INFORMATION NOTE

SESTRAN STRATEGIC DRT STUDY

ACCESSIBILITY ANALYSIS – OUTPUTS SUMMARY

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TABLE OF CONTENTS

1. INTRODUCTION

1.1 Accessibility Analysis

1.1.1 This information note outlines the accessibility analysis undertaken for the SEStran Strategic DRT Study using TRACC[1] software.

1.1.2 Accessibility modelling provides a method by which to assess the performance of public transport in allowing people to access important locations from right across the SEStran area. It allows the consideration of both the catchments of public transport service coverage, i.e. the ability to access a suitable public transport service from one's origin to one's destination, as well as the times taken to complete journeys to typical destinations.

1.1.3 This modelling allows a picture to be built of how different areas perform in terms of accessibility by public transport. By relating additional demographic data (such as population, car ownership, age, and level of deprivation) to this knowledge of accessibility, it allows the study team to gain useful insights into the types of people with access issues in the area.

1.1.4 For example, analysis can highlight those areas where people are less likely to own a car and then consider whether they typically have better or worse access than those who do own a car. If access is worse, and this is seen as a problem which should be addressed, then the most affected areas can be identified, and options around what can be done about this identified and appraised.

1.2 Journey Origins and Destinations

1.2.1 The TRACC analysis covers access within the SEStran area, as defined by the constituent local authority boundaries. Journey potential, and journey times are calculated at a Census Output Area level of detail, with the point of origin defined as the population-weighted centroid of the Output Area. There are a total of 13,273 Output Areas within the SEStran area, with each origin representing between 20 and 78 households.

1.2.2 Accessibility results from each Output Area have been extracted and analysed at varying levels to understand how transport access varies for different population groups.

1.2.3 The groups of 'destinations' considered can be summarised as:

- Universities;
- Employment;
- GP Surgeries;
- Hospitals;
- Train Stations;
- Sports Centres; and
- Community Centres.

1.3 Levels of Geographical Analysis

1.3.1 Results are calculated for each Output Area and can then be aggregated across various geographic areas. Results are presented with the following geographic breakdowns:

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[1] TRACC Software Website, accessed March 2020

- The SEStran area as a whole;
- Each of the eight constituent local authorities; and
- Selected key localities.

1.3.2   Localities were selected such that the largest fifteen within the SEStran area (by population) were chosen, as well as the three most populous within each local authority. Locality boundaries as defined by the National Records of Scotland[2] were used, with population estimates using the 2011 census count for the Output Areas whose centroid fell within each locality. In total, 26 localities were selected – these are as shown in Table 1 overleaf.

1.4   Modelling Outputs

1.4.1   To aid the consideration of the accessibility modelling results, individual maps have been created showing accessibility for each destination type (e.g. universities, town centre). Each map shows the journey time band to the closest destination for each individual postcode across SEStran. For journeys over 90 minutes the postcode has been described as not having any access to a destination.

1.4.2   The journey times are based on the current public transport network (as of January 2020) and allow for walking to a bus/rail stop, using the public transport services, interchanging between services as required, and walking to the destination from the final bus/rail stop. Two settings have been used for the walking distance to and from the bus stop at the start and end of the journey – 800m and 400m. This

recognises that the acceptable distance to the bus stop can vary depending on a number of factors including health, age, and attractiveness of service. Note that this applies to the maximum walking distance to a stop from the origin *and* the maximum to the destination from the final stop; therefore the total walking distance in a journey can be up to double this limit.

1.4.3

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[2] https://www.nrscotland.gov.uk/statistics-and-data/geography/our-products/settlements-and-localities-dataset/settlements-and-localities-digital-boundaries

Table 1. **Localities Selected for Analysis**

AUTHORITY	LOCALITY	POPULATION (2011)
City of Edinburgh	Edinburgh	459,633
	South Queensferry	9,117
	Kirkliston	3,576
Clackmannanshire	Alloa	14,132
	Tullibody	8,809
	Sauchie	6,285
East Lothian	Musselburgh	19,475
	Tranent	11,642
	Prestonpans	9,140
Falkirk	Falkirk	35,398
	Grangemouth	17,373
	Bo'ness	15,098
Fife	Kirkcaldy and Dysart	49,709
	Dunfermline	49,706
	Glenrothes	39,277
	Methil, Leven and Buckhaven	30,964
	St Andrews	16,870
Midlothian	Bonnyrigg	15,971
	Penicuik	15,926
	Mayfield	13,290
Scottish Borders	Hawick	14,294
	Galashiels	12,893
	Peebles	8,376
West Lothian	Livingston	56,323
	Bathgate	20,514
	Broxburn	15,375

2. ACCESS TO UNIVERSITIES

2.1.1 The list of university locations was based on the dataset used previously for the SESTran RTS Monitoring (2016) project, updated for recent building closures and campus relocations. Where appropriate, a number of distinct campus locations were used for the universities, giving a total of 21 campus locations representing 11 universities. The majority of these locations are within the SEStran area, but seven sites lie in the wider area with campuses in Dundee, Glasgow and Stirling.

2.1.2 As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to study time.

2.1.3 The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, including Edinburgh, Kirkcaldy and Galashiels. The majority of remaining settlements require a longer journey and 5.2% of the population has no public transport access at all. This reduces to 3.6% when focusing on the population aged 16-24. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 21.4% across the total population.

2.1.4 The TRACC modelling outputs also show the level of accessibility by cycling. The cycling accessibility is concentrated around the university campuses in Edinburgh, Galashiels, St Andrews and west of Clackmannanshire (cycle access to Stirling University).
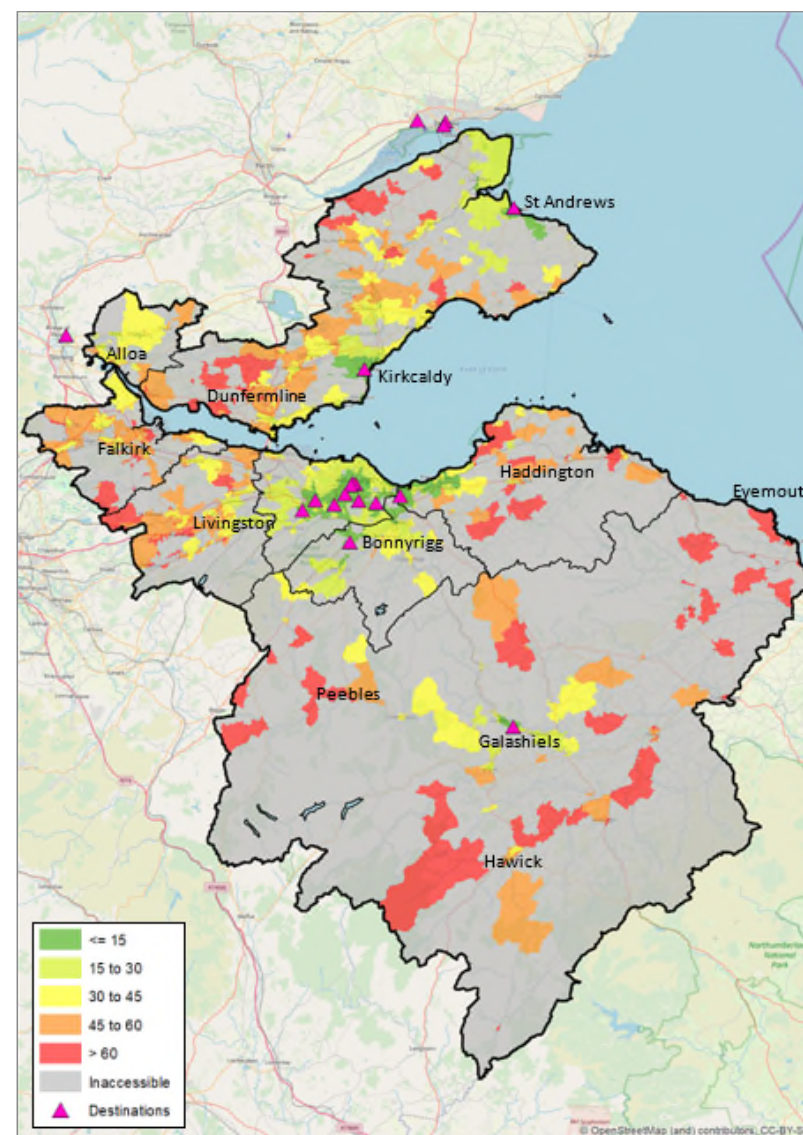

Figure 1.   **Access to Universities by Public Transport, 400m catchment, Weekday AM**

Table 2. **Access to Universities by Public Transport, 400m catchment, SESTran area**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	22.4%	45.3%	88.0%	6.8%	5.2%
Population with No Car	34.1%	58.7%	93.6%	5.0%	1.4%
Working Age Population	24.4%	46.9%	88.4%	6.6%	5.1%
Working Age with No Car	40.7%	64.1%	94.6%	4.2%	1.2%
Age 16-19	26.8%	47.7%	88.6%	6.7%	4.7%
Age 16-24	35.1%	54.6%	90.7%	5.7%	3.6%
Age 65+	19.3%	43.8%	87.4%	7.4%	5.2%
Age 65+ with No Car	23.5%	50.0%	92.0%	6.4%	1.7%
10% Most Deprived	21.9%	42.1%	90.8%	8.8%	0.4%
20% Most Deprived	17.3%	41.1%	91.7%	7.3%	1.0%

Table 3. **Access to Universities by Public Transport, 400m catchment, by Education Deprivation**

	<=15	<=30	<=60	>60	NO PT ACCESS
Most deprived 10%	14.9%	40.8%	92.7%	6.6%	0.8%
2nd most deprived 10%	17.9%	43.8%	92.1%	6.7%	1.2%
3rd most deprived 10%	23.3%	42.5%	92.5%	6.2%	1.2%
4th most deprived 10%	19.6%	42.8%	93.6%	5.1%	1.3%

Table 4. Access to Universities by Public Transport, 400m catchment, by Geography

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	53.7%	90.6%	98.0%	0.0%	2.0%
Edinburgh (Locality)	55.7%	93.2%	98.3%	0.0%	1.7%
South Queensferry	0.0%	5.9%	99.0%	0.0%	1.0%
Kirkliston	0.0%	0.0%	90.7%	0.0%	9.3%
Total in Clackmannanshire	0.4%	36.6%	94.0%	0.4%	5.6%
Alloa	0.0%	26.1%	97.4%	0.0%	2.6%
Tullibody	0.0%	62.1%	87.5%	0.0%	12.5%
Sauchie	0.0%	0.0%	94.3%	3.7%	2.1%
Total in East Lothian	14.9%	39.8%	85.0%	6.0%	9.0%
Musselburgh	62.6%	98.4%	98.4%	0.0%	1.6%
Tranent	0.0%	48.2%	96.2%	0.0%	3.8%
Prestonpans	2.8%	77.9%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	0.0%	0.5%	84.9%	11.1%	4.1%
Falkirk (Locality)	0.0%	0.0%	95.5%	1.9%	2.6%
Grangemouth	0.0%	0.0%	49.3%	50.7%	0.0%
Bo'ness	0.0%	0.0%	100.0%	0.0%	0.0%
Total in Fife	13.5%	31.5%	87.9%	9.1%	3.0%
Kirkcaldy and Dysart	60.6%	100.0%	100.0%	0.0%	0.0%
Dunfermline	0.0%	0.0%	76.5%	23.5%	0.0%
Glenrothes	0.0%	20.2%	98.8%	0.3%	0.9%
Methil, Leven and Buckhaven	0.0%	5.2%	100.0%	0.0%	0.0%
St Andrews	87.0%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	12.6%	53.8%	94.0%	0.0%	6.0%
Bonnyrigg	0.0%	9.4%	94.5%	0.0%	5.5%
Penicuik	27.3%	96.7%	96.7%	0.0%	3.3%
Mayfield	0.0%	43.3%	95.3%	0.0%	4.7%
Total in Scottish Borders	8.4%	21.9%	57.7%	21.0%	21.4%
Hawick	0.0%	0.0%	93.7%	3.7%	2.5%
Galashiels	73.5%	100.0%	100.0%	0.0%	0.0%
Peebles	0.0%	0.0%	76.2%	19.0%	4.8%
Total in West Lothian	0.0%	7.7%	80.3%	13.3%	6.4%
Livingston	0.0%	6.9%	94.5%	2.7%	2.8%
Bathgate	0.0%	0.0%	91.4%	6.7%	1.8%
Broxburn	0.0%	0.0%	84.9%	3.8%	11.3%

3. ACCESS TO COLLEGES

3.1 Destinations used

3.1.1 The list of colleges was based on the dataset used previously for the SEStran RTS Monitoring (2016) project, updated for recent building closures and campus relocations. Most colleges have a number of distinct campuses, and therefore a total of 24 campus locations representing 9 colleges were used for this analysis. The majority of these locations are within the SEStran area, but five sites lie in the wider area with campuses in Dundee, Perth and Stirling.

3.1.2 As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to study time.

3.1.3 The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, including Fife, West Lothian, City of Edinburgh, Falkirk and Clackmannanshire. The majority of remaining settlements require a longer journey and 5.0% of the population has no public transport access at all. This reduces to 3.6% when focusing on the population aged 16-24. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 19.7% across the total population and 9% in East Lothian.

3.1.4 The TRACC modelling outputs also show the level of accessibility by cycling. The cycling accessibility is concentrated around the college campuses across the SEStran area.
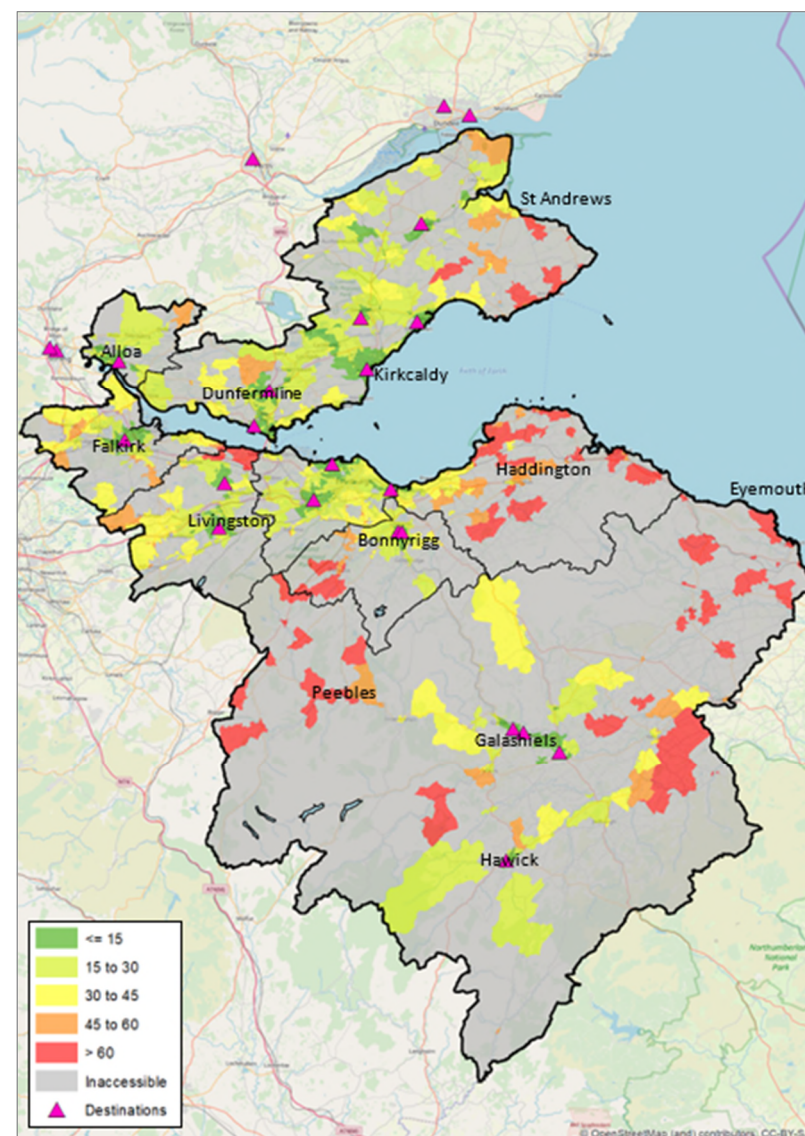

Figure 2.　**Access to Colleges by Public Transport, 400m catchment, Weekday AM**

Table 5. Access to Colleges by Public Transport, 400m catchment, SESTran area

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	23.4%	66.5%	91.5%	3.5%	5.0%
Population with No Car	27.8%	76.2%	96.6%	2.1%	1.3%
Working Age Population	23.0%	67.2%	91.9%	3.2%	4.9%
Working Age with No Car	26.1%	77.8%	97.3%	1.6%	1.1%
Age 16-19	23.1%	66.2%	92.2%	3.2%	4.6%
Age 16-24	21.8%	67.0%	93.9%	2.6%	3.6%
Age 65+	24.5%	65.2%	90.5%	4.5%	5.0%
Age 65+ with No Car	28.9%	72.1%	95.1%	3.4%	1.6%
10% Most Deprived	44.8%	87.9%	99.6%	0.0%	0.4%
20% Most Deprived	41.2%	83.0%	99.0%	0.0%	1.0%

Table 6. Access to Colleges by Public Transport, 400m catchment, by Education deprivation

	<=15	<=30	<=60	>60	NO PT ACCESS
Most deprived 10%	37.7%	84.5%	99.2%	0.0%	0.8%
2nd most deprived 10%	36.2%	79.0%	98.0%	0.8%	1.2%
3rd most deprived 10%	32.0%	68.6%	97.2%	1.6%	1.2%
4th most deprived 10%	27.9%	78.9%	96.5%	2.2%	1.3%

Table 7. **Access to Colleges by Public Transport, 400m catchment, by Geography**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	**22.3%**	**75.8%**	**98.0%**	**0.0%**	**2.0%**
Edinburgh (Locality)	23.1%	77.0%	98.3%	0.0%	1.7%
South Queensferry	0.0%	22.5%	99.0%	0.0%	1.0%
Kirkliston	0.0%	80.4%	90.7%	0.0%	9.3%
Total in Clackmannanshire	**56.1%**	**92.9%**	**94.4%**	**0.0%**	**5.6%**
Alloa	87.1%	97.4%	97.4%	0.0%	2.6%
Tullibody	75.1%	87.5%	87.5%	0.0%	12.5%
Sauchie	97.9%	97.9%	97.9%	0.0%	2.1%
Total in East Lothian	**5.4%**	**24.1%**	**75.5%**	**15.4%**	**9.0%**
Musselburgh	27.5%	97.9%	98.4%	0.0%	1.6%
Tranent	0.0%	7.1%	96.2%	0.0%	3.8%
Prestonpans	0.0%	5.8%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	**19.4%**	**61.4%**	**96.1%**	**0.1%**	**3.9%**
Falkirk (Locality)	50.3%	94.9%	97.4%	0.0%	2.6%
Grangemouth	65.1%	100.0%	100.0%	0.0%	0.0%
Bo'ness	0.0%	41.7%	100.0%	0.0%	0.0%
Total in Fife	**32.6%**	**76.9%**	**94.8%**	**2.2%**	**3.0%**
Kirkcaldy and Dysart	83.5%	100.0%	100.0%	0.0%	0.0%
Dunfermline	35.6%	98.2%	100.0%	0.0%	0.0%
Glenrothes	17.6%	95.2%	99.1%	0.0%	0.9%
Methil, Leven and Buckhaven	61.3%	99.5%	100.0%	0.0%	0.0%
St Andrews	0.0%	0.0%	100.0%	0.0%	0.0%
Total in Midlothian	**7.4%**	**58.1%**	**85.1%**	**9.0%**	**6.0%**
Bonnyrigg	0.0%	88.1%	94.5%	0.0%	5.5%
Penicuik	0.0%	0.0%	51.7%	45.0%	3.3%
Mayfield	24.8%	90.0%	95.3%	0.0%	4.7%
Total in Scottish Borders	**23.6%**	**43.8%**	**61.1%**	**19.2%**	**19.7%**
Hawick	65.0%	97.5%	97.5%	0.0%	2.5%
Galashiels	73.5%	100.0%	100.0%	0.0%	0.0%
Peebles	0.0%	0.0%	22.1%	73.0%	4.8%
Total in West Lothian	**19.5%**	**59.4%**	**93.4%**	**0.3%**	**6.3%**
Livingston	52.4%	96.3%	97.2%	0.0%	2.8%
Bathgate	0.0%	24.0%	98.2%	0.0%	1.8%
Broxburn	15.8%	84.7%	88.7%	0.0%	11.3%

4. ACCESS TO HOSPITALS

4.1.1 Hospitals offering A&E or Minor Injuries services as listed in the NHS inform Service Directory[3] have been included. All 15 such hospitals inside the SEStran boundary were selected, of which 6 have A&E facilities. In addition, 8 sites outside the SEStran boundary, of which 3 have A&E facilities were selected, having been judged to be close enough that they may be used by those in the SEStran area should the need arise.

4.1.2 As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to work time. Weekday evenings 1900-2200 to and from the hospitals have also been included to replicate journeys to visiting patients.

4.1.3 The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, including Fife, West Lothian, City of Edinburgh, Falkirk and Clackmannanshire. The majority of remaining settlements require a longer journey and 5.0% of the population has no public transport access at all. This reduces to 1.6% when focusing on the population aged over 65 with no access to a car. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 19.4% across the total population and 9% in East Lothian.
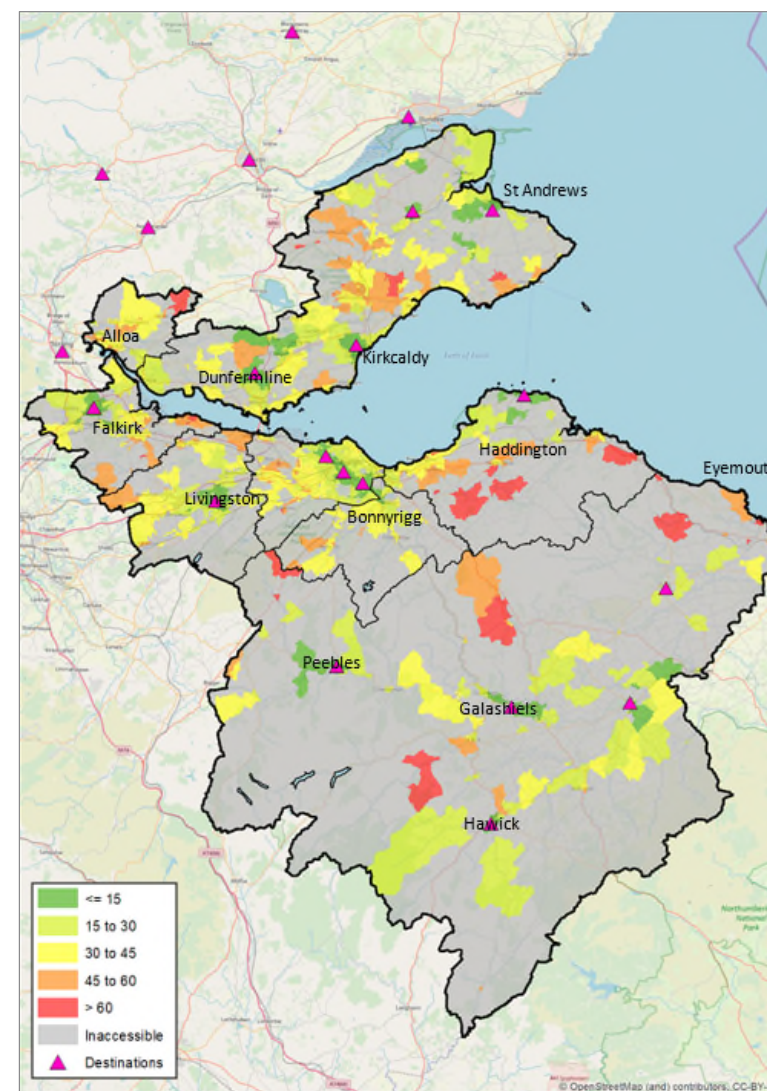

Figure 3. **Access to Hospitals by Public Transport, 400m catchment, Weekday AM**

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[3] https://www.nhsinform.scot/scotlands-service-directory/aes-and-minor-injuries-units

Table 8. Access to Hospitals by Public Transport, 400m catchment, SESTran area

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	20.8%	53.6%	93.5%	1.4%	5.0%
Population with No Car	25.9%	62.0%	97.9%	0.7%	1.3%
Working Age Population	21.3%	54.5%	93.7%	1.4%	4.9%
Working Age with No Car	28.0%	65.5%	98.3%	0.6%	1.1%
Age 16-19	25.3%	55.1%	94.2%	1.3%	4.6%
Age 16-24	28.9%	60.2%	95.4%	1.1%	3.5%
Age 65+	19.9%	52.8%	93.5%	1.6%	5.0%
Age 65+ with No Car	22.1%	57.2%	97.2%	1.2%	1.6%
10% Most Deprived	20.5%	50.3%	99.6%	0.0%	0.4%
20% Most Deprived	23.9%	54.3%	98.7%	0.3%	1.0%

Table 9. Access to Hospitals by Public Transport, 400m catchment, by Health deprivation

	<=15	<=30	<=60	>60	NO PT ACCESS
Most deprived 10%	22.2%	53.8%	99.4%	0.0%	0.6%
2nd most deprived 10%	29.2%	58.8%	99.2%	0.1%	0.8%
3rd most deprived 10%	19.5%	57.1%	99.0%	0.4%	0.6%
4th most deprived 10%	19.0%	50.8%	96.2%	2.2%	1.6%

Table 10. Access to Hospitals by Public Transport, 400m catchment, by Geography

|	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	25.1%	66.6%	97.9%	0.1%	1.9%
Edinburgh (Locality)	26.0%	68.9%	98.2%	0.1%	1.7%
South Queensferry	0.0%	4.3%	99.0%	0.0%	1.0%
Kirkliston	0.0%	0.0%	90.7%	0.0%	9.3%
Total in Clackmannanshire	0.0%	19.7%	93.5%	1.0%	5.6%
Alloa	0.0%	6.4%	96.6%	0.8%	2.6%
Tullibody	0.0%	45.3%	87.5%	0.0%	12.5%
Sauchie	0.0%	0.0%	97.9%	0.0%	2.1%
Total in East Lothian	6.6%	19.6%	84.0%	7.0%	9.0%
Musselburgh	0.0%	34.0%	98.4%	0.0%	1.6%
Tranent	0.0%	0.0%	94.9%	1.4%	3.8%
Prestonpans	0.0%	0.0%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	10.6%	43.8%	92.9%	3.0%	4.1%
Falkirk (Locality)	6.9%	65.7%	97.4%	0.0%	2.6%
Grangemouth	0.0%	0.0%	100.0%	0.0%	0.0%
Bo'ness	0.0%	0.0%	69.6%	30.4%	0.0%
Total in Fife	25.1%	57.7%	96.3%	0.7%	3.0%
Kirkcaldy and Dysart	74.8%	100.0%	100.0%	0.0%	0.0%
Dunfermline	44.6%	97.5%	100.0%	0.0%	0.0%
Glenrothes	0.0%	17.4%	98.5%	0.6%	0.9%
Methil, Leven and Buckhaven	0.0%	0.4%	98.5%	1.5%	0.0%
St Andrews	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	3.6%	23.7%	94.0%	0.0%	6.0%
Bonnyrigg	0.0%	4.5%	94.5%	0.0%	5.5%
Penicuik	0.0%	3.1%	96.7%	0.0%	3.3%
Mayfield	0.0%	30.5%	95.3%	0.0%	4.7%
Total in Scottish Borders	32.0%	60.7%	74.9%	5.7%	19.4%
Hawick	84.0%	97.5%	97.5%	0.0%	2.5%
Galashiels	39.0%	94.2%	100.0%	0.0%	0.0%
Peebles	80.5%	100.0%	100.0%	0.0%	0.0%
Total in West Lothian	24.1%	57.2%	93.6%	0.1%	6.4%
Livingston	72.5%	96.1%	97.2%	0.0%	2.8%
Bathgate	0.0%	61.7%	98.2%	0.0%	1.8%
Broxburn	1.3%	71.5%	88.7%	0.0%	11.3%
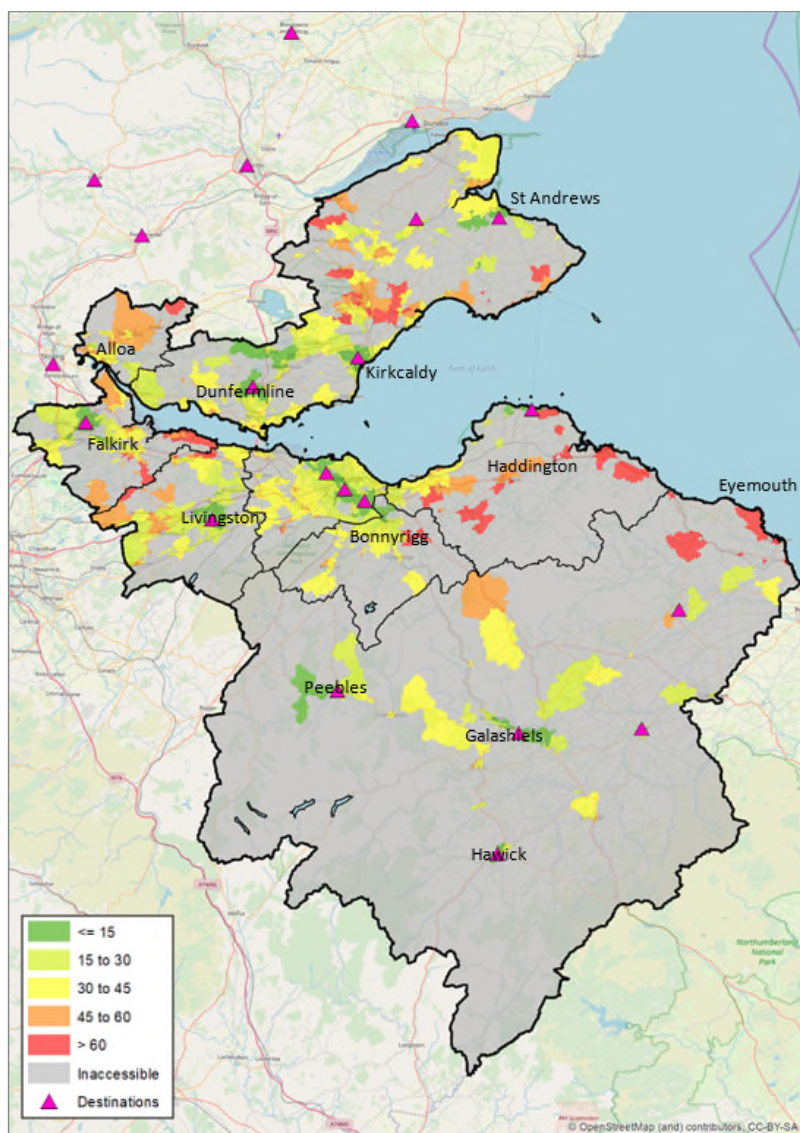
Figure 4. **Access to Hospitals by Public Transport, 400m catchment, Weekday Evening**
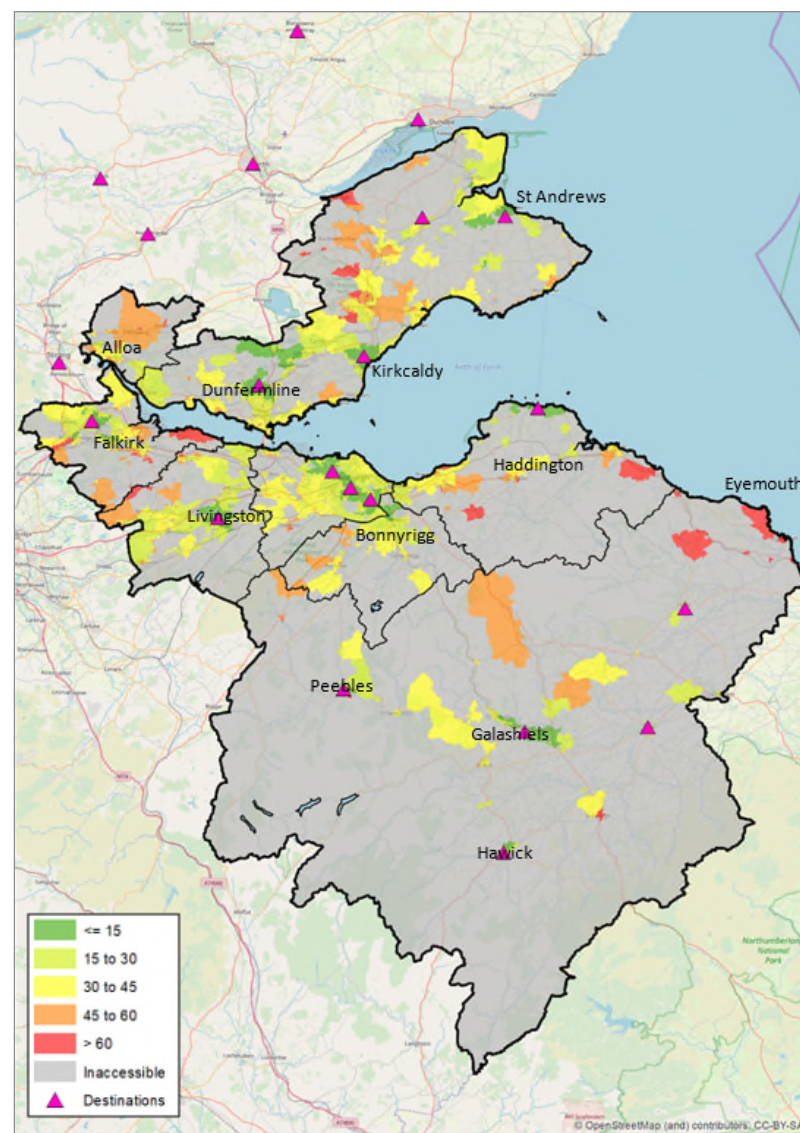

Figure 5. **Access *from* Hospitals by Public Transport, 400m catchment, Weekday Evening**

5. ACCESS TO GP SURGERIES

5.1.1 GP surgeries were selected from those listed in the NHS inform Service Directory[4]. Those listed for each of the eight Local Authorities within SEStran were selected, with no additional selections made for the areas outside the boundary. In total, 255 practices were identified.

5.1.2 As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to work and appointment time.

5.1.3 The outputs show almost all settlements are within 45 minutes of a GP surgery. This represents concentrations of good accessibility within 45 minutes in pockets across the SEStran area, including Fife, West Lothian, City of Edinburgh, Falkirk and Clackmannanshire. This represents 4.8% without access. This reduces to 1.5% when focusing on the population aged over 65 with no access to a car. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 18.9% across the total population and 8.9% in East Lothian.
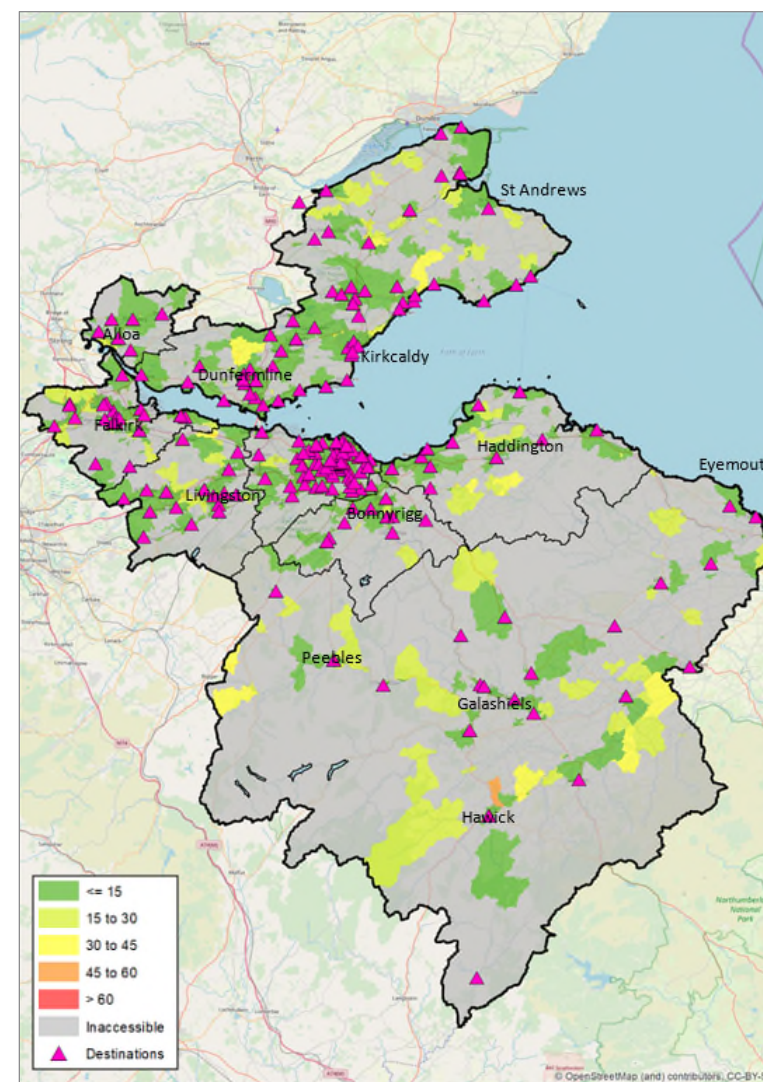

Figure 6. **Access to GP Surgeries by Public Transport, 400m catchment, Weekday AM**

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[4] https://www.nhsinform.scot/scotlands-service-directory/gp-practices

Table 11. Access to GP Practices by Public Transport, 400m catchment, SESTran area

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	91.6%	95.1%	95.2%	0.0%	4.8%
Population with No Car	97.1%	98.7%	98.7%	0.0%	1.3%
Working Age Population	91.8%	95.2%	95.3%	0.0%	4.7%
Working Age with No Car	97.5%	98.9%	98.9%	0.0%	1.1%
Age 16-19	92.1%	95.6%	95.7%	0.0%	4.3%
Age 16-24	93.8%	96.6%	96.6%	0.0%	3.4%
Age 65+	91.8%	95.1%	95.3%	0.0%	4.7%
Age 65+ with No Car	96.6%	98.4%	98.5%	0.0%	1.5%
10% Most Deprived	97.3%	99.6%	99.6%	0.0%	0.4%
20% Most Deprived	97.5%	99.0%	99.0%	0.0%	1.0%

Table 12. Access to GP Practices by Public Transport, 400m catchment, by Health deprivation

	<=15	<=30	<=60	>60	NO PT ACCESS
Most deprived 10%	97.4%	99.4%	99.4%	0.0%	0.6%
2nd most deprived 10%	97.7%	99.2%	99.2%	0.0%	0.8%
3rd most deprived 10%	96.9%	99.4%	99.4%	0.0%	0.6%
4th most deprived 10%	96.9%	98.4%	98.4%	0.0%	1.6%

Table 13. **Access to GP Practices by Public Transport, 400m catchment, by Geography**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	97.4%	98.0%	98.0%	0.0%	2.0%
Edinburgh (Locality)	97.7%	98.3%	98.3%	0.0%	1.7%
South Queensferry	99.0%	99.0%	99.0%	0.0%	1.0%
Kirkliston	90.7%	90.7%	90.7%	0.0%	9.3%
Total in Clackmannanshire	87.4%	94.4%	94.4%	0.0%	5.6%
Alloa	72.8%	97.4%	97.4%	0.0%	2.6%
Tullibody	87.5%	87.5%	87.5%	0.0%	12.5%
Sauchie	97.9%	97.9%	97.9%	0.0%	2.1%
Total in East Lothian	86.5%	90.9%	91.1%	0.0%	8.9%
Musselburgh	95.6%	98.4%	98.4%	0.0%	1.6%
Tranent	94.9%	96.2%	96.2%	0.0%	3.8%
Prestonpans	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	91.1%	96.2%	96.2%	0.0%	3.8%
Falkirk (Locality)	94.0%	98.0%	98.0%	0.0%	2.0%
Grangemouth	97.1%	100.0%	100.0%	0.0%	0.0%
Bo'ness	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Fife	93.8%	96.9%	97.0%	0.0%	3.0%
Kirkcaldy and Dysart	97.5%	100.0%	100.0%	0.0%	0.0%
Dunfermline	98.2%	100.0%	100.0%	0.0%	0.0%
Glenrothes	98.4%	99.1%	99.1%	0.0%	0.9%
Methil, Leven and Buckhaven	100.0%	100.0%	100.0%	0.0%	0.0%
St Andrews	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	90.3%	94.1%	94.1%	0.0%	5.9%
Bonnyrigg	93.9%	94.5%	94.5%	0.0%	5.5%
Penicuik	95.4%	96.7%	96.7%	0.0%	3.3%
Mayfield	92.1%	96.0%	96.0%	0.0%	4.0%
Total in Scottish Borders	71.8%	80.2%	81.2%	0.0%	18.8%
Hawick	95.0%	97.5%	97.5%	0.0%	2.5%
Galashiels	100.0%	100.0%	100.0%	0.0%	0.0%
Peebles	80.5%	100.0%	100.0%	0.0%	0.0%
Total in West Lothian	88.9%	94.8%	94.9%	0.0%	5.1%
Livingston	95.7%	97.2%	97.2%	0.0%	2.8%
Bathgate	76.8%	98.2%	98.2%	0.0%	1.8%
Broxburn	85.0%	88.7%	88.7%	0.0%	11.3%

6. ACCESS TO JOB CENTRES

6.1 Destinations used

6.1.1 Job Centres were selected based on the Jobcentre Register maintained by the Department for Work and Pensions (DWP)[5]. The latest available version of the register was dated May 2019, and contained all offices open as of the end of April 2019. All 21 Job Centres within the SEStran area were selected, with 10 additional sites selected as being within 15km of the SEStran boundary.

6.1.2 As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to work and appointment time.

6.1.3 The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, including Fife, West Lothian, City of Edinburgh, Falkirk and Clackmannanshire. The majority of remaining settlements require a longer journey and 5.1% of the population has no public transport access at all. This reduces to 1.1% when focusing on the working age population with no access to a car. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 20.5% across the total population and 9% in East Lothian.

6.1.4 The TRACC modelling outputs also show the level of accessibility by cycling. The cycling accessibility is concentrated around the main settlements across the SEStran area.
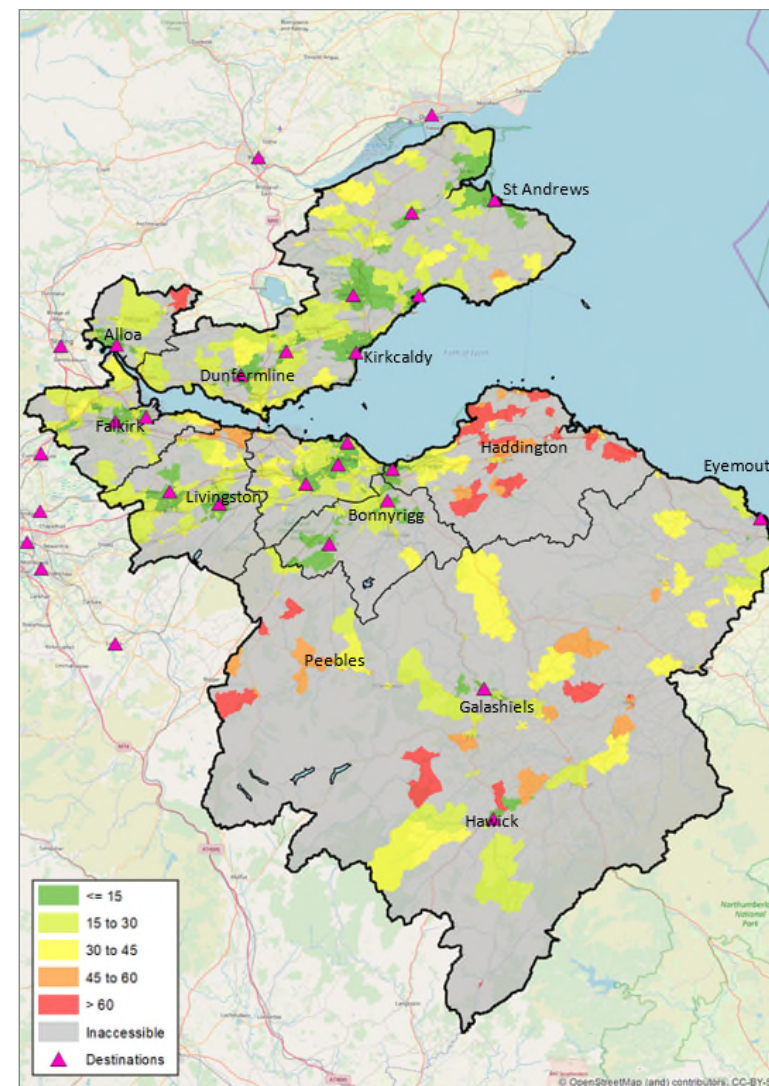

Figure 7. **Access to Job Centres by Public Transport, 400m catchment, Weekday AM**

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[5] https://www.gov.uk/government/publications/dwp-jobcentre-register

Table 14. Access to Job Centres by Public Transport, 400m catchment, SESTran area

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	41.3%	83.0%	94.3%	0.6%	5.1%
Population with No Car	53.3%	91.9%	98.5%	0.2%	1.3%
Working Age Population	42.9%	83.8%	94.5%	0.5%	5.0%
Working Age with No Car	58.0%	93.5%	98.7%	0.2%	1.1%
Age 16-19	42.7%	84.5%	94.9%	0.5%	4.6%
Age 16-24	50.0%	87.5%	96.0%	0.4%	3.6%
Age 65+	39.1%	81.6%	94.2%	0.8%	5.0%
Age 65+ with No Car	45.6%	88.5%	98.0%	0.3%	1.6%
10% Most Deprived	64.2%	98.0%	99.6%	0.0%	0.4%
20% Most Deprived	56.1%	96.6%	99.0%	0.0%	1.0%

Table 15. Access to Job Centres by Public Transport, 400m catchment, by Geography

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	42.3%	90.3%	98.0%	0.0%	2.0%
Edinburgh (Locality)	43.9%	93.0%	98.3%	0.0%	1.7%
South Queensferry	0.0%	2.5%	99.0%	0.0%	1.0%
Kirkliston	0.0%	13.6%	90.7%	0.0%	9.3%
Total in Clackmannanshire	55.1%	89.4%	93.7%	0.7%	5.6%
Alloa	96.3%	97.4%	97.4%	0.0%	2.6%
Tullibody	71.4%	87.5%	87.5%	0.0%	12.5%
Sauchie	81.7%	97.9%	97.9%	0.0%	2.1%
Total in East Lothian	19.7%	42.4%	86.5%	4.5%	9.0%
Musselburgh	91.9%	98.4%	98.4%	0.0%	1.6%
Tranent	0.0%	50.6%	96.2%	0.0%	3.8%
Prestonpans	0.0%	100.0%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	34.8%	86.2%	96.1%	0.0%	3.9%
Falkirk (Locality)	84.3%	97.4%	97.4%	0.0%	2.6%
Grangemouth	86.0%	100.0%	100.0%	0.0%	0.0%
Bo'ness	0.0%	41.1%	100.0%	0.0%	0.0%

Total in Fife	**52.6%**	**91.2%**	**97.0%**	**0.0%**	**3.0%**
Kirkcaldy and Dysart	80.2%	100.0%	100.0%	0.0%	0.0%
Dunfermline	53.3%	98.9%	100.0%	0.0%	0.0%
Glenrothes	90.9%	99.1%	99.1%	0.0%	0.9%
Methil, Leven and Buckhaven	61.2%	100.0%	100.0%	0.0%	0.0%
St Andrews	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	**46.9%**	**89.2%**	**94.0%**	**0.0%**	**6.0%**
Bonnyrigg	23.0%	92.1%	94.5%	0.0%	5.5%
Penicuik	95.4%	96.7%	96.7%	0.0%	3.3%
Mayfield	30.0%	95.3%	95.3%	0.0%	4.7%
Total in Scottish Borders	**26.4%**	**46.3%**	**75.9%**	**3.6%**	**20.5%**
Hawick	94.0%	97.5%	97.5%	0.0%	2.5%
Galashiels	72.1%	100.0%	100.0%	0.0%	0.0%
Peebles	0.0%	27.3%	95.2%	0.0%	4.8%
Total in West Lothian	**36.2%**	**85.1%**	**93.7%**	**0.0%**	**6.3%**
Livingston	51.9%	97.2%	97.2%	0.0%	2.8%
Bathgate	91.9%	98.2%	98.2%	0.0%	1.8%
Broxburn	0.6%	85.3%	88.7%	0.0%	11.3%

7.   ACCESS TO RAIL STATIONS

7.1.1   All railway stations on the main rail network within the SEStran area were selected. These were supplemented by the selection of additional stations outside the SEStran area but within 15km of its boundary. In total, 105 stations were selected – 63 within the SEStran area, and an additional 42 in the wider area.

7.1.2   As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to work.

7.1.3   The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, and in particular Falkirk, West Lothian, Edinburgh and Fife. The majority of remaining settlements require a longer journey and 4.9% of the population has no public transport access at all. This reduces to 1.6% when focusing on 65+ with no access to a car. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 20.5% across the total population and 9% in East Lothian.
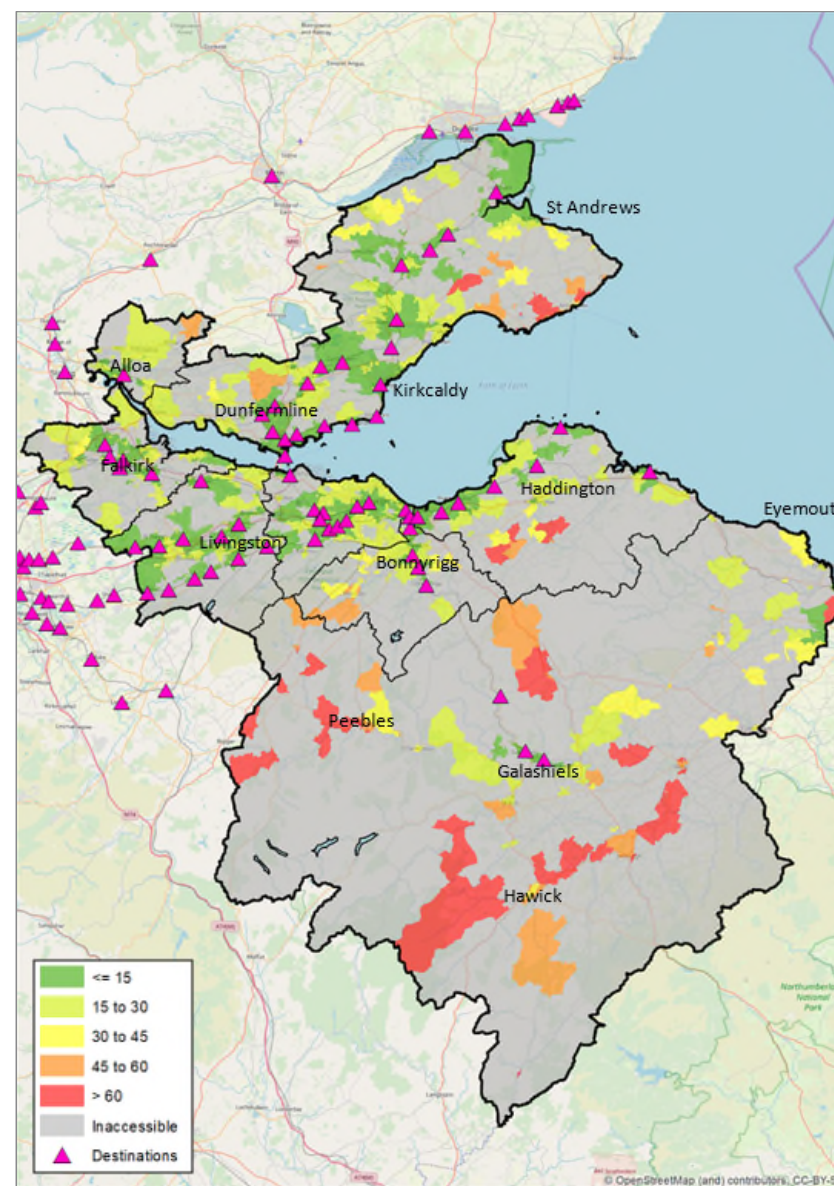

Figure 8.   **Access to Rail Stations by Public Transport, 400m catchment, Weekday AM**

Table 16. **Access to Rail Stations by Public Transport, 400m catchment, SESTran area**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	54.3%	87.0%	94.2%	0.9%	4.9%
Population with No Car	60.1%	92.9%	98.3%	0.3%	1.3%
Working Age Population	55.4%	87.7%	94.4%	0.8%	4.8%
Working Age with No Car	62.5%	94.1%	98.6%	0.2%	1.1%
Age 16-19	57.0%	88.1%	94.9%	0.7%	4.4%
Age 16-24	59.6%	90.2%	96.0%	0.5%	3.4%
Age 65+	51.3%	85.0%	93.9%	1.3%	4.9%
Age 65+ with No Car	55.9%	90.4%	97.8%	0.6%	1.6%
10% Most Deprived	58.3%	95.3%	99.6%	0.0%	0.4%
20% Most Deprived	57.3%	93.2%	99.0%	0.0%	1.0%

Table 17. **Access to Rail Stations by Public Transport, 400m catchment, by Geography**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	50.3%	95.8%	98.1%	0.0%	1.9%
Edinburgh (Locality)	50.5%	96.0%	98.3%	0.0%	1.7%
South Queensferry	76.4%	99.0%	99.0%	0.0%	1.0%
Kirkliston	0.0%	90.7%	90.7%	0.0%	9.3%
Total in Clackmannanshire	53.4%	92.9%	94.4%	0.0%	5.6%
Alloa	83.0%	97.4%	97.4%	0.0%	2.6%
Tullibody	67.2%	86.0%	87.5%	0.0%	12.5%
Sauchie	97.9%	97.9%	97.9%	0.0%	2.1%
Total in East Lothian	64.3%	87.9%	90.7%	0.4%	9.0%
Musselburgh	97.9%	98.4%	98.4%	0.0%	1.6%
Tranent	41.3%	96.2%	96.2%	0.0%	3.8%
Prestonpans	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	55.0%	92.7%	96.1%	0.0%	3.9%
Falkirk (Locality)	91.2%	97.4%	97.4%	0.0%	2.6%
Grangemouth	4.3%	86.8%	100.0%	0.0%	0.0%
Bo'ness	21.7%	100.0%	100.0%	0.0%	0.0%

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Total in Fife	**61.4%**	**89.9%**	**96.7%**	**0.3%**	**3.0%**
Kirkcaldy and Dysart	86.0%	100.0%	100.0%	0.0%	0.0%
Dunfermline	89.9%	100.0%	100.0%	0.0%	0.0%
Glenrothes	34.0%	96.7%	99.1%	0.0%	0.9%
Methil, Leven and Buckhaven	7.9%	86.1%	100.0%	0.0%	0.0%
St Andrews	35.8%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	**36.4%**	**66.9%**	**94.3%**	**0.0%**	**5.7%**
Bonnyrigg	61.1%	94.5%	94.5%	0.0%	5.5%
Penicuik	0.0%	0.0%	96.7%	0.0%	3.3%
Mayfield	59.1%	97.1%	97.1%	0.0%	2.9%
Total in Scottish Borders	**17.1%**	**32.4%**	**69.3%**	**10.2%**	**20.5%**
Hawick	0.0%	0.0%	97.5%	0.0%	2.5%
Galashiels	100.0%	100.0%	100.0%	0.0%	0.0%
Peebles	0.0%	0.0%	77.0%	18.2%	4.8%
Total in West Lothian	**76.9%**	**94.8%**	**94.9%**	**0.0%**	**5.1%**
Livingston	83.5%	97.2%	97.2%	0.0%	2.8%
Bathgate	90.9%	98.2%	98.2%	0.0%	1.8%
Broxburn	70.1%	88.7%	88.7%	0.0%	11.3%
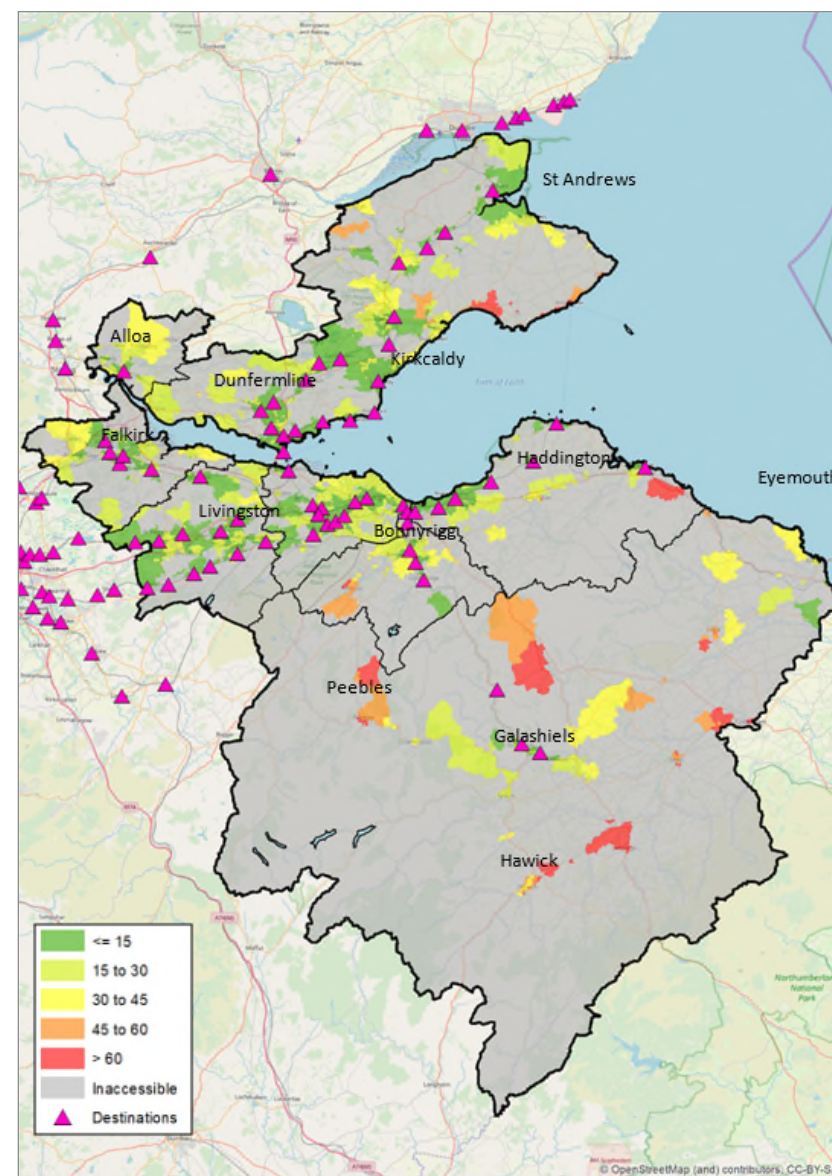
Figure 9.   **Access to Rail Stations by Public Transport, 400m catchment, Sunday daytime**

8. ACCESS TO BUS STATIONS

8.1.1   Bus Stations were identified using the National Public Transport Access Nodes (NaPTAN) dataset of bus stop locations and descriptions. All stops using the description "bus station" or a similar label which were either within the SEStran area or within 15km of the boundary were initially selected, before being filtered to ensure relevance as notable sites of interurban travel/interchange. In total, 15 bus stations were identified – 11 within the SEStran boundary, and four in the wider area.

8.1.2   Note that where interchanges are designated as Park and Ride sites, such as Halbeath, these are analysed within a separate category, as described in Section Figure 11 below.

8.1.3   As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to work.

8.1.4   The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, and in particular Falkirk, West Lothian, Edinburgh, Clackmannanshire and Fife. The majority of remaining settlements require a longer journey and 5% of the population has no public transport access at all. This reduces to 1.6% when focusing on 65+ with no access to a car. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 19.7% across the total population and 9% in East Lothian.
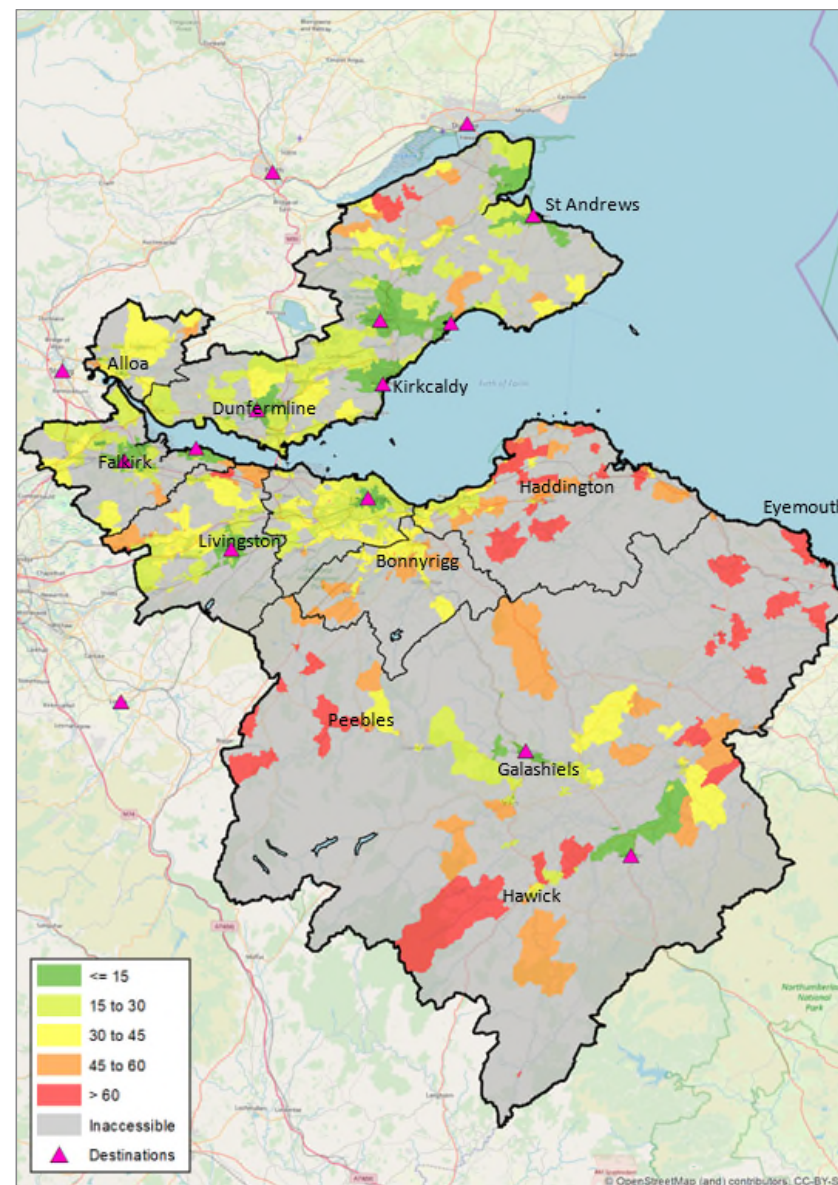

Figure 10.   **Access to Bus Stations by Public Transport, 400m catchment, Weekday AM**

Table 18.   **Access to Bus Stations by Public Transport, 400m catchment, SESTran area**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	25.1%	66.3%	93.4%	1.5%	5.0%
Population with No Car	31.3%	75.3%	97.9%	0.8%	1.3%
Working Age Population	26.1%	67.7%	93.7%	1.4%	4.9%
Working Age with No Car	34.4%	78.7%	98.3%	0.5%	1.1%
Age 16-19	26.7%	67.4%	94.1%	1.4%	4.6%
Age 16-24	31.1%	72.5%	95.4%	1.1%	3.6%
Age 65+	23.8%	64.0%	93.1%	1.9%	5.0%
Age 65+ with No Car	26.4%	69.5%	97.1%	1.4%	1.6%
10% Most Deprived	35.2%	78.5%	99.6%	0.0%	0.4%
20% Most Deprived	33.2%	75.9%	99.0%	0.0%	1.0%

Table 19.   **Access to Bus Stations by Public Transport, 400m catchment, by Geography**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	18.0%	74.9%	98.0%	0.0%	2.0%
Edinburgh (Locality)	18.7%	76.3%	98.3%	0.0%	1.7%
South Queensferry	0.0%	12.9%	99.0%	0.0%	1.0%
Kirkliston	0.0%	62.6%	90.7%	0.0%	9.3%
Total in Clackmannanshire	2.8%	56.9%	94.4%	0.0%	5.6%
Alloa	2.5%	68.8%	97.4%	0.0%	2.6%
Tullibody	12.5%	75.3%	87.5%	0.0%	12.5%
Sauchie	0.0%	44.7%	97.9%	0.0%	2.1%
Total in East Lothian	0.2%	10.1%	83.9%	7.0%	9.0%
Musselburgh	1.2%	36.8%	98.4%	0.0%	1.6%
Tranent	0.0%	0.0%	96.2%	0.0%	3.8%
Prestonpans	0.0%	3.5%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	33.2%	90.3%	96.1%	0.0%	3.9%
Falkirk (Locality)	73.4%	97.4%	97.4%	0.0%	2.6%
Grangemouth	19.9%	99.2%	100.0%	0.0%	0.0%
Bo'ness	90.9%	100.0%	100.0%	0.0%	0.0%

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Total in Fife	**47.8%**	**84.7%**	**96.9%**	**0.1%**	**3.0%**
Kirkcaldy and Dysart	83.6%	100.0%	100.0%	0.0%	0.0%
Dunfermline	56.9%	99.7%	100.0%	0.0%	0.0%
Glenrothes	90.9%	99.1%	99.1%	0.0%	0.9%
Methil, Leven and Buckhaven	94.6%	100.0%	100.0%	0.0%	0.0%
St Andrews	100.0%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	**0.0%**	**4.4%**	**93.8%**	**0.2%**	**6.0%**
Bonnyrigg	0.0%	0.0%	94.5%	0.0%	5.5%
Penicuik	0.0%	0.0%	96.7%	0.0%	3.3%
Mayfield	0.0%	4.3%	95.3%	0.0%	4.7%
Total in Scottish Borders	**19.1%**	**36.3%**	**66.8%**	**13.4%**	**19.7%**
Hawick	0.0%	22.8%	97.5%	0.0%	2.5%
Galashiels	100.0%	100.0%	100.0%	0.0%	0.0%
Peebles	0.0%	0.0%	81.6%	13.6%	4.8%
Total in West Lothian	**25.9%**	**66.9%**	**93.5%**	**0.2%**	**6.3%**
Livingston	64.0%	97.2%	97.2%	0.0%	2.8%
Bathgate	0.0%	17.6%	98.2%	0.0%	1.8%
Broxburn	0.6%	85.8%	88.7%	0.0%	11.3%
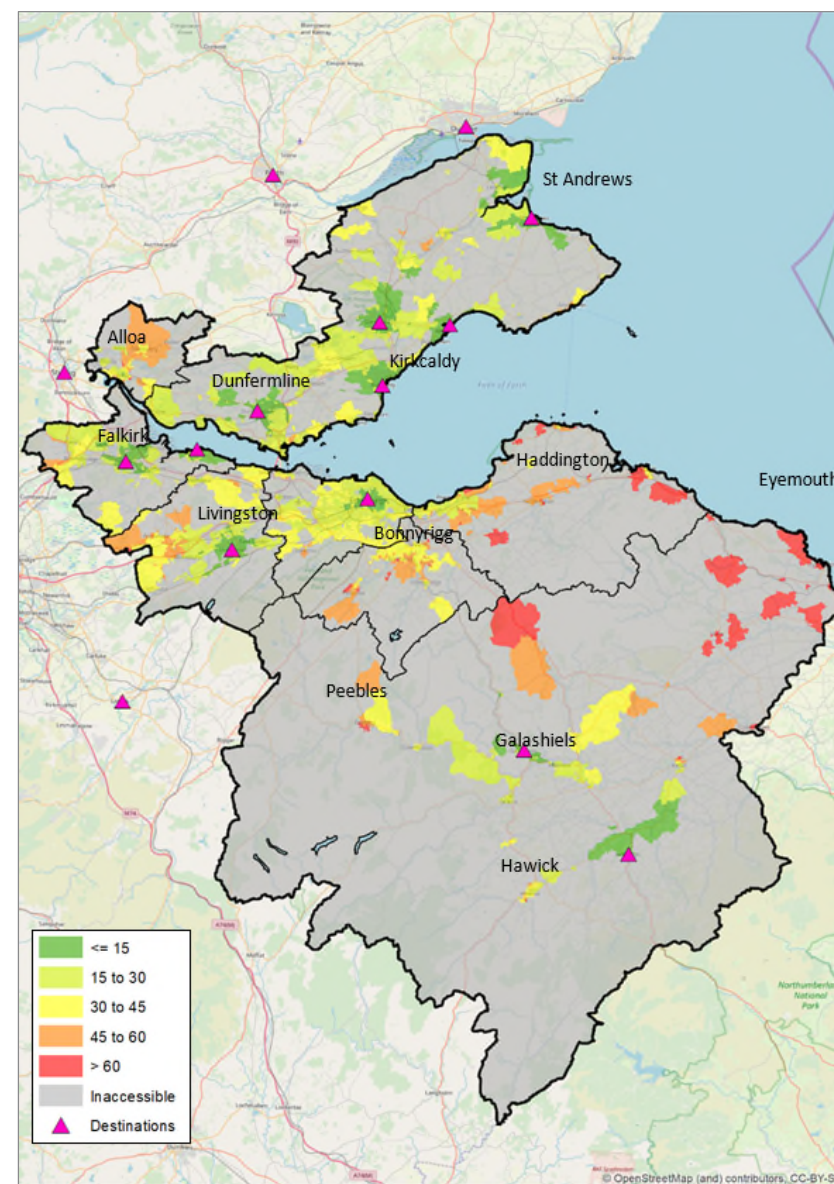
Figure 11.   **Access to Bus Stations by Public Transport, 400m catchment, Sunday Daytime**

9. ACCESS TO PARK AND RIDE SITES

9.1 Destinations used

9.1.1 Park & Ride sites were identified using the NaPTAN dataset of bus stop locations and descriptions. All stops using the description "park and ride", or a similar label which were either within the SEStran area or within 15km of the boundary were initially selected, before being filtered to ensure relevance. In total, 18 Park & Ride sites were identified – 12 within the SEStran boundary, and six in the wider area.

9.1.2 As public transport provision varies across the day, the time 0700-1000 on a Tuesday has been used to replicate a "normal" travel to work.

9.1.3 The outputs show concentrations of good accessibility within 45 minutes in pockets across the SEStran area, and in particular Falkirk, West Lothian, Midlothian, Edinburgh, Clackmannanshire and Fife. The majority of remaining settlements require a longer journey and 5.4% of the population has no public transport access at all. This reduces to 1.8% when focusing on 65+ with no access to a car. At a local authority level, the Scottish Borders has the highest level of inaccessibility at 24.4% across the total population and 9% in East Lothian.
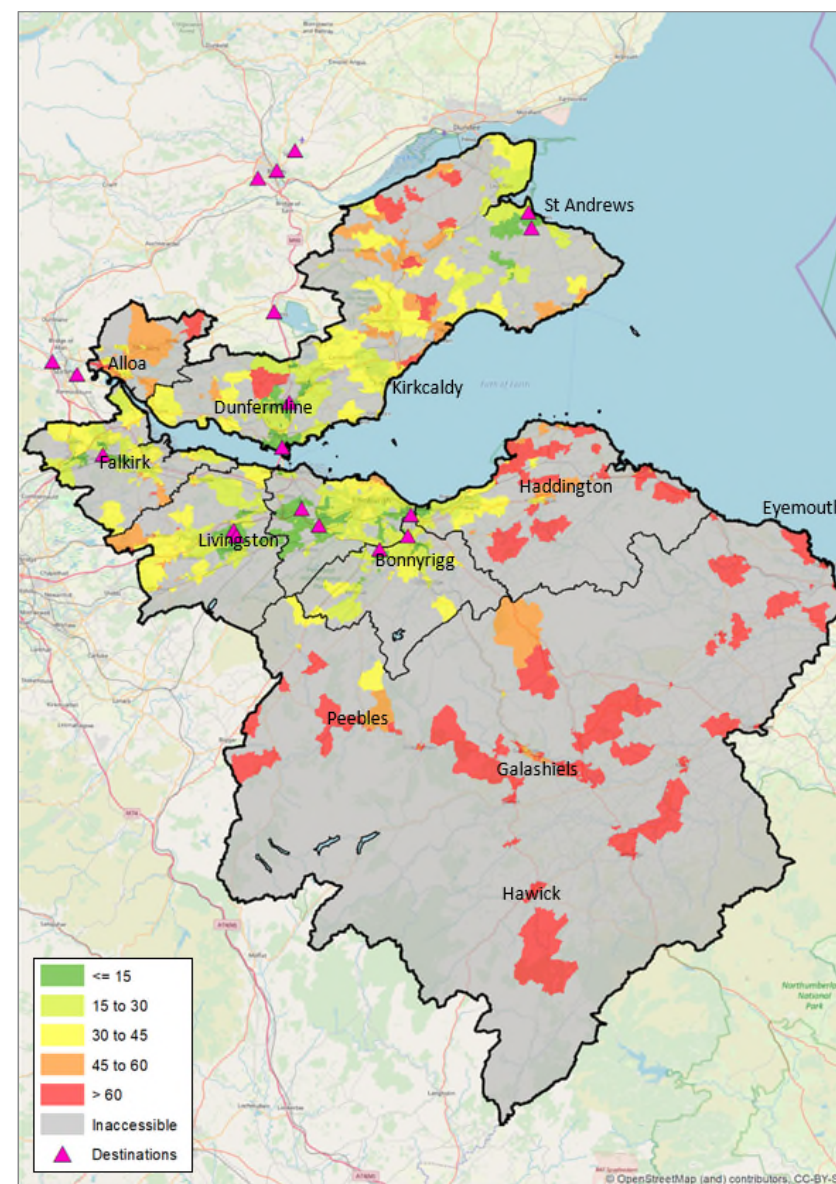

Figure 12. **Access to P&R Sites by Public Transport, 400m catchment, Weekday AM**

Table 20. **Access to Park & Ride sites by Public Transport, 400m catchment, SESTran Area**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total Population in SESTran area	14.4%	52.0%	89.1%	5.5%	5.4%
Population with No Car	15.7%	56.7%	94.7%	3.9%	1.4%
Working Age Population	14.5%	52.6%	89.7%	5.1%	5.3%
Working Age with No Car	15.2%	58.2%	95.7%	3.2%	1.2%
Age 16-19	16.8%	55.5%	90.1%	5.1%	4.8%
Age 16-24	16.9%	57.2%	92.1%	4.2%	3.8%
Age 65+	14.3%	50.1%	87.5%	6.9%	5.5%
Age 65+ with No Car	15.7%	53.8%	92.5%	5.7%	1.8%
10% Most Deprived	17.0%	44.3%	97.0%	2.6%	0.4%
20% Most Deprived	18.1%	50.3%	95.8%	3.1%	1.0%

Table 21. **Access to Park & Ride sites by Public Transport, 400m catchment, by Geography**

	<=15	<=30	<=60	>60	NO PT ACCESS
Total in City of Edinburgh (LA)	14.8%	70.2%	98.0%	0.0%	2.0%
Edinburgh (Locality)	14.2%	69.4%	98.3%	0.0%	1.7%
South Queensferry	26.8%	99.0%	99.0%	0.0%	1.0%
Kirkliston	0.0%	90.7%	90.7%	0.0%	9.3%
Total in Clackmannanshire	0.0%	0.8%	90.1%	4.3%	5.6%
Alloa	0.0%	2.0%	89.9%	7.4%	2.6%
Tullibody	0.0%	1.5%	83.2%	4.3%	12.5%
Sauchie	0.0%	0.0%	91.4%	6.6%	2.1%
Total in East Lothian	10.9%	29.3%	76.7%	14.2%	9.0%
Musselburgh	56.1%	98.4%	98.4%	0.0%	1.6%
Tranent	0.0%	21.6%	96.2%	0.0%	3.8%
Prestonpans	0.0%	31.5%	100.0%	0.0%	0.0%
Total in Falkirk (LA)	11.8%	58.0%	95.9%	0.1%	4.1%
Falkirk (Locality)	25.8%	89.7%	97.4%	0.0%	2.6%
Grangemouth	0.0%	10.2%	100.0%	0.0%	0.0%
Bo'ness	0.0%	33.3%	100.0%	0.0%	0.0%

|					
Total in Fife	**15.8%**	**46.2%**	**96.5%**	**0.5%**	**3.0%**
Kirkcaldy and Dysart	0.4%	53.3%	100.0%	0.0%	0.0%
Dunfermline	12.8%	93.2%	100.0%	0.0%	0.0%
Glenrothes	0.0%	6.9%	99.1%	0.0%	0.9%
Methil, Leven and Buckhaven	0.0%	0.0%	98.8%	1.2%	0.0%
St Andrews	99.4%	100.0%	100.0%	0.0%	0.0%
Total in Midlothian	**21.9%**	**75.7%**	**94.0%**	**0.0%**	**6.0%**
Bonnyrigg	0.0%	47.0%	94.5%	0.0%	5.5%
Penicuik	12.1%	92.2%	96.7%	0.0%	3.3%
Mayfield	4.5%	92.8%	95.3%	0.0%	4.7%
Total in Scottish Borders	**0.0%**	**0.0%**	**19.4%**	**56.2%**	**24.4%**
Hawick	0.0%	0.0%	0.0%	97.5%	2.5%
Galashiels	0.0%	0.0%	61.0%	39.0%	0.0%
Peebles	0.0%	0.0%	83.9%	11.3%	4.8%
Total in West Lothian	**24.9%**	**60.1%**	**93.2%**	**0.4%**	**6.4%**
Livingston	59.8%	95.9%	97.2%	0.0%	2.8%
Bathgate	0.6%	40.5%	96.1%	2.1%	1.8%
Broxburn	52.1%	88.7%	88.7%	0.0%	11.3%
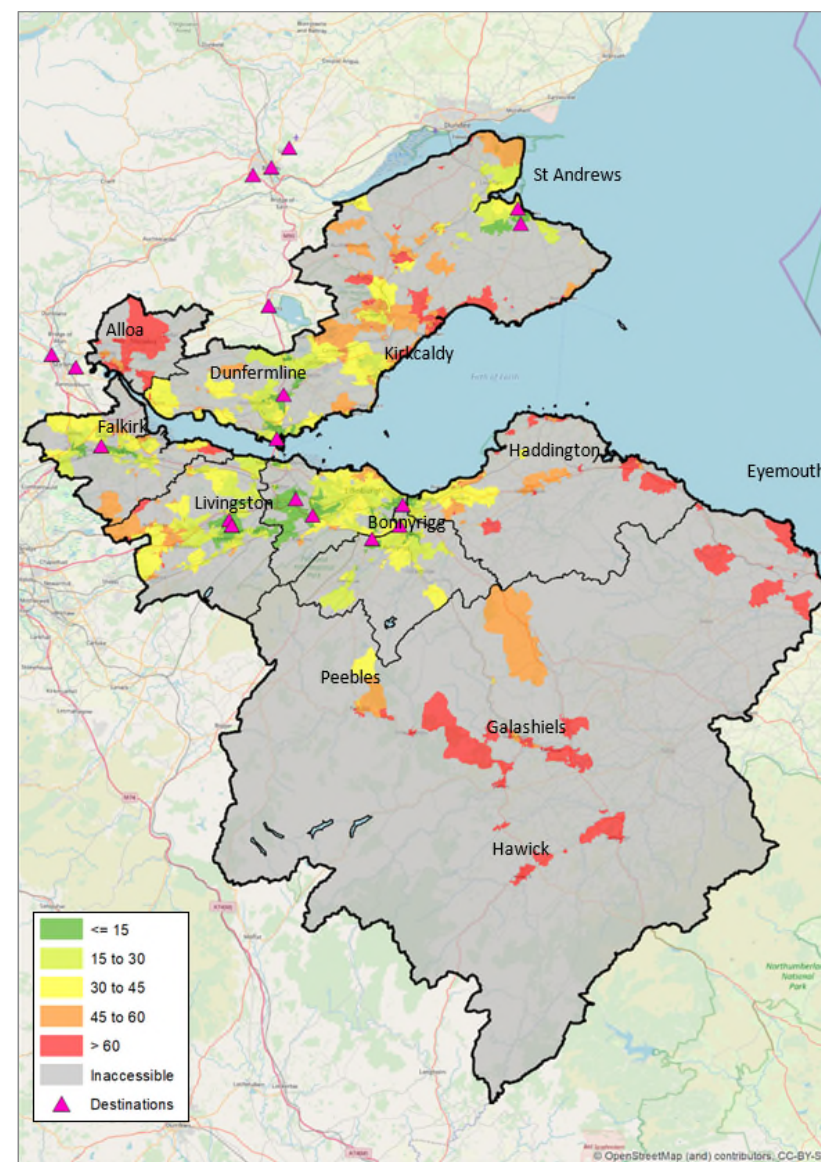
Figure 13.   **Access to P&R Sites by Public Transport, 400m catchment, Sunday Daytime**

10. MULTI-DESTINATION ACCESS

10.1.1   The multi-destination access shows the number of destinations (GP surgery, university etc) can be accessed for each postcode in SEStran. The maximum level is 8 and those marked 0 have no access to any of the modelled destinations by public transport.

10.1.2   This modelling highlights areas, largely rural areas, with no access to any destinations by public transport. As expected, given the previous results, the majority of these locations are based in the Borders and East Lothian.
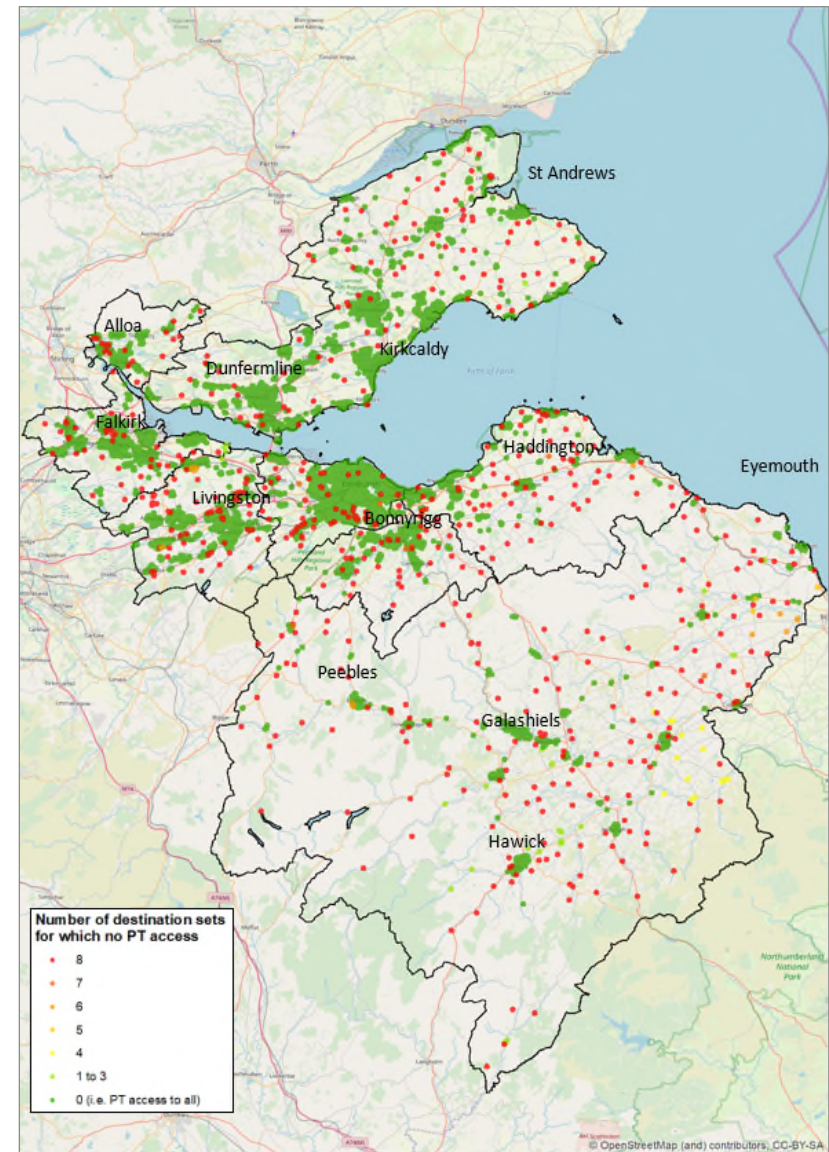
Figure 14. **Access to Multiple Destinations by Public Transport, 400m catchment, Weekday AM**
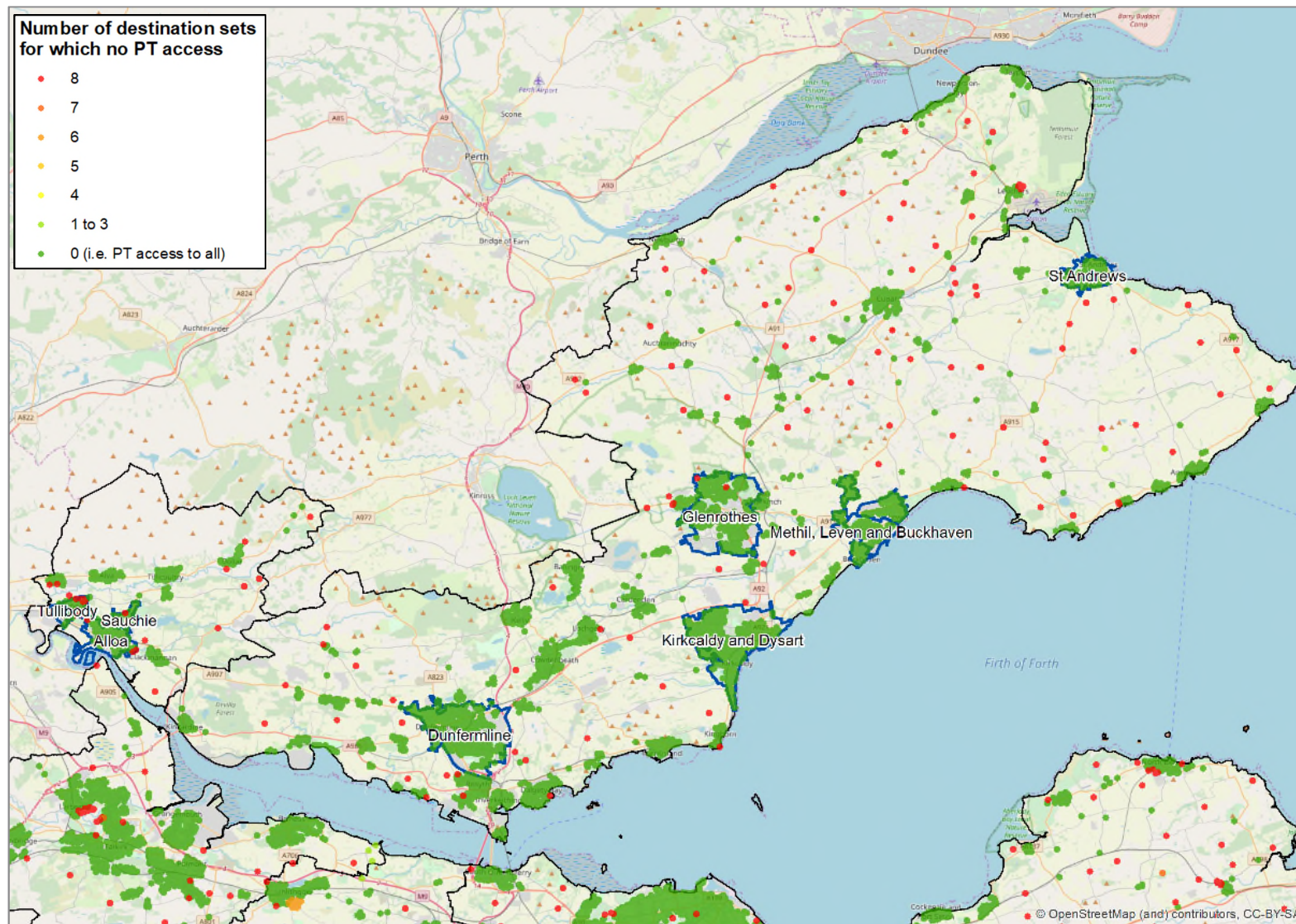
Figure 15. **Access to Multiple Destinations by Public Transport, 400m catchment, Weekday AM – Fife and Clackmannanshire**
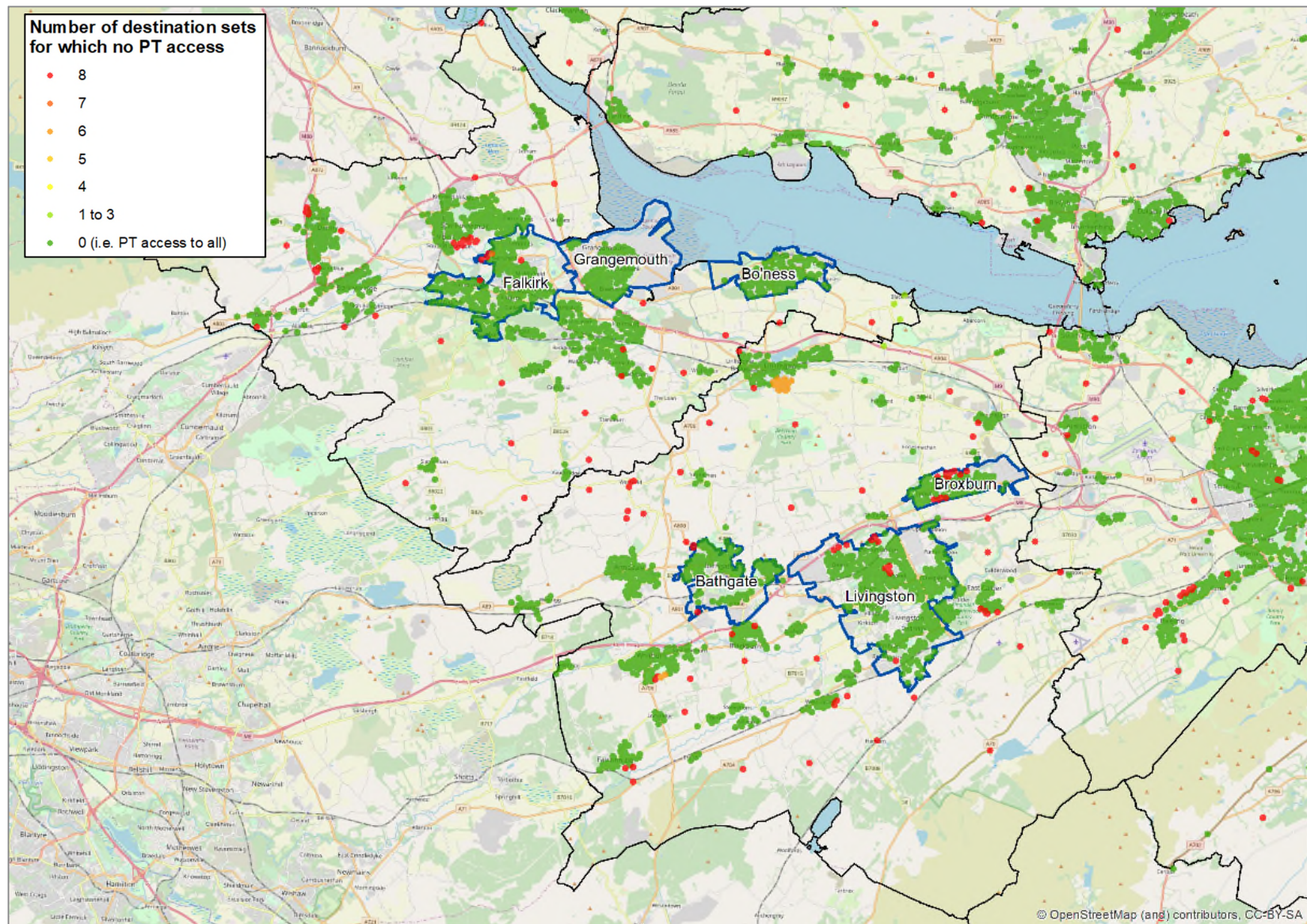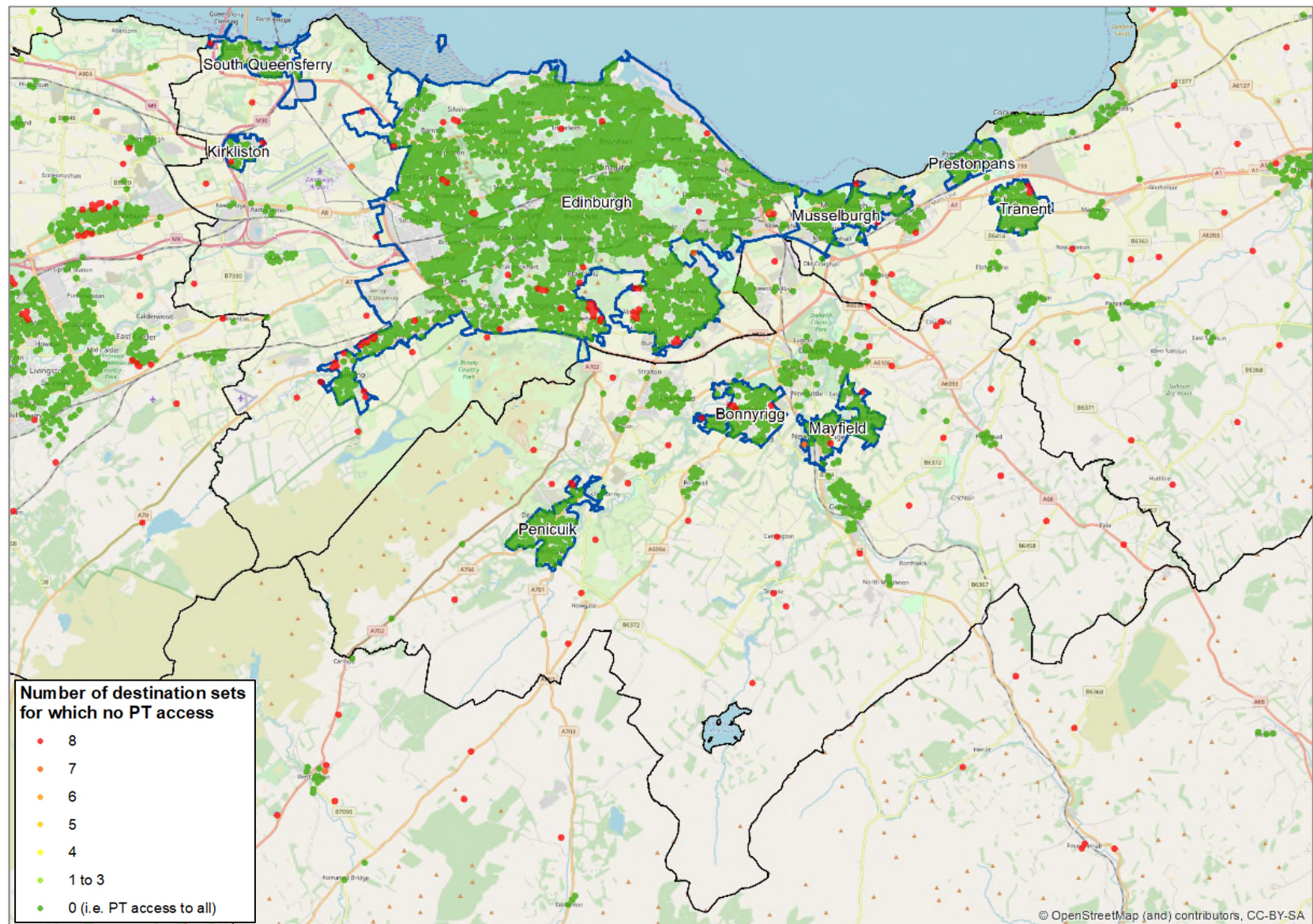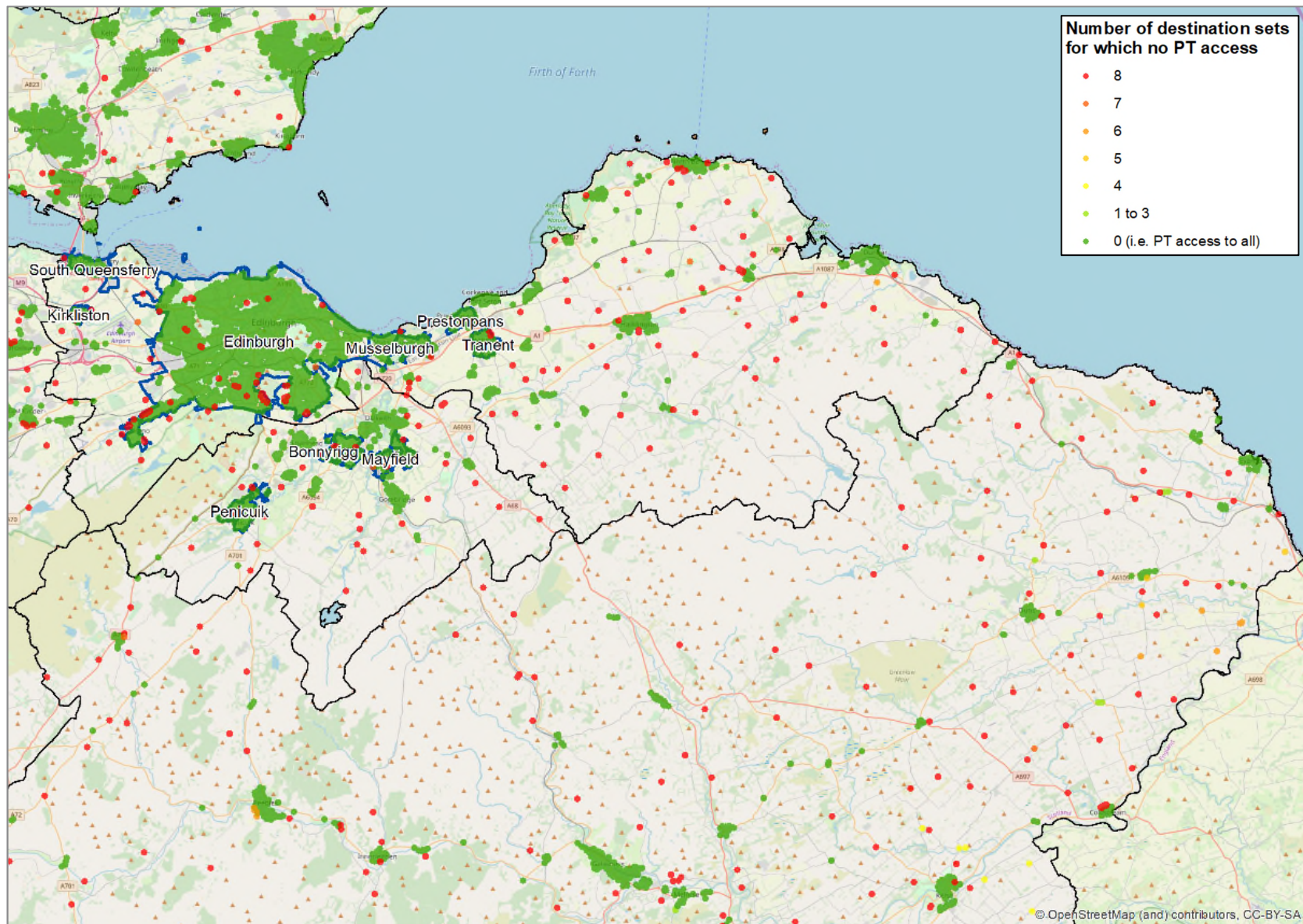
Figure 16. **Access to Multiple Destinations by Public Transport, 400m catchment, Weekday AM – Falkirk and West Lothian**

Number of destination sets for which no PT access

- 8
- 7
- 6
- 5
- 4
- 1 to 3
- 0 (i.e. PT access to all)
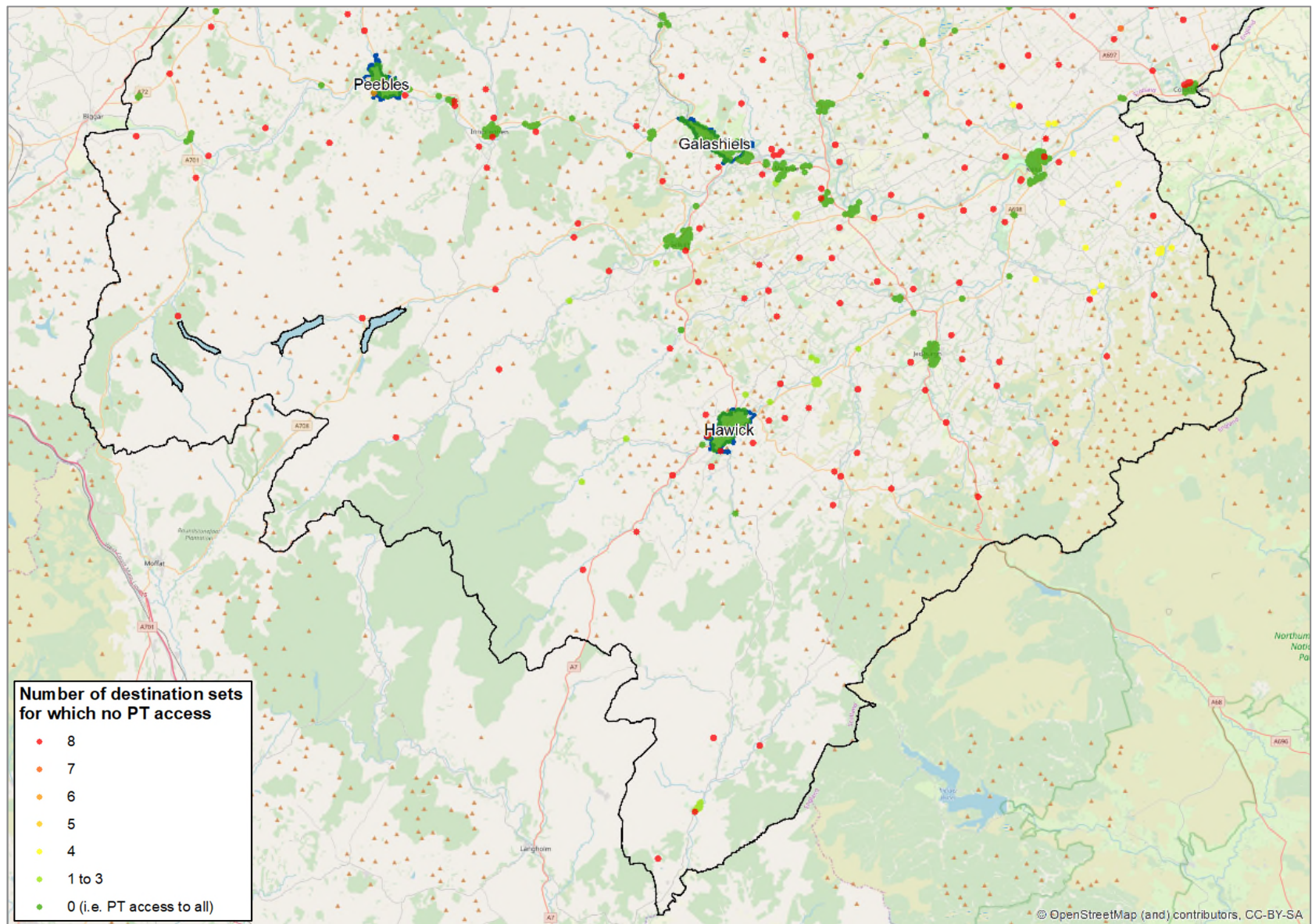
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Access to Multiple Destinations by Public Transport, 400m catchment, Weekday AM – Edinburgh and Midlothian

Access to Multiple Destinations by Public Transport, 400m catchment, Weekday AM – East Lothian and northern Scottish Borders

Number of destination sets for which no PT access

- ● 8
- ● 7
- ● 6
- ● 5
- ● 4
- ● 1 to 3
- ● 0 (i.e. PT access to all)

Access to Multiple Destinations by Public Transport, 400m catchment, Weekday AM – Southern Scottish Borders

APPROVAL

Version	Name		Position	Date	Modifications
1	Author	Alex Leggate; Claire Mackay	Consultant; Principal; Consultant	27/03/2020	
	Checked by	Ralph Anderson	Associate	31/03/2020	
	Approved by	Ralph Anderson	Associate	31/03/2020	