it was BBBCC for that year and this year they want a couple of As at Highers and other things which is always a push but I hope that I could do it.'*

Finally, quite a few appreciated **the level of support** they receive from their **school** regarding advice about progression to HE.
- *'The guidance teacher really pushes you to do [name of the university].'*
- *'I think it's also the regular teachers as well because if you are seen to be good in the subject, they'll want you to go on to FE or HE.'*

Personal factors

A few felt worried about going away and a few suggested that some people **lacked confidence**.
- *'It is very daunting and I'd be lying if I said that I wasn't a bit scared.'*
- *'Giving people the confidence that they can always better themselves and achieve what it is they want to do. They might think they're not good enough to go to university, whereas if your school instils the confidence within you that you can do well if you do hard work and stuff I think that's really important. (…) if my parents hadn't helped [my brother] to look for universities that would accept his grades, he wouldn't have probably went.'*

Many indicated **the role of their relatives** in their decision-making progress about HE. Some felt **encouraged**, other reported some **pressures**.
- *'My mum or dad never went to university, but they want me to – they know that I'm capable so they don't want me to be lazy, they want me to actually go.'*
- *'Go to university. You are the golden child. You've got a shot'.*
- *'My dad and my mum didn't go to university or college. But my dad, when he came up to [name of the location], he decided to go to college to do a [name of the course]. He said that he was much more interested in actually learning it because he was older, rather than just being a young person feeling like they have to go to college to just have fun, or whatever. So he's actually trying to get me to sit and wait. I don't know if that's a good thing or not. (…) he's pushing me to get a job first. See if I can make my way somewhere in a career rather than. Not very supportive I thought.'*
- *'I was kind of pressured into trying to go to university but in the end I opted out of it.'*
- *'My family and friends influence more about education and higher education than the whole job thing.'*
- *'People were concerned that if I went there and it was not what I expect, then it might have been a waste.'*

Let us conclude by mentioning that university was not always seen as a success or a necessity for all.
- *'I don't think you have to go to university to be successful.'*
- *'I think going to university definitely gives a helping hand but I don't think it is required. I think you could get quite a lot of qualifications through courses at work.'*
- *'I think [my school] would encourage us to apply but I think they understand that university is not for everyone.'*

5.3   Comments from educators on perceived barriers to access successfully HE

Participants were asked 'what are the main barriers for young people like [them] to access HE successfully?' in their opinion. Their vast experience in supporting and teaching young people allowed elaborated answers and gave additional insights into the pupils' responses. As above, the answers are gathered into four key themes describing financial barriers, geographical barriers, educational barriers and personal factors.

Almost all felt that:
- Their pupils shared similar barriers to HE (monetary and non-monetary costs).
- By living in the ARC region their pupils faced specific disadvantages making their transition to HE more complex.
- The transition to HE was even more complex and even more expensive in the case of islanders.

Debt and higher financial costs

The vast majority of participants pointed out first the financial barriers. They insisted that these barriers were even higher in their rural communities.
- *'The prospect of going to HE is a very very expensive thing for young people. That maybe is the particular case in some rural communities where perhaps parental income isn't particularly high' [e.g. seasonal employment or zero-hour contracts].*

The financial barriers were also higher because of the *'logistical'* implication. '*It costs money to leave home and [their] pupils would not be able to be home at weekend'*. For those living in the Scottish islands, '*that bit of water between home and where [their pupils] are [at university]'* make travel and distance *'slightly more complex and slightly more expensive'*.

They emphasised the '*fear of going into debt'* for their pupils by going to HE (a feeling shared with their families: '*I think money does frighten kids. (…) and it frightens families.*'). Their pupils felt that they had the choice between 'debt-HE' and the '*full benefit of wage packet'*.

Local job market affects the decision to go to HE

Many stressed the role of the local job market in their decision whether to progress to university. A strong *'local economy could make HE less attractive.*' When the local employment opportunities are good, these can be seen '*as a route for [young people] to achieve careers goals*'. In some cases, the combination of a lack of graduate opportunities and a good provision of non-graduate opportunities was thought to prevent the pupils from achieving higher attainment. Some participants regretted that their pupils might not always see the link between HE and a job.
- *'If a child wants to leave school, they could walk into work. It may be seasonal, not the best paid work in the world, but when you're a 16 year old and somebody offers you a couple hundred pounds a week, you think that's a fortune, and you jump at the chance. So because there's easy access to employment in the area, it turns some youngsters away from the rigour and the hard work necessary to complete the academic qualifications here to go on to university because they don't see the point, they can get a job without going to uni.'*

However, when the local employment opportunities are not good, '*limited job prospects'* push young people out of their local communities.

Geographical barriers

Participants would recognise that '*young people want to go the bright lights. They want to get away from home, they want to go to the city, so they tend to go to Glasgow, Edinburgh [or Aberdeen] rather than going to Dundee or St Andrews because of the transport links*'. But they insisted that their pupils faced **specific geographical disadvantages** by living in the ARC region.

A few highlighted that some of their pupils were **currently experiencing geographical barriers** due to the large catchment area of the school. Some of their pupils had long daily journeys to and from school, some were not going home during weekdays.

- *'[They]'ve got to make the step of coming to [name of the school] after S4 which can be intimidating, they stay in the hostel and so on, that can be intimidating for them depending on their approach, and depending on their step to university. So we have almost a similar issue in helping them settle if they come into S5 after studying in a rural area in S4.'*

Many participants emphasised that living in a remote area meant that their pupils **were not living in the proximity of a HE institution**. As a result '*they even have not witnessed what an university is*', '*which could limit their horizons*'. They also compared the size of their school and its rural location with the size of a university and its urban setting: '*a university is a much bigger entity [than their local school]*'. This could lead to '*some fears of bigger place and of the unknown*'.

Participants reported that their pupils could feel intimidated by the **big city**. Indeed, most of their pupils have been living all their life in an isolated place. Therefore, they '*have limited experience in contact with big cities*'.

- *If you're used to [name of an island] and [name of an island], imagine walking along these areas and then imagine Princes Street in Edinburgh, Sauchiehall street in Glasgow, the kids who have been down there they think 'This is wonderful but would I want to stay here? No'. That hustle and bustle, the cars the intensity of the city that we take for granted, they actually can be quite freaked out about. And so when you're sitting going 'Will I go to uni?' and you've got these images in your head, and there's work here, it's a lot.'*

As a result, their **transition to HE is perceived to be even more difficult** than for those coming from more urban areas. First, the '*tightness and closeness of a rural community makes it emotionally difficult for young people to tear themselves away from the community*'. Second, living suddenly in an urban setting could be disruptive:

- *'I get that students move to different cities to go to different unis but this is a whole different ballgame. Living on an island of sixty people, and then there's going to be sixty people in the flat, it's a big change.'*
- *'When they do get there, they might be the only one left in the flat on the weekends, they don't have anyone.'*

Educational barriers

Many educators felt that:

- *'At times, qualifications are an issue, and I would say that it's an issue because in S5, some young people do not realise how hard you have to work to get a Higher.'*
- *'Our results at N3, N4, Higher are all above national averages, but the group of kids who are academically in the middle, who know that they can get a job, they can be quite apathetic. So they don't work their socks off when they're here and they miss out on some of the grades. They get caught out in the last minute, because they haven't worked hard enough and they think it's easy. So they actually miss the cut.'*

Most participants felt that access to **university was competitive**. On several occasions, it was pointed out that access for their pupils is becoming more difficult as the university requirements were getting higher and higher. Many expressed their difficulty in understanding the whole admissions process.

- *'The frustrating thing for us as a school is that we see no difference in the candidates from year to year. So there's an ebb and flow of different requirements that are not clear to us that the universities seem to be imposing, which means that more academic, more gifted children, haven't gotten in, compared to less gifted, less academic pupils that did get in in previous years, and that seems unfair.'*

They highlighted that their pupils or their schools faced some **specific educational and institutional barriers**.
First, they feared that some universities '*did not see their area as a place from which they are going to draw students'* and wondered if they '*cared*'. Some indicated that some of their pupils '*have the perception that coming from this area is not as good as coming from central Scotland, Edinburgh or a private school. (…) They think the universities see a difference*'.

Second, they highlighted that some of their pupils faced **involuntary educational barriers due to their rurality** or will in a near future. These could be twofold. Pupils from small remote schools might not be exposed to a large curriculum and this in turn might affect their subject choices in S5 and S6. Pupils enrolled in S5 and S6 in small schools might not have access to a large curriculum either. This restriction of subjects might impact university access. They felt that the universities were not aware enough of their specific context.

- *'[Pupils] aren't always able to have exactly the right subjects as per the entry requirements for uni, so that can be a disadvantage, and I'm not sure how well that's received from admissions officers from huge numbers, if somebody doesn't have the subject, they're just put on the no pile, how much that's taken into account that they may have come from a very small school with limited subject choice.'*
- *'So the people coming from [name of the location] where they've only been able to choose from a narrow field come in wanting to do their Highers in fifth year. They see the entry requirements set by unis, they may not have been able to take those subjects.'*
- *'I could see a time where as our school roll falls, we're maybe not able to offer as many qualifications and courses. That could become a challenge. (…) It might be that we have to say to young people, if you want to do three sciences or get three Highers in the sciences, you might need to do two one year and one the other year. Now, depending on the university's entrance requirements, that might be a little bit of a disasters, if they're looking for five Highers at grade A in one year or three sciences at grade A in one year.'*
- *'From a rural school I think because our role is small at which means our staffing can be small, that also means we have to limit the subject choice of our pupils, which I think diminishes the depth and the range of choice that our students can take.'*

Quite a few emphasised the lack of understanding of HE and possibilities in HE among their pupils.
- *'For others it might be a lack of understanding as to exactly what is involved in higher education. (…) And I think the other big thing is a lack of knowledge of the diversity of course that you can study at HE, it could be HNC/HND, it could be apprenticeships, it could be part-time, full-time, there's just a huge amount of stuff.'*

Personal factors (including family and peers) affecting their ambition or aspiration to go to HE

Many regretted the '*lack of support from home and the wider community from early age towards HE*'. It could lead to a '*lack of ambition*' which could prevent them from getting higher qualifications. In addition, some of their pupils did not feel the pressure to improve their attainments since they thought they did not want to move, or they could not move.

Many participants pointed out that their pupils might not have the **cultural awareness to go to HE**. On many occasions, they highlighted the lack of **parental experience**. Many of their pupils did not have parents who had gone to university or did not need a degree to do their job.
- *'There's no need to go to uni to get a job because they can already get a job, and because that's been the culture in the area for so long, there are many family members will turn to their children and go 'What do you need to go to uni for? You can get a job'. So they can see the work, they can get the work, but also their family members are saying you don't need university, you should be quite happy staying here and going to work in.'*

On other occasions, the **change of parenting support** over the years was discussed and how it could hinder the development of resilience skills and staying at university.
- *'If you go back ten or fifteen years, a child wanted to come home, parents would have put more pressure, more strategies, more encouragement in place to encourage a child to stay whereas now in a generation that is less resilient, well as long as they're happy, a young person comes home.'*

Peer factors were occasionally mentioned negatively. Current and former peers could influence their pupils' decision not to go to university. In some cases, it was related to the lack of ambition to go to HE among these peers. In other cases, it was their return to the local community after having dropped out that was the influential factor.
- *'I don't know any hard facts for this but there's a common belief that there's a high return rate that have been to the city, didn't like it, come back here, tell the kids who are just behind them, 'You don't want to do that. Don't do it''.*

Quite a few participants indicated that some of their pupils **lacked confidence** or did not have the same quality of **aspirations** than those coming from more urban Scottish areas. They felt that these made them unable to compete in interview situations.
- *'They certainly have a lack of confidence in their own ability to compete in an interview situation'.*
- *I think the small pond scenario – you're super confident around school, super confident around the villages, they're perfectly competent, but the step to the city, or a long way from home, is a bit of a barrier. We've got a lot of students, for example, who use [name of the college] as a kind of stepping stone, I've had conversations*

with young people who say they're not ready to go away from home. They probably are ready to go away from home, but their perception is that there isn't the rush and maybe there isn't.'

Greatest need for action

Many participants would emphasise that a better articulation between the final years at school and first year at university would be beneficial to the successful access of their pupils to HE. This articulation goes from a better understanding of the entry requirements to HE to better communication between secondary and tertiary institutions. They felt that if universities could do more for schools, schools could do more for universities.

They recognised that the location was an issue. A few advised that a first face-to-face contact should be maintained, but more virtual 'pop-in' could be delivered.
- *'You can't get a university to come all the way out here, it'd cost a fortune. The other big issue is that we are the only school in the area so you would just be coming for us, and you always have to remember that only about a third or so of our children go to university.'*
- *'I mean to visit one university would be three or four days away from here, and for students sitting Highers that's a week out of school. Visiting three or four institutions, how can you do it? I don't know if we can set up video links or virtual tours of the universities, done online. I know that sounds ridiculous, but the point of taking them to these places is to take away the barriers the website may create, and of course the vision is coloured by some individual who they think is snobbish. So even little things can have an impact.'*

These mutual efforts could mitigate the lack of HE experience of some of their pupils. They stressed that universities should pursue in their efforts in providing visits for rural visitors and more of their pupils should benefit from week-long experience in university. Many regretted that the career/education conventions have now become bi-annual in their areas. Some suggested that universities combine their efforts in these conventions.
- *'I think perhaps obviously by building in greater opportunities to experience universities, and in the course of particularly a secondary school career, for example, visits to universities, obviously an overnight visit in itself will not enable a young person to develop skills, but at least it gives them an awareness of what it's like. It could perhaps reduce some of the fears, perhaps for certain students week-long experiences at universities. Perhaps those children who identify as being those who are likely to attain the qualifications needed for higher education, we could target and offer residential experiences from an early stage. I mean other than that, it really is kind of dove tails into the more general independent living/personal safety skills that we should be instilling in all our young students regardless of their intended destination.'*
- *'I mean obviously the dream contact would be able to sustain that kind of level of assistance for students over a period. For example, being on hand if you like, to be able to take children through the stages of their process of UCAS, on an advisory capacity from the very earliest stages. I mean – you did say dream, which in itself implies that it's not likely to be realised but it's the dream.'*
- *'A suggestion would be for the higher education institutions to work together, and have some sort of careers university fair where students from [name of the location] can all in one, I'm trying to think of cost cutting measures for you and for us.'*
- *'Maybe the universities coming together and holding events up in the northern regions, rather than just the UCAS conference.'*
- *'I think there could be better access to open days, to days which allow pupils to see pathways for themselves from an earlier age. I mean probably at the time when they're in fourth or fifth year. It would be very difficult in [name of the location] to bring all those institutions together at one time and in one place. There's a difficulty in us going to them.'*

They emphasised that while universities were working with pupils and their relatives, they should also do more work with all staff at school (those who work directly with pupils and those who work indirectly with pupils).

Some agreed that more could be done with their former pupils and that they should collect more information from university. Many would like to have '*better information and better advice about entry to university*'. Others would definitely like better communications from universities about rejection:
- *'[universities] might have good reasons for the rejection, but the information they're giving us is that the offers are made based on the grades, but that's clearly not the case, so what is making the difference? Because unless we have that information we can't advise people appropriately'.*

They should be '*keeping that link with what the expectations are in university*'. Some recommended some efforts in promoting rural schools and increasing confidence among their pupils.

- *'There's a bit marketing issue, particularly around rural schools or more country schools, in getting pupils from country areas to believe that the universities are not thinking of them differently [than those] from city areas.'*
- *'The schools in the public sector need to do a lot more work in increasing pupil confidence and self-esteem, their ability to believe in themselves and to aspire to more than they can achieve.'*

They also suggested that further consideration should be given to the transition from FE to HE, the unconditional offer to S6 pupils and the joint delivery of level seven qualification.

- *'There is quite a big surging interest in equivalences and entering into second year, or if you've already done this at your local college. (…) Some of that would be perhaps a way of keeping costs down for an island student, if they could have the right blend of advanced Highers, or if they'd done an HND here or back in a local college, (…) However, that hasn't really seemed to come to fruition as much as I would probably have thought it should. (…) For people who are homesick they might still be homesick, but it would be only three-year or two-year courses rather than the four-year course fact.'*
- *'I think I sometimes worry that if they know too early on, then they adopt some bad habits before they go to university. (…) I do feel that in the sixth year it is important to keep them going, and it can be hard to motivate (…). But I know the universities have reasons for [giving unconditional offers], and I know it's administrative. (…) I kind of think it unsettles the students when they see that some have got replies and some haven't. And the teachers don't like it.'*
- *'We need to have a much more sort of integrated working relationship with the college (…), so that parts of our curriculum can get delivered. We do have aspects at the moment, but I'd like to see more and more aspects of the curriculum delivered.'*

'I'm still slightly undecided if this is what I want to do but I'm going to do the Access Nursing. It is going to really help me figure out if this is what I want to do and if I'll enjoy it, and so I think that that the course is going to really help me.'
(Female pupil, S6, ARC school, February 2015)

'Well, not everyone knows what they want to if they want to do university, we're not aware of what courses are available, and what subjects and qualifications are needed to actually get to them. I'm just kind of going by what I like and not by what I actually need. I know some that I think I need.'
(Female pupil, S6, ARC school, February 2015)

6.   Study portal – guiding prospective students

- A link to more than 100 degree programmes, 50 subjects and dozens of graduate professions
- Choosing subjects according to pupils' interests and personality type

Screenshot 6.1: Extract of the welcome page

University of St Andrews   Scottish Funding Council
Promoting further and higher education   **ARC Project**

Participant Information: Matching Careers, Interests and Degree Programmes

Research Project
Matching Careers, Interests and Degree Programmes
Researchers
Dr Graham Kirby from the School of Computer Science and Dr Laurence Lasselle from the School of Management. Our contact details are below.

Thank you for your interest in our research. This page explains its purpose and what you will be required to do should you wish to participate in this research. Please take the time to read it.

You can gather information about Higher Education courses from various sources. However, it may be difficult to decide which degree they wish to read at University.

Our research aims to assist you in this decision-making process. We are developing a portal that will guide students like yourself in picking academic subjects and degree programmes (e.g. Economics, Divinity, Computer Science) that they may wish to read at university, by matching them to activities they may enjoy or are willing to try (e.g. collecting data, giving travel advice), and professions that they may want to do or are interested in trying after university (e.g. architect, nurse).

6.1   Introduction

This chapter provides an overview of the exploratory phase of a study choice portal matching interests, professions and degree programmes. This portal aims to assist Scottish secondary students aspiring to pursue their education in HE in Scotland to choose the courses they wish to study at university (see the extract of the welcome page shown in Screenshot 1).

Briefly speaking, the portal explores the links between academic subjects that young people may choose to study at university (e.g. Economics, Divinity, Computer Science), activities that they may enjoy or are willing to try (e.g. collecting data, giving travel advice) and professions that they would like to do or are willing to try (e.g. architect, nurse).

Prospective students can gather information about HE courses from various sources. These can be websites, e.g. the UCAS website or any university pages dedicated to prospective undergraduate students. Pupils can read the Undergraduate prospectus. They can attend University Open Days, Careers and University conventions. At their secondary school, they enrol in specified classes and they are advised by their guidance teachers, teachers or learning officers. In their decision-making process about HE, they are also influenced by their parents, relatives, carers and peers. This variety of sources, opinions and advice makes the decision to study a subject at a particular university complex.

Our portal aims to guide pupils to make a decision about degree programmes or subjects they wish to study at university from their own interests. It will allow:

- pupils living in remote areas to access information about subjects, degree programmes and professions from an alternative perspective
- all pupils to make a more informed decision about subjects and degree programmes they wish to study at university.

It is an alternative source of information that pupils may browse at their own pace. It does not aim to replace the current sources of information.

6.2   Background and rationale

HESA statistics indicate that 6.2% of full-time first-year HE students who attended a Scottish university in 2012-13 dropped out (the UK average is 5.7%). There are large discrepancies between institutions. The lowest drop-out rate is achieved by the University of St Andrews (1.8%), the highest by the University of the West of Scotland (14.4%). These percentages have decreased over time. Indeed, in 2010/11, 7.6% of full-time first-year HE students who attended a Scottish university dropped out (the UK average was 6.3%) and there were even larger discrepancies between institutions. The lowest rate was achieved by the University of St Andrews (1.2%), the highest by the University of the West of Scotland (22.7%).

It is commonly acknowledged that adequate support and information during the study choice process could reduce dropping-out and improve success rates. Indeed, 'students that carefully explore their options are more likely to end up in a major that suits their interests and potential, which in turn will lead to higher retention' (Fonteyne et al (2014)).

6.3   Portal development

Our portal has just gone through its exploratory phase. It has been developed by Saad Attieh and Patrick Opgenoorth, two Junior Honours students in Computer Science. They have been supervised by Dr Graham Kirby.

The portal mirrors some essential elements of 'SIMON', a portal designed by the University of Ghent. We are benefiting from Ghent's experience at this stage of development.

SIMON is an interest inventory based on the RIASEC test. Flemish secondary pupils and students who are in search of a degree are asked to indicate in a yes-no format whether they would enjoy some activities and professions. This is the 'evaluation of interests' phase. They then go through a basic mathematics test, a basic vocabulary test and a self-efficacy test. These are part of the 'evaluation of capacities' phase. From these phases, students are presented with a variety of degrees they might be interested in studying at a Flemish tertiary institution.

The RIASEC test (or Holland Codes) derives from the theory of careers and vocational choice based upon personality types developed by the psychologist John L Holland in 1985. Each letter or code stands for a particular type: Realistic (Doers), Investigative (Thinkers), Artistic (Creators), Social (Helpers), Enterprising (Persuaders), and Conventional (Organisers). This test has been adapted to non-vocational subjects and is frequently used in some US HE institutions to link interests, academic subjects, degree programmes and careers.

As of today, our portal is only considering the evaluation of interests phase. In other words, it is focusing on the academic choices of prospective students, aiming to give them a clearer idea about the academic subjects they would like to study at university and which careers they can move into.

The current mapping between academic subjects, interests and degree programmes is based on existing lists published by some US institutions, instead of the Ghent mapping which also includes FE studies. Honours students enrolled in the Faculties of Arts, Divinity and Science at the University of St Andrews were invited to trial the portal in March 2015 in order to evaluate this mapping.

The portal is linked to all subjects gathered according to the national classification (JACS codes), all the degree programmes offered by the University of St Andrews and the professions of its graduates available from the University Careers Centre.

6.4   How does the study portal work? What does it look like?

The portal is designed to be open to all Scottish secondary schools (cf. Screenshot 6.1). Upon registration by the school, the school receives a list of randomised access codes. It can then issue an access code to each pupil. The use of access codes ensures that our server does not keep any personal information about the pupils and reduces the likelihood of multiple submissions by an individual pupil.

Once the access code has been entered, pupils access the second page of the portal where they are asked to provide some information about their gender, the broad areas they are interested in exploring and their current qualifications (cf. Screenshot 6.2). It is not compulsory to give this information.

Screenshot 6.2: Personal information in the study portal

Personal Information:

Gender:

◯ Male   ● Female   ◯ Prefer not to answer

From your experience, which area(s) are you interested in exploring? It is OK to tick multiple items or no items at all.

☑ Arts ☐ Science ☑ Divinity ☐ Medicine

Please enter your Higher grades, where applicable.

French

| A | ⇕ |

Maths

| B | ⇕ |

Participants then continue to the 'evaluation of interests' phase. They respond in a 'like/don't like' format to a series of very short questions about 98 activities and 65 occupations they would enjoy (cf. Screenshots 6.3 and 6.4). It should take roughly 20 minutes to complete the two parts of the questionnaire.

Screenshot 6.3: Extract of the questionnaire (activities)

Questionnaire Part 1: Activities

- Select "Like" for activities you enjoy doing, or you would like to try.
- Select "Don't like" for activities you would not like to do.
- If you really don't know what the activity involves, select "Don't understand".
- If you don't want to answer, select "Prefer not to answer".

Activities	Like	Don't like	Don't understand	Prefer not to answer
Developing electronic systems	●	○	○	○
Analysing the grammatical structure of a sentence	●	○	○	○
Helping people with speech disorders	○	●	○	○
Recruiting a job candidate	●	○	○	○
Monitoring quality standards for food safety and hygiene	○	○	●	○

Screenshot 6.4: Extract of the questionnaire (occupations)

Questionnaire Part 2: Occupations

- Select "Like" for occupations you would like to practise or that you would like to try.
- Select "Don't like" for occupations you would not like to do.
- If you really don't know what the occupation involves, select "Don't understand".
- If you don't want to answer, select "Prefer not to answer".

Occupations	Like	Don't like	Don't understand	Prefer not to answer
Civil engineer	●	○	○	○
Fashion designer	○	●	○	○
Policy adviser in political and international relations	●	○	○	○
Recruitment and selection adviser	○	○	○	●
Damage expert	●	○	○	○
Agricultural technician	●	○	○	○
Teacher	○	●	○	○
Business economist	○	○	○	●
Accountant	○	○	○	●

From the aggregation of the responses to the questionnaire, the portal estimates the most relevant personality types and offers suggestions for subject(s) they may be interested in studying at university. Each suggested subject includes a list of links to further information. In the prototype version, this includes subject-specific links to the prospects.ac.uk website and to employment and work experience case studies published by the St Andrews Careers Centre (cf. Screenshot 6.5).

Screenshot 6.5: Extract of the result page

Results

Thank you for choosing to complete this optional survey. Please tell us about the accuracy of your profile in the feedback box at the end.

Your interest code is: **EIR**

People in this category often:

- prefer to work with objects and things
- like to solve problems, perform experiments, and conduct research
- prefer activities selling and promoting

You seem to be particularly interested in these subjects. Click on a section to show relevant links.

▶ Ecology

▶ Environmental Biology

- Job search on Prospects.ac.uk
- Employment Case Studies (St Andrews)
- Work Experience Case Studies (St Andrews)

▶ Materials Science

6.5   Conclusion and further work based on alternative embedded uses of the portal

Our study portal aims to allow Scottish pupils to explore subjects, degree programmes and professions according to their interests at their own pace. Its exploratory phase closed with the end of the funding of the ARC research component (August 2015). Its development continues in two directions from September 2015.

First, the portal will soon be less St Andrews-centric. Other Scottish HE institutions have been contacted through the Scottish HE Enhancement Committee in order to assist in refining the portal and improving its accuracy. Second, at the Teachers Together conference in June 2015 where the portal was presented to participants, some representatives of Scottish secondary schools indicated that they wish their S6 pupils to use the portal in the coming academic session. Their S6 pupils will be invited to use it from December 2015.

The portal could be used for at least two alternative purposes. In the first case, the target population could change. In its current phase, the portal's population target is S5 and S6 pupils. We are convinced that some aspects of the portal could be used by students enrolled in Scottish HE institutions. In the second case, research could analyse the responses given by its users.

University students
Students are admitted to study a degree programme. As entrants, they must enrol in all specified modules of their degree programme. In some Scottish universities, in particular at St Andrews, the structure of the degree programme is flexible. It gives the opportunity for entrants to enrol in other subjects in addition to the compulsory ones. These subjects could lead to other degree programmes. Their selection could be assisted by the use of a similar portal in which the outcome would suggest various subjects based on the student's interests and personality.

Research purposes
- The mapping between academic subjects, interests and degree programmes could be compared between several Scottish HE institutions. This comparison could highlight some disparities between institutions in similar subjects. This study could be extended to an analysis between different European countries.

- Pupils' responses could also be analysed according to gender and location. This analysis could stress some gender or location differences in terms of interests and personality within the same subject.

- Young people's responses could also be analysed over time. If students were asked to use the portal on several occasions throughout their studies, information about transitions from secondary schools to university and transitions within university could be gathered. One could compare the academic subjects deduced from their first interaction with the portal, the degree programme they read when they enter university and the degree programme from which they graduate.

References

Holland, J L, 1985, The self-directed search: professional manual. Odessa, FL: Psychological assessment resources.

Fonteyne, L , B Willie and F De Fruyt, 2015, Development and validation of the Flemish SIMON interest inventory (SIMON-I), working paper, University of Ghent.

Conclusion and guiding principles

This exploratory research examined some of the unique issues in accessing HE faced by pupils living in Scottish rural communities, in particular Argyll & Bute, Highland, Eilean Siar, Orkney Islands and Shetland Islands, i.e. the ARC region. It assessed the effect of rurality on access to HE in Scotland, in particular to the University of St Andrews. It gathered evidence to gain a better understanding of the perception of access to HE from these rural communities.

Briefly speaking, this research showed that many of these communities were hard to reach and in some of the least deprived areas of Scotland. Despite this, some pupils came from disadvantaged socio-economic backgrounds. All pupils faced large pecuniary and non-pecuniary costs in studying at HE. Some of these could be larger than those of their peers living in more urban settings.

Chapter 1 gave the main facts about the ARC region and the state secondary schools located in the ARC region. First, it highlighted that the SIMD criterion was not adequate to measure deprivation in rural Scotland. Second, there was a lower three-year average progression rate to HE in the ARC region than the national average of 36%. Finally, there were great variations of progression to HE among schools in the ARC region.

Chapter 2 provided more detailed information about university destinations and subjects studied at university from Scottish students studying on a full-time course at a UK institution in 2012-13. All were domiciled in Scotland prior to the commencement of their studies in HE. We compared the destinations and subjects of all students and those of students who attended a school located in the ARC region. In both cases, we showed that there existed some discrepancies depending on the area they were coming from and the type of school they attended.

From Chapter 1 and Chapter 2, we can conclude that:
- The ARC region is not the natural catchment area of the University of St Andrews.
- The ARC region is the natural catchment area of some HE institutions.
- There is a need to pursue the investigation of the transition from Scottish rural secondary schools to Scottish HE institutions.

Chapter 3 provided representations of the perception of geographical, monetary and transportation distance between secondary state schools in the ARC region and the University of St Andrews. Specifically, these representations were in terms of mileage distance, journey duration, fare, or any combination of these factors. First, the chapter highlighted that the concept of distance was complex. Second, regardless of the concept used, reaching St Andrews from the ARC region could be difficult, long and costly. Our representations allowed us to create two indexes that reflect the difficulty of geographical access to the University of St Andrews.

From Chapter 4, we can conclude that there is a need to develop these representations to include other Scottish HE institutions and secondary schools' catchment areas.

Chapters 4 and 5 gathered evidence that aimed to provide a better understanding of the perception of access to HE among the people living in the ARC region who experience it directly (pupils) or indirectly (school staff and quality improvement officers). We highlighted that young people from the ARC region faced similar access issues to their peers, i.e. pecuniary and non-pecuniary costs. Participants clearly indicated that the most important barrier to HE was financial. They felt that they faced additional pecuniary costs because of their location. Many indicated that the information about HE access and communication with HE institutions could be improved.

From Chapters 4 and 5 we can conclude that there is a need to
- measure the cost of all Scottish rural communities in accessing and succeeding in HE
- develop new information and communications tools between all stakeholders (one such tool is proposed in Chapter 6).

Chapter 6 provided an overview of the exploratory phase of a study choice portal matching interests, professions and degree programmes. As chapters 4 and 5 highlighted, there seems to be a need for more information about HE courses provided in Scotland. This portal aims to assist Scottish secondary students aspiring to pursue their education in HE in Scotland to choose the courses they wish to study at university. It allows students to explore at their own pace links between academic subjects that they may choose to study at university (e.g. Economics, Divinity, Computer Science), activities that they may enjoy or are willing to try (e.g. collecting data, giving travel advice) and professions that they would like to do or are willing to try (e.g. architect, nurse).

Our evidence allows us to propose **five guiding principles** to ensure that young people living in these rural communities have equal opportunities to attend highly competitive courses offered at Scottish institutions and in turn to realise a positive destination.

The first two guiding principles are limited to the ARC region. They aim to increase participation in HE by pupils coming from the ARC region.

1. Support ARC as a future access outreach project

This innovative approach of targeting rural areas has allowed the University of St Andrews to approach S4-S6 pupils, parents and carers, teaching and support staff from the ARC region. These local authorities are in areas beyond the University's 'natural' catchment areas in terms of widening participation (WP) activities.

We recommend that all operational and project work is continued in order to build on the initial project and to increase participation in HE by pupils coming from the ARC region.

2. Reduce the financial barriers for prospective students from the ARC region

The main barrier to HE for those in the ARC region is financial. Pupils (and staff) feel that they face additional financial costs in accessing and succeeding in HE.

We recommend that measures such as travel and accommodation bursaries are put in place to reduce the financial costs of travelling to and attending university, in order to promote:
- *better access for university open days and HE and career conventions*
- *undertaking undergraduate studies at universities outside the pupils' current frame of reference.*

The following three guiding principles are not limited to the ARC region. They aim to increase clear communication between secondary schools, in particular those from rural communities, and Scottish HE institutions.

3. Encourage Scottish HE institutions to consider rurality in their outreach activities

Some pupils living in rural communities need extra support in accessing HE. However, as they do not live in SIMD20 or SIMD40 or do not form 'large' pools of prospective students, they are not seen as 'traditional' targets for student recruitment or WP activities.

We recommend that a coordinated outreach initiative is put in place for pupils (and their parents or carers, teaching and support staff) from all remote Scottish areas.

This would bring the benefit of accessing HE institutions beyond their natural destination. Overall, more pupils from remote areas would be enrolled across more Scottish HE institutions.

4. Develop a cultural awareness towards HE from the applicants' perspective

To improve transition to HE and prevent non-progression of undergraduate studies, pupils should have a clearer idea about subjects they could study at university and what these subjects lead to in terms of professions. Information about subjects, degree programmes and professions should be explored by prospective students in their own time and according to their preferences.

We recommend that the development of the study choice portal continues and that it is tested by secondary pupils.

5. Measuring remoteness in a contextualised admissions system at institutional level

Applications from students in all remote Scottish rural communities should be contextualised at the admissions stage and their applications viewed in light of the barriers that come with living in such rural areas.

The current urban/rural classification is not satisfactory as it does not capture the reduced curriculum issue and the perception of distance.

We recommend that information on reduced subject choice in rural secondary schools is gathered at national level through a school curriculum database and that each Scottish HE institution evaluates the perception of distance according to the criteria highlighted in the report.

This would in turn enable contextualised offers to be made in the same way as for more urban access applicants.

More information:

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ARC* region:
Argyll & Bute,
Eilean Siar,
Highland,
Orkney Islands
and
Shetland Islands

47%
of pupils**
would not like to
attend a university
close to home
(November 2014)

52%
of pupils**
would not like to
attend a university
close to home
(March 2015)

TOP100
World University
(QS ranking)

TOP 20
Research University
47
ARC state secondary
schools

47%
of pupils**
felt concerned
that it will cost too
much for them to
go to university
(November 2014)

37%
of pupils**
felt concerned that
it will cost too much
for them to go to the
University of St Andrews
(November 2014)

**Stunning
coastal
location**

**Rural
communities**

For more than
1/4
of the ARC schools,
it costs less to travel
to St Andrews by
public transport
than by car

It is impossible to travel
by public transport
from the University to
17
ARC schools for a
weekend in late
October

**Cosmopolitan
community**

*   ARC: Access for Rural Communities
** Sample of ARC S5/S6 pupils

www.st-andrews.ac.uk/study/access/school-college-projects/arc

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