7.2 Corridor 2: Inverness to Ullapool and Western Isles

7.2.1 Setting the Context

Corridor 2 extends north and west from Inverness to northwest Scotland and includes onward connections to the Western Isles (Eilean Siar), as shown in Figure 7.2.1. It connects the city of Inverness with Ullapool, which are approximately 92 kilometres apart. Ullapool has an onward ferry connection to Stornoway. The population of the corridor (excluding Eilean Siar) is approximately 16,000 and little change is forecast over the period to 2022[333]. In contrast, the population of Eilean Siar is forecast to decline over this period by almost 15 per cent[334]. However the largest change in population overall, shown in Figure 7.2.2, is in and around Inverness. It is expected that there will be employment growth of approximately four per cent in the Highland council area as a whole, but a decline of similar magnitude in Eilean Siar[335]. Areas of greatest change are shown in Figure 7.2.2.

The national level of car ownership, measured as a percentage of households with access to a car, is 67 per cent. Within the corridor, car ownership levels are above average, as expected, due to the rural nature of the corridor:

- Highland council area: 75 per cent; and
- Eilean Siar: 70 per cent[336].

The economic inactivity rate within the Highlands and Eilean Siar was around 16 per cent in 2005. This is slightly below the Scottish average of 21 per cent[337]. Income levels for the corridor range from £381 per week in Eilean Siar to £386 per week in the Highlands. This equates to 92 per cent and 94 per cent respectively of the average for Scotland (£412)[338].

7.2.2 Transport Network and Operations

Infrastructure and Services

The principal elements of the transport network that play a national strategic role in this corridor are shown in Figure 7.2.1. The corridor is served by the A835 Trunk Road, which is a two-lane single carriageway and also the A9 Trunk Road between Inverness and Tore, a dual carriageway, which also forms part of Corridor 1.

There is no direct rail link to Ullapool and the only public transport service is by bus. Rail services in the southeast of the corridor serve the station at Garve. Citylink operate between Inverness and Ullapool. Various operators run services between Inverness and Ullapool via Dingwall.

Service patterns are generally:

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[333] General Register Office for Scotland 2004 based Population Projections for Scottish Areas – Table 1
[334] TMfS:05
[335] Scotland Planning Assessment Part 1 Volume 2 (Drivers of Change) October 2005 – Table A2
[336] Scotland's Census 2001 – www.scrol.gov.uk Table KS17
[337] Scottish Economic Statistics 2006, table 4.3
[338] Scottish Economic Statistics 2006, table 4.20

- Two services per day between Inverness and Ullapool.

The port at Ullapool provides lifeline ferry services to Stornoway and the remainder of the Western Isles. There is a lifeline airport at Stornoway, providing services to Glasgow, Edinburgh, Aberdeen, Inverness and Benbecula.

Asset Management

In 2007, one per cent of the trunk road network pavement[339] in this corridor is considered to require structural strengthening as it has no theoretical residual strength. This compares with a national level of four per cent[340]. Under Transport Scotland's planned maintenance schedule, the net figure for the corridor is expected to remain at one per cent by 2012.

Further details on asset management, including bus and rail, are provided in Chapter 4.

Demand Management

There are no bus priority measures in this corridor.

Programmed Schemes

There are no programmed schemes for this corridor.

[339] Transport Scotland SERIS Database
[340] STS No. 25 (2006) Table 5.5

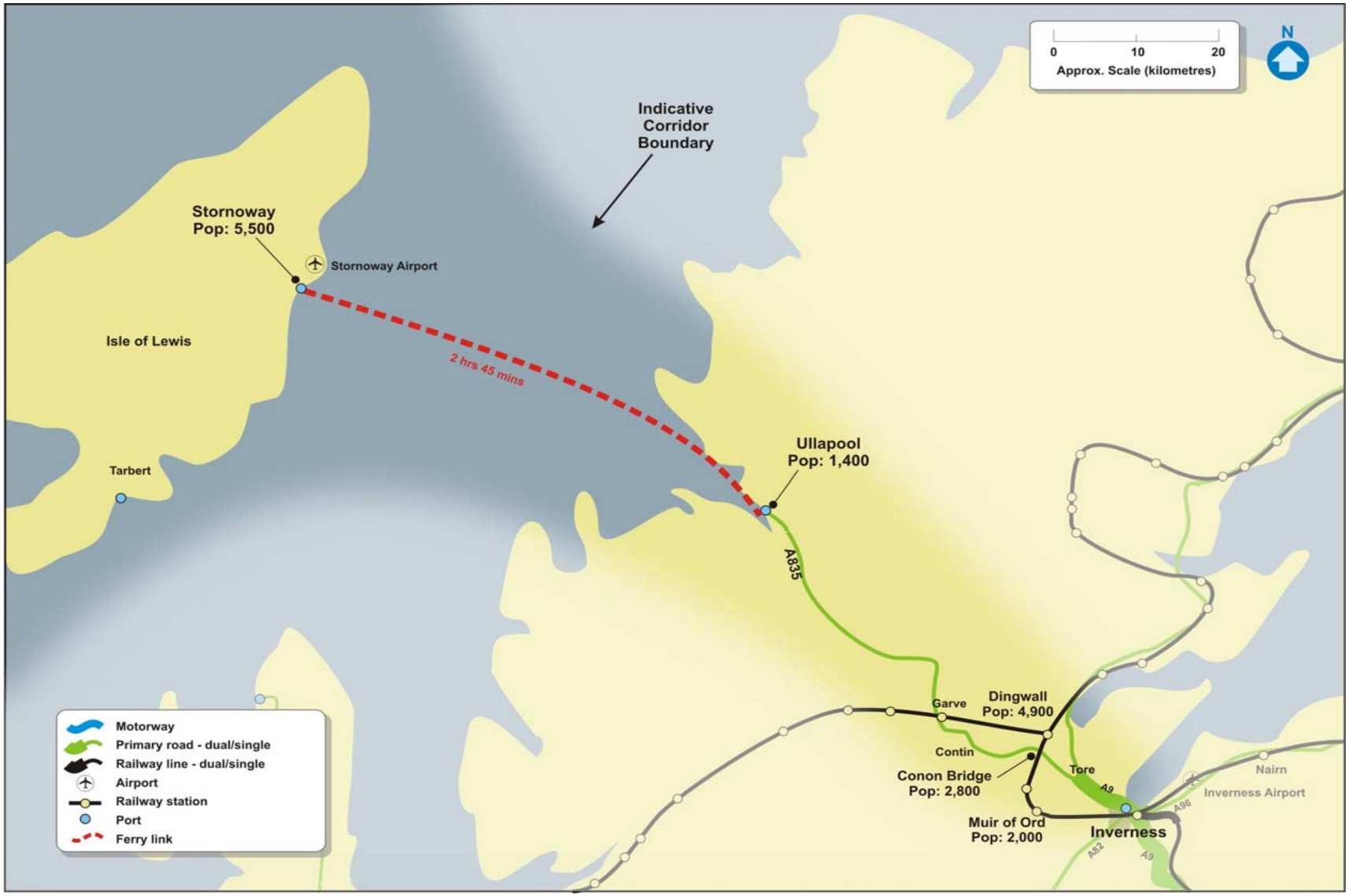

Figure 7.2.1: Setting the Context, Corridor 2 - Inverness to Ullapool and the Western Isles

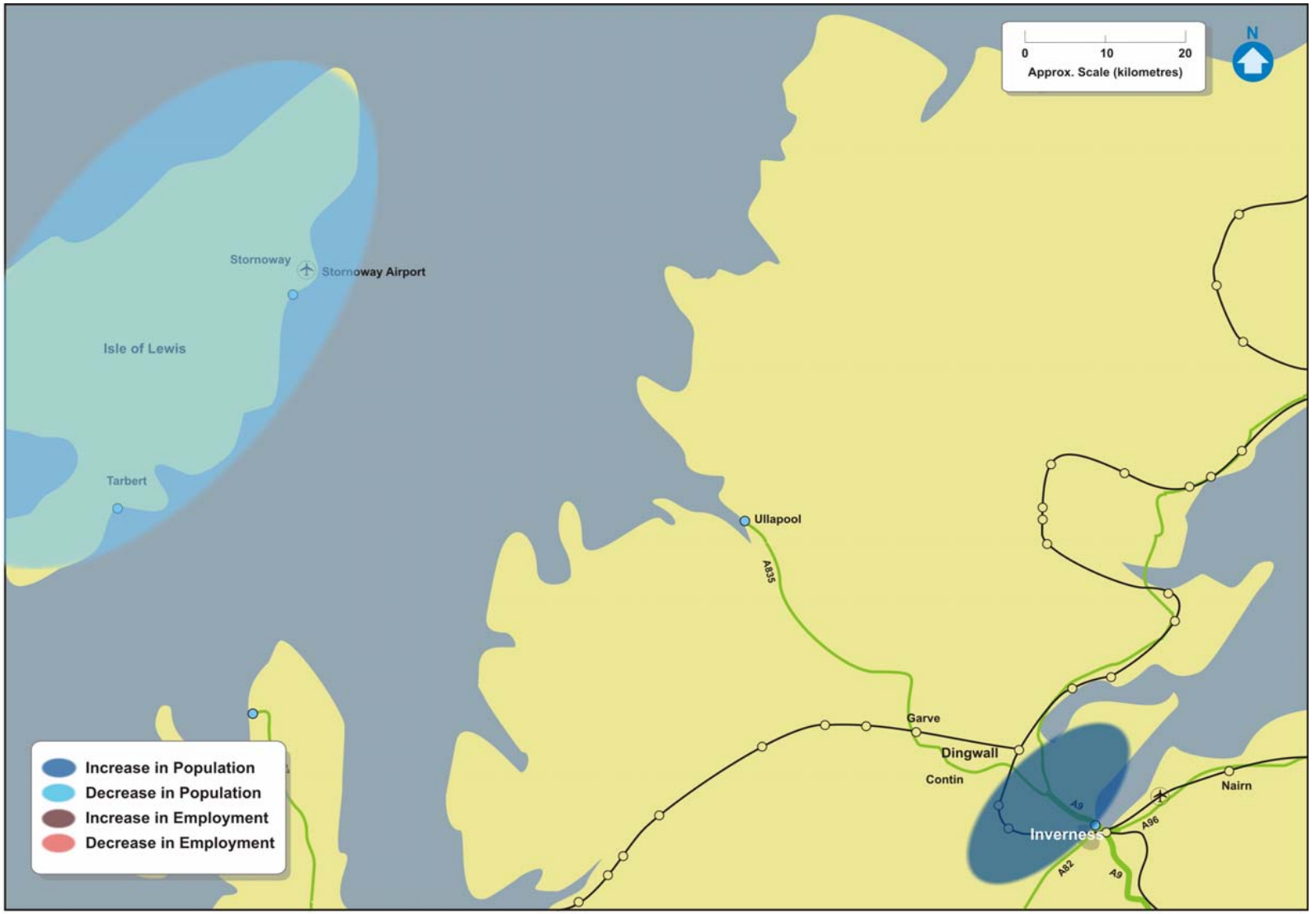

Figure 7.2.2: Changes in Population and Employment, 2005 & 2022, Corridor 2 - Inverness to Ullapool and the Western Isles

7.2.3 Travel Patterns

Travel patterns for the corridor are graphically presented in Figure 7.2.3 and a summary of demand levels and mode share in the corridor is included in Table 7.2.1.

TMfS:05 does not adequately cover Corridor 2. As such, data has been taken from the emerging Highland model which is being developed further in conjunction with TMfS:05, which became available for use in later packages at the end of 2007. This will be used to provide future year projections as STPR progresses[341]. At this, stage future year forecasts in Table 7.2.1 are based on the central growth forecast of the National Road Traffic Forecasts[342].

Table 7.2.1: Summary of Demand (12 hour) and Public Transport share

		Between Corridor and Inverness	Within Corridor	Between Corridor and other destinations	Total Trips
2005*	Total Trips	7,800	2,200	17,400	27,400
	% of Corridor	28%	8%	64%	100%
	PT Trips	900	300	600	1,800
	PT Share	12%	14%	4%	7%
2022	Total Trips	9,800	2,800	19,800	32,400
	% of Corridor	30%	9%	61%	100%
	PT Trips	1,100	400	800	2,300
	PT Share	11%	14%	4%	7%
Change	Total Trips	+26%	+27%	+14%	+18%
	PT Trips	+22%	+33%	+33%	+28%

*Uses TMfS:05H

About one third of travel demand in the corridor is to Inverness, while two thirds is between the corridor and other destinations, particularly settlements to the east in Corridor 1 (Inverness – Wick / Thurso). Public transport is generally infrequent and is not an attractive alternative to the car for many journeys. Consequently, public transport mode share for journeys outside the corridor is relatively low; however, the public transport mode share for journeys within the corridor and to Inverness is above average. Total public transport trips are expected to increase from 1,800 in 2005 to 2,300 in 2022, a 28 per cent rise, resulting in the public transport mode share remaining at seven per cent.

ATC data from the SRTDb gives a figure of approximately nine per cent HGV traffic for the A9 north of Inverness, and of ten per cent HGV traffic on the A835 north of at A832[343]. No HGV information is currently available from the SRTDb for any other sections of the A835.

[341] TMfS:05H
[342] Department for Transport, National Road Transport Forecasts 1997
[343] SRTDb

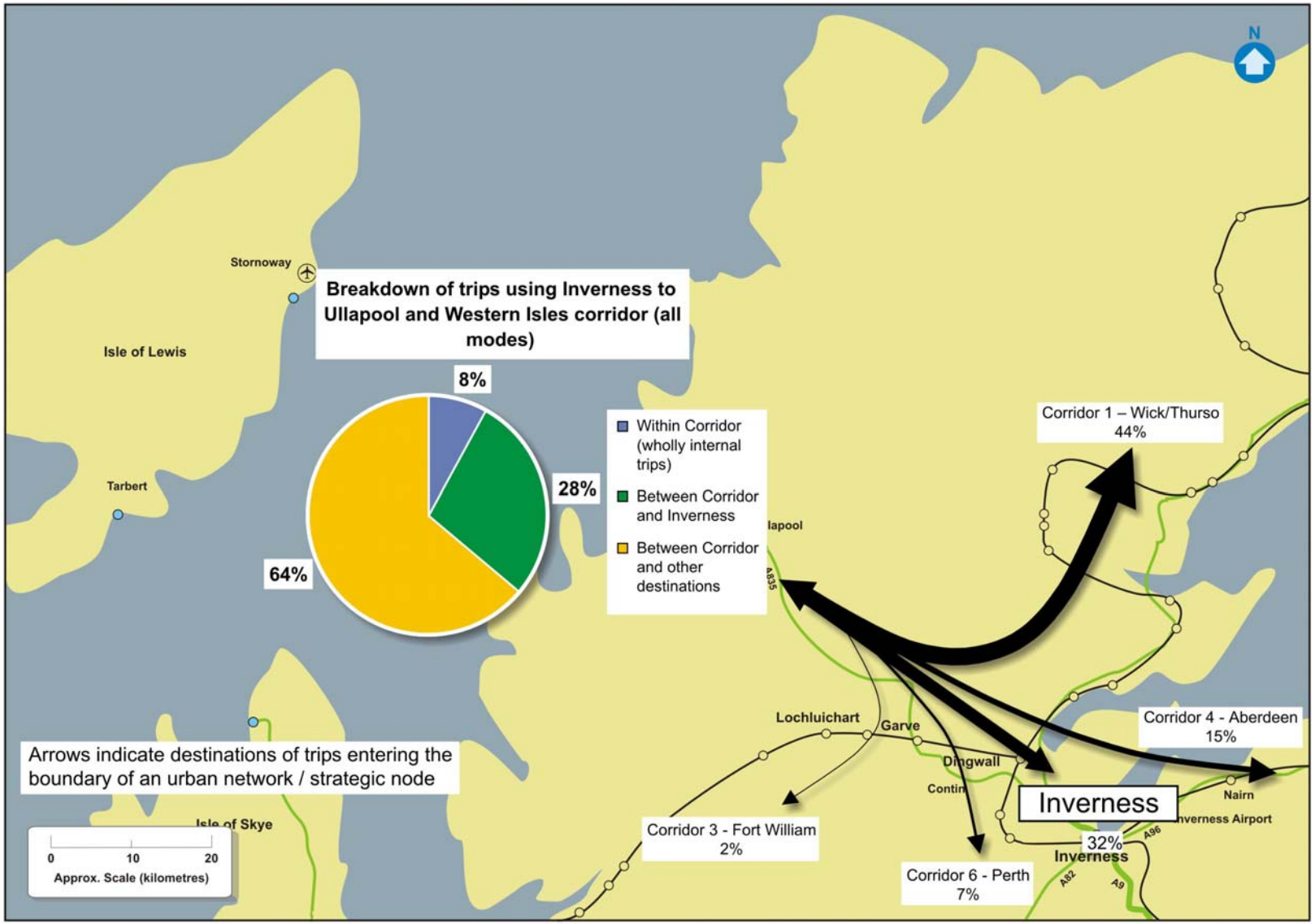

Figure 7.2.3 Travel Patterns 2005, Corridor 2 – Inverness to Ullapool and the Western Isles

Stornoway Airport has a throughput of around 122,000[344] passengers per year with flights to Glasgow, Edinburgh, Aberdeen, Inverness and Benbecula. Passenger and vehicle numbers on the ferry services in northwest Scotland are detailed in Table 7.2.2.

The AADT flow on the A835 is generally around 1,900 vehicles, well within its design capacity. However, the presence of HGVs, can cause bunching of traffic and limit overtaking opportunities. On the busier southern approach to the A9 near Inverness, AADT can reach 9,400 vehicles[345]. The AADT on the A9 approach to Longman Roundabout, on the outskirts of Inverness, can reach 22,000 vehicles.

Table 7.2.2: Ferry Loadings (2005)[346]

Route	Passengers (annual)	Vehicles (annual)	Percentage HGV
Ullapool - Stornoway (Cal Mac)	183,000	59,000	27%
Berneray - Leverburgh (Cal Mac)	52,000	21,000	8%

7.2.4 Performance Review

This section addresses the following questions from Table 3.1:

- Does the network offer competitive journey times?
- Is the network operating efficiently and reliably?
- Where are the delays and when do they occur?

Journey Times and Connections

Figure 7.2.4 shows the current and forecast average speeds on the A9 / A835 between Inverness and Ullapool. Average speeds remain fairly constant and close to the free-flow speed throughout the day at approximately 80kph (50mph), suggesting that congestion is not an issue on the majority of the corridor. Generally, there is likely to be little variability of average journey time, although the single carriageway nature of the road can limit overtaking opportunities. There are no reliability problems with the road network in this corridor.

[344] Civil Aviation Authority UK Airport Statistics: 2006 – annual – Table 19
[345] Transport Scotland – SRTDb
[346] STS No. 25 (2006), Table 10.14

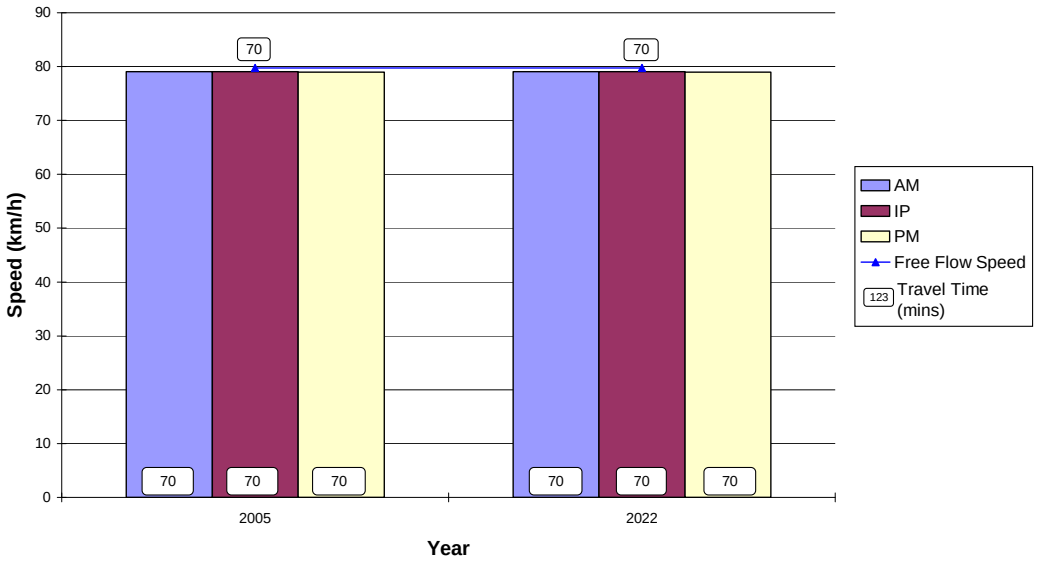

Figure 7.2.4: Average Road Speeds (Corridor 2)[347]

Travel time is consistent across all peak periods and all years at 1 hour 10 minutes. This is equal to the free flow travel time for the corridor.

Comparisons of road and bus travel times indicate that public transport services are not competitive against travel by road, particularly for end to end journeys as indicated in Figure 7.2.5[348].

[347] TMfS:05
[348] Journey times for bus/rail include a 20 minute walk/wait time

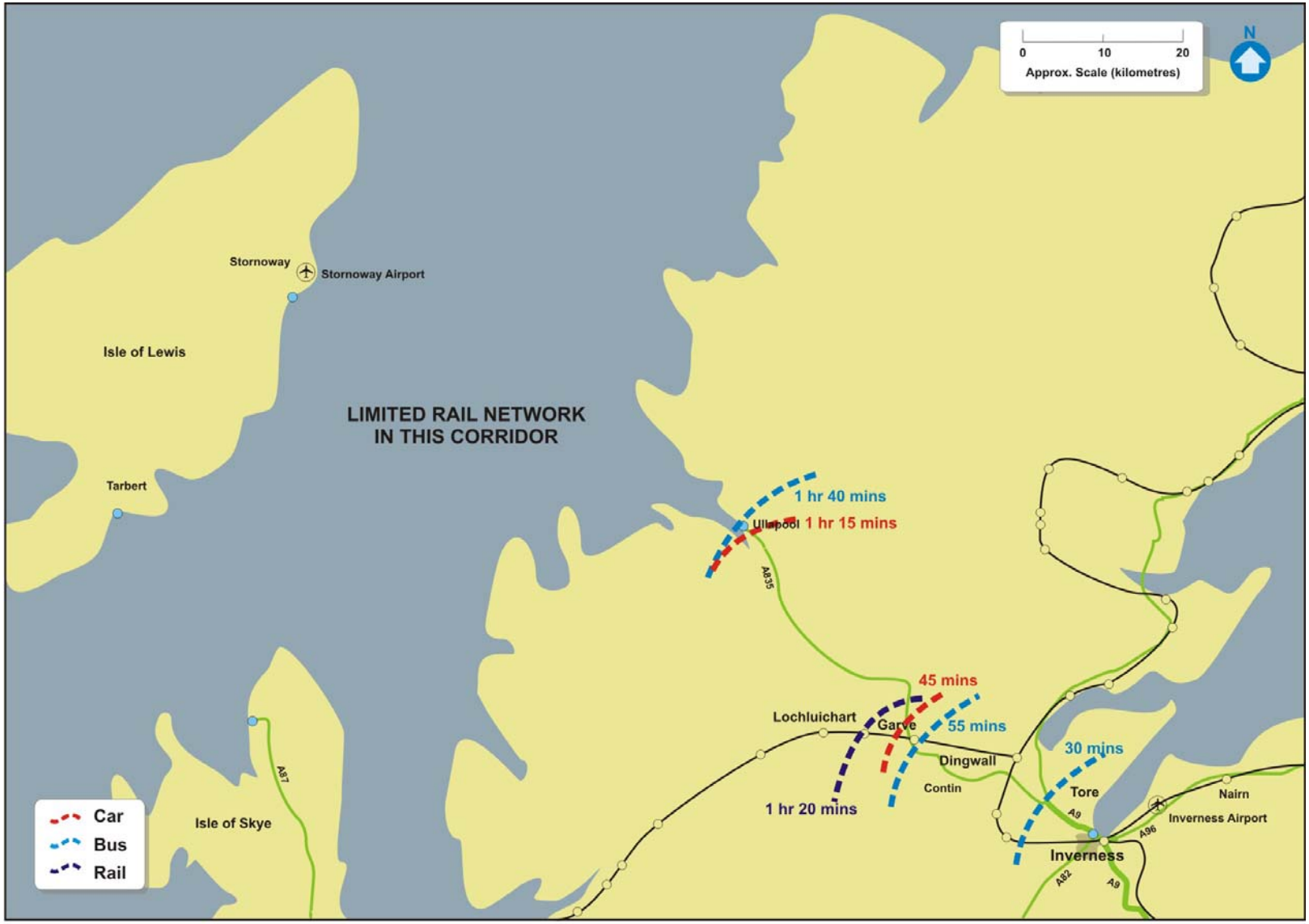

Figure 7.2.5: Journey Time to Inverness City Centre by Road/Rail (2005 AM peak), Corridor 2 - Inverness to Ullapool and the Western Isles

Emissions (CO_2 only)

This section of the report addresses the issue:

- What is the level of transport based emissions within the corridor?

CO_2 per person kilometre is forecast to rise from 125 tonnes / million person kilometres to 138 tonnes / million person kilometres between 2005 and 2022 in this corridor. This is a result of a reduction in vehicle kilometres within this corridor by 2022, whilst the CO_2 emissions are forecast to increase[349].

The road based transport network produced 1,500 tonnes of CO_2 in Corridor 2 in 2005. This equates to well below one per cent of the total road based transport related CO_2 emissions in Scotland.

By 2022, it is forecast that CO_2 emissions in Corridor 2 will rise to around 2,000 tonnes, however remains at well below one per cent of Scotland's road based transport related CO_2 emissions in 2022.

Quality / Accessibility / Affordability

The following paragraphs address the issues of:

- Does public transport provision match origin/destination analysis?
- How competitive is public transport compared with the car?
- Do capacity issues impact on public transport service?
- How safe is the network?

As in Corridor 1, access to key services by both car and public transport is generally better in the more populated parts of the corridor, particularly close to Inverness. However, this is generally a corridor of small, remote, and dispersed populations, where the critical mass of population necessary to support public transport cost-effectively is not there.

Bus journeys to Ullapool provide integration with ferry services at Ullapool Pier. Through tickets are now available when travelling to Kirkwall by rail/bus/ferry.

There are no rail services operating between Inverness and Ullapool whilst there are two Citylink bus services operating in the morning and late afternoon in both directions, mainly connecting with ferries. The limited public transport on the route restricts commuting potential and effective business interaction between the centres of this corridor. The proximity of Inverness and Ullapool does mean that travel by private car is a feasible alternative.

[349] TMfS:05

Bus services in the corridor include commuter services from Dingwall to Inverness, longer distance services from Ullapool, and also local lifeline services between the settlements in the corridor including those on the Western Isles. Table 7.2.3 provides an assessment of bus service quality on the strategic long distance services in the corridor on a scale of one to five, with one being 'poor' and five being 'excellent'[350]. Reliability and coverage have been defined as good, frequency as poor, with all other factors average.

Table 7.2.3: Assessment of Bus Service Quality

Services	Service Operators	Annual Journeys	Reliability	Frequency	Simplicity	Value	Coverage	Vehicle Quality
61, 961	Rapsons, Citylink	2,500	4	2	3	3	4	3

An integrated ticket is available for rail journeys into Inverness in the form of the *PLUSBUS* ticket. This ticket covers rail journeys and unlimited bus travel within the city.

The A835 has an accident rate of 22.2 accidents per 100 million vehicle kilometres and a fatal accident rate of 1.2 accidents per 100 million vehicle kilometres. These are both significantly greater than the corresponding national rates of 15.5 and 0.76 accidents per million vehicle kilometres respectively, for this type of road. In addition, the proportion of severe accidents in this corridor (42 per cent) is significantly greater than the national average (25 per cent)[351]. Initial analysis of severe accident clusters indicated safety issues on the A835 and on the A9 north of Inverness.

In addition, there have been a number of fatalities on level crossings within the corridor.

Summary of Infrastructure and Operational Constraints

Key constraints and congestion points are shown in Figure 7.2.6, including:

- Poor road alignment between Garve and Contin;
- Seasonal traffic impact on reliability of journey times on the A835; and
- Congestion on the A9 approach to Longman Roundabout.

[350] Bus Users UK (Qualititative Assessment – 1: very poor; 5: excellent)
[351] Transport Scotland SERIS Database

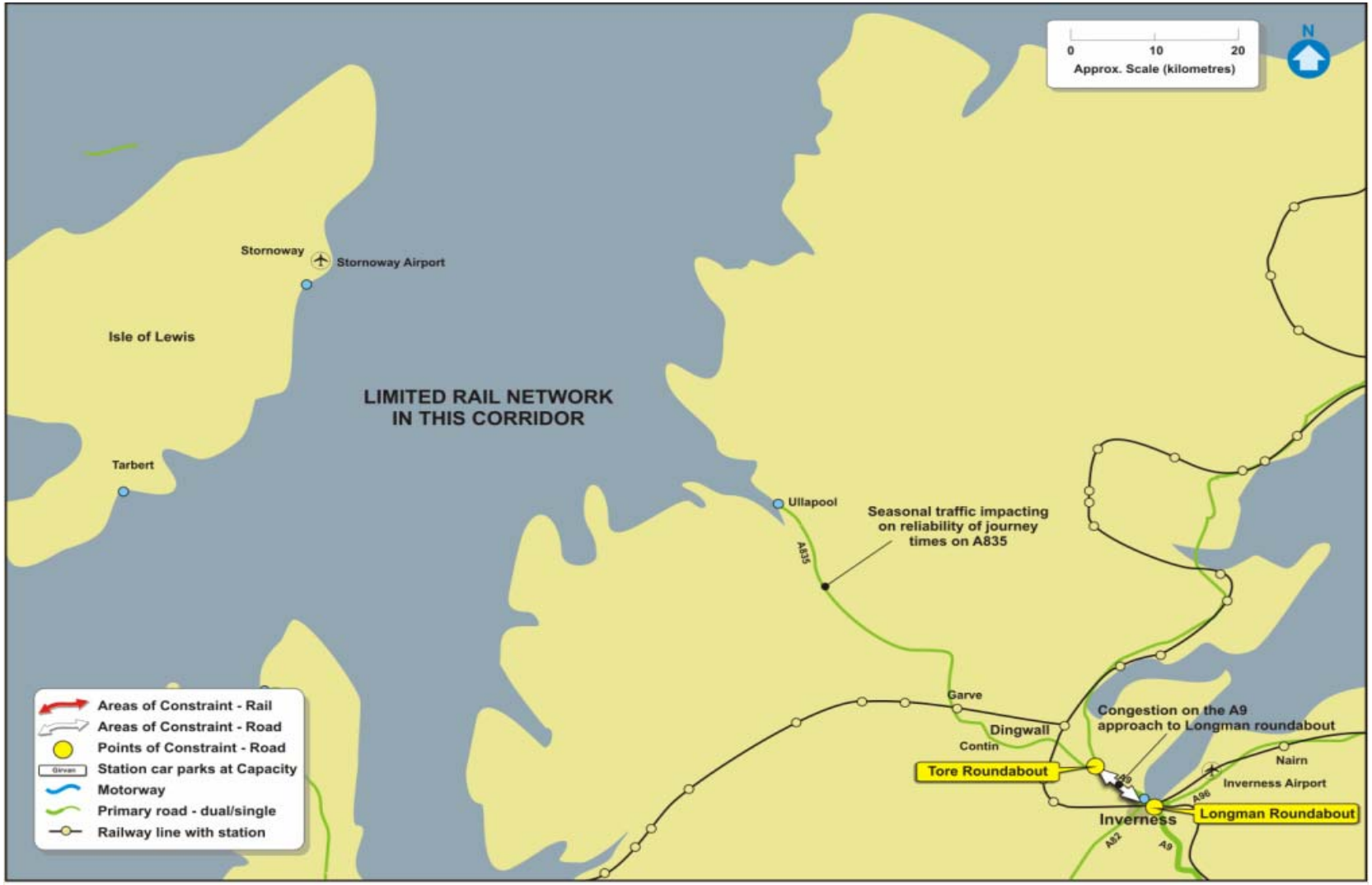

Figure 7.2.6: Areas of Constraint on the Network, Corridor 2 - Inverness to Ullapool and the Western Isles

7.2.5 Summary and Conclusions

Overall, how well does the transport network perform?

There is a low population density and consequently a low travel demand, particularly for trips wholly within the corridor. As such, the road network operates effectively and reliably within its design capacity over most of the route for most of the day. However, the road alignment, which is particularly poor between Contin and Garve, and the lack of overtaking opportunities, can lead to localised delays. This may be exacerbated by HGVs many of which are travelling to or from the ferry at Ullapool.

As the majority of the demand is trips to Corridor 1 (Wick and Thurso) and to Inverness, traffic flows are heaviest in the south eastern part of the corridor, and most of these trips are made by car. At Tore Roundabout, the traffic to Inverness joins with traffic from Corridor 1. This leads to some delays on the approaches to Inverness, particularly in the peaks, when longer distance trips to and through Inverness mix with local traffic accessing the city. Although the flows are within the design limits of the road, it is the at-grade junction at Longman Roundabout that causes congestion. As there are no bus priority measures, buses are also affected by these delays.

Along the corridor, the road passes through communities giving rise to associated severance, environmental and safety issues. Topography and alignment affect speed and limit overtaking opportunities. This can cause localised delays along the route.

Apart from Garve, the corridor is not served by rail. Public transport share for trips wholly within the network is good. However, as these trips represent a small proportion of the overall demand, the public transport share for the corridor is much lower. While the reliability of the bus services is considered good, the frequency is poor and public transport is generally not competitive with car.

Will the transport network meet future demand, particularly in areas of economic activity?

Although the population of Eilean Siar is forecast to fall, the population of the rest of the corridor will be relatively stable. With a small increase in employment, the forecast traffic growth will still be accommodated by the transport network in general, although congestion on the approaches to Inverness will tend to increase journey times in the peaks.

What are the key drivers that will impact on performance in the future?

While the population is expected to remain at a similar level, a growth in employment indicates increased travel demand. As most of the employment growth is likely to be in and around Inverness, the performance of the network on the approaches to the city will come under further pressure.

Safety will also be a key driver for performance, with a higher than average accident rate and fatal accident rate identified in the corridor.

What are the key problems associated with delivering the KSOs?

Journey times for road are heavily influenced by the alignment and by the lack of passing opportunities. This will be exacerbated by the increased traffic flows.

There is a high accident rate and severity ratio for the standard of road.

With over a quarter of households not having access to a car, and with median gross weekly earnings being less than the national average, affordable public transport has a key role to play in providing accessibility. The rural nature of the corridor is a significant challenge to improving accessibility.