7.3 Corridor 3: Inverness to Fort William and Western Isles

7.3.1 Setting the Context

Corridor 3 extends south and west from Inverness to Fort William, Mallaig and the Isle of Skye, as shown in Figure 7.3.1. The distance from Inverness to Fort William is just over 100 kilometres. The population within the corridor is approximately 35,000[352], with the main population centres in Fort William, Mallaig, and Skye. Little change in population is forecast up to 2022[353].

The population of the Highland council area as a whole is projected to increase by about four per cent by 2022, while the population of Eilean Siar is forecast to decline by almost 15 per cent during that time[354]. Some growth in the number of households is expected.

Car ownership in the corridor, measured as a percentage of households with access to a car, is higher than the national average of 67 per cent, reflecting the rural and peripheral nature of the corridor:

- Highland council area: 75 per cent; and
- Eilean Siar: 70 per cent[355].

Commercial activities related to primary industries such as agriculture and fish processing are important within this corridor[356]. Forestry and tourism are also key industries in the corridor.

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 [357]. 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)[358]. Figure 7.3.2 shows the areas experiencing the greatest level of change in employment and population.

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[352] General Register Office for Scotland Mid-2006 population estimates for administrative areas: http://www.gro-scotland.gov.uk/files1/stats/06mype-cahb-t2-revised.xls
[353] TELMoS
[354] General Register Office for Scotland 2004 based Population Projections for Scottish Areas – Table 1
[355] Scotland's Census 2001 – www.scrol.gov.uk Table KS17
[356] http://www.scotland.org/about/innovation-and-creativity/features/culture/vibrant6-inverness.html
[357] Scottish Economic Statistics 2006, table 4.3
[358] Scottish Economic Statistics 2006, table 4.20

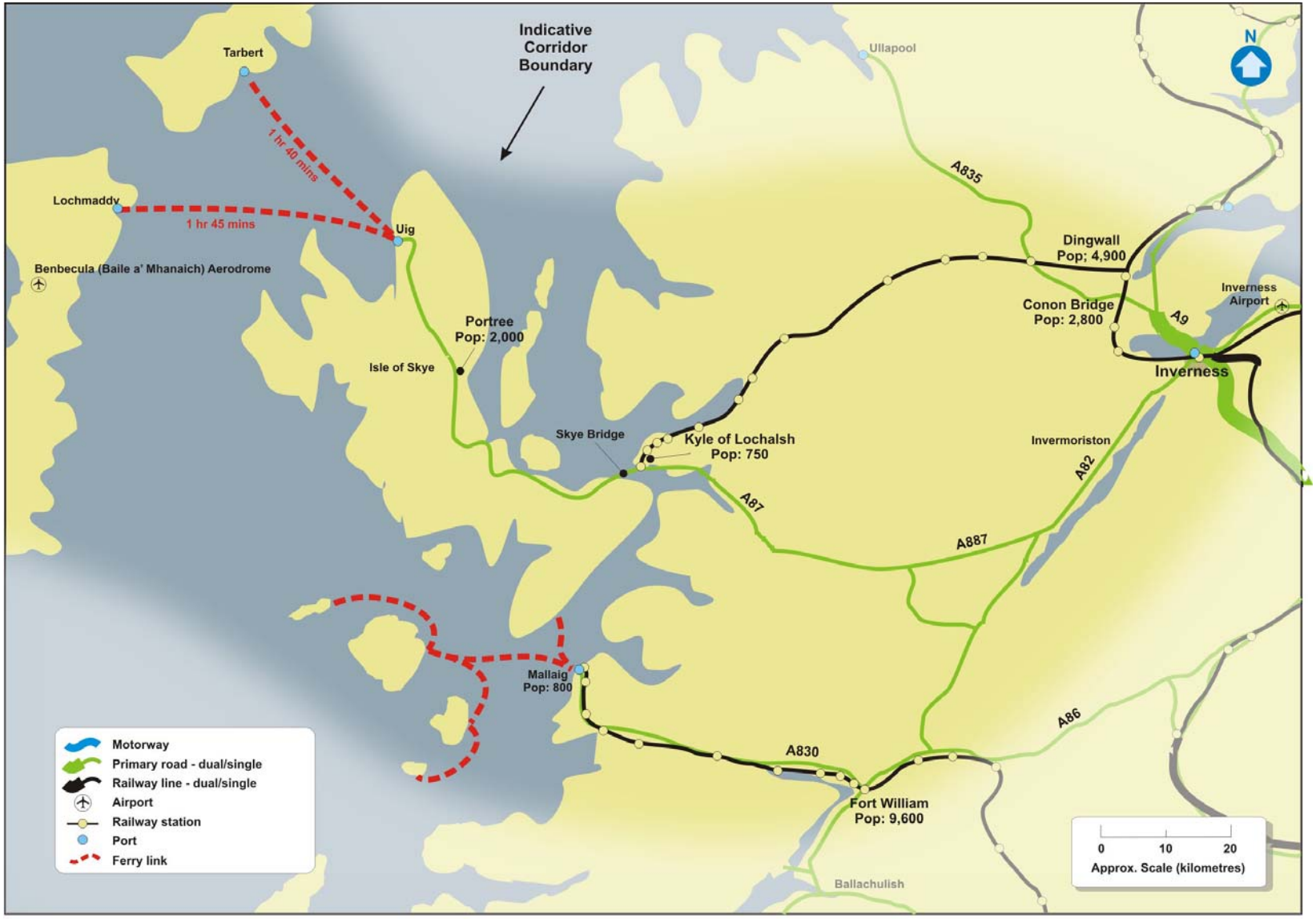

Figure 7.3.1: Setting the Context, Corridor 3 - Inverness to Fort William and the Western Isles

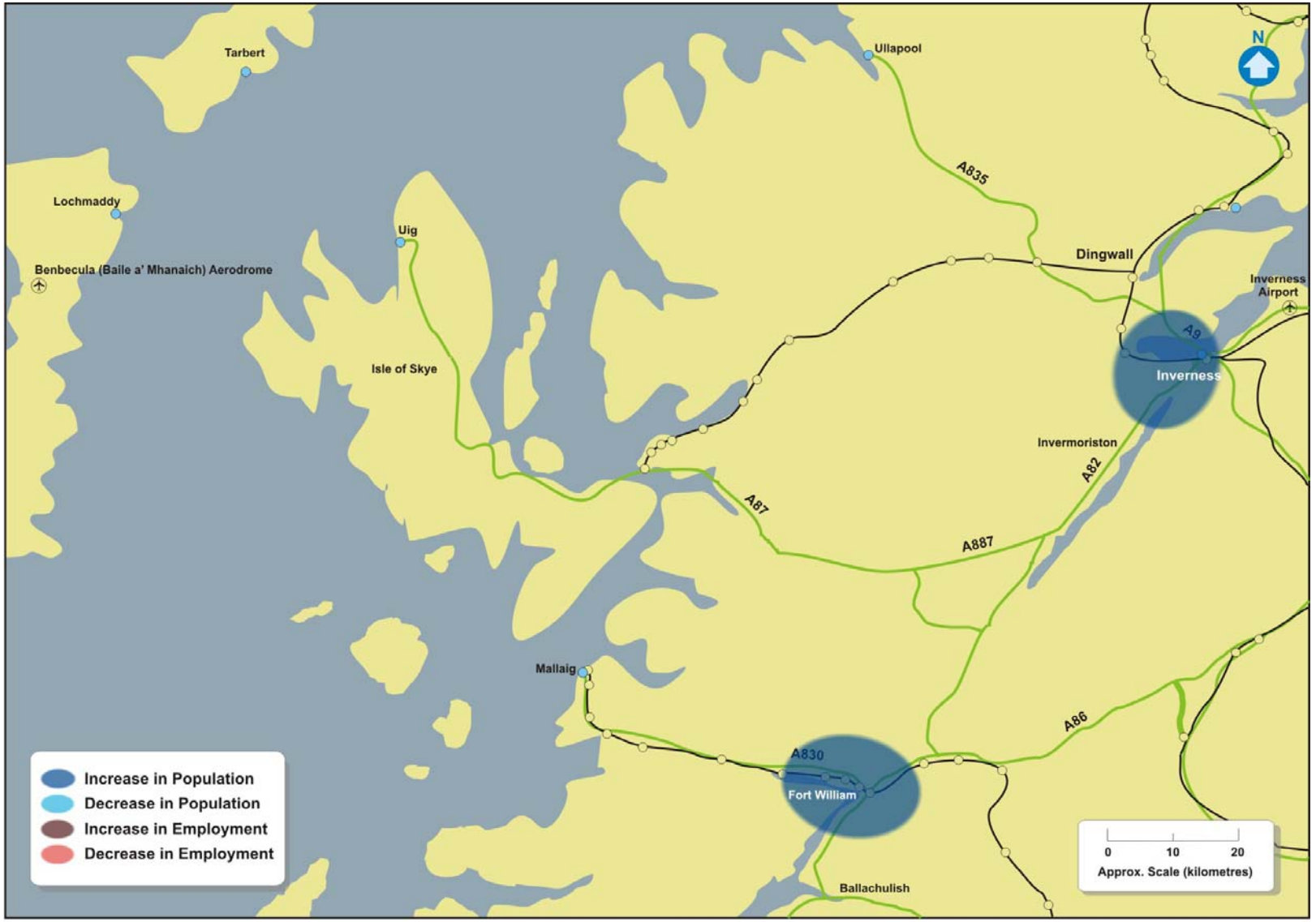

Figure 7.3.2: Changes in Population and Employment, 2005 & 2022, Corridor 3 - Inverness to Fort William and the Western Isles

7.3.2 Transport Network and Operations

Infrastructure and Services

The principal elements of the transport network that play a national strategic role are shown in Figure 7.3.1.

The A82 between Inverness and Fort William forms the main spine of the road network. It is a two-lane single carriageway over most of its length. Other important elements of the road network include:

- A87 links the A82 with Uig on the Isle of Skye via the Skye Bridge;
- A887 links the A82 and A87; and
- A830 links Fort William and Mallaig.

These are all two-lane single carriageway roads. The A830 has recently been upgraded from single track with passing places to single carriageway throughout between Arisaig and Loch Nan Uamh.

Two railway lines serve the corridor: one between Inverness and Kyle of Lochalsh, the other between Mallaig and Fort William, which continues south towards Glasgow. Both railway lines are single track with passing loops. Service patterns are generally:

- Four trains per day between Inverness and Kyle of Lochalsh; and
- Four trains per day between Fort William and Mallaig (three of which originate / terminate in Glasgow).

There is no rail freight between Inverness and Kyle of Lochalsh or between Fort William and Mallaig. There is however limited rail freight on Corridor 1 that uses the line between Inverness and Dingwall, which is also part of Corridor 3.

Bus services are provided by Highland Country buses, Rapsons and Citylink. The Highland Country bus service runs between Inverness and Fort William. Rapsons services run from the centre of Inverness to Beauly, Ullapool, Fort William and Portree. Citylink run services between Glasgow and Portree via Fort William and Kyle of Lochalsh; Glasgow and Uig; Inverness and Portree via Kyle of Lochalsh and Inverness and Fort William. The Uig journeys connect with ferries to Harris and North Uist.

Service patterns are generally:

- One service every two hours between Inverness and Fort William;
- Three services per day between Fort William and Portree;
- Two services per day between Fort William and Uig; and
- Three services per day between Inverness and Portree.

The corridor also provides access to the ports at Mallaig and Uig, which provide lifeline ferry services to the Western Isles. There are two small airports in the corridor providing lifeline services: Barra, which has services to Glasgow, and Benbecula, which has services to Glasgow, Stornoway and Inverness.

Asset Management

In 2007, 12 per cent of the trunk road network pavement[359] in this corridor is judged to require structural strengthening as it has no theoretical residual strength. This compares with a national level of four per cent[360]. The section with the poorest residual strength is the A87. Under Transport Scotland's planned maintenance schedule, the net figure for the corridor is expected to fall to four 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. Car parking at the station car parks at Inverness and Fort William is close to capacity.

Programmed Schemes

For rail, short term aspirations include making services more attractive to commuters and tourists by improving comfort and facilities and revising train services in the light of changing travel patterns and markets including tourism.

7.3.3 Travel Patterns

Travel patterns for the corridor are graphically presented in Figure 7.3.3 and a summary of demand levels in the corridor and mode share is included in Table 7.3.1. There is a considerable amount of tourist traffic in this corridor and therefore the demand levels rise considerably in the main tourist season.

TMfS:05 does not adequately cover Corridor 3. 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 the STPR progresses[361]. At this stage future year forecasts in Table 7.3.1 are based on the National Road Traffic Forecasts central growth forecast[362].

[359] Transport Scotland SERIS Database
[360] STS No. 25 (2006) Table 5.5
[361] TMfS:05H
[362] Department for Transport , National Road Transport Forecasts,1997

Table 7.3.1: Summary of Demand (12 Hour) and Public Transport Share[363]

		Within Corridor	Between Corridor and Inverness	Between Corridor and other destinations	Total Trips
2005*	Total Trips	13,000	3,800	12,700	29,500
	% of Corridor	44%	14%	42%	100%
	PT Trips	2,000	100	600	2,700
	PT Share	15%	2%	5%	9%
2022	Total Trips	16,400	4,800	16,000	37,200
	% of Corridor	44%	13%	43%	100%
	PT Trips	2,500	200	800	3,500
	PT Share	15%	4%	5%	9%
Change	Total Trips	+26%	+26%	+26%	+26%
	PT Trips	+25%	+100%	+33%	+30%

*Uses TMfS:05H

Total trips in the corridor are expected to increase 26 per cent between 2005 and 2022 from 29,500 to 37,200 trips.

42 per cent of the travel demand in the corridor is between settlements in the corridor and destinations outside the corridor. While Inverness is the single most significant destination, trips to and from there represent a small proportion of all trips on the corridor. A considerable proportion of trips are to and from Corridor 4 (Aberdeen) and Corridor 6 (Perth), requiring traffic to route through the city. This movement would benefit from the Inverness Trunk Link Road that is under consideration by the Highland Council.

ATC data from the SRTDb gives a figure of approximately ten per cent HGV traffic on the A87 at Kyle of Lochalsh[364].

Public transport overall is not an attractive alternative to private transport for many journeys. Consequently, public transport mode share is relatively low for trips outside the corridor and to Inverness. However, for trips within the corridor, a relatively high proportion are by bus or rail. This indicates the lifeline function of these services in this rural corridor.

The AADT on the A82 is around 6,000 vehicles, which is well within the design capacity. AADT on the A87 is generally lower at around 3,000 vehicles[365], but the single carriageway design combined with the poor road alignment can limit overtaking opportunities and cause bunching of vehicles behind slow moving HGVs.

[363] Transport Scotland – SRTDb
[364] SRTDb
[365] Transport Scotland – STRDb

The railway stations on the corridor between Fort William and Mallaig have a total throughput of some 0.2 million passengers per annum (2005). Those between Kyle of Lochalsh and Beauly have a total throughput of some 0.16 million passengers per annum (2005)[366].

Benbecula Airport has a throughput of around 31,000 passengers per year, with Barra Airport catering for approximately 9,000 passengers per year[367]. The port at Uig caters for around 160,000 passengers and 60,000 vehicles each year, while the port at Mallaig caters for about 190,000 passengers and about 45,000 vehicles each year[368]. These volumes do not generate significant volume of vehicles on a daily basis, although localised demand peaks can occur in line with departure times. Passenger and vehicle numbers on the ferry services are detailed in Table 7.3.2.

Table 7.3.2: Ferry Loadings[369]

Route	Passengers (annual)	Vehicles (annual)	Percentage Commercial Vehicles and Buses
Mallaig - Armadale (Cal Mac)	190,000	46,000	4%
Mallaig – Small Isles (Cal Mac)	20,000	600	N/A
Uig – Tarbert/Lochmaddy (Cal Mac)	160,000	61,000	14%
Sconser – Raasay (Cal Mac)	57,000	18,000	5%

[366] Rail industry LENNON data (Station Usage 2004/2005)
[367] STS No. 25 (2006) Table 9.1
[368] STS No. 25 (2006) Table 10.14
[369] STS No. 25 (2006) Table 10.14

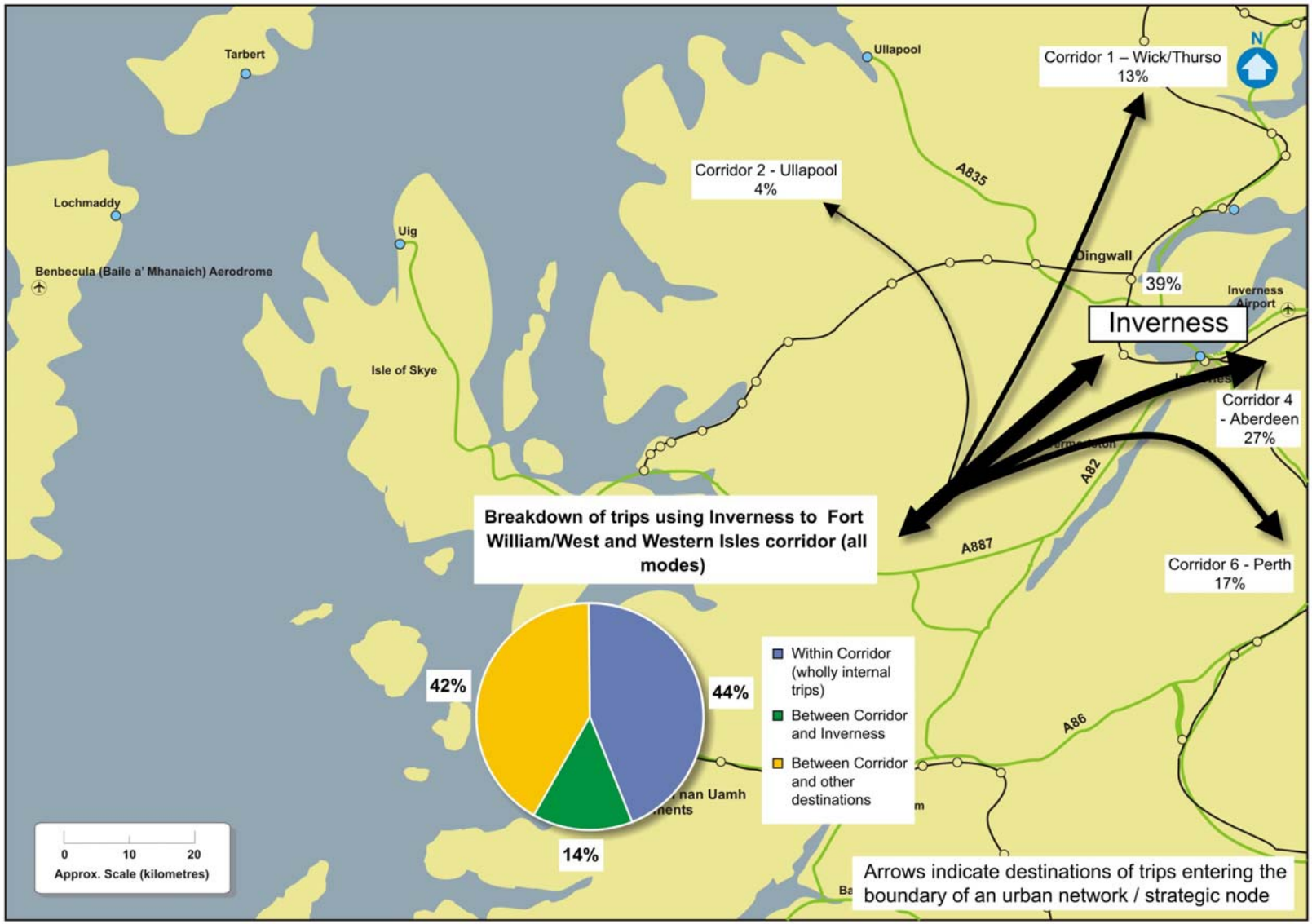

Figure 7.3.3 Travel Patterns 2005, Corridor 3 – Inverness to Fort William and the Western Isles

7.3.4 Performance Review

Journey Times and Connections

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?

Figure 7.3.4 shows the current and forecast average speeds on the A82 between Inverness and Fort William. Average speeds are reasonable and remain fairly constant throughout the day at approximately 75kph (47mph). Congestion and journey time reliability is not an issue on the majority of the corridor, which results in little variability of average journey time. However, the single carriageway nature of the road and slow moving HGV traffic can limit overtaking opportunities. Additionally, seasonal tourist traffic may cause some delays, particularly coaches and cars with caravans.

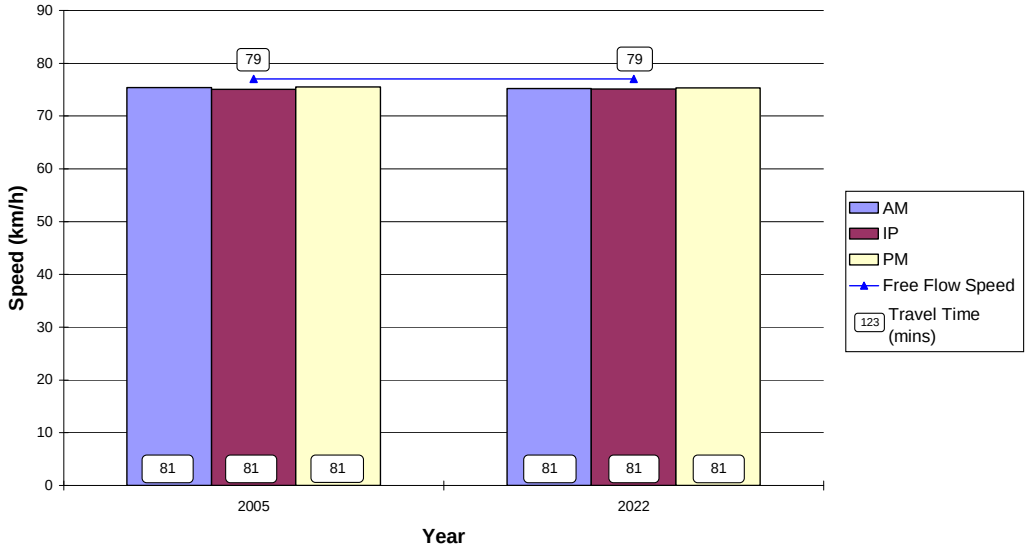

Figure 7.3.4: Average Road Speed (Corridor 3)[370]

Travel time is consistent across all peak periods and all years at 1 hour 21 minutes. This is slightly slower than the free flow travel time of 1 hour 19 minutes.

[370] TMfS:05

Comparisons of road, rail and bus travel times indicate that public transport services are often not competitive against travel by road, particularly for end to end journeys. A comparison of road and rail travel times for travel towards Kyle of Lochalsh indicates that the rail service is generally not competitive against travel by road, services are also infrequent and departure and arrival times are not always attractive. Network Rail's Route Utilisation Strategy does not identify overcrowding on rail services in the corridor. Journey time comparisons for car, bus and rail are shown in Figure 7.3.5[371].

Adverse weather conditions may also impact on corridor performance with the possibility of disruption to road and rail services due to landslips.

[371] Journey times for bus/rail include a 20 minute walk/wait time

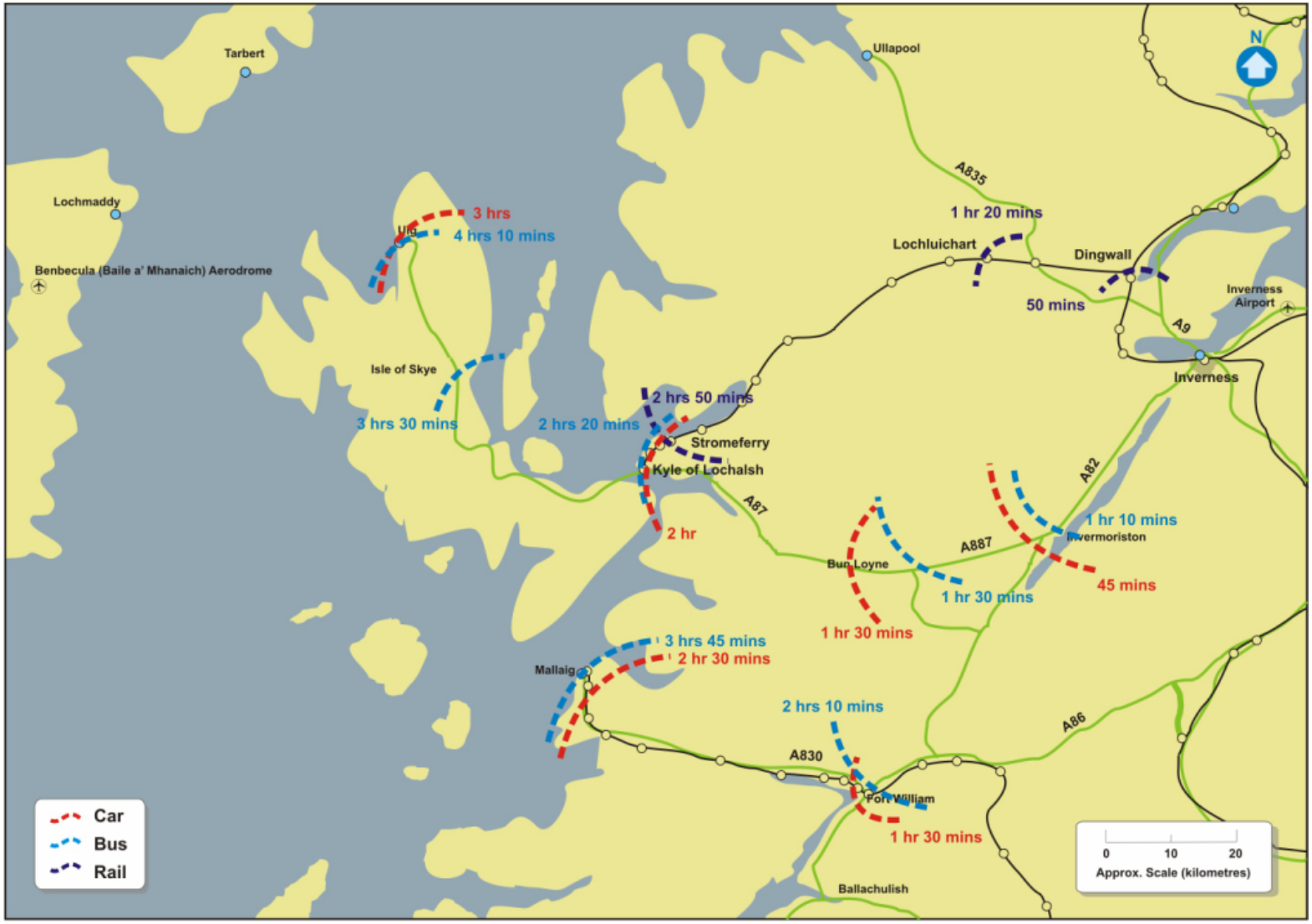

Figure 7.3.5: Journey Time to Inverness City Centre from Uig & Malliag by Road/Rail (2005 AM peak), Corridor 3 - Inverness to Fort William and the Western Isles

Emissions (CO_2 only)

This section of the report addresses the issue:

1. What is the level of transport based emissions within the corridor?

CO_2 per person kilometres are forecast to rise from 135 tonnes / million person kilometres to 170 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[372].

The road based transport network produced 86,500 tonnes of CO_2 in Corridor 3 in 2005. This equates to approximately 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 3 will rise slightly to around 96,000 tonnes, approximately a one per cent share of Scotland's road based transport related CO_2 emissions in 2022.

The rail network produced 2,000 tonnes of CO_2 in Corridor 3 in 2007. This equates to approximately two per cent of the total rail based CO_2 emissions in Scotland[373].

Therefore, it is estimated that the road and rail based transport network collectively produced 88,500 tonnes of CO_2 in Corridor 3 in 2005. This equates to approximately one per cent of the total road and rail based transport related CO_2 emissions in Scotland.

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 with Corridors 1 and 2, 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 and Fort William. 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.

There are no direct rail services and limited bus services operating between Inverness and Fort William which limits effective business interaction between Inverness and Fort William by public transport.

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[372] TMfS:05
[373] AEA (2001) Rail Emission Model Final Report; www.nationalrail.co.uk; and www.networkrail.co.uk

There is a small bus station in Fort William which is adjacent to the railway station, however low journey frequencies reduce the level of integration available between the modes. Bus journeys to Uig provide integration with the ferry services to Harris and North Uist.

Bus services in the corridor include longer distance services from Inverness to Fort William, Mallaig and Skye, and local services between the settlements in the corridor including those on Skye and Eilean Siar. Table 7.3.3 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'. Coverage has been defined as good, frequency poor and all other factors average.

Table 7.3.3: Assessment of Bus Service Quality[374]

Services	Service Operators	Annual Journeys	Reliability	Frequency	Simplicity	Value	Coverage	Vehicle Quality
19, 19A, 19B, 915, 916, 917, 919	Rapsons, Citylink	8,000	3	2	3	3	4	3

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

The A82 between Inverness and Fort William (27.9 accidents per 100MVKm) and the A87 between Invergarry and Kyle of Lochalsh (35.5 accidents per 100MVKm) both have accident rates which are significantly greater than the national average for non built up A class trunk roads (15.5 accidents per 100MVKm). Initial analysis of severe accident clusters indicated a number of locations on the A82 where road safety may need to be addressed. These clusters occurred at both straight sections, indicating overtaking issues and also on bends, where poor alignment may be an issue. The proportion of severe accidents in this corridor (31 per cent) is greater than the national average (25 per cent)[375].

There have been a number of fatalities on level crossings within the corridor.

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

Summary of Infrastructure and Operational Constraints

Key constraints and congestion points are shown in Figure 7.3.6, including:

- Lack of overtaking opportunities on A82;
- Slow railway line speeds;
- Lack of train paths between Inverness and Kyle of Lochalsh due to single track;
- Commuting opportunities by rail are limited from beyond Dingwall due to the first train not arriving in Inverness until 09:57am;
- Rail connections with the ferry at Uig require a wait of 2 hours 50 minutes in Kyle of Lochalsh; and
- Station car parks at Inverness and Fort William are close to capacity.

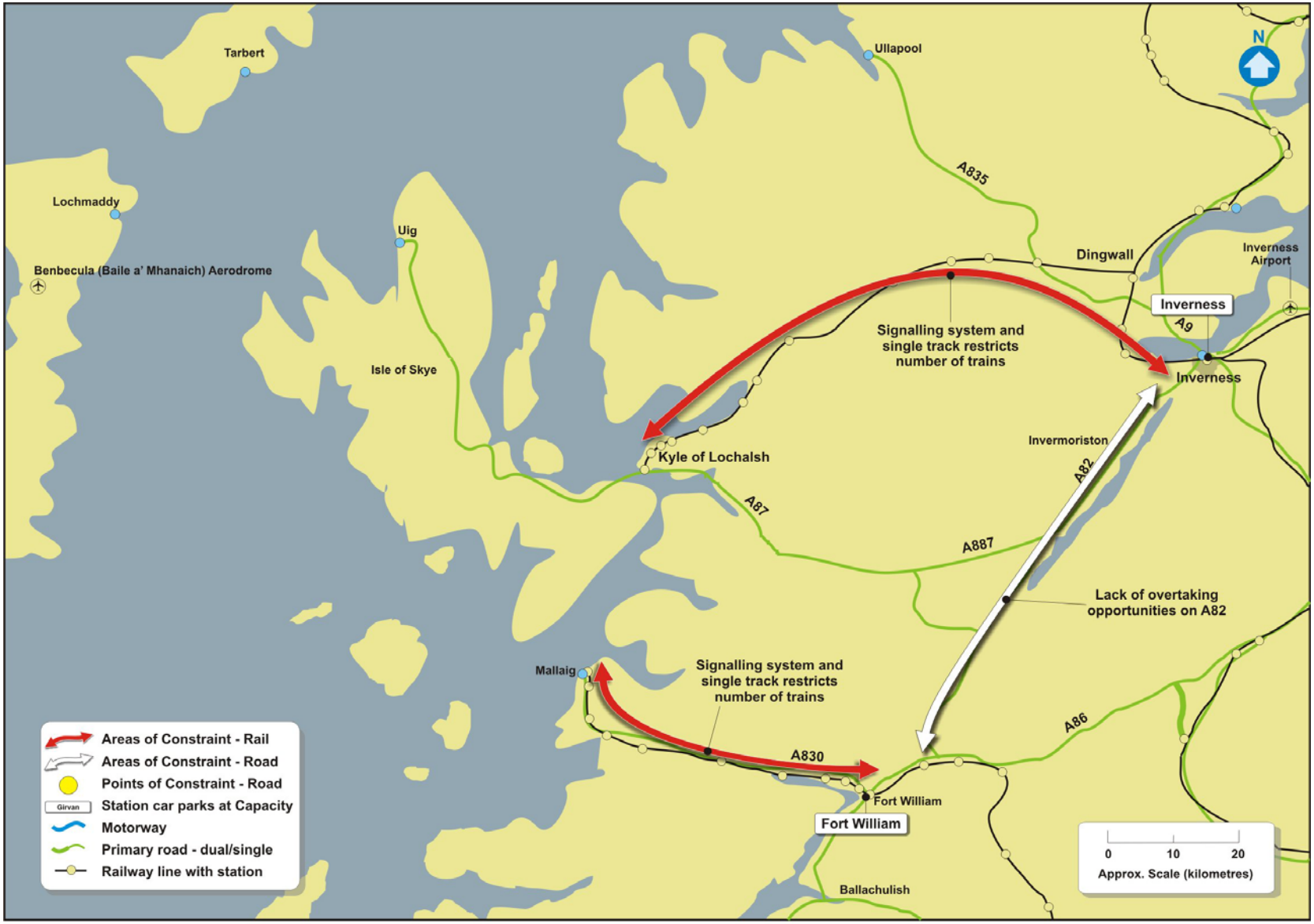

Figure 7.3.6: Areas of Constraint on the Network, Corridor 3 - Inverness to Fort William and the Western Isles

7.3.5 Summary and Conclusions

Overall, how well does the transport network perform?

In general, the road network operates effectively and reliably within its design capacity over most of the route for most of the day, with little variability in average journey times. However, the single carriageway road, and the lack of overtaking opportunities, can lead to localised delays with HGV traffic and, in summer, tourist traffic causing bunching that may increase journey times. Road geometry within the corridor can also exacerbate this issue.

The majority of the demand is towards the north eastern end of the corridor, with a significant proportion of trips being to and through Inverness, particularly to Corridor 4 (to Aberdeen). The public transport share of these trips is very low.

Travel times by rail between Inverness and Kyle of Lochalsh are not competitive with car, the services are infrequent and the departure and arrival times may not be attractive. Rail's competitiveness is hindered by the single track formation and the signalling system that restricts the speeds and frequency of trains.

Bus services provide good coverage in the corridor, but the frequency is poor. However, nearly half of all trips start and finish within the corridor and this is where the public transport share is highest. There are safety issues in the corridor with accident rates, and particularly severe accidents, greater than the national averages.

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

Small increases in population and employment, and a growth in housing supply, will tend to increase the amount of travel. While the increased traffic flows forecast will still be within the design capacity of the roads, lack of overtaking opportunities on the single carriageway roads will make localised delays more likely and thus journey times more unreliable.

There is capacity within the public transport services to increase its share by accommodating some of this growth. Most of this may need to be accommodated by bus.

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

Traffic growth will tend to increase the likelihood of bunching, causing longer and less reliable journey times, because there are fewer overtaking opportunities on the single carriageway roads. Buses will suffer from the same travel time impediments.

The issue of the proportion of serious accidents being higher than the national average means that safety will continue to be a key driver for performance.

Promoting both social inclusion and economic growth through tourism are key drivers. Without development, the rail routes will fail to attract new customers and costs will remain high.

What are the key problems associated with delivering the KSOs?

On the road, the lack of passing opportunities due to the road alignment will be exacerbated by the increased traffic flows.

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

The attractiveness of rail is constrained by the single track formation and signalling system, which limits the end to end speed and the frequency of services. Without improving the competitiveness of rail, the majority of the increased travel demand will be by road. However, the demand for rail is still likely to remain low on the corridor. The level of emissions will be impacted by increased traffic volumes, even if public transport holds its current share.

The rural nature of much of the corridor will continue to be a significant challenge to improving accessibility. 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.