

## **Wylfa Newydd Project**

### **6.3.11 ES Volume C - Road traffic-related effects (project-wide) App C2-1 - Driver Stress Calculations**

PINS Reference Number: EN010007

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Application Reference Number: 6.3.11

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June 2018

Revision 1.0

Regulation Number: 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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## Appendix C2.01 - Driver Stress

Purpose							
To assess driver stress for the traffic and transport study area to inform the DCO Environmental Statement for Traffic and Transport.							
Driver stress calculations are based on the 48 sections that comprise the study area as explained/ shown in the Traffic and Transport DCO Volume B Chapter. The assessments are based on outputs from the Strategic Traffic Model. Please refer to the table of peak hours shown below, for each assessed year.							
CRA-V							
Project Title		Project Code	Client				
Wylfa Newydd Project		60PO8077	Horizon Nuclear Power Limited				
Originator	Magda Lopez-Pedrosa	Date	12/12/2017	Revision	7		
Checker	Mark Fleming	Date	14/12/2017	Status	FINAL		
Reviewer	Hayden Taylor	Date	18/12/2017				
Notes							
Spreadsheet Methodology - Driver Stress							
<ul style="list-style-type: none"> <li>The driver stress methodology and calculations are based on Design Manual for Roads and Bridges: Volume 11, Section 3, Part 9, Vehicle Travellers as described in the Traffic and Transport DCO Volume B Chapter. The tables categorising the levels of driver stress in this environmental assessment for dual carriageways and single carriageways are shown below.</li> </ul>							
DUAL-CARRIAGEWAY ROADS							
Average peak hourly flow per lane, in flow Units/1 hour	Average Journey Speed Km/hr						
	Under 60	60-80	Over 80				
	High <sup>2</sup>	Moderate	Low				
	High	Moderate	Moderate				
Over 1600	High	High	High				
SINGLE-CARRIAGEWAY ROADS							
Average peak hourly flow per lane, in flow Units/1 hour	Average Journey Speed Km/hr						
	Under 50	50-70	Over 70				
	High <sup>2</sup>	Moderate	Low				
	High	Moderate	Moderate				
Over 800	High	High	High				
<ul style="list-style-type: none"> <li>The driver stress results for the A5025 Off-line Sections (Sections 10, 13, 16 and 19) are calculated based on a comparison of the existing A5025 against the new bypass section.</li> </ul>							
<p>A 'Significance' column by year has been added to this appendix. A tick (Ü) indicates that the section result is significant, whereas a cross (X) indicates that the section result is not significant.</p> <ul style="list-style-type: none"> <li>Ü(B)" in the significance column represents a beneficial significant effect.</li> <li>Ü(A)" in the significance column represents an adverse significant effect.</li> </ul>							
Peak hours for the driver stress assessment							
Scenario	AM Peak	PM Peak					
2016 Baseline	08:00-09:00	17:00-18:00					
2020 Ref. Case	08:00-09:00	17:00-18:00					
2020 WNP (Without Bypasses)	08:00-09:00	17:00-18:00					
2020 WNP (with Bypasses)	08:00-09:00	17:00-18:00					
2023 Ref. Case	08:00-09:00	17:00-18:00					
2023 WNP	08:00-09:00	17:00-18:00					
2033 Ref. Case	08:00-09:00	17:00-18:00					
2033 WNP	08:00-09:00	17:00-18:00					

## Appendix C2.01 - Driver Stress Section Results

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Section	Location	Direction	Urban / Rural	Speed (mph)	Speed (kph)	Road Type	2016 Baseline		2020 Reference Case		2020 Wylfa Newydd Project (without)		2020 Wylfa Newydd Project (with)		2023 Reference Case		2023 Wylfa Newydd Project		2033 Reference Case		2033 Wylfa Newydd Project		Significant?							
							AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	2020 (without bypasses)	2020 (with bypasses)	2023	2033		
25	A5 Rhosrehwfa to A5 Menai Bridge	Eastbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Westbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X		
26	Menai Bridge to A545 Beaumaris Road	Eastbound	Urban	30	48	Single carriageway	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	X	X	X	U(B)	
		Westbound	Urban	30	48	Single carriageway	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	X	X	X	U(B)	
27	Menai Bridge Only	Northbound	Urban	30	48	Single carriageway	Moderate	High	Moderate	High	Moderate	High	High	Moderate	High	Moderate	High	Moderate	High	Moderate	High	Moderate	High	Moderate	High	X	X	X	X	
		Southbound	Urban	30	48	Single carriageway	High	Moderate	High	Moderate	High	Moderate	High	Moderate	High	Moderate	High	Moderate	High	High	High	High	High	High	High	X	X	X	X	
28	A55 J9 to A5 Holyhead Road	Eastbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Westbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
29	A55 J9 to A487 Y Felinheli Bypass	Northbound	Rural	45	72	Single carriageway	High	Moderate	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	45	72	Single carriageway	Low	Low	Low	High	High	High	High	High	High	Low	High	High	High	Low	Moderate	High	High	High	High	U(A)	U(A)	U(A)	U(A)	
30	A4080 Ffordd Brynsiencyn to A5 Holyhead Road	Northbound	Rural	40	64	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	40	64	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
31	B5420 Llangefni to A5 Ffordd Caergybi	Eastbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Westbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
32	A55 J6 to A5114 Llangefni	Northbound	Urban	45	72	Single carriageway	High	High	High	High	Moderate	High	Moderate	High	High	High	High	High	High	High	High	High	High	High	High	High	U(B)	U(B)	X	X
		Southbound	Urban	45	72	Single carriageway	High	High	High	High	High	Moderate	High	High	High	High	High	High	High	High	High	High	High	High	High	High	U(B)	U(B)	X	X
33	B5109 to Pentraeth	Eastbound	Urban	45	72	Single carriageway	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	X	X	X	X
		Westbound	Urban	45	72	Single carriageway	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	X	X	X	X
34	B5110 Llangefni to A5025 Marian-glas	Northbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
35	B5111 Llangefni to Llannerch-y-medd	Northbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Urban	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
36	Llannerch-y-medd to Benllech	Northbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
37	B5111 Llannerch-y-medd to Amlwch	Northbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
38	B5111 Rhos-y-bol to Cemaes	Northbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
39	Rhos-y-bol to A5025 Burwen	Northbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
40	B5112 Llannerch-y-medd to A55 J5	Northbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Southbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
41	A5025 Llanfaethlu to B5112	Eastbound	Rural	45	72	Single carriageway	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	X	X	X	X	
		Westbound	Rural	45	72	Single carriageway	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	X	X	X	X	
42	B5109 Llanyngenedl to B5112	Eastbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Westbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
43	A55 J4 to Bodedern	Northbound	Urban	45	72	Single carriageway	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	X	X	X	X	
		Southbound	Urban	45	72	Single carriageway	High	High	High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	High	Moderate	Moderate	Moderate	U(B)	U(B)	U(B)	U(B)	
44	Llanfechell to A5025 Nanner Road	Eastbound	Rural	45	72	Single carriageway	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	X	X	X	X	
		Westbound	Rural	45	72	Single carriageway	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	X	X	X	X	
45	Ffordd-y-Felin to Tregevi via Cromlech Terrace	Eastbound	Rural	30	48	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Westbound	Rural	30	48	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
46	A55 J4 to A55 J3 (via A5)	Eastbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
		Westbound	Rural	45	72	Single carriageway	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	X	X	X	X	
47	A5 at Dalar Hir	Eastbound	Rural	45	72	Single carriageway	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	X	X	X	X	
		Westbound	Rural	45	72	Single carriageway	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	X	X	X	X	
48	Park and Ride entrance	Northbound	Rural	30	48	Single carriageway	-	-	-	-	High	High	High	High	-	-	High	High	High	High	-	-	High	High	-	-	-	-	-	
		Southbound	Rural	30	48	Single carriageway	-	-	-	-	High	High	High	High	-	-	High	High	High	High	-	-	High	High	-	-	-	-	-	

Note: Year marked as 'significant' based on whether the AM and/or PM peak hour of that year triggers significance criteria.