HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project

6.3.2 ES Volume C - Project-wide effects C2 - Traffic and transport

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2 Traffic and transport

2.1 Introduction

2.1.1 This chapter describes the assessment of potential project-wide traffic and transport effects on drivers, public transport users, pedestrians and cyclists and equestrians who travel on the existing transport network during the following stages of the Wylfa Newydd Project:

- the opening year of the A5025 Off-line Highway Improvements (2020);
- the peak construction (2023); and
- the peak operation (2033).

2.1.2 See chapter B3 traffic and transport (Application Reference Number: 6.2.3) for further information.

2.1.3 Please refer to chapter B3 (Application Reference Number: 6.2.3) for the technical basis for the assessment including a summary of legislation, policy and guidance, key points arising in consultation that have guided the traffic and transport assessment, and assessment methodologies and criteria.

2.1.4 This chapter focuses purely on the environmental aspects of traffic and transport i.e. traffic flows, journey times, accidents, and driver stress. Transport network performance (e.g. junction performance, public transport capacity) is considered in the appendix C2-4 (DCO Transport Assessment) (Application Reference Number: 6.3.14).

2.1.5 All analysis detailed within this chapter is based on the assessment of the transport strategy for the Wylfa Newydd Project outlined in appendix C2-4 (Application Reference Number: 6.3.14) using the outputs from the Strategic Traffic Model (see appendix C2-4, Application Reference Number: 6.3.21) that was produced to support the application for the Wylfa Newydd Project. The modelling methodology is detailed in appendix C2-4 (Application Reference Number: 6.3.21).

2.1.6 The assessment has considered the effects on the following sub-topics.

- traffic flows – how changes in traffic flows may increase or decrease within the study area.
- journey times – how changes in vehicle numbers may increase or decrease the time it takes people to make journeys.
- accidents and safety – how changes in vehicle numbers may increase or decrease the risk of accidents occurring on the road network, and whether the safety of motorised and non-motorised users (NMUs) could be affected.
- driver stress – how changes in vehicle numbers may increase or decrease the levels of stress experienced by vehicle drivers making journeys on the road network.

2.1.7 The chapter also outlines proposed measures to mitigate potential significant effects. The chapter then provides a summary of the effects expected to remain assuming mitigation measures would be applied.

2.2 Study area

2.2.1 This section describes the study area relevant to the project-wide traffic and transport assessment.

2.2.2 The study area was defined based on an understanding of the likely changes in traffic volumes on the existing road network and to focus the assessment on those routes and locations likely to experience significant effects, as explained in chapter B3 (Application Reference Number: 6.2.3). For assessment purposes, the study area was subdivided into 48 sections as shown in figure B3-1 (Application Reference Number: 6.2.22).

2.3 Baseline environment

2.3.1 This section provides a summary of the baseline conditions for traffic and transport within the study area described in section 2.2.

Road network

2.3.2 The road network on Anglesey outlined in figure B3-1 (Application Reference Number: 6.2.22), can be characterised as being predominantly rural, with a number of higher-standard roads. The A55 is a major east-west route that is dual carriageway for its entire length on Anglesey. The A55 crosses the Menai Strait between Anglesey and the mainland at Britannia Bridge, which is the only section of the A55 that is single carriageway. It connects Holyhead in the west of Anglesey with Bangor on mainland Wales in the east and provides a link to the rest of north Wales and England. Holyhead is the largest settlement on the island and is the major UK terminus for ferry travel between Great Britain and Dublin.

2.3.3 Junctions 2 to 8A of the A55 on Anglesey are grade-separated junctions while Junction 1 at Holyhead is a roundabout. The A5 runs parallel to the A55 for much of its route across Anglesey. The A5 is a high quality, single carriageway road and is generally subject to the national speed limit. Menai Suspension Bridge forms part of the A5's route between the town of Menai Bridge on Anglesey and Bangor on the mainland.

2.3.4 Other key roads on Anglesey are the A5025 and the A4080. The A4080 provides a southern route across the island, connecting villages south of the A55 between Junctions 5 and 8. It is generally subject to the national speed limit.

2.3.5 The A5025 provides a northern loop of the island, running between Junction 3 at Valley and Junction 8 at Llanfairpwllgwyngyll. The A5025 would be a key route for traffic associated with the Power Station, Associated Development and Off-Site Power Station Facilities, and is generally subject to the national speed limit.

2.3.6 The B5111 is a north-south route passing through the centre of Anglesey, running from Llangefni in the south to Amlwch in the north via Llannerch-y-medd and Rhos-y-bol. The B5112 connects the B5111 in the centre of Anglesey with the A5 just north of A55 Junction 5. The B5111 and B5112 provide alternative routes to the A5025. Minor roads also connect a number of settlements with the B5111 and B5112.

2.3.7 The B5109 provides an east-west route between Llanynghenedl and Llangefni. The B5109 connects with the B5420 at Llangefni, which runs to the A5025 at Menai Bridge. The B5109 and B5420 provide an alternative route to the A55 and A5 and connect with the B5111 and B5112 routes passing through the centre of Anglesey.

2.3.8 The majority of the remaining highway network on Anglesey consists of classified and unclassified rural roads. Speed limits assumed for the basis of the assessment in this chapter are included in appendix C2-2 (Journey Time Calculations) (Application Reference Number: 6.3.12).

Baseline traffic flows

2.3.9 Table C2-1 summarises the 2016 surveyed daily traffic flows for each section within the study area, peak hour flows are presented in appendix C2-3 (Traffic Flows) (Application Reference Number: 6.3.13). The A5025 Off-line sections (sections 10, 13, 16 and 19) and the Park and Ride section (section 48) do not have a 2016 baseline traffic flow as they would only exist in the 'with Wylfa Newydd Project' scenarios. The section number in table C2-1 corresponds with those shown in figure B3-1 (Application Reference Number: 6.2.22).

Table C2-1 Summary of baseline traffic flows

Estimated Annual Average Daily Traffic (AADT) flows – two-way flows		
Section		**2016 baseline**
1	A55 J12 to Britannia Bridge	40,471
2	Britannia Bridge only	34,442
3	Britannia Bridge to A55 J6	24,376
4	A55 J6 to A55 J4	16,716
5	A55 J4 to A55 J3	16,755
6	A55 J3 to A55 J2	12,936
7	A55 J2 to A55 J1	10,022
8	A5 (Parc Cybi) to Valley Crossroads	11,077
9	A5025 Section 1a On-line	7,257
10	A5025 Section 1b Off-line	-
11	A5025 Section 2 On-line	5,611
12	A5025 Section 3a On-line	5,371
13	A5025 Section 3b Off-line	-

Estimated Annual Average Daily Traffic (AADT) flows – two-way flows		
Section		2016 baseline
14	A5025 Section 4 On-line	4,030
15	A5025 Section 5a On-line	4,030
16	A5015 Section 5b Off-line	-
17	A5025 Section 6 On-line	3,554
18	A5025 Section 7a On-line	2,956
19	A5025 Section 7b Off-line	-
20	A5025 Section 8 On-line	2,952
21	A5025 Tregele	3,184
22	A5025 Tregele to Amlwch	4,791
23	A5025 Amlwch to Benllech	7,462
24	A5025 Benllech to A55 J8	15,510
25	A5 Rhostrehwfa to A5 Menai Bridge	12,022
26	Menai Bridge to A545 Beaumaris Road	6,906
27	Menai Bridge only	13,633
28	A55 J9 to A5 Holyhead Road	19,422
29	A55 J9 to A487 Y Felinheli bypass	18,767
30	A4080 Ffordd Brynsiencyn to A5 Holyhead Road	4,790
31	B5420 Llangefni to A5 Ffordd Caergybi	11,888
32	A55 J6 to A5114 Llangefni	13,739
33	B5109 to Pentraeth	2,294
34	B5110 Llangefni to A5025 Marian-glas	1,823
35	B5111 Llangefni to Llannerch-y-medd	4,150
36	Llannerch-y-medd to Benllech	2,258
37	B5111 Llannerch-y-medd to Amlwch	3,807
38	B5111 Rhos-y-bol to Cemaes	2,174
39	Rhos-y-bol to A5025 Burwen	994
40	B5112 Llannerch-y-medd to A55 J5	3,486
41	A5025 Llanfaethlu to B5112	291
42	B5109 Llanynghenedl to B5112	2,362
43	A55 J4 to Bodedern	2,393
44	Llanfechell to A5025 Nanner Road	124

Estimated Annual Average Daily Traffic (AADT) flows – two-way flows		
Section		2016 baseline
45	Ffordd-y-Felin to Tregele via Cromlech Terrace	805
46	A55 J4 to A55 J3 (via A5)	2,121
47	A5 at Dalar Hir	1,421
48	Park and Ride entrance	-

Vehicle journey times

2.3.10 A review of 2016 baseline journey times has observed no significant delays or queuing at junctions in the study area, with the exception of approaches to the A55 Britannia Bridge in peak periods.

2.3.11 A55 Britannia Bridge currently experiences congestion during peak periods, although Department for Transport traffic counts indicate that the bridge has previously accommodated one-way traffic flows of approximately 2,000 vehicles per hour [RD1], somewhat in excess of the current baseline. There is greater opportunity for the bridge to accommodate increased traffic flows outside peak periods.

2.3.12 Table C2-2 provides the 2016 baseline journey times for the study area in figure B3-1 (Application Reference Number: 6.2.22) in minutes and seconds (mm:ss). These journey times have been calculated using the method presented in chapter B3 (Application Reference Number: 6.2.3).

Table C2-2 Baseline 2016 journey times (mm:ss)

Section		Direction	2016 baseline journey times	
			AM peak	PM peak
1	A55 J12 to Britannia Bridge	Eastbound	05:42	05:42
		Westbound	05:42	05:42
2	Britannia Bridge (taken from the VISSIM model)	Eastbound	02:56	01:24
		Westbound	01:17	02:23
3	Britannia Bridge to A55 J6	Eastbound	07:15	07:15
		Westbound	07:11	07:11
4	A55 J6 to A55 J4	Eastbound	09:16	09:16
		Westbound	09:16	09:16
5	A55 J4 to A55 J3	Eastbound	01:38	01:38
		Westbound	01:38	01:38
6	A55 J3 to A55 J2	Eastbound	03:30	03:30
		Westbound	03:30	03:30
7	A55 J2 to A55 J1	Eastbound	01:26	01:26

Section		Direction	2016 baseline journey times	
			AM peak	PM peak
		Westbound	01:37	01:37
8	A5 (Parc Cybi) to Valley Crossroads	Eastbound	05:13	05:15
		Westbound	05:05	05:07
9	A5025 Section 1a On-line	Northbound	01:33	01:33
		Southbound	02:00	02:16
10	A5025 Section 1b Off-line	Northbound	-	-
		Southbound	-	-
11	A5025 Section 2 On-line	Northbound	02:15	02:15
		Southbound	02:15	02:15
12	A5025 Section 3a On-line	Northbound	02:12	02:12
		Southbound	02:12	02:12
13	A5025 Section 3b Off-line	Northbound	-	-
		Southbound	-	-
14	A5025 Section 4 On-line	Northbound	02:31	02:31
		Southbound	02:31	02:31
15	A5025 Section 5a On-line	Northbound	01:32	01:32
		Southbound	01:28	01:28
16	A5025 Section 5b Off-line	Northbound	-	-
		Southbound	-	-
17	A5025 Section 6 On-line	Northbound	02:59	02:59
		Southbound	02:59	02:59
18	A5025 Section 7a On-line	Northbound	00:56	00:56
		Southbound	00:56	00:56
19	A5025 Section 7b Off-line	Northbound	-	-
		Southbound	-	-
20	A5025 Section 8 On-line	Northbound	01:49	01:49
		Southbound	01:49	01:49
21	A5025 Tregele	Northbound	00:51	00:51
		Southbound	00:51	00:51
22	A5025 Tregele to Amlwch	Eastbound	10:28	10:28
		Westbound	10:36	10:32
23	A5025 Amlwch to	Northbound	15:14	15:14

Section		Direction	2016 baseline journey times	
			AM peak	PM peak
	Benllech	Southbound	15:19	15:20
24	A5025 Benllech to A55 J8	Northbound	13:08	13:14
		Southbound	13:10	13:13
25	A5 Rhostrehwfa to A5 Menai Bridge	Eastbound	12:55	12:49
		Westbound	12:53	12:54
26	Menai Bridge to A545 Beaumaris Road	Eastbound	02:06	02:06
		Westbound	02:06	02:06
27	Menai Bridge only	Northbound	00:41	00:41
		Southbound	00:45	00:44
28	A55 J9 to A5 Holyhead Road	Eastbound	01:31	01:35
		Westbound	01:35	01:34
29	A55 J9 to A487 Y Felinheli bypass	Northbound	01:13	01:12
		Southbound	01:05	01:05
30	A4080 Ffordd Brynsiencyn to A5 Holyhead Road	Northbound	01:00	01:00
		Southbound	01:00	01:00
31	B5420 Llangefni to A5 Ffordd Caergybi	Eastbound	10:41	10:38
		Westbound	10:33	10:39
32	A55 J6 to A5114 Llangefni	Northbound	02:37	03:22
		Southbound	02:13	02:13
33	B5109 to Pentraeth	Eastbound	06:15	06:15
		Westbound	06:15	06:15
34	B5110 Llangefni to A5025 Marian-glas	Northbound	09:46	09:46
		Southbound	09:46	09:46
35	B5111 Llangefni to Llannerch-y-medd	Northbound	10:53	10:54
		Southbound	10:50	10:50
36	Llannerch-y-medd to Benllech	Northbound	10:11	10:16
		Southbound	09:56	09:56
37	B5111 Llannerch-y-medd to Amlwch	Northbound	08:30	08:30
		Southbound	08:37	08:36
38	B5111 Rhos-y-bol to Cemaes	Northbound	08:50	08:50
		Southbound	08:50	08:50

Section		Direction	2016 baseline journey times	
			AM peak	PM peak
39	Rhos-y-bol to A5025 Burwen	Northbound	06:54	06:54
		Southbound	06:54	06:54
40	B5112 Llannerch-y-medd to A55 J5	Northbound	09:05	09:00
		Southbound	08:54	08:55
41	A5025 Llanfaethlu to B5112	Eastbound	08:29	08:29
		Westbound	08:29	08:29
42	B5109 Llanynghenedl to B5112	Eastbound	06:01	06:01
		Westbound	06:01	06:01
43	A55 J4 to Bodedern	Northbound	02:17	02:17
		Southbound	02:20	02:20
44	Llanfechell to A5025 Nanner Road	Eastbound	01:42	01:42
		Westbound	01:42	01:42
45	Ffordd-y-Felin to Tregele via Cromlech Terrace	Eastbound	01:20	01:20
		Westbound	01:20	01:20
46	A55 J4 to A55 J3 (via A5)	Eastbound	02:22	02:22
		Westbound	02:23	02:23
47	A5 at Dalar Hir	Eastbound	00:38	00:38
		Westbound	00:41	00:41
48	Park and Ride entrance	Northbound	-	-
		Southbound	-	-

2.3.13 A comparison of change in journey times in future years is provided later in this chapter. The peak year of construction was assessed because it represents the year in which there is greatest traffic generation from the Wylfa Newydd Project. For the section of the A55 on the Britannia Bridge, journey times were compared between the A55 at Ffordd Penmynydd overbridge and A55 Junction 9 heading eastbound and between A55 Junction 10 and A55 Junction 8 heading westbound, with measurements taken at the centre of the junctions.

Accidents and safety

2.3.14 The road network was assessed for personal injury accidents in the 2016 baseline to consider total accidents for motorised users, public transport users and NMUs. A summary of total motorised and public transport user accidents for the period 1 January 2011 to 31 December 2015 is presented in table C2-3. A review of traffic growth between 2015 and 2016 showed that the increase in traffic was negligible (see appendix C2-4, Application

Reference Number: 6.3.21). Therefore, the accident analysis presented below were used as a 2016 baseline.

2.3.15 Over the five-year period, 338 personal injury accidents were recorded: 78 in 2011; 69 in 2012; 63 in 2013; 62 in 2014; and 66 in 2015. Eight were recorded as 'fatal', 73 as 'serious' and 257 were recorded as 'slight'. The accidents are illustrated in figure C2-1 (Application Reference Number: 6.3.32).

2.3.16 Table C2-3 shows that 2% of accidents were recorded as fatal, 22% as serious and 76% as slight. The national averages for fatal, serious and slight accidents are 1%, 14% and 85% respectively [RD2]. The percentage of killed and seriously injured is therefore higher than the national average.

Table C2-3 Summary of personal injury accidents (2011 to 2015)

Year	Fatal	Serious	Slight	Total	% of five-year total
2011	4	16	58	**78**	23%
2012	1	17	51	**69**	20%
2013	1	6	56	**63**	19%
2014	0	19	43	**62**	18%
2015	2	15	49	**66**	20%
Total	**8**	**73**	**257**	**338**	100%
Average	1.6	14.6	51.4	67.6	
Percentage	2%	22%	76%	100%	
Accident definition	Fatal injury: includes only those cases where death occurs in less than 30 days as a result of the accident. Fatal does not include death from natural causes or suicide. Serious injury: examples are fracture, internal injury, severe cuts, crushing, burns (excluding friction burns), concussion, severe general shock requiring hospital treatment, detention in hospital as an in-patient (either immediately or later) and injuries to casualties who die 30 or more days after the accident from injuries sustained in that accident. Slight injury: examples are sprains that do not necessarily require medical treatment, neck whiplash injury, bruises, slight cuts and slight shock requiring roadside attention. Source: STATS20 Instructions for the completion of Road Accident Reports from non-crash sources [RD3].				

2.3.17 Table C2-4 shows that 52 of the 338 accidents involved NMUs over the five-year period to 2015. Of the 52 NMUs, 26 were pedestrians and 26 were cyclists. No equestrians were involved in any of the recorded accidents. Four accidents involving NMUs were recorded close to crossings for NMUs on sections 7 (A55 J2 to A55 J1), 8 (A5 Parc Cybi to Valley Crossroads), 24 (A5025 Benllech to A55 J8) and 25 (A5 Rhostrehwfa to A5 Menai Bridge).

Table C2-4 Summary of NMU casualties in 2016 baseline

NMU	2011	2012	2013	2014	2015	Total	Percentage	Crossing
Pedestrians	7	7	5	3	4	**26**	50%	0
Cyclists	11	2	4	4	5	**26**	50%	0
Total	**18**	**9**	**9**	**7**	**9**	**52**	**100%**	**0**
Average	9	4.5	4.5	3.5	4.5	**26**		
Percentage	35%	17%	17%	14%	17%	**100%**		

Driver stress

2.3.18 Analysis of traffic recorded in the 2016 baseline scenario was undertaken to establish existing levels of driver stress on routes within the study area, based on the methodology outlined in chapter B3 (Application Reference Number: 6.2.3).

2.3.19 A review of the 2016 baseline conditions suggests that drivers currently using the A5025 do not experience lengthy delays or queuing at junctions. Notwithstanding this, sections of the A5025 through the villages and on their approaches currently have speed restrictions in place, with derestricted sections between settlements. Some parts of the A5025 offer long, straight sections of derestricted carriageway, connected by bends that do not meet current design standards for new roads. Such changes in speed and vehicular flow are considered to be a source of frustration to drivers, affecting their ability to drive at a speed consistent with their expectations and the standard of the road.

2.3.20 On the A55, driver stress is principally focused on users in the vicinity of, and crossing, the A55 Britannia Bridge. Delays and queuing are present during peak periods as a result of congestion caused by the junction merges at A55 Junction 8A and A55 Junction 9 either side of the bridge. Elsewhere, the A55 is a high quality dual carriageway with grade-separated junctions.

2.3.21 On local roads, which include ‘B’ roads, ‘C’ roads and ‘U’ roads, drivers currently using these routes do not experience lengthy delays or queuing at junctions. However, large sections of these roads are substandard with inadequate signing, poor visibility and narrow lanes, which contribute to low vehicle speeds and increases in drivers’ fear of accidents.

2.3.22 A worst case assumption was adopted to reflect users considered to be the most vulnerable or sensitive to changes in stress levels as described in chapter B3 (Application Reference Number: 6.2.3). Accordingly, all user types were grouped and ascribed a sensitivity rating of high.

2.3.23 Table C2-5 shows the existing conditions for drivers navigating routes within the study area in the 2016 baseline scenario. The table provides the result of the link (a section of road between adjacent junctions) with the highest driver stress rating in any section (a combination of consecutive links), which in the majority of cases is not representative of all links within that section, which represents a worst case scenario.

Table C2-5 Summary of baseline driver stress conditions in the AM and PM peaks

Section		Direction	2016 baseline driver stress	
			AM peak	PM peak
1	A55 J12 to Britannia Bridge	Eastbound	High	High
		Westbound	High	High
2	Britannia Bridge only	Eastbound	High	High
		Westbound	High	High
3	Britannia Bridge to A55 J6	Eastbound	High	Moderate
		Westbound	Moderate	Moderate
4	A55 J6 to A55 J4	Eastbound	Low	Low
		Westbound	Low	Low
5	A55 J4 to A55 J3	Eastbound	Low	Low
		Westbound	Low	Low
6	A55 J3 to A55 J2	Eastbound	Low	Low
		Westbound	Low	Low
7	A55 J2 to A55 J1	Eastbound	Moderate	Moderate
		Westbound	High	High
8	A5 (Parc Cybi) to Valley Crossroads	Eastbound	High	High
		Westbound	High	High
9	A5025 Section 1a On-line	Northbound	High	High
		Southbound	High	High
10	A5025 Section 1b Off-line	Northbound	-	-
		Southbound	-	-
11	A5025 Section 2 On-line	Northbound	Moderate	Moderate
		Southbound	Moderate	Moderate
12	A5025 Section 3a On-line	Northbound	Moderate	Moderate
		Southbound	Moderate	Moderate
13	A5025 Section 3b Off-line	Northbound	-	-
		Southbound	-	-
14	A5025 Section 4 On-line	Northbound	Moderate	Moderate
		Southbound	Moderate	Moderate
15	A5025 Section 5a On-line	Northbound	High	High
		Southbound	High	High

Section		Direction	2016 baseline driver stress	
			AM peak	PM peak
16	A5025 Section 5b Off-line	Northbound	-	-
		Southbound	-	-
17	A5025 Section 6 On-line	Northbound	High	High
		Southbound	High	High
18	A5025 Section 7a On-line	Northbound	Low	Low
		Southbound	Low	Low
19	A5025 Section 7b Off-line	Northbound	-	-
		Southbound	-	-
20	A5025 Section 8 On-line	Northbound	Low	Low
		Southbound	Low	Low
21	A5025 Tregele	Northbound	Moderate	Moderate
		Southbound	Moderate	Moderate
22	A5025 Tregele to Amlwch	Eastbound	High	High
		Westbound	High	High
23	A5025 Amlwch to Benllech	Northbound	High	High
		Southbound	High	High
24	A5025 Benllech to A55 J8	Northbound	High	High
		Southbound	High	High
25	A5 Rhostrehwfa to A5 Menai Bridge	Eastbound	High	High
		Westbound	High	High
26	Menai Bridge to A545 Beaumaris Road	Eastbound	Moderate	Moderate
		Westbound	Moderate	Moderate
27	Menai Bridge only	Northbound	Moderate	High
		Southbound	High	Moderate
28	A55 J9 to A5 Holyhead Road	Eastbound	High	High
		Westbound	High	High
29	A55 J9 to A487 Y Felinheli bypass	Northbound	High	Moderate
		Southbound	Low	Low
30	A4080 Ffordd Brynsiencyn to A5 Holyhead Road	Northbound	High	High
		Southbound	High	High
31	B5420 Llangefni to A5 Ffordd	Eastbound	High	High

Section		Direction	2016 baseline driver stress	
			AM peak	PM peak
	Caergybi	Westbound	High	High
32	A55 J6 to A5114 Llangefni	Northbound	High	High
		Southbound	High	High
33	B5109 to Pentraeth	Eastbound	Moderate	Moderate
		Westbound	Moderate	Moderate
34	B5110 Llangefni to A5025 Marian-glas	Northbound	High	High
		Southbound	High	High
35	B5111 Llangefni to Llannerch-y-medd	Northbound	High	High
		Southbound	High	High
36	Llannerch-y-medd to Benllech	Northbound	High	High
		Southbound	High	High
37	B5111 Llannerch-y-medd to Amlwch	Northbound	High	High
		Southbound	High	High
38	B5111 Rhos-y-bol to Cemaes	Northbound	High	High
		Southbound	High	High
39	Rhos-y-bol to A5025 Burwen	Northbound	High	High
		Southbound	High	High
40	B5112 Llannerch-y-medd to A55 J5	Northbound	High	High
		Southbound	High	High
41	A5025 Llanfaethlu to B5112	Eastbound	Low	Low
		Westbound	Low	Low
42	B5109 Llanynghenedl to B5112	Eastbound	High	High
		Westbound	High	High
43	A55 J4 to Bodedern	Northbound	Moderate	Moderate
		Southbound	High	High
44	Llanfechell to A5025 Nanner Road	Eastbound	Low	Low
		Westbound	Low	Low
45	Ffordd-y-Felin to Tregele via Cromlech Terrace	Eastbound	High	High
		Westbound	High	High
46	A55 J3 to A55 J4 (via A5)	Eastbound	High	High
		Westbound	High	High

Section		Direction	2016 baseline driver stress	
			AM peak	PM peak
47	A5 at Dalar Hir	Eastbound	Low	Low
		Westbound	Low	Low
48	Park and Ride entrance	Northbound	-	-
		Southbound	-	-

Bus travel

2.3.24 A network of bus routes provides access to both local and Anglesey-wide facilities and services. The level of bus services across Anglesey is typical of rural areas, with frequencies of less than one bus per hour that are heavily subsidised by the Isle of Anglesey County Council. Figure C2-2 (Application Reference Number: 6.3.32) shows the network of bus routes, indicating that buses currently use the majority of 'A' roads, excluding the A55, and the B5111 and B5112 to deliver current bus services.

Power Station Site

2.3.25 The closest bus stops to the Power Station Site are approximately 1km to the south, in Tregele, with further stops provided approximately 2km to the north in Cemaes. There are currently a limited number of bus services from these stops with a two-hourly service to Holyhead and Amlwch (Monday to Saturday) and a circular service that includes Amlwch and Cemaes three times a day (Monday to Saturday). There is also an additional service from Cemaes to Bangor four times a day (Monday to Saturday).

2.3.26 Bus journey times between Amlwch and Tregele are approximately 15 minutes, from Holyhead to Tregele approximately 35 minutes, and Bangor to Cemaes approximately one hour and 10 minutes. A comprehensive network of school bus services is also available. Public bus service provision to the Wylfa Newydd Development Area is currently poor due to the low volume of bus services per day.

Park and Ride

2.3.27 The closest bus stops to the Park and Ride are on Minffordd Road, approximately 1km to the south in Llanfihangel-yn-Nhywyn (see Figure C2-2, Application Reference Number: 6.3.32). Bus stops are also located approximately 1.5km east and west of the Park and Ride on the A5. Two bus routes currently service the bus stops on Minffordd Road.

Alternative Emergency Control Centre/Environmental Survey Laboratory and Mobile Emergency Equipment Garage

2.3.28 The closest bus stops to the Alternative Emergency Control Centre/Environmental Survey Laboratory and Mobile Emergency Equipment Garage are located on the A5025, approximately 260m to the south. These stops serve the village of Llanfaethlu. There are currently a limited number

of bus services from these stops with six services a day to Amlwch and eight services a day to Holyhead (Monday to Saturday). Route 562 is a term-time only route between Llanfachraeth and Amlwch. However, the service is publicly listed on the Arriva website and therefore it is assumed that the service can be used by members of the public.

Logistics Centre

2.3.29 The closest bus stop to the Logistics Centre is approximately 1km away.

Walking and cycling

2.3.30 A review of walking and cycling facilities is provided below. A map of cycle routes is provided in figure C2-3 (Application Reference Number: 6.3.32). A more detailed overview of walking and cycling routes is provided in chapter C3 (public access and recreation effects of traffic) (Application Reference Number: 6.3.3).

2.3.31 The Wylfa Newydd Development Area is located in a relatively remote position, away from significant population centres and with only limited infrastructure for pedestrians.

2.3.32 The *Walking and Cycling Action Plan for Wales* [RD4] highlights that walking is a likely mode of travel for commuting journeys up to one mile (1.6km), which would therefore encompass the settlements of Cemaes and Tregele for construction and operational workers associated with the Wylfa Newydd Project. Cycling is considered an appropriate mode for commuting journeys of up to five miles (8km), which would encompass Cemaes and Amlwch to the east and Llanfechell to the south-east for construction and operational workers associated with the Wylfa Newydd Project.

2.3.33 Along the A5025 there are continuous footways between Tregele to the south and Cemaes to the north. There are no segregated on-road cycle routes in the vicinity of the Power Station Site; however, there is an extensive rural network of roads that link to local population centres which are currently only lightly trafficked. The existing signed cycle network is shown on figure C2-3 (Application Reference Number: 6.3.32). The worker travel strategy outlined in appendix C2-4 (DCO TA Appendix F - Integrated Traffic and Transport Strategy) (Application Reference Number: 6.3.20) provides more detail on workers walking and cycling to the Wylfa Newydd Development Area.

2.3.34 National Cycle Network Route 5 is a long-distance route from Holyhead to Reading. The section between Chester and Holyhead is also known as the North Wales Coastal Route. The roads used on Anglesey by National Cycle Route 5 are mainly rural and indirect; the route is therefore more suitable for leisure cycling than travel to work.

2.3.35 National Cycle Network Route 566, locally known as ‘Lôn Las Copr’ or the ‘Copper Trail’, provides a predominantly on-road route around the northern coast of Anglesey, crossing the A5025 at Llanrhyddlad and Tregele. The Copper Trail also includes a segregated cycle path at Llanrhyddlad.

2.3.36 There is no provision for walking and cycling along the 'B' roads within the study area.

Rail transport

2.3.37 Anglesey benefits from a principal railway route that extends along the north Wales coast, across the A55 Britannia Bridge and on to Holyhead. The key interchanges for rail travel are at Holyhead, Valley and Bangor on the north Wales coast line.

2.3.38 Holyhead is served by hourly services along the north Wales coast line, connecting directly to Chester and Crewe to the east and continuing to Birmingham and Cardiff. In addition, Virgin trains provide five services per weekday to London Euston.

2.3.39 The closest railway station to the Existing Power Station is located at Valley, but this station is currently only a request stop, with reduced-length platforms, and is only served by around half of the services that operate between Bangor and Holyhead.

2.3.40 Bangor railway station is approximately 35km south-east of the Existing Power Station, on the mainland opposite Menai Bridge, and is also located on the north Wales coast line. It provides the same level of service as Holyhead railway station for regional services, giving hourly weekday direct services to Holyhead, Wrexham and Shrewsbury, with opportunities for connections to other direct services. Six services per weekday are provided by Virgin trains to London Euston, which is one additional service per day compared to Holyhead.

Air transport

2.3.41 Anglesey Airport is located close to the A55 at Llanfair-yn-Neubwll and currently offers year-round domestic weekday return flights to Cardiff, which offers direct connecting flights to Western Europe and Mediterranean destinations. For other domestic and international flights, the nearest airport facilities are located at Liverpool John Lennon Airport, Manchester Airport and Birmingham Airport. These airports have good road access to north Wales and Anglesey, and good rail access, other than Liverpool John Lennon Airport, which requires interchange between trains.

Shipping and navigation

2.3.42 The nearest commercial port for ferry passengers and for the delivery of commercial freight is the Port of Holyhead. The port is located 25km south of the Power Station Site on the northern side of Holy Island. The port is operated by Stena Line Ports Ltd and provides passenger services to Dublin in Ireland. There are four ferries operated by Stena Line and six operated by Irish Ferries arriving at the port each day. These provide for commercial freight, foot passengers and vehicle passengers. Additionally, the Port of Holyhead has the capacity to provide facilities for commercial fishing vessels and cruise ships. The port forms the principal surface transport link to Ireland from north Wales and the north-west of England. The port has commercial and recreational fishing activity, plus a notable recreational

sailing community. The Port of Holyhead also has a marina facility providing permanent and visitor moorings.

2.3.43 Chapter B15 (Shipping and navigation) (Application Reference Number: 6.2.15) outlines the methodology that was used to determine whether any significant effects on shipping and navigation would occur as a result of the Wylfa Newydd Project.

2.4 Design basis and activities

2.4.1 This section sets out the design basis for this assessment of effects and where assumptions have been made to enable the assessment to be carried out given the on-going evolution of the design. This section also identifies the embedded and good practice mitigation that would be adopted to reduce adverse effects as inherent design features or by implementation of standard industry best working practice.

2.4.2 As described in chapter B1 (introduction to the assessment process) (Application Reference Number: 6.2.1), the application for development consent is based on a parameter approach. This chapter has assessed a worst case scenario from a traffic and transport perspective taking into consideration the flexibility afforded by the parameters.

2.4.3 The traffic modelling undertaken was based on the assumptions set out in Appendix C2-4 (Application Reference Number 6.2.14), which assessed traffic conditions during a Reference Case (without Project) model run and a Wylfa Newydd Project (with Project) model run for 2020 (both with and without bypasses), 2023 and 2033. These dates were based on an assumed programme for DCO examination, and although there is now slippage in this programme, it does not affect the conclusions of the assessment presented.

2.4.4 The terms ‘Reference Case model run’ and ‘Wylfa Newydd Project model run’ are referred to as ‘Reference Case scenario’ and ‘Wylfa Newydd Project scenario’ for the rest of this chapter.

Opening year of the A5025 Off-line Highway Improvements

2.4.5 This assesses traffic conditions during the opening year of the A5025 Off-line Highway Improvements.

Basis of assessment and assumptions

2.4.6 The following infrastructure is assumed to be under construction in 2020:

- the Power Station;
- Marine Off-Loading Facility (MOLF);
- Associated Development; and
- Off-Site Power Station Facilities.

2.4.7 The assessment has considered the potential effects that the Wylfa Newydd Project would have on receptors with and without the A5025 Off-line Highway Improvements in place, as the completion date would be mid to late 2020. The assessment has assumed that the Enabling Works are

completed before 2020. These were compared to the 2020 Reference Case to determine whether there would be any significant effects on receptors within the study area.

2.4.8 During the Wylfa Newydd Project 'without bypasses' scenario, the assessment assumed that the A5025 Off-line Highway Improvements were not operational while construction activities at the Wylfa Newydd Development Area commence. Therefore, traffic associated with the Wylfa Newydd Project was assumed to use the existing A5025 route between Valley and Tregele to access the site compounds at each A5025 Off-line Highway Improvements section and the Wylfa Newydd Development Area. The purpose of this approach is to determine the effects of the Project before and after opening of the A5025 Off-line Highway Improvements.

2.4.9 During the Wylfa Newydd Project 'with bypasses' scenario, the A5025 Off-line Highway Improvements were expected to be operational and would bypass the following villages:

- Valley;
- Llanfachraeth;
- Llanfaethlu; and
- Cefn Coch.

2.4.10 During the 2020 Wylfa Newydd Project 'with bypasses' scenario, a large proportion of traffic was assumed to use the A5025 Off-line Highway Improvements once operational, rather than continue to use the existing A5025 through the villages identified above. This is because the road would be constructed to modern design standards, providing a high-quality road where drivers can travel at speeds that align with their expectations.

2.4.11 For design basis, the year of assessment is 2020 for both Wylfa Newydd Project scenarios, which would represent the opening year of the A5025 Off-line Highway Improvements.

Embedded mitigation

2.4.12 Embedded mitigation measures identified to reduce potential traffic and transport effects during the opening year of the A5025 Off-line Highway Improvements are described below.

- Highway improvements along the A5025 between Valley and the Wylfa Newydd Development Area would result in the bypassing of the communities of Valley, Llanfachraeth and Llanfaehtlu, realignment of the highway through Cefn Coch, and an increase in the highway width along the sections of the A5025 between these villages (see Phasing Strategy, Application Reference Number: 8.29). This is not included in the without bypasses assessment.
- The provision of a Logistics Centre at Parc Cybi would mitigate the potential traffic-related effects of construction of the Power Station and control the volume of HGVs and Abnormal Indivisible Loads (AILs) travelling along the A5025 as road based freight to/from the Wylfa

Newydd Development Area (see Phasing Strategy, Application Reference Number: 8.29).

- The Site Campus for a proportion of the construction workforce (for up to 4,000 construction workers) would reduce daily traffic commuting to and from the Wylfa Newydd Development Area, including reducing the need for off-site vehicle movements at shift-changes that would otherwise occur (see Phasing Strategy, Application Reference Number: 8.29). In this assessment scenario, the full capacity of the Site Campus would not be available.
- The Park and Ride would mitigate the potential traffic-related effects of construction of the Power Station by reducing the number of private vehicle movements during construction (see Phasing Strategy, Application Reference Number: 8.29). In this assessment scenario, the full capacity of the Park and Ride would not be available.
- Shuttle buses would be provided between the Park and Ride and construction sites at the WNDA Development, the Off-site Power Station Facilities and Logistics Centre, A5025 Off-line Highway Improvements to reduce the number of private vehicle movements to and from the Wylfa Newydd Development Area (see the Wylfa Newydd Code of Construction Practice (CoCP), Application Reference Number: 8.6).
- The provision of a new bus stop on the A5 at the Park and Ride to improve access to and from local towns and villages for construction workers (see volume 3 of the Design and Access Statement - Associated Developments and Off-Site Power Station Facilities, Application Reference Number: 8.2.3).
- There would be provision of up to 1,900 car parking spaces at the Park and Ride with additional car parking available at the car park at the Wylfa Newydd Development Area (see volume 3 of the Design and Access Statement, Application Reference Number: 8.2.3).

Good practice mitigation

2.4.13 Good practice mitigation for traffic and transport is included in the Wylfa Newydd CoCP (Application Reference Number: 8.6), examples of traffic and transport measures are included below.

- Staggered shift times would be implemented to reduce peak hourly flows associated with private vehicle and bus movements (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- Horizon would provide a dedicated shuttle bus service for construction workers living in Anglesey i.e. in Holyhead, Bangor and Caernarfon, as needed, to reduce the number of private vehicle movements to the Park and Ride or the Wylfa Newydd Development Area (see the Wylfa Newydd CoCP, Application Reference Number: 8.6);

- A delivery window on the A5025 for the construction materials has been identified. The delivery window would run from 07:00 to 19:00, Monday to Friday, with restrictions during school start and end times in advance of the A5025 Off-line Highway Improvements being operational. It is anticipated that deliveries may occasionally be undertaken outside of these times, but they would be limited whenever practicable. (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- Access routes for HGVs, buses and AILs to the individual sites which comprise the Wylfa Newydd Project have been identified. The prioritised routing to be used is along the A55 from the mainland via Britannia Bridge to Valley and then the A5025 north. There would be some exceptions to this, for example, the north and east of Anglesey shuttle buses which would be routed via the A5025 on the eastern side of Anglesey to transport construction workers living in settlements in eastern Anglesey to and from the Wylfa Newydd Development Area and other Wylfa Newydd Project sites (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- Bilingual temporary signage would be erected along the A55/A5025 access routes to the proposed developments. The locations of signage would be drafted and agreed with the appropriate authorities in plain format. The purpose of the signs would be to ensure effective route management (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- To ensure that deliveries are managed according to the capacity of the loading facilities available at the Power Station, a delivery booking system would be implemented (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- Horizon will promote and encourage car-sharing between staff using appropriate internal media, for example, an intranet or app (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- Electric vehicle charging points would be provided in the main staff car park to incentivise the use of sustainable transport, compatible with others across Anglesey and North Wales (see Main Power Station Site sub-CoCP, Application Reference Number: 8.7).
- All personnel using the Park and Ride would be required to register their cars and contact details with Horizon (see the Workforce Management Strategy, Application Reference Number: 8.5; and the Wylfa Newydd Code of Operational Practice (CoOP), Application Reference Number: 8.13).
- Horizon would monitor the effectiveness of its traffic management through a suite of indicators consistent with appropriate good practice and guidance (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).

Peak construction

2.4.14 Site Preparation and Clearance Works would be undertaken prior to the opening of the A5025 Off-line Highway Improvements and the Power Station; however, the volume and composition of traffic on the local transport network would be worse during the peak construction year when the A5025 Off-line Highway Improvements are operational compared with traffic flows associated with the Site Preparation and Clearance Works. Therefore, the assessment has focused on the peak construction year, representing a worst case scenario.

2.4.15 The peak construction scenario represents the year that peak construction traffic would be present on the road network and the peak workforce would be required to construct the Power Station Site.

Basis of assessment and assumptions

2.4.16 The following infrastructure is assumed to be under construction in 2023:

- the Power Station;
- the Site Campus (final construction stages in 2023); and
- Off-Site Power Station Facilities.

2.4.17 For design basis, the year of assessment is 2023, which would be the peak year of construction.

Embedded mitigation

2.4.18 Embedded mitigation measures identified to reduce potential traffic and transport effects during construction of the Wylfa Newydd Project are outlined below.

- Highway improvements along the A5025 between Valley and the Wylfa Newydd Development Area would result in the bypassing of the communities of Valley, Llanfachraeth and Llanfaehtlu, realignment of the highway through Cefn Coch, and an increase in the highway width along the sections of the A5025 between these villages.
- The MOLF is expected to receive at least 60% of the total material required for the Wylfa Newydd Project construction, once operational (although Horizon would seek to increase this amount up to 80% where possible). This would limit the amount of material required to travel by road (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).
- The provision of a Logistics Centre at Parc Cybi would mitigate the potential traffic-related effects of construction of the Power Station and control the volume of HGVs and AILs travelling along the A5025 as road based freight to/from the Wylfa Newydd Development Area.
- The Site Campus has been provided to reduce daily traffic commuting to and from the Wylfa Newydd Development Area for a proportion of the construction workforce (for up to 4,000 construction workers), including

reducing the need for off-site vehicle movements at shift-changes that would otherwise occur.

- The Park and Ride would mitigate the potential traffic-related effects of construction of the Power Station by reducing the number of private vehicle movements during construction.
- Shuttle buses would be provided between the Park and Ride and construction sites at the WNDA Development, the Off-site Power Station Facilities and Logistics Centre, A5025 Off-line Highway Improvements to reduce the number of private vehicle movements to and from the Wylfa Newydd Development Area.
- A new bus stop would be provided on the A5 at the Park and Ride to improve access to and from local towns and villages for construction workers.
- There would be provision of up to 1,900 car parking spaces at the Park and Ride with additional car parking available at the car park at the Wylfa Newydd Development Area.

Good practice mitigation

2.4.19 Good practice mitigation for traffic and transport is included in the Wylfa Newydd CoCP (Application Reference Number: 8.6), examples of traffic and transport measures are included below.

- Staggered shift times would be implemented to reduce peak hourly flows associated with private vehicle and shuttle bus movements.
- Horizon would provide a dedicated shuttle bus service for construction workers living in Anglesey i.e. in Holyhead, Bangor and Caernarfon, as needed, to reduce the number of private vehicle movements to the Park and Ride or the Wylfa Newydd Development Area.
- A delivery window on the A5025 for the construction materials has been identified. The delivery window would run from 07:00 to 19:00, Monday to Friday. It is anticipated that deliveries may occasionally be undertaken outside of these times, but they would be limited whenever practicable.
- Access routes for HGVs, buses and abnormal indivisible loads (AILs) to the individual sites which comprise the Wylfa Newydd Project have been identified. The prioritised routing to be used is along the A55 from the mainland via Britannia Bridge to Valley and then the A5025 north. There would be some exceptions to this, for example, the north and east of Anglesey shuttle buses which would be routed via the A5025 on the eastern side of Anglesey to transport construction workers living in settlements in eastern Anglesey to and from the Wylfa Newydd Development Area and other Wylfa Newydd Project sites.
- Bilingual temporary signage would be erected along the A55/A5025 access routes to the proposed developments. The locations of signage

would be drafted and agreed with the appropriate authorities in plain format. The purpose of the signs would be to ensure effective route management system of HGV movements.

- To ensure that deliveries are managed according to the capacity of the loading facilities available at the site, a delivery booking system would be implemented;
- Horizon would promote and encourage car-sharing between staff using appropriate internal media, for example, an intranet or app.
- Electric vehicle charging points would be provided in the main staff car park to incentivise the use of sustainable transport, compatible with others across Anglesey and North Wales.
- Workers parking at the Wylfa Newydd Development Area or using the Park and Ride Facility would be required to register their cars and contact details with Horizon.
- Horizon would monitor the effectiveness of its traffic management through a suite of indicators consistent with appropriate good practice and guidance (see the Wylfa Newydd CoCP, Application Reference Number: 8.6).

Peak operation

2.4.20 The peak operation scenario represents the year when the Power Station is assumed (based upon the Wylfa Newydd Project programme) to be generating electricity at full capacity.

Basis of assessment and assumptions

2.4.21 The following infrastructure is assumed to be present in the operational phase:

- the Power Station;
- MOLF;
- A5025 Off-line Highway Improvements; and
- Off-Site Power Station Facilities.

2.4.22 Radioactive waste facilities are assumed to be under construction.

2.4.23 The year of assessment is assumed to be 2033, which would be the peak year for Power Station operation with construction of Radioactive Waste facilities. The assessment assumes two Scheduled Outages in that year, which is the maximum that would occur in any single year.

Embedded mitigation

2.4.24 Embedded mitigation measures identified to reduce potential traffic and transport effects during operation of the Wylfa Newydd Project is outlined below.

- Highway improvements along the A5025 between Valley and the Wylfa Newydd Development Area would result in the bypassing of the communities of Valley, Llanfachraeth and Llanfaehtlu, realignment of the highway through Cefn Coch and an increase in the highway width along the sections of the A5025 between these villages.
- As set out in the Wylfa Newydd Code of Operational Practice (CoOP) (Application Reference Number: 8.13), the MOLF employed during the construction stage of the development would be available to be used for the transportation of bulk components required during the operational stage.

Good practice mitigation

2.4.25 The principal good practice mitigation measure relevant to the assessment of traffic and transport effects for the operational stage of the Wylfa Newydd Project would be the Operational Travel Strategy, the principles of which would be captured in the Wylfa Newydd CoOP (Application Reference Number: 8.13).

2.4.26 The Operational Travel Strategy would reduce the environmental effects of operational traffic by encouraging car sharing, advertising bus services, cycle parking and key walking routes.

2.4.27 All measures to encourage sustainable travel would be promoted by a Travel Plan Coordinator (TPC) for the Power Station during the operational phase. (see the Wylfa Newydd CoOP, Application Reference Number: 8.13). The TPC would be suitably trained and qualified for the role.

2.4.28 The TPC is key to the success of the Operational Travel Strategy and would represent the main driving force behind the travel plan. The key responsibilities of the TPC would be as follows:

- lead, actively promote and publicise the Operational Travel Strategy;
- ensure that information on sustainable travel opportunities is provided (and regularly updated);
- ensure the Operational Travel Strategy is easily available (by a variety of platforms);
- ensure the Operational Travel Strategy becomes part of the site management policy and its aims and information are broadcast via other associated literature;
- be a point of contact for information and resolve any transport-related problems;
- develop new initiatives, implement and manage the Operational Travel Strategy and disseminate information to staff at regular intervals;
- develop and launch a staff travel survey to inform future Operational Travel Strategy development; and

- ensure that the objectives and targets under of the Operational Travel Strategy are set up and being met.

2.4.29 Further good practice measures include:

- Horizon will promote and encourage car-sharing between staff using appropriate internal media, for example, an intranet or app (see the Wylfa Newydd CoOP, Application Reference Number: 8.13);
- sustainable travel information outlining the travel options to the site, links to a car share database and other websites displaying key information, would be part of the induction materials provided to staff (see the Wylfa Newydd CoOP, Application Reference Number: 8.13).
- electric vehicle charging points would be provided in the main staff car park to incentivise the use of sustainable transport, compatible with others across Anglesey and North Wales (see volume 2 of the Design and Access Statement - Power Station Site, Application Reference Number: 8.2.2);
- canteen facilities would be provided on-site to reduce the need for trips during working hours (see the Wylfa Newydd CoOP, Application Reference Number: 8.13);
- parking spaces on site for car sharers would be prioritised and a suitable number of car share spaces would be available (see the Wylfa Newydd CoOP, Application Reference Number: 8.13);
- On-site cycle facilities would be provided and maintained for members of staff and visitors including cycle parking, changing facilities with showers and lockers, and areas where wet clothes can be dried (see the Wylfa Newydd CoOP, Application Reference Number: 8.13); and
- Horizon would work with the Isle of Anglesey County Council and local public transport operators to provide adequate local bus services to and from the power station in response to demand at the time (see the Wylfa Newydd CoOP, Application Reference Number: 8.13).

2.4.30 The majority of deliveries to the Power Station by HGVs are expected between 07:00 and 19:00 during weekdays only. The majority of operational deliveries are likely to be made by smaller rigid type vehicles, i.e. medium and light goods vehicles (see the Wylfa Newydd CoOP, Application Reference Number: 8.13).

2.4.31 HGVs travelling to and from the Power Station would be required to travel via the A5025 to the south (i.e. via Valley), as per the construction stage, and use the A5025 Off-line Highway Improvements, unless a particular supplier is located to the east along the A5025 (between the Wylfa Newydd Development Area and A5025 at A55 Junction 8) or other extenuating circumstances prevail (see the Wylfa Newydd CoOP, Application Reference Number: 8.13).

2.5 Assessment of effects

2.5.1 This section presents the findings of the project-wide assessment of effects for traffic and transport.

Traffic forecasts

2.5.2 A summary of predicted traffic flows for 2020, 2023 and 2033, including percentage changes over those derived from assessment of their respective Reference Case, is presented in table C2-6 (total AADT), table C2-7 (HGV AADT) and table C2-8 (Heavy Duty Vehicles (HDVs) AADT) for those sections where significant changes in traffic flow are predicted to occur. A complete list of predicted traffic flows for 2020, 2023 and 2033 is located in appendix C2-3 (Application Reference Number: 6.3.13).

2.5.3 The assessment of traffic flows is based on the guidance set out in chapter B3 (Application Reference Number: 6.2.3), which indicates links adjacent to schools, hospitals and churches should be assessed where traffic on a section of highway would increase by at least 10%, or if there is a significant increase in HGVs on a section of highway.

Table C2-6 Predicted changes in traffic flows (two-way total AADT) for the assessed scenarios

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	2020 % change in traffic	2020 Wylfa Newydd Project (with bypasses)	2020 % change in traffic	2023 Reference Case	2023 Wylfa Newydd Project	2023 % change in traffic	2033 Reference Case	2033 Wylfa Newydd Project	2033 % change in traffic
9	A5025 Section 1a On-line	8,247	9,336	13%	5,310	-36%	8,405	5,732	-32%	9,966	6,495	-35%
10	A5025 Section 1b Off-line	-	-	-	10,597	-	-	10,845	-	-	11,480	-
11	A5025 Section 2 On-line	5,910	6,957	18%	6,957	18%	6,034	7,869	30%	7,491	9,132	22%
12	A5025 Section 3a On-line	5,690	6,741	18%	1,436	-75%	5,810	1,374	-76%	6,673	1,663	-75%
13	A5025 Section 3b Off-line	-	-	-	4,825	-	-	5,777	-	-	6,263	-
14	A5025 Section 4 On-line	4,337	5,319	23%	5,319	23%	4,420	6,308	43%	5,073	6,854	35%
15	A5025 Section 5a On-line	4,337	5,319	23%	0	-100%	4,420	0	-100%	5,073	0	-100%
16	A5015 Section 5b Off-line	-	-	-	5,240	-	-	6,236	-	-	6,780	-
17	A5025 Section 6 On-line	3,862	4,842	25%	4,842	25%	3,934	5,776	47%	4,552	6,327	39%

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	2020 % change in traffic	2020 Wylfa Newydd Project (with bypasses)	2020 % change in traffic	2023 Reference Case	2023 Wylfa Newydd Project	2023 % change in traffic	2033 Reference Case	2033 Wylfa Newydd Project	2033 % change in traffic
18	A5025 Section 7a On-line	3,189	4,106	29%	298	-91%	3,241	304	-91%	3,799	329	-91%
19	A5025 Section 7b Off-line	-	-	-	3,820	-	-	4,794	-	-	5,260	-
20	A5025 Section 8 On-line	3,123	4,038	29%	4,038	29%	3,172	5,016	58%	3,719	5,494	48%
21	A5025 Tregele	3,378	4,068	20%	4,068	20%	3,438	4,700	37%	4,019	4,953	23%

Table C2-7 Predicted changes in traffic flows (two-way HGV AADT) for the assessed scenarios

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	2020 % change in traffic	2020 Wylfa Newydd Project (with bypasses)	2020 % change in traffic	2023 Reference Case	2023 Wylfa Newydd Project	2023 % change in traffic	2033 Reference Case	2033 Wylfa Newydd Project	2033 % change in traffic
8	A5 (Parc Cybi) to Valley Crossroads	393	479	22%	479	22%	393	547	39%	599	599	0%
9	A5025 Section 1a On-line	268	398	49%	206	-23%	272	170	-38%	230	167	-27%
10	A5025 Section 1b Off-line	-	-	-	398	-	-	440	-	-	277	-
11	A5025 Section 2 On-line	235	382	63%	382	63%	238	406	71%	195	242	24%
12	A5025 Section 3a On-line	235	382	63%	87	-63%	238	46	-81%	195	50	-74%
13	A5025 Section 3b Off-line	-	-	-	271	-	-	336	-	-	167	-
14	A5025 Section 4 On-line	164	269	64%	269	64%	166	334	101%	120	166	38%
15	A5025 Section 5a On-line	195	317	63%	0	-100%	197	0	-100%	151	0	-100%
16	A5015 Section 5b	-	-	-	316	-	-	366	-	-	198	-

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	2020 % change in traffic	2020 Wylfa Newydd Project (with bypasses)	2020 % change in traffic	2023 Reference Case	2023 Wylfa Newydd Project	2023 % change in traffic	2033 Reference Case	2033 Wylfa Newydd Project	2033 % change in traffic
	Off-line											
17	A5025 Section 6 On-line	195	317	63%	317	63%	197	364	85%	151	194	28%
18	A5025 Section 7a On-line	177	259	46%	24	-86%	179	24	-87%	132	26	-80%
19	A5025 Section 7b Off-line	-	-	-	245	-	-	332	-	-	160	-
20	A5025 Section 8 On-line	166	248	49%	248	49%	167	335	101%	120	162	35%

Table C2-8 Predicted changes in traffic flows (two-way HDV AADT) for the assessed scenarios

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	2020 % change in traffic	2020 Wylfa Newydd Project (with bypasses)	2020 % change in traffic	2023 Reference Case	2023 Wylfa Newydd Project	2023 % change in traffic	2033 Reference Case	2033 Wylfa Newydd Project	2033 % change in traffic
8	A5 (Parc Cybi) to Valley Crossroads	401	488	22%	488	22%	402	555	38%	607	607	0%
9	A5025 Section 1a On-line	345	559	62%	317	-8%	346	296	-14%	299	228	-24%
10	A5025 Section 1b Off-line	-	-	-	559	-	-	632	-	-	345	-
11	A5025 Section 2 On-line	265	496	87%	496	87%	267	552	107%	222	269	21%
12	A5025 Section 3a On-line	265	496	87%	95	-64%	267	54	-80%	222	56	-75%
13	A5025 Section 3b Off-line	-	-	-	369	-	-	466	-	-	180	-
14	A5025 Section 4 On-line	171	360	111%	360	111%	173	458	165%	126	172	37%
15	A5025 Section 5a On-line	218	430	97%	0	-100%	220	0	-100%	173	0	-100%
16	A5015 Section 5b Off-line	-	-	-	418	-	-	499	-	-	214	-

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	2020 % change in traffic	2020 Wylfa Newydd Project (with bypasses)	2020 % change in traffic	2023 Reference Case	2023 Wylfa Newydd Project	2023 % change in traffic	2033 Reference Case	2033 Wylfa Newydd Project	2033 % change in traffic
17	A5025 Section 6 On-line	218	430	97%	430	97%	220	509	131%	173	215	24%
18	A5025 Section 7a On-line	196	370	89%	24	-88%	198	24	-88%	150	26	-83%
19	A5025 Section 7b Off-line	-	-	-	355	-	-	474	-	-	176	-
20	A5025 Section 8 On-line	182	355	95%	355	95%	183	474	159%	135	177	31%
21	A5025 Tregele	213	293	38%	293	38%	215	280	30%	169	169	0%

2.5.1 Sensitive links are listed in table C2-9, with a justification for this categorisation also provided (with Ysgol meaning school).

Table C2-9 Sensitive links

Section		Reason for sensitivity
8	A5 (Parc Cybi) to Valley Crossroads	St. Michaels Church, Valley.
12	A5025 Section 3a On-line	School, Llanfachraeth
23	A5025 Amlwch to Benllech	St Gallgo's Church, south west of Moelfre
24	A5025 Benllech to A55 J8	St. Mary's Church, Pentraeth
25	A5 Rhostrehwfa to A5 Menai Bridge	Moriah Church, Gaerwen
32	A55 J6 to A5114 Llangefni	Eglwys Gynulleidfaol Smyrna, Llangefni
33	B5109 to Pentraeth	Ysgol Y Graig, North East Llangefni
35	B5111 Llangefni to Llannerch-y-medd	St Anna's Church, Coedana
36	Llannerch-y-medd to Benllech	Ysgol Goronwy Owen, Benllech
37	B5111 Llannerch-y-medd to Amlwch	Ysgol Gymuned, Llannerch-y-medd
38	B5111 Rhos-y-bol to Cemaes	Ysgol Gynradd Cemaes, Cemaes
41	A5025 Llanfaethlu to B5112	New Church of Sts Afran, Ieuan and Sannan
42	B5109 Llanynghenedl to B5112	Eglwys St Edern Church, Bodedern
43	A55 J4 to Bodedern	Ysgol Uwchradd Bodedern, Bodedern
44	Llanfechell to A5025 Nanner Road	St Patrick & St Mechell Church
46	A55 J4 to A55 J3 (via A5)	Caergeiliog Foundation School

Opening year of the A5025 Off-line Highway Improvements

2.5.2 Based on the assessment of traffic associated with the opening year of the A5025 Off-line Highway Improvements in 2020, the following effects were identified for changes in traffic flows, journey times, accidents and safety and driver stress during the network AM and PM peak periods. The predicted increase in traffic flow would be associated with the construction of the A5025 Off-line Highway Improvements and initial construction activities generated from the Wylfa Newydd Development Area.

Traffic flows

2.5.3 Quantitative comparison of the traffic conditions in the 2020 Reference Case, 2020 Wylfa Newydd Project 'without bypasses' and 2020 Wylfa Newydd Project 'with bypasses' scenarios shown in tables C2-6, C2-7 and C2-8 has identified the potential for motorised and public transport users to be affected by changes in traffic flows and composition within the study area during the AM and PM peak periods.

2.5.4 The predicted increase in total traffic, HGV and HDV flows at A55 Britannia Bridge (section 2) in both 2020 Wylfa Newydd Project scenarios is unlikely to result in motorised and public transport users experiencing an increase in traffic flows across the bridge when compared with the 2020 Reference Case scenario. This is due to the majority of additional trips generated by construction workers occurring outside of the AM and PM network peak periods. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.5 Table C2-6 shows that total traffic flows along the existing sections of the A5025 between Valley and Tregele (sections 9, 11, 14, 15, 17, 20 and 21) are predicted to increase by between 13% and 29% during the 2020 Wylfa Newydd Project 'without bypasses' scenario when compared to the 2020 Reference Case scenario, which would represent a negligible magnitude of change, which is not considered to be a significant effect based on the assessment criteria. However, table C2-7 shows that the number of HGVs travelling along the same sections of the A5025 would increase by between 49% and 63% and would be required to negotiate substandard bends/sections and villages along the existing A5025 between Valley and Tregele. HGVs travelling through villages would also pass schools and churches, which are highly sensitive to changes in traffic flow and composition. As a result, the predicted increases in HGVs are likely to significantly affect motorised and public transport users on the existing A5025 between Valley and Tregele, especially through villages. Where HGVs would travel through Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18), the increase in HGV flows represents a medium magnitude of change and an adverse effect of moderate significance. The increase in HGV flows on remaining sections of the A5025 (sections 11, 14, 17, 20 and 21) between each village represents a small magnitude of change and an adverse effect of minor significance.

2.5.6 During the 2020 Wylfa Newydd Project 'with bypasses' scenario, table C2-7 shows that total traffic flows along sections of the A5025 (sections 11, 14, 17, 20 and 21) between each village would not increase by more than 30%. However, table C2-7 shows that the number of HGVs along these sections would increase by between 49% and 64%, which is likely to significantly affect motorised and public transport users on these sections. Therefore, the increase in HGV flows represents a small magnitude of change and an adverse effect of minor significance.

2.5.7 During the 2020 Wylfa Newydd Project 'with bypasses' scenario, traffic would use the A5025 Off-line Highway Improvements (sections 10, 13, 16 and 19) instead of the existing A5025, reducing total traffic and HGV flows travelling through Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18). A summary of effects for each section is provided below.

2.5.8 Table C2-6 shows that total traffic flows along section 9 during the 2020 Wylfa Newydd Project 'with bypasses' scenario are predicted to decrease by 36% due to the presence of the A5025 Off-line Highway Improvements (section 10). As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Valley and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route to/from the Wylfa Newydd Development Area. Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.9 Table C2-6 shows that total traffic flows along section 12 during the 2020 Wylfa Newydd Project 'with bypasses' scenario are predicted to decrease by 75% due to the presence of the A5025 Off-line Highway Improvements (section 13). Table C2-7 also shows that HGV flows would decrease by 63% along this section. As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Llanfachraeth and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route to/from the Wylfa Newydd Development Area. Therefore, this represents a medium magnitude of change and a beneficial effect of moderate significance.

2.5.10 Tables C2-6 and C2-7 show that total traffic and HGV flows along section 15 during the 2020 Wylfa Newydd Project 'with bypasses' scenario would decrease by 100% due to all traffic transferring from the existing A5025 to the A5025 Off-line Highway Improvements (section 16), which would replace the existing sections of the A5025 at Llanfaethlu. As a result, motorised and public transport users are unlikely to experience a significant change in traffic flows and composition, but would benefit from travelling along the bypasses that would be constructed to modern design standards. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.11 Table C2-6 shows that total traffic flows along section 18 during the 2020 Wylfa Newydd Project 'with bypasses' scenario are predicted to decrease by 91% due to the presence of the A5025 Off-line Highway Improvements

(section 19). Table C2-7 also shows that HGV flows would decrease by 86% along this section. As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Cefn Coch and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route to/from the Wylfa Newydd Development Area. Therefore, this represents a large magnitude of change and a beneficial effect of major significance.

2.5.12 The predicted transfer of traffic from the existing A5025 to the A5025 Off-line Highway Improvements would not cause any significant effects as the A5025 Off-line Highway Improvements would be designed to modern design standards. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.13 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to construction vehicles and workers using the A55 and A5025 between Valley and Tregele to access site compounds and the Wylfa Newydd Development Area. As a result, traffic flows and composition would remain similar to those experienced in the 2020 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Journey times

2.5.14 Quantitative comparison of the traffic conditions in the 2020 Reference Case and the 2020 Wylfa Newydd Project 'without bypasses' and 2020 Wylfa Newydd Project 'with bypasses' scenarios shown in tables C2-6, C2-7 and C2-8 has identified the potential for motorised and public transport user journey times to be affected through changes to traffic flows and composition within the study area during the AM and PM peak periods.

2.5.15 The absence of significant delays on all sections within the study area indicates the potential for additional traffic to be accommodated on these sections.

2.5.16 Table C2-10 summarises those sections that are predicted to experience significant changes in journey times in the 2020 Reference Case, 2020 Wylfa Newydd Project 'without bypasses' and 2020 Wylfa Newydd Project 'with bypasses' scenarios for the AM and PM peak periods. Full journey time results are provided in appendix C2-2 (Application Reference Number: 6.3.12).

Table C2-10 Journey times in the 2020 Reference Case and 2020 Wylfa Newydd Project scenarios (mm:ss)

Section		Direction	2020 Reference Case journey times		2020 Wylfa Newydd Project (without bypasses)		Change in journey time in 2020 (without bypasses)		2020 Wylfa Newydd Project (with bypasses)		Change in journey time in 2020 (with bypasses)	
			AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
9	A5025 Section 1a On-line	Northbound	01:33	01:33	01:41	01:42	9%	10%	-	-	-	-
		Southbound	02:01	02:37	02:37	03:34	30%	36%	-	-	-	-
10	A5025 Section 1b Off-line	Northbound	-	-	-	-	-	-	01:27	01:27	-6%	-6%
		Southbound	-	-	-	-	-	-	01:27	01:27	-28%	-45%
15	A5025 Section 5a On-line	Northbound	01:32	01:32	01:32	01:32	0%	0%	-	-	-	-
		Southbound	01:28	01:28	01:28	01:28	0%	0%	-	-	-	-
16	A5025 Section 5b Off-line	Northbound	-	-	-	-	-	-	01:00	01:00	-35%	-35%
		Southbound	-	-	-	-	-	-	00:56	00:56	-36%	-36%
32	A55 J6 to A5114 Llangefni	Northbound	02:44	04:25	03:17	07:11	20%	63%	03:17	07:11	20%	63%
		Southbound	02:13	02:13	02:15	02:16	2%	2%	02:15	02:16	2%	2%

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A55 journey times

2.5.17 The worst case assessment for 2020 is based upon the 2023 journey time assessment using VISSIM (see appendix C2-4, Application Reference Number: 6.3.23). This approach was adopted because 2023 represents the peak of construction traffic and therefore has the greatest potential for an effect on A55 Britannia Bridge. It should also be noted that some small reductions in journey times for A55 Britannia Bridge have been assumed as zero to provide a conservative assessment. These small reductions arise because of the sensitivity of the modelling to small changes in traffic flows and the rate at which they are introduced to the road network. In practice the difference is so small (minus one second) that road users would not perceive the journey time saving.

2.5.18 Based upon the worst case assessment for 2020, motorised and public transport users crossing A55 Britannia Bridge (section 2) are unlikely to experience significant changes in journey time during both 2020 Wylfa Newydd Project scenarios when compared to the 2020 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.19 Motorised and public transport user journey times between A55 Junction 3 and A55 Junction 8A were reviewed to determine the potential effects of both 2020 Wylfa Newydd Project scenarios over a route where additional traffic would be present. This concluded that journey times would remain similar to 2020 Reference Case journey times because the route has spare capacity to accommodate the additional Wylfa Newydd Project traffic. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 Valley to existing site access road journey times ('without bypasses' scenario)

2.5.20 Table C2-10 shows that motorised and public transport users travelling southbound along section 9 would experience 36 second (30%) and 57 second (36%) increases in journey time during the AM and PM peak periods respectively. The increase in journey time would be associated with additional traffic negotiating the signalised junction at Valley during both peak periods. As a result, motorised and public transport users would experience an increase in journey times along the A5025 through Valley, which represents a small magnitude of change and an adverse effect of minor significance.

2.5.21 Motorised and public transport user journey times travelling southbound on the A5025 between Valley and the existing site access road are anticipated to increase from 17:41 minutes to 18:41 minutes during the PM peak, which is associated with the increased delay at the signalised junction in Valley. This represents the largest increase in journey time for motorised and public transport users travelling along this section during both peak periods, equating to a 6% increase in journey time along this route. Therefore, the

change in journey times during both peak periods represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 Valley to existing site access road journey times ('with bypasses' scenario)

2.5.22 Table C2-10 shows that motorised and public transport user journey times along the A5025 would decrease significantly through Valley (section 10) and Llanfaethlu (section 16) due to the presence of the A5025 Off-line Highway Improvements, which would be constructed to modern design standards. A summary of effects for these sections are provided below.

2.5.23 Motorised and public transport users travelling southbound along section 10 would experience a 01:10 minute (45%) reduction in journey time during the PM peak when compared to the 2020 Reference Case scenario. This would provide journey time savings for motorised and public transport users travelling along this section. Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.24 Motorised and public transport users travelling in both directions along section 16 would experience a 32 second (35% and 36% reduction for the northbound direction and southbound directions respectively) reduction in journey time during both peak periods when compared to the 2020 Reference Case scenario. This would provide journey time savings for motorised and public transport users travelling along this section in both peak periods. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.25 Motorised and public transport users travelling southbound along the A5025 between Valley and the existing site access road would experience an overall decrease in journey time from 17:41 to 15:23 minutes, which represents the largest decrease in motorised and public transport user journey times along this section in both peak periods. This equates to a 13% decrease in journey time, which would be associated with the presence of the A5025 Off-line Highway Improvements. Therefore, the change in journey times during both peak periods represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 between existing site access road and A55 Junction 8

2.5.26 This is comprised of Sections 22, 23 and 24. Motorised and public transport user journey times between the existing site access road and A55 Junction 8 were reviewed to determine the potential effects of the 2020 Wylfa Newydd Project over a route where additional traffic would be present. This concluded that journey times would increase by less than one minute during both 2020 Wylfa Newydd Project scenarios when compared to the Reference Case journey time of approximately 39 minutes. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5114 journey times

2.5.27 During both 2020 Wylfa Newydd Project scenarios, motorised and public transport users travelling northbound along section 32 (A55 J6 to A5114 Llangefni) are likely to experience significant increases in journey time during the PM peak period when compared to the 2020 Reference Case scenario. The predicted increase in traffic flows along this section is forecast to significantly affect the operation of the A5114/High Street/Bridge Street priority junction, increasing motorised and public transport user journey times by 02:46 minutes (63%). However, the increases in journey times would only be present for the short- to medium-term. Therefore, this represents a medium magnitude of change and an adverse effect of moderate significance.

2.5.28 Other sections within the study area would not be affected by the predicted increase in traffic flows during either 2020 Wylfa Newydd Project scenario as construction vehicles and workers would use the A55 and A5025 between Valley and Tregele to access site compounds and the Wylfa Newydd Development Area. As a result, journey times are anticipated to remain similar to those experienced in the 2020 Reference Case scenario along those sections. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Accidents and safety

2.5.29 A review of the traffic forecasts presented in tables C2-6, C2-7 and C2-8 for the 2020 Reference Case, 2020 Wylfa Newydd Project 'without bypasses' and 2020 Wylfa Newydd Project 'with bypasses' scenarios was undertaken as part of the accident analysis. The review has identified the potential for increases in accident risk and attendant reductions in safety for motorised users, NMUs and public transport users travelling along and/or crossing these sections within the study area.

2.5.30 Accident analysis was undertaken for the whole study area. In the five-year period between 1 January 2011 and 31 December 2015, 338 accidents were recorded within the study area. Statistically, this equates to an average of 67.6 accidents per year in the 2016 baseline scenario.

2.5.31 Table C2-11 summarises the predicted total accidents for those sections that are predicted to experience significant changes within the study area. More detailed accident analysis is provided in the App C2-4 (Application Reference Number: 6.3.14).

Table C2-11 Summary of predicted total accidents per year by section for the 2020 Reference Case and 2020 Wylfa Newydd Project scenarios

Section		2020 Reference Case	2020 Wylfa Newydd Project (without bypasses)	Change	2020 Wylfa Newydd Project (with bypasses)	Change
12	A5025 Section 3a On-line	0.2	0.3	50%	0.3	50%
13	A5025 Section 3b Off-line	-	-	-	0.2	-
18	A5025 Section 7a On-line	0.2	0.3	50%	0.0	-100%
19	A5025 Section 7b Off-line	-	-	-	0.1	-
21	A5025 Tregele	0.2	0.3	50%	0.3	50%

2.5.32 Although table C2-11 shows that there would be up to a 50% increase in accidents on some sections, the increase is only by 0.1 of an accident on average. Therefore, the increase in accidents for each section within the study area is not considered to be significant in either 2020 Wylfa Newydd Project scenario when compared to the 2020 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.33 Additionally, the changes in total accidents were reviewed for the following routes to determine whether any significant effects could occur during both 2020 Wylfa Newydd Project scenarios:

- A55 between Junction 3 and Junction 8A;
- A5025 between Valley and the existing site access road; and
- A5025 between the existing site access road and A55 Junction 8.

2.5.34 The review concluded the following for each route during both 2020 Wylfa Newydd Project scenarios.

- Total accidents along the A55 between Junction 3 and Junction 8A would increase by 4%. Therefore, this represents a negligible magnitude of change, which is not considered to represent a significant effect.
- Total accidents along the A5025 between Valley and the existing site access road would increase by 26%. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

- Total accidents along the A5025 between the existing site access road and A55 Junction 8 would increase by 3%. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.35 Despite analysis showing that there would be no significant increases in accidents within the study area, accident risk is likely to increase along the A5025 between Valley and Tregele during the 2020 Wylfa Newydd Project 'without bypasses' scenario when compared to the 2020 Reference Case scenario. However, motorised and public transport users are unlikely to experience an increase in accidents. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.36 In relation to NMUs, there were 52 accidents in the 2016 baseline scenario. However, analysis of baseline accidents shows no correlation between the total number of personal injury accidents and the number of accidents involving NMUs, although four accidents were recorded at crossings for NMUs. More detailed accident analysis is provided in appendix C2-4 (DCO TA Appendix E - Accident Analysis) (Application Reference Number: 6.3.19) with wider impacts on NMUs, including equestrians, also discussed in chapter C3 (Application Reference Number: 6.3.3).

2.5.37 The predicted increase in traffic flows along the A5025 between Valley and Tregele in the 2020 Wylfa Newydd 'without bypasses' scenario could result in NMUs experiencing an increase in accident risk, especially in villages. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.38 During the 2020 Wylfa Newydd Project 'with bypasses' scenario, NMUs in Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18) would experience a decrease in accident risk as the majority of traffic would transfer from the existing A5025 onto the A5025 Off-line Highway Improvements (sections 10, 13, 16 and 19). Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.39 NMUs travelling along other sections in the study area where additional Wylfa Newydd Project traffic is present are unlikely to experience an increase in accident risk during either 2020 Wylfa Newydd Project scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Driver stress

2.5.40 Quantitative comparison of the increase in traffic flows shown in tables C2-6, C2-7 and C2-8 in the 2020 Reference Case, 2020 Wylfa Newydd Project 'without bypasses' and 2020 Wylfa Newydd Project 'with bypasses' scenarios has identified the potential for driver stress to affect motorised and public transport users by changes in vehicle speeds, traffic flows and their composition on routes within the study area.

2.5.41 Table C2-12 summarises those sections that experience significant changes in driver stress, and those that benefit from highway improvements, during the 2020 Reference Case, 2020 Wylfa Newydd Project 'without bypasses' and 2020 Wylfa Newydd Project 'with bypasses' scenarios during the AM and PM peak periods. Table C2-12 provides the result of the link with the highest driver stress rating in any section, which in the majority of cases is not representative of all links within that section and represents a worst case scenario. Full driver stress results are provided in appendix C2-1 (Driver Stress Calculations) (Application Reference Number: 6.3.11).

Table C2-12 Predicted changes in driver stress for the 2020 Reference Case and 2020 Wylfa Newydd Project scenarios

Section		Direction	2020 Reference Case		2020 Wylfa Newydd Project (without bypasses)		2020 Wylfa Newydd Project (with bypasses)	
			AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
3	Britannia Bridge to A55 J6	Eastbound	High	Moderate	High	High	High	High
		Westbound	Moderate	High	High	High	High	High
4	A55 J6 to A55 J4	Eastbound	Low	Low	Low	Moderate	Low	Moderate
		Westbound	Low	Low	Low	Moderate	Low	Moderate
9	A5025 Section 1a On-line	Northbound	High	High	High	High	High	High
		Southbound	High	High	High	High	High	High
10	A5025 Section 1b Off-line	Northbound	-	-	-	-	High	High
		Southbound	-	-	-	-	High	High
11	A5025 Section 2 On-line	Northbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
12	A5025 Section 3a On-line	Northbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	High	Moderate	Moderate
13	A5025 Section 3b Off-line	Northbound	-	-	-	-	Low	Low
		Southbound	-	-	-	-	Low	Low
14	A5025 Section 4 On-line	Northbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
15	A5025 Section 5a On-	Northbound	High	High	High	High	High	High

Section		Direction	2020 Reference Case		2020 Wylfa Newydd Project (without bypasses)		2020 Wylfa Newydd Project (with bypasses)	
			AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
	line	Southbound	High	High	High	High	High	High
16	A5025 Section 5b Off-line	Northbound	-	-	-	-	High	High
		Southbound	-	-	-	-	Moderate	Moderate
17	A5025 Section 6 On-line	Northbound	High	High	High	High	High	High
		Southbound	High	High	High	High	High	High
18	A5025 Section 7a On-line	Northbound	Low	Low	Low	Low	Low	Low
		Southbound	Low	Low	Low	Low	Low	Low
19	A5025 Section 7b Off-line	Northbound	-	-	-	-	Low	Low
		Southbound	-	-	-	-	Low	Low
20	A5025 Section 8 On-line	Northbound	Low	Low	Low	Low	Low	Low
		Southbound	Low	Low	Low	Low	Low	Low
21	A5025 Tregele	Northbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

2.5.42 The predicted increase in traffic flows on A55 Britannia Bridge (section 2) is unlikely to significantly affect driver stress during both 2020 Wylfa Newydd Project scenarios when compared to the 2020 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.43 Table C2-12 shows that the predicted increase in traffic flows on the A55 would increase driver stress along section 3 (Britannia Bridge to A55 J6) in the AM peak heading westbound and the PM peak period heading eastbound during both 2020 Wylfa Newydd Project scenarios. However, the increase in traffic is small and this section of the A55 is subject to the national speed limit and provides drivers with the opportunity to overtake slower moving vehicles. There is potential for drivers to experience delays where the A55 merges with the on-slip from A55 Junction 8A, which would increase driver frustration at this location. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.44 Table C2-12 shows that the predicted increase in traffic flows in both directions on the A55 would increase driver stress along section 4 (A55 J6 to A55 J4) in the PM peak period during both 2020 Wylfa Newydd Project scenarios. However, the increase in traffic is small and section 4 is subject to the national speed limit and provides drivers with the opportunity to overtake slower moving vehicles. As a result, drivers are unlikely to experience an increase in driver stress. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.45 Table C2-12 indicates that the predicted increase in traffic flows along the existing A5025 between Valley and Tregele (sections 9, 11, 12, 14, 15, 17, 18, 20 and 21) is unlikely to significantly affect driver stress during the 2020 Wylfa Newydd Project 'without bypasses' scenario. This is due to current driver stress conditions on multiple sections of the existing A5025 being 'moderate' or 'high' in the 2020 Reference Case scenario, which is reflective of substandard bends, narrow roads and inadequate signing on those sections. Although driver stress would not be significantly affected, the predicted increase in traffic flows and changes in composition may increase the fear of accidents among some drivers on the existing A5025 between Valley and Tregele. The change in traffic composition may lead to a reduction in speeds along the A5025, which could increase frustration among some drivers. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.46 Table C2-12 indicates that driver stress during the 2020 Wylfa Newydd Project 'with bypasses' scenario is likely to decrease along section 13 at Llanfachraeth. This is due to traffic transferring from the existing A5025 onto the A5025 Off-line Highway Improvements, which would be constructed to modern design standards, allowing drivers to travel at speeds aligned with their expectations and potentially reduce their fear of accidents associated with substandard bends and sections along the existing A5025 route. Driver stress is predicted to remain high or moderate at Valley (section 10) and Llanfaethlu (section 16) due to the proposed 30mph and 40mph speed

restrictions on the bypasses at Valley and Llanfaethlu respectively. Driver stress along the existing A5025 through Cefn Coch (section 18) is predicted to be 'Low' in the 2020 Reference Case resulting in no change in the 2020 Wylfa Newydd Project 'with bypasses' scenario. Therefore, the decrease in driver stress at Llanfachraeth (section 13) would represent a medium magnitude of change and a beneficial effect of moderate significance. For sections 10, 16 and 18, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.47 Driver stress along section 32 would remain 'High' during both 2020 Wylfa Newydd Project scenarios in the PM peak period. The predicted increase in traffic flows along this section is forecast to significantly affect the operation of the A5114/High Street/Bridge Street priority junction, generating delays that are likely to increase driver frustration. As a result, motorised and public transport users are likely to experience an increase in driver stress along this section. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.48 Other sections within the study area would not be affected by the predicted increases in traffic associated with the Wylfa Newydd Project due to construction vehicles and workers using the A55 and A5025 between Valley and Tregele to access site compounds and the Wylfa Newydd Development Area. As a result, driver stress conditions would be similar to those experienced in the 2020 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Transport Assessment

2.5.49 Further detailed analysis of the transport impact of the Wylfa Newydd Project on the operation of the road network (e.g. junction performance), rail network and air travel in 2020 is provided in the appendix C2-4 (Application Reference Number: 6.3.14).

Peak construction

2.5.50 Based on the assessment of traffic associated with the peak construction year in 2023, the following effects were identified for traffic flows, journey times, accidents and safety and driver stress during the network AM and PM peak periods.

2.5.51 It is recognised that when construction workers travel home at the end of the 11-day shift cycle, they may travel along the A5025 between Tregele and Menai Bridge or through the centre of the island via the B5111/B5112, A5114 and other minor routes. As a result, there is potential for an increase in traffic on these routes. However, the traffic would be spread across a number of hours during off peak periods on a Thursday evening in one direction only, and over a number of hours on a Sunday evening. Therefore, motorised and public transport users on these sections would potentially experience increased effects during these short time periods. Accordingly,

the 'weekend effect' was considered as part of the assessment during the peak construction year.

Traffic flows

2.5.52 Quantitative comparison of the traffic conditions in the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios shown in tables C2-6, C2-7 and C2-8 has identified the potential for motorised and public transport users to be affected by increases in traffic flows and changes in traffic composition within the study area.

2.5.53 The predicted increase in total traffic, HGV and HDV flows at A55 Britannia Bridge (section 2) during the 2023 Wylfa Newydd Project scenario is unlikely to result in motorised and public transport users experiencing an increase in traffic flows across the bridge when compared with the 2023 Reference Case scenario. This is due to the majority of additional trips generated by workers and shuttle buses travelling to/from the Park and Ride and Wylfa Newydd Development Area occurring outside the AM and PM network peak periods. The majority of road deliveries to the Wylfa Newydd Development Area would also occur outside both network peak periods. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.54 During the 2023 Wylfa Newydd Project scenario, table C2-6 shows that total traffic flows along existing On-line sections of the A5025 between Valley and Tregele (sections 11, 14, 17, 20 and 21) are predicted to increase by between 30% and 58% in the 2023 Wylfa Newydd Project scenario when compared to the 2023 Reference Case scenario. Table C2-7 shows that HGV flows would increase by between 71% and 101% along the same sections. The predicted increases in traffic flow and changes in traffic composition are likely to significantly affect motorised and public transport users travelling along these sections of the A5025 between Valley and Tregele. Due to the significant increases in HGV flows, this represents a medium magnitude of change and an adverse effect of moderate significance.

2.5.55 During the 2023 Wylfa Newydd Project scenario, traffic would use the A5025 Off-line Highway Improvements (sections 10, 13, 16 and 19) instead of the existing A5025, reducing traffic flows travelling through Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18). A summary of effects for each section is provided below.

2.5.56 Total traffic flows along section 9 during the 2023 Wylfa Newydd Project scenario are predicted to decrease by 32% due to the presence of the A5025 Off-line Highway Improvements (section 10). Table C2-7 also shows that HGV flows would decrease by 38% along this section. As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Valley and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route to/from the Wylfa Newydd Development Area. Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.57 Table C2-6 shows that total traffic flows along section 12 during the 2023 Wylfa Newydd Project scenario are predicted to decrease by 76% due to the presence of the A5025 Off-line Highway Improvements (section 13). Table C2-7 also shows that HGV flows would decrease by 81% along this section. As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Llanfachraeth and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route to/from the Wylfa Newydd Development Area. Therefore, this represents a medium magnitude of change and a beneficial effect of moderate significance.

2.5.58 Tables C2-6 and C2-7 show that total traffic and HGV flows along section 15 during the 2023 Wylfa Newydd Project scenario would decrease by 100% due to all traffic transferring from the existing A5025 to the A5025 Off-line Highway Improvements (section 16), which would replace the existing sections of the A5025 at Llanfaethlu. As a result, motorised and public transport users are unlikely to experience a significant change in traffic flows and composition, but would benefit from travelling along the bypasses that would be constructed to modern design standards. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.59 Table C2-6 shows that total traffic flows along section 18 during the 2023 Wylfa Newydd Project scenario are predicted to decrease by 91% due to the presence of the A5025 Off-line Highway Improvements (section 19). Table C2-8 also shows that HGV flows would decrease by 87% along this section. Motorised and public transport users are likely to experience a reduction in traffic flow through Cefn Coch and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route to/from the Wylfa Newydd Development Area. Therefore, this represents a large magnitude of change and a beneficial effect of major significance.

2.5.60 The predicted transfer of traffic from the existing A5025 to the A5025 Off-line Highway Improvements would not cause any significant effects as the A5025 Off-line Highway Improvements would be designed to modern design standards. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.61 Table C2-6 shows that total traffic flows along section 46 (A5 at Dalar Hir) are predicted to increase by 26% during the 2023 Wylfa Newydd Project scenario when compared with the 2023 Reference Case scenario. The predicted increase in traffic would be associated with construction workers driving to/from the Park and Ride and the shuttle buses required to transport them to/from the Power Station Site. Traffic associated with construction workers and shuttle buses would only be present along the A5 during the shift changeover period, which would only coincide with part of the AM and PM peak periods. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.62 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to construction vehicles and workers using the A55 and A5025 between Valley and Tregele to access the Wylfa Newydd Development Area. As a result, traffic flows and composition would remain similar to those experienced in the 2023 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Journey times

2.5.63 Quantitative analysis of the predicted increase in traffic flow during the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios shown in tables C2-6, C2-7 and C2-8 has identified the potential for motorised and public transport user journey times to be affected through changes to traffic flows and composition within the study area during the AM and PM peak periods. A5025 Off-line sections are compared with equivalent A5025 On-line sections; these sections are 10, 13, 16 and 19.

2.5.64 The absence of significant delays on all sections within the study area indicates the potential for additional traffic to be accommodated on these sections, with the exception of A55 Britannia Bridge has less potential to accommodate increases in traffic compared with other roads in the study area during the network peak periods.

2.5.65 Table C2-13 summarises those sections that are predicted to experience significant changes in journey times in the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios for the AM and PM peak periods. Dashes indicate where the section of road is not part of the road network in the Reference Case (e.g. A5025 Section 1b Off-line) with the comparison providing the change from the adjacent On-line section of road. Full journey time results are provided in appendix C2-2 (Application Reference Number: 6.3.12), which also includes the On-line sections of road with which the Off-line sections are compared.

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Table C2-13 Journey times in the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios (mm:ss)

Section		Direction	2023 Reference Case journey times		2023 Wylfa Newydd Project		Change in journey time in 2023	
			AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
9	A5025 Section 1a On-line	Northbound	01:33	01:33	01:42	01:44	10%	12%
		Southbound	02:01	02:41	02:11	02:51	8%	6%
10	A5025 Section 1b Off-line	Northbound	-	-	01:27	01:27	-6%	-6%
		Southbound	-	-	01:27	01:27	-28%	-46%
15	A5025 Section 5a On-line	Northbound	01:32	01:32	01:36	01:37	4%	5%
		Southbound	01:28	01:28	01:28	01:28	0%	0%
16	A5025 Section 5b Off-line	Northbound	-	-	01:00	01:00	-35%	-35%
		Southbound	-	-	00:56	00:56	-36%	-36%
32	A55 J6 to A5114 Llangefni	Northbound	02:49	05:02	03:23	07:48	20%	55%
		Southbound	02:13	02:13	02:16	02:16	2%	2%
47	A5 at Dalar Hir	Eastbound	00:42	00:42	00:47	01:14	12%	76%
		Westbound	00:45	00:45	00:53	01:21	18%	80%

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A55 journey times

2.5.66 Table C2-13 shows that, based on the VISSIM modelling presented in appendix C2-1 (Application Reference Number: 6.3.11), motorised and public transport users crossing A55 Britannia Bridge (section 2) are unlikely to experience significant changes to journey times during the 2023 Wylfa Newydd Project scenario when compared to the 2023 Reference Case scenario. The largest change in journey time occurs in the PM peak for westbound traffic (24 seconds), which represents a 7% increase, and therefore a negligible magnitude of change, which is not considered to be a significant effect.

2.5.67 Motorised and public transport user journey times between A55 Junction 3 and A55 Junction 8A were reviewed to determine the potential effects of the Wylfa Newydd Project over a route where additional traffic would be present during 2023. This concluded that journey times would remain similar to 2023 Reference Case journey times because the route has spare capacity to accommodate the additional Wylfa Newydd Project traffic. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 Valley to existing site access road journey times

2.5.68 During the 2023 Wylfa Newydd Project, table C2-13 shows that motorised and public transport user journey times along the A5025 would decrease through Valley (section 10) and Llanfaethlu (section 16) due to the presence of the A5025 Off-line Highway Improvements, which would be constructed to modern design standards. A summary of effects for these sections is provided below.

2.5.69 Motorised and public transport users travelling southbound along section 10 would experience a 01:14 minute (46%) reduction in journey time in the PM peak period. As a result, motorised and public transport users travelling southbound are likely to experience a reduction in journey time during the PM peak period. Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.70 Motorised and public transport users travelling in both directions along section 16 would experience 28 second and 32 second (35% and 36%) reductions for the northbound direction and southbound directions respectively reduction in journey time during both peak periods when compared to the 2023 Reference Case scenario. This would provide significant journey time savings for motorised and public transport users travelling along this section in both peak periods. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.71 Motorised and public transport user journey times along the A5025 between Valley and the existing site access road were reviewed to determine the potential effects of the Wylfa Newydd Project during 2023. Motorised and public transport users travelling southbound during the AM peak would experience a decrease in journey time from 17:05 minutes to 15:23 minutes, which represents the largest decrease in journey times across both peak periods. This equates to a decrease of 13% when compared to 2023

Reference Case journey times. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 between existing site access road and A55 Junction 8

2.5.72 Motorised and public transport user journey times between the existing site access road and A55 Junction 8 were reviewed to determine the potential effects of the Wylfa Newydd Project over a route where additional traffic would be present during 2023. This concluded that journey times would increase by less than one minute during the 2023 Wylfa Newydd Project scenario when compared to the Reference Case journey time of approximately 39 minutes. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5114 journey times

2.5.73 Motorised and public transport users travelling northbound along section 32 during the 2023 Wylfa Newydd Project scenario would experience a 02:46 minute (55%) increase in journey time during the PM peak period. The predicted increase in traffic flows along this section is forecast to significantly affect the operation of the A5114/High Street/Bridge Street priority junction, which would be the main contributory factor to the significant increase in motorised and public transport user journey times. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

A5 at Dalar Hir

2.5.74 Table C2-13 shows that motorised and public transport user journey times during the PM peak would increase by 76% and 80% for the eastbound and westbound directions respectively. The increase in journey time would be associated with the proposed new signalised junction where the new Park and Ride exit would join the A5. However, motorised and public transport users would only experience significant increases in journey time during the shift changeover period, which would occur over two hours. Outside of these periods, the Park and Ride exit stage would be called infrequently and the signals would remain green for traffic travelling along the A5. Therefore, during the shift changeover period, this represents a medium magnitude of change and an adverse effect of moderate significance.

2.5.75 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to construction vehicles and workers using the A55 and A5025 between Valley and Tregele to access the Wylfa Newydd Development Area. As a result, journey times are anticipated to remain similar to those experienced in the 2023 Reference Case scenario along those sections. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Accidents and safety

2.5.76 A review of the traffic forecasts presented in table C2-7 for the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios were undertaken

as part of the assessment. The review has determined the potential for increases in accident risk and associated reductions in safety for motorised users, NMUs and public transport users using and/or crossing these sections.

2.5.77 Accident analysis undertaken for the whole study area indicates that 338 accidents were recorded within the study area in the five-year period between 1 January 2011 and 31 December 2015. This results in an average of 67.6 accidents per year in the 2016 baseline scenario.

2.5.78 Table C2-14 summarises the predicted total accidents for those sections that are predicted to experience significant changes within the study area. More detailed accident analysis is provided in appendix C2-4 (Application Reference Number: 6.3.19).

Table C2-14 Summary of predicted total accidents per year by section for the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios

Section		2023 Reference Case	2023 Wylfa DCO Newydd Project	Change
12	A5025 Section 3a On-line	0.2	0.3	50%
13	A5025 Section 3b Off-line	-	0.3	-
14	A5025 Section 4 On-line	0.9	1.3	44%
15	A5025 Section 5a On-line	1.1	1.5	36%
16	A5015 Section 5b Off-line	-	0.2	-
17	A5025 Section 6 On-line	0.4	0.7	75%
18	A5025 Section 7a On-line	0.2	0.0	-100%
19	A5025 Section 7b Off-line	-	0.1	-
20	A5025 Section 8 On-line	0.4	0.7	75%
21	A5025 Tregele	0.2	0.3	50%

2.5.79 Although table C2-14 shows that there would be up to a 75% increase in accidents on some sections, the increase is only by 0.3 of an accident on average. Therefore, the increase in accidents within the study area is not considered to be significant in either 2023 Wylfa Newydd Project when compared to the 2023 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.80 Additionally, the changes in total accidents were reviewed for the following routes to determine whether any significant effects could occur during the 2023 Wylfa Newydd Project scenarios:

- A55 between Junction 3 and Junction 8A;

- A5025 between Valley and the existing site access road; and
- A5025 between the existing site access road and A55 Junction 8.

2.5.81 Based on the information presented in appendix C2-3 (Application Reference Number: 6.3.13) and appendix C2-4 (Application Reference Number: 6.3.19) the review concluded the following for each route during the 2023 Wylfa Newydd Project scenario.

- Total accidents along the A55 between Junction 3 and Junction 8A would increase by 6%. Therefore, this represents a negligible magnitude of change, which is not considered to represent a significant effect.
- Total accidents along the A5025 between Valley and the existing site access road would increase by 19%. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.
- Total accidents along the A5025 between the existing site access road and A55 Junction 8 would increase by 5%. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.82 Despite analysis showing that there would be no significant increases in accidents within the study area, accident risk is likely to increase along the A5025 between Valley and Tregele during the 2023 Wylfa Newydd Project scenario. However, the presence of the A5025 Off-line Highway Improvements would counter the potential increases in accident risk as they are designed to modern design standards and traffic would use the bypasses instead of the existing A5025, reducing the volume of traffic on these existing sections. As a result, motorised and public transport users would be unlikely to experience an increase in accident risk. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.83 In relation to NMUs, there were 52 accidents in the 2016 baseline scenario. However, analysis of baseline accidents shows no correlation between the total number of personal injury accidents and the number of accidents involving NMUs, although four accidents were recorded at crossings for NMUs. More detailed accident analysis is provided in appendix C2-3 (Application Reference Number: 6.3.13) with wider impacts on NMUs also discussed in chapter C3 (Application reference Number: 6.3.3).

2.5.84 During the 2023 Wylfa Newydd Project scenario, NMUs in Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18) would experience a decrease in accident risk as the majority of traffic would transfer from the existing A5025 onto the A5025 Off-line Highway Improvements (sections 10, 13, 16 and 19). Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.85 The predicted increase in traffic flows within the study area is unlikely to increase the accident risk on those sections where additional Wylfa Newydd

Project traffic is present. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Driver stress

2.5.86 Quantitative comparison of the increase in traffic flows in the 2023 Reference Case against the 2023 Wylfa Newydd Project scenario has identified the potential for driver stress to affect motorised and public transport users by changes in vehicle speeds, flows and their composition on routes within the study area. A5025 Off-line sections are compared with equivalent A5025 On-line sections; these sections are 10, 13, 16 and 19.

2.5.87 Table C2-15 summarises those sections that experience significant changes in driver stress, and those that benefit from highway improvements, during the 2023 Reference Case scenario against those in the 2023 Wylfa Newydd Project scenario for AM and PM peak periods. Table C2-15 provides the result of the link with the highest driver stress rating in any section, which in the majority of cases is not representative of all links within that section and represents a worst case scenario. Full driver stress results are provided in appendix C2-1 (Application Reference Number: 6.3.11).

Table C2-15 Predicted changes in driver stress for the 2023 Reference Case and 2023 Wylfa Newydd Project scenarios

Section		Direction	2023 Reference Case		2023 Wylfa Newydd Project	
			AM peak	PM peak	AM peak	PM peak
3	Britannia Bridge to A55 J6	Eastbound	High	Moderate	High	High
		Westbound	Moderate	High	High	High
4	A55 J6 to A55 J4	Eastbound	Low	Low	Moderate	Moderate
		Westbound	Low	Moderate	Low	Moderate
5	A55 J4 to A55 J3	Eastbound	Low	Low	Low	Moderate
		Westbound	Low	Low	Low	Moderate
9	A5025 Section 1a On-line	Northbound	High	High	High	High
		Southbound	High	High	High	High
10	A5025 Section 1b Off-line	Northbound	-	-	High	High
		Southbound	-	-	High	High
11	A5025 Section 2 On-line	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate
12	A5025 Section 3a On-line	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate
13	A5025 Section 3b Off-line	Northbound	-	-	Low	Low
		Southbound	-	-	Low	Moderate
14	A5025 Section 4 On-line	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate
15	A5025 Section 5a On-line	Northbound	High	High	High	High
		Southbound	High	High	High	High
16	A5025 Section 5b Off-line	Northbound	-	-	High	High
		Southbound	-	-	Moderate	Moderate
17	A5025 Section 6 On-line	Northbound	High	High	High	High
		Southbound	High	High	High	High
18	A5025 Section 7a On-line	Northbound	Low	Low	Low	Low
		Southbound	Low	Low	Low	Low

Section		Direction	2023 Reference Case		2023 Wylfa Newydd Project	
			AM peak	PM peak	AM peak	PM peak
19	A5025 Section 7b Off-line	Northbound	-	-	Low	Low
		Southbound	-	-	Low	Moderate
20	A5025 Section 8 On-line	Northbound	Low	Low	Low	Low
		Southbound	Low	Low	Low	Moderate
21	A5025 Tregele	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate

2.5.88 Exclusion of the A55 Britannia Bridge (Section 2) from table C2-15 shows that the predicted increase in traffic flows on A55 Britannia Bridge (section 2) is unlikely to significantly affect driver stress during the 2023 Wylfa Newydd Project scenario when compared to the 2023 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.89 Table C2-15 shows that the predicted increase in traffic flows would increase driver stress along section 3 (Britannia Bridge to A55 J6) in the AM peak heading westbound and the PM peak heading eastbound during the 2023 Wylfa Newydd Project scenario. However, the majority of additional trips generated by construction workers and shuttle buses travelling to/from the Park and Ride and Wylfa Newydd Development Area would occur outside the AM and PM peak periods. The majority of section 3 is also subject to the national speed limit and provides drivers with the opportunity to overtake slower moving vehicles. The increase in driver stress would be associated with delays that drivers would experience at A55 Junction 8A, which would increase driver frustration. As a result, drivers are likely to experience an increase in driver stress at this location. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.90 Table C2-15 shows that the predicted increase in traffic flows on the A55 would increase driver stress for users travelling eastbound along section 4 (A55 J6 to A55 J4) in the AM and PM peak periods during the 2023 Wylfa Newydd Project scenario. Results also show that driver stress would increase along section 5 (A55 J4 to A55 J3) during the PM peak period in both directions. However, the increase in traffic is small and both sections are subject to the national speed limit and provide drivers with the opportunity to overtake slower moving vehicles. As a result, drivers are unlikely to experience an increase in driver stress. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.91 Table C2-15 indicates that driver stress during the 2023 Wylfa Newydd Project scenario is likely to remain similar along existing sections of the A5025 between Valley and Tregele (sections 11, 14, 17, 20 and 21) when compared to the 2023 Reference Case scenario. The variance in vehicle

speed at bends/substandard sections along the existing A5025 would continue to be a source of frustration to drivers. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.92 Table C2-15 indicates that driver stress during the 2023 Wylfa Newydd Project scenario is likely to decrease along section 13 at Llanfachraeth in both directions and in the southbound direction along section 16 at Llanfaethlu. This is due to traffic transferring from the existing A5025 onto the A5025 Off-line Highway Improvements, which would be constructed to modern design standards, allowing drivers to travel at speeds aligned with their expectations and potentially reduce their fear of accidents associated with substandard bends and sections along the existing A5025 route. Driver stress is predicted to remain 'High' at Valley (section 10) in both directions and Llanfaethlu (section 16) in a northbound direction, which would be associated with the proposed 30mph and 40mph speed restrictions on the bypasses at Valley and Llanfaethlu respectively, and the volume of traffic travelling along these sections. Driver stress through Cefn Coch (section 18) is predicted to remain 'Low' with the exception of the PM peak period heading southbound, which would be 'Moderate'. However, due to the A5025 Off-line Highway Improvements being constructed to modern design standards, the increase in driver stress would be barely perceptible to drivers. Based on the analysis above, the following conclusions have been made for each section.

- The decrease in driver stress at Llanfachraeth (section 13) would represent a medium magnitude of change and a beneficial effect of moderate significance.
- The decrease in driver stress at Llanfaethlu (section 16) for users heading northbound represents a small magnitude of change and a beneficial effect of minor significance.
- Driver stress at Valley (section 10) and Cefn Coch (section 18) are not predicted to change. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.93 Driver stress heading northbound along section 32 would remain high during the 2023 Wylfa Newydd Project scenario in the PM peak period. The predicted increase in traffic flows along this section is forecast to significantly affect the operation of the A5114/High Street/Bridge Street priority junction and journey times along the section, which is likely to increase driver frustration at the junction. As a result, motorised and public transport users are likely to experience significant increases in driver stress along this section. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.94 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to construction vehicles and workers using the A55 and A5025 between Valley and Tregele to access the Wylfa Newydd Development Area. As a result, driver stress conditions would remain similar to those experienced in the

2023 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Transport Assessment

2.5.95 Further detailed analysis of the impact of the Wylfa Newydd Project on the operation of the road network (e.g. junction performance), rail network and air travel in 2023 (the year of peak construction) is provided in appendix C2-4 (Application Reference Number: 6.3.14).

Peak operation

2.5.96 Based on the assessment of traffic associated with the peak operational stage in 2033, the following effects were identified for the aspects of traffic flows, journey times, accidents and safety and driver stress.

Traffic flows

2.5.97 Quantitative comparison of the traffic conditions in the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios shown in tables C2-6, C2-7 and C2-8 has identified the potential for motorised and public transport users to be affected by increases in traffic flows and changes in traffic composition within the study area.

2.5.98 The predicted increase in traffic flows at A55 Britannia Bridge (section 2) in the 2033 Wylfa Newydd Project scenario is unlikely to result in motorised and public transport users experiencing an increase in traffic flows across Britannia Bridge when compared with the 2033 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.99 During the 2033 Wylfa Newydd Project scenario, table C2-6 shows that total traffic flows along the existing A5025 between Valley and Tregele (sections 11, 14, 17, 20 and 21) are predicted to increase by between 22% and 48% in the 2033 Wylfa Newydd Project scenario when compared with the 2033 Reference Case scenario. Table C2-7 shows that HGV flows would increase by between 24% and 38% on the same sections of the A5025. The predicted increases in traffic flow and changes in traffic composition are likely to significantly affect motorised and public transport users travelling along these sections of the A5025 between Valley and Tregele, with the exception of sections 11 and 21, where total traffic and HGV flows would not increase significantly. For sections 11 and 21, this represents a negligible magnitude of change, which is not considered to be a significant effect. For sections 14, 17 and 20, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.100 During the 2033 Wylfa Newydd Project scenario, traffic would use the A5025 Off-line Highway Improvements (sections 10, 13, 16 and 19) instead of the existing A5025, reducing traffic flows travelling through Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18).). A summary of effects for each section is provided below.

2.5.101 Traffic flows along section 9 during the 2033 Wylfa Newydd Project scenario are predicted to decrease by 35% due to the presence of the A5025 Off-line Highway Improvements. Table C2-7 also shows that HGV flows would decrease by 27% along this section. As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Valley and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route. Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.102 Traffic flows along section 12 during the 2033 Wylfa Newydd Project scenario are predicted to decrease by 75% due to the presence of the A5025 Off-line Highway Improvements. Table C2-8 also shows that HGV flows would decrease by 74% along this section. Motorised and public transport users are likely to experience a reduction in traffic flow through Llanfachraeth and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route. Therefore, this represents a medium magnitude of change and a beneficial effect of moderate significance.

2.5.103 Tables C2-6 and C2-7 show that total traffic and HGV flows along section 15 during the 2033 Wylfa Newydd Project scenario would decrease by 100% due to all traffic transferring from the existing A5025 to the A5025 Off-line Highway Improvements (section 16), which would replace the existing sections of the A5025 at Llanfaethlu. As a result, motorised and public transport users are unlikely to experience a significant change in traffic flows and composition, but would benefit from travelling along the bypasses that would be constructed to modern design standards. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.104 Traffic flows along section 18 during the 2033 Wylfa Newydd Project scenario are predicted to decrease by 91% due to the presence of the A5025 Off-line Highway Improvements. Table C2-7 also shows that HGV flows would decrease by 87% along this section. As a result, motorised and public transport users are likely to experience a reduction in traffic flow through Cefn Coch and benefit from changes to traffic composition, with HGVs and buses using the new bypass as part of their route. Therefore, this represents a large magnitude of change and a beneficial effect of major significance.

2.5.105 The predicted transfer of traffic from the existing A5025 to the A5025 Off-line Highway Improvements would not cause any significant effects as the Off-line Highway Improvements would be designed to modern design standards. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.106 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to deliveries and workers using the A55 and A5025 between Valley and Tregele to access the Wylfa Newydd Development Area. As a result, traffic flows and composition would remain similar to those experienced in the 2033

Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Journey times

2.5.107 Quantitative analysis of the predicted increase in traffic flow during the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios shown in tables C2-6, C2-7 and C2-8 has identified the potential for motorised and public transport user journey times to be affected through changes to traffic flows and composition within the study area during the AM and PM peak periods.

2.5.108 The absence of significant delays on all sections within the study area indicates the potential for additional traffic to be accommodated on these sections, with the exception of A55 Britannia Bridge which has less potential to accommodate increases in traffic compared with other roads in the study area during the network peak periods.

2.5.109 Table C2-16 summarises those sections that are predicted to experience significant changes in journey times in the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios for the AM and PM peak periods. Full journey time results are provided in appendix C2-2 (Application Reference Number: 6.3.12).

Table C2-16 Journey times in the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios

Section		Direction	2033 Reference Case journey times		2033 Wylfa Newydd Project		Change in journey time in 2033	
			AM peak	PM peak	AM peak	PM peak	AM peak	PM peak
10	A5025 Section 1b Off-line	Northbound	-	-	01:27	01:27	-9%	-6%
		Southbound	-	-	01:27	01:27	-31%	-48%
15	A5025 Section 5a On-line	Northbound	01:32	01:32	01:32	01:32	0%	0%
		Southbound	01:28	01:28	01:28	01:28	0%	0%
16	A5025 Section 5b Off-line	Northbound	-	-	01:00	01:00	-35%	-35%
		Southbound	-	-	00:56	00:56	-36%	-36%

A55 journey times

2.5.110 Based upon the worst case assessment for 2033 motorised and public transport users crossing A55 Britannia Bridge (section 2) are unlikely to experience significant changes in journey times during the 2033 Wylfa Newydd Project scenario when compared to the 2033 Reference Case

scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.111 Motorised and public transport user journey times between A55 Junction 3 and A55 Junction 8A were reviewed to determine the potential effects of the Wylfa Newydd Project over a route where additional traffic would be present during 2033. This concluded that journey times would remain similar to 2033 Reference Case journey times because the route has spare capacity to accommodate the additional Wylfa Newydd Project traffic. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 Valley to existing site access road journey times

2.5.112 During the 2033 Wylfa Newydd Project, table C2-16 shows that motorised and public transport user journey times along the A5025 would decrease through Valley (section 10) and Llanfaethlu (section 16) due to the presence of the A5025 Off-line Highway Improvements, which would be constructed to modern design standards. A summary of effects for these sections is provided below.

2.5.113 Motorised and public transport users travelling southbound along section 10 would experience 40 second (31%) and 01:19 minute (48%) reductions in journey time during the AM and PM peaks respectively when compared to the 2033 Reference Case scenario. This would provide significant journey time savings to motorised and public transport users travelling southbound in the PM peak period. Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.114 Motorised and public transport users travelling in both directions along section 16 would experience 32 second (35% and 36% reduction for the northbound direction and southbound directions respectively) reductions in journey time during both peak periods when compared to the 2033 Reference Case scenario. This would provide significant journey time savings for motorised and public transport users travelling along this section in both peak periods. Therefore, this represents a small magnitude of change and an adverse effect of minor significance.

2.5.115 Motorised and public transport user journey times along the A5025 between Valley and the existing site access road were reviewed to determine the potential effects of the Wylfa Newydd Project during 2033. Motorised and public transport users travelling southbound during the PM peak would experience a decrease in journey time from 17:50 minutes to 15:23 minutes, which represents the largest decrease in journey times across both peak periods. This equates to a decrease of 14% when compared to 2033 Reference Case journey times. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

A5025 between existing site access road and A55 Junction 8

2.5.116 Motorised and public transport user journey times between the existing site access road and A55 Junction 8 were reviewed to determine the potential effects of the Wylfa Newydd Project over a route where additional traffic

would be present during 2033. This concluded that journey times would increase by less than one minute during the 2033 Wylfa Newydd Project scenario when compared to the Reference Case journey time of approximately 39 minutes. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.117 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to deliveries and workers using the A55 and A5025 between Valley and Tregele to access the Wylfa Newydd Development Area. As a result, journey times are anticipated to remain similar to those experienced in the 2033 Reference Case scenario along those sections. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Accidents and safety

2.5.118 A review of the traffic forecasts presented in tables C2-6, C2-7 and C2-8 for the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios was undertaken as part of the assessment. The review has determined the potential for increases in accident risk and attendant reductions in safety for motorised users, NMUs and public transport users using and/or crossing these sections.

2.5.119 Accident analysis undertaken for the whole study area indicates that 338 accidents were recorded within the study area in the five-year period between 1 January 2011 and 31 December 2015. This results in an average of 67.6 accidents per year in the 2016 baseline scenario.

2.5.120 Table C2-17 summarises the predicted total accidents, based upon changes in traffic flows, for those sections that are predicted to experience significant changes within the study area. More detailed accident analysis is provided in the appendix C2-4 (Application Reference Number: 6.3.19).

Table C2-17 Summary of predicted total accidents per year by section for the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios

Section		2033 Reference Case	2033 Wylfa Newydd Project	Change
12	A5025 Section 3a On-line	0.2	0.3	50%
13	A5025 Section 3b Off-line	-	0.3	-
14	A5025 Section 4 On-line	1.0	1.4	40%
15	A5025 Section 5a On-line	1.3	1.7	31%
16	A5015 Section 5b Off-line	-	0.3	-

Section		2033 Reference Case	2033 Wylfa Newydd Project	Change
17	A5025 Section 6 On-line	0.5	0.7	40%
18	A5025 Section 7a On-line	0.3	0.0	100%
19	A5025 Section 7b Off-line	-	0.1	-
20	A5025 Section 8 On-line	0.5	0.7	40%

2.5.121 Although table C2-17 shows that there would be up to a 50% increase in accidents on some sections, the increase is only by 0.1 of an accident on average. Therefore, the increase in accidents within the study area is not considered to be significant in either 2033 Wylfa Newydd Project when compared to the 2033 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.122 Additionally, the changes in total accidents were reviewed for the following routes to determine whether any significant effects could occur during the 2033 Wylfa Newydd Project scenarios:

- A55 between Junction 3 and Junction 8A;
- A5025 between Valley and the existing site access road; and
- A5025 between the existing site access road and A55 Junction 8.

2.5.123 The review concluded the following for each route during the 2033 Wylfa Newydd Project scenario.

- Total accidents along the A55 between Junction 3 and Junction 8A would increase by 3%. Therefore, this represents a negligible magnitude of change, which is not considered to represent a significant effect.
- Total accidents along the A5025 between Valley and the existing site access road would increase by 8%. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.
- Total accidents along the A5025 between the existing site access road and A55 Junction 8 would increase by 3%. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.124 Despite analysis showing that there would be no significant increases in accidents within the study area, accident risk is likely to increase along the A5025 between Valley and Tregele during the 2033 Wylfa Newydd Project scenario. However, the presence of the A5025 Off-line Highway Improvements would counter the potential increases in accident risk as they

are designed to modern design standards and traffic would use the bypasses instead of the existing A5025, reducing the volume of traffic on those sections through villages. As a result, motorised and public transport users would be unlikely to experience an increase in accident risk. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.125 In relation to NMUs, there were 52 accidents in the 2016 baseline scenario. However, analysis of baseline accidents shows no correlation between the total number of personal injury accidents and the number of accidents involving NMUs, although four accidents were recorded at crossings for NMUs. More detailed accident analysis is provided in appendix C2-3 (Application Reference Number: 6.3.13) with wider impacts on NMUs also discussed in chapter C3 (Application Reference Number: 6.3.3).

2.5.126 During the 2033 Wylfa Newydd Project scenario, NMUs in Valley (section 9), Llanfachraeth (section 12), Llanfaethlu (section 15) and Cefn Coch (section 18) would experience a decrease in accident risk as the majority of traffic would transfer from the existing A5025 onto the A5025 Off-line Highway Improvements (sections 10, 13, 16 and 19). Therefore, this represents a small magnitude of change and a beneficial effect of minor significance.

2.5.127 The predicted increase in traffic flows within the study area is unlikely to increase the accident risk on those sections where additional Wylfa Newydd Project traffic is present. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Driver stress

2.5.128 Quantitative comparison of the increase in traffic flows in the 2033 Reference Case against the 2033 Wylfa Newydd Project scenario shown in tables C2-6, C2-7 and C2-8 has identified the potential for driver stress to affect motorised and public transport users by changes in vehicle speeds, flows and their composition on routes within the study area.

2.5.129 Table C2-18 summarises those sections that experience significant changes in driver stress, and those that benefit from highway improvements, during the 2033 Reference Case scenario against those in the 2033 Wylfa Newydd Project scenario for AM and PM peak periods. Table C2-18 provides the result of the link with the highest driver stress rating in any section, which in the majority of cases is not representative of all links within that section and represents a worst case scenario. Full driver stress results are provided in appendix C2-1 (Application Reference Number: 6.3.11).

Table C2-18 Predicted changes in driver stress for the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios

Section		Direction	2033 Reference Case		2033 Wylfa Newydd Project	
			AM peak	PM peak	AM peak	PM peak
5	A55 J4 to A55 J3	Eastbound	Low	High	Moderate	High
		Westbound	High	Moderate	High	Moderate

Section		Direction	2033 Reference Case		2033 Wylfa Newydd Project	
			AM peak	PM peak	AM peak	PM peak
9	A5025 Section 1a On-line	Northbound	High	High	High	High
		Southbound	High	High	High	High
10	A5025 Section 1b Off-line	Northbound	-	-	High	High
		Southbound	-	-	High	High
11	A5025 Section 2 On-line	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate
12	A5025 Section 3a On-line	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate
13	A5025 Section 3b Off-line	Northbound	-	-	Low	Low
		Southbound	-	-	Low	Low
14	A5025 Section 4 On-line	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate
15	A5025 Section 5a On-line	Northbound	High	High	High	High
		Southbound	High	High	High	High
16	A5025 Section 5b Off-line	Northbound	-	-	High	High
		Southbound	-	-	Moderate	Moderate
17	A5025 Section 6 On-line	Northbound	High	High	High	High
		Southbound	High	High	High	High
18	A5025 Section 7a On-line	Northbound	Low	Low	Low	Low
		Southbound	Low	Low	Low	Low
19	A5025 Section 7b Off-line	Northbound	-	-	Low	Low
		Southbound	-	-	Low	Low

Section		Direction	2033 Reference Case		2033 Wylfa Newydd Project	
			AM peak	PM peak	AM peak	PM peak
20	A5025 Section 8 On-line	Northbound	Low	Low	Low	Low
		Southbound	Low	Low	Low	Low
21	A5025 Tregele	Northbound	Moderate	Moderate	Moderate	Moderate
		Southbound	Moderate	Moderate	Moderate	Moderate

2.5.130 Exclusion of the A55 Britannia Bridge (Section 2) in table C2-18 shows that the predicted increase in traffic flows on the A55 would increase driver stress for users travelling westbound along section 5 (A55 J4 to A55 J3) in the AM peak during the 2033 Wylfa Newydd Project scenario when compared to the 2033 Reference Case scenario. However, the increase in traffic is small and section 5 is subject to the national speed limit and provides drivers with the opportunity to overtake slower moving vehicles. There would also be no additional private vehicles or buses joining section 5 from the Park and Ride as this would be decommissioned following the completion of the construction stage. As a result, drivers are unlikely to experience an increase in driver stress. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.131 Table C2-18 shows that the predicted increase in traffic flows on A55 Britannia Bridge (section 2) is unlikely to significantly affect driver stress during the 2033 Wylfa Newydd Project scenario when compared to the 2033 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.132 Table C2-18 indicates that driver stress during the 2033 Wylfa Newydd Project scenario is likely to remain similar along existing sections of the A5025 between Valley and Tregele (sections 11, 14, 17, 20 and 21) when compared to the 2033 Reference Case scenario. The variance in vehicle speed at bends/substandard sections along the existing A5025 would continue to be a source of frustration to drivers. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.133 Table C2-18 indicates that driver stress during the 2023 Wylfa Newydd Project scenario is likely to decrease along section 13 at Llanfachraeth in both directions and in the southbound direction along section 16 at Llanfaethlu. This is due to traffic transferring from the existing A5025 onto the A5025 Off-line Highway Improvements, which would be constructed to modern design standards, allowing drivers to travel at speeds aligned with their expectations and potentially reduce their fear of accidents associated with substandard bends and sections along the existing A5025 route. Driver stress is predicted to remain ‘high’ at Valley (section 10) in both directions and Llanfaethlu (section 16) in a northbound direction, which would be associated with the proposed 30mph and 40mph speed restrictions on the bypasses at Valley and Llanfaethlu respectively. Based on the analysis above, the following conclusions have been made for each section.

- The decrease in driver stress at Llanfachraeth (section 13) would represent a medium magnitude of change and a beneficial effect of moderate significance.
- For sections 10, 16 and 18, the change in driver stress represents a negligible magnitude of change, which is not considered to be a significant effect.

2.5.134 Table C2-18 shows that driver stress heading northbound along section 32 would remain 'high' during the 2033 Wylfa Newydd Project scenario in the PM peak period when compared to the 2033 Reference Case scenario. The predicted increase in traffic flows along this section is forecast to significantly affect the operation of the A5114/High Street/Bridge Street priority junction and journey times along the section, which is likely to increase driver frustration in the vicinity of the junction. However, the operation of the A5114/High Street/Bridge Street priority junction would be significantly affected during the 2033 Reference Case scenario, which is likely to increase driver stress in the vicinity of the junction during this scenario. The predicted delays at the junction could also result in drivers seeking alternative routes, which could result in drivers using routes with substandard sections and increase driver stress. Therefore, the potential increase in driver stress between the 2033 Reference Case and 2033 Wylfa Newydd Project scenarios represents a small magnitude of change and an adverse effect of minor significance.

2.5.135 Other sections within the study area would not be affected by the predicted increase in traffic associated with the Wylfa Newydd Project due to deliveries and workers using the A55 and A5025 between Valley and Tregele to access the Wylfa Newydd Development Area. As a result, driver stress conditions would remain similar to those experienced in the 2033 Reference Case scenario. Therefore, this represents a negligible magnitude of change, which is not considered to be a significant effect.

Transport Assessment

2.5.136 Further detailed analysis of the impact of the Wylfa Newydd Project on the operation of the road network (e.g. junction performance), rail network and air travel in 2033 (the year of peak operation) is provided in appendix C2-4 (Application Reference Number: 6.3.14).

Transboundary effects

2.5.137 The majority of HGV deliveries during the construction and operation stages of the Wylfa Newydd Project would originate from within the United Kingdom and Ireland. However, there is potential for a small number of HGV deliveries to originate from within Europe and travel to the Wylfa Newydd Development Area via the channel tunnel, existing ferry routes and the UK road network. Non-home-based workers would also live on Anglesey or in Gwynedd during the construction stage. A small proportion of foreign workers may use existing ferry routes to travel home, but this is not anticipated to significantly affect transport networks abroad. The transboundary effects of transporting materials required to construct the

Power Station by sea are described in chapter D16 (combined topic effects) (Application Reference Number: 6.4.16). As a result, no significant transboundary traffic and transport effects are anticipated.

2.6 Additional mitigation

2.6.1 Adverse residual effects are relatively short term (i.e. lasting not more than the length of the construction stage). A range of embedded measures and good practice are incorporated into the project to manage and mitigate adverse effects and reduce the environmental effects of transport. These measures include the MOLF, the Logistics Centre, the Park and Ride Facility, staggered shift times and the use of shuttle buses for construction workers. Given the nature of the residual effects and the existing commitment to mitigation, further mitigation would not be reasonably practicable.

2.7 Residual effects

2.7.1 This section describes the residual effects having taken into account the embedded, good practice and additional mitigation described above. A summary of the residual effects and their significance for traffic and transport is provided in table C2-19.

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Table C2-19 Summary of residual effects

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
2020 opening year of the A5025 Off-line Highway Improvements (without bypasses)								
Motorised and public transport users	High	Motorised and public transport users experience significant increases in HGV flow through Valley (section 9) and Cefn Coch (section 18) during the 2020 Wylfa Newydd Project 'without bypasses' scenario.	Short term	Small	Moderate adverse	None	Medium	Moderate adverse
Motorised and public transport users	High	Motorised and public transport users experience significant increases in HGV flow through Llanfachraeth (section 12) and Llanfaethlu (section 15) during the 2020 Wylfa Newydd Project 'without bypasses' scenario.	Short term	Medium	Moderate adverse	None	Medium	Moderate adverse
2020 opening year of the A5025 Off-line Highway Improvements (with bypasses)								

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Motorised and public transport users	High	Motorised and public transport users experience significant decreases in traffic flow on the existing A5025 at Llanfachraeth (section 12) during the 2020 Wylfa Newydd Project 'with bypasses' scenario.	Long term	Medium	Moderate beneficial	None	Medium	Moderate beneficial
Motorised and public transport users	High	Motorised and public transport users experience significant decreases in traffic flow on the existing A5025 at Cefn Coch (section 18) during the 2020 Wylfa Newydd Project 'with bypasses' scenario.	Long term	Large	Major beneficial	None	Large	Major beneficial

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Motorised and public transport users	High	Motorised and public transport users experience an increase in journey times northbound along section 32 (A55 J6 to A5114 Llangefni) during the PM peak period in the 2020 Wylfa Newydd Project 'with bypasses' scenario.	Medium term	Medium	Moderate adverse	None	Medium	Moderate adverse
Motorised and public transport users	High	Drivers travelling in both directions along section 13 (Llanfachraeth) experience a reduction in driver stress during the 2020 Wylfa Newydd Project 'with bypasses' scenario.	Long term	Medium	Moderate beneficial	None	Medium	Moderate beneficial
2023 peak construction								

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Motorised and public transport users	High	Motorised and public transport users experience significant increases in traffic flow along the existing On-line sections of the A5025 between Valley and Tregele (sections 11, 14, 17, 20 and 21) during the 2023 Wylfa Newydd Project scenario.	Short term	Small	Moderate adverse	None	Medium	Moderate adverse
Motorised and public transport users	High	Motorised and public transport users experience significant decreases in traffic flow on the existing A5025 at Llanfachraeth (section 12) during the 2023 Wylfa Newydd Project scenario.	Long term	Medium	Moderate beneficial	None	Medium	Moderate beneficial

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Motorised and public transport users	High	Motorised and public transport users experience significant decreases in traffic flow on the existing A5025 at Cefn Coch (section 18) during the 2023 Wylfa Newydd Project scenario.	Long term	Large	Major beneficial	None	Large	Major beneficial
Motorised and public transport users	High	Motorised and public transport users experience significant increases in journey time along the A5 (section 47) during shift changeover periods.	Short term	Medium	Moderate adverse	None	Medium	Moderate adverse
Motorised and public transport users	High	Drivers travelling along section 13 (Llanfachraeth) experience decreases in driver stress in the PM peak period in the 2023 Wylfa Newydd Project scenario.	Long term	Medium	Moderate beneficial	None	Medium	Moderate beneficial
2033 peak operation								

Receptor (or group of receptors)	Value of receptor(s)	Description of potential effect	Nature of effect	Potential magnitude of change	Potential significance of effect	Additional mitigation	Post-mitigation magnitude of change	Significance of residual effect
Motorised and public transport users	High	Motorised and public transport users experience significant decreases in traffic flow on the existing A5025 at Llanfachraeth (section 12) during the 2033 Wylfa Newydd Project scenario.	Long term	Medium	Moderate beneficial	None	Medium	Moderate beneficial
Motorised and public transport users	High	Motorised and public transport users experience significant decreases in traffic flow on the existing A5025 at Cefn Coch (section 18) during the 2033 Wylfa Newydd Project scenario.	Long term	Large	Major beneficial	None	Large	Major beneficial
Motorised and public transport users	High	Drivers travelling along section 13 (Llanfachraeth) experience decreases in driver stress in the PM peak period in the 2033 Wylfa Newydd Project scenario.	Long term	Medium	Moderate beneficial	None	Medium	Moderate beneficial

2.8 References

Table C2-20 Schedule of references

ID	Reference
RD1	Department for Transport. 2017. *GB Road Traffic Counts*. [Online]. [Accessed: July 12 2017]. Available from: https://data.gov.uk/dataset/gb-road-traffic-counts
RD2	Department for Transport. 2017. *GB Road Traffic Counts*. [Online]. [Accessed: July 12 2017]. Available from: https://data.gov.uk/dataset/gb-road-traffic-counts
RD3	Department for Transport. 2004. *Stats20: Instructions for the completion of Road Accident Reports*. [Online]. [Accessed November 15 2016]. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/48824/stats20-2011.pdf
RD4	Welsh Assembly Government. 2008. A *Walking and Cycling Action Plan for Wales.* [Online]. [Accessed: 21 June 2017]. Available from: http://www.physicalactivityandnutritionwales.org.uk/Documents/740/Walking%20and%20Cycling%20Action%20Plan.pdf

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