

Appendix A8.4: Wider Road Network Assessment

1 Introduction

- 1.1 As stated in paragraph 8.2.6 of Chapter 8 (Noise and Vibration), the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 7 HD 213/11 Revision 1 'Noise and Vibration' (Highways Agency, Transport Scotland, Welsh Government and The Department for Regional Development Northern Ireland 2011) indicates that an assessment of the impacts upon the wider network, i.e. noise sensitive receptors (NSRs) that are within 50m of roads outside the calculation area that are predicted to experience a change of 1dB or more in the short-term or 3dB or more in the long-term, should be undertaken. The study area, which highlights the affected road links included in the wider road network assessment, is shown in Figure 8.1.
- 1.2 There are 108 road links outside the noise calculation area which are predicted to meet the aforementioned criteria in the short-term and/or long-term. This includes 20 road links at A9/A82 Longman Junction in the long-term, where the road link layout is expected to change due to improvement works. It is difficult to compare basic noise levels (BNLs) where the road link layout at a junction changes, due to changes in the number and location of road links. The long-term road traffic noise levels with and without the proposed scheme are within 1dB of each other, indicating that the noise changes are due to A9/A82 Longman Junction Improvement Scheme and not the proposed scheme. Accordingly, these 20 road links have not been included in this assessment. There are no NSRs within 50m of these 20 road links.
- 1.3 Table 1 provides a list of road links that are predicted to experience a change of 1dB or more in the BNL during the short-term assessment and the number of NSRs that are within 50m of each affected road link. In addition, the table includes the annual average weekday traffic flow (AAWT), percentage of heavy goods vehicles and average traffic speed used to predict the BNL of each road link.
- 1.4 The assessment shows that, in the short-term, there are predicted to be 91 NSRs that are within 50m of an adversely affected road and there are 466 NSRs that are within 50m of a beneficially affected road.
- 1.5 Table 2 provides a list of the roads that are predicted to experience a change of 3dB or more in the long-term with the proposed scheme, and the number of NSRs that are within 50m of each affected road link. In addition, the table includes the annual average weekday traffic flow (AAWT), percentage of heavy goods vehicles and average traffic speed used to predict the BNL of each road link. The table also indicates whether the road link is predicted to experience a change of 3dB or more in the long-term without the proposed scheme. Where a road link is predicted to experience a change of 3dB or more in the long-term with and without the proposed scheme, this suggests that the noise change is primarily due to long-term traffic changes, rather than changes in traffic as a result of the proposed scheme.
- 1.6 The assessment shows that, in the long-term, the number of NSRs that are within 50m of an adversely affected road is 95 and there are 32 NSRs that are within 50m of a beneficially affected road.

Table 1: Wider Road Network Short-term Assessment

Road Link ID	Road Name	Do-Minimum Baseline (2022)				Do-Something Baseline (2022)				Noise Level Difference (dB)	Qualitative Effect	Number of NSRs within 50m of Road Link
		18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)	18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)			
114495406_114495420	Access to A9	958	5	48	57.7	1,097	10	48	59.6	1.9	Adverse	0
114495406_114497072	B9177	1,328	4	48	58.8	1,415	8	48	60.2	1.4	Adverse	1
114497072_237403829	B9177	1,328	4	48	58.8	1,415	8	48	60.2	1.4	Adverse	0
34527_114497074	B9177	1,680	3	80	62.6	1,933	6	80	63.9	1.3	Adverse	3
34527_34528	B9177	1,680	3	80	62.6	1,933	6	80	63.9	1.3	Adverse	4
34528_114494852	B9177	1,680	3	80	62.6	1,933	6	80	63.9	1.3	Adverse	8
114493341_114497570	Ban Church Road	3,772	2	60	63.9	2,940	1	61	62.6	-1.3	Beneficial	40
114493341_114579448	Ban Church Road	3,772	2	60	63.9	2,940	1	61	62.6	-1.3	Beneficial	19
114497463_114579448	Ban Church Road	3,772	2	60	63.9	2,940	1	61	62.6	-1.3	Beneficial	0
114493044_114493049	Barn Church Road	4,636	1	59	64.3	3,732	0	60	63.2	-1.1	Beneficial	2
114493049_114493051	Barn Church Road	2,512	2	61	62.2	1,612	1	63	60.2	-2.0	Beneficial	0
114493051_114493082	Barn Church Road	2,694	3	62	62.9	1,816	2	63	61.0	-1.9	Beneficial	1
114493082_114497198	Barn Church Road	2,694	3	62	62.9	1,816	2	63	61.0	-1.9	Beneficial	0
114493208_114497201	Barn Church Road	2,694	3	62	62.9	1,816	2	63	61.0	-1.9	Beneficial	1
114493563_114497570	Barn Church Road	3,772	2	60	63.9	2,940	1	61	62.6	-1.3	Beneficial	8
114497198_114497201	Barn Church Road	2,694	3	62	62.9	1,816	2	63	61.0	-1.9	Beneficial	0
33897_114493208	Barn Church Road	3,984	2	60	64.1	3,178	1	61	62.9	-1.2	Beneficial	0
33897_35074	Barn Church Road	3,984	2	60	64.1	3,178	1	61	62.9	-1.2	Beneficial	0
33906_114493037	Barn Church Road	4,636	1	59	64.3	3,732	0	60	63.2	-1.1	Beneficial	2
33906_33907	Barn Church Road	4,636	1	59	64.3	3,732	0	60	63.2	-1.1	Beneficial	2
33907_114493044	Barn Church Road	4,636	1	59	64.3	3,732	0	60	63.2	-1.1	Beneficial	1
35074_114497463	Barn Church Road	3,984	2	60	64.1	3,178	1	61	62.9	-1.2	Beneficial	8
114494477_114497458	Caulfield Road	4,746	1	46	63.1	1,747	0	47	58.4	-4.7	Beneficial	15
34225_114494477	Caulfield Road	4,746	1	44	62.9	1,747	0	47	58.4	-4.5	Beneficial	18
33729_114495016	Daviot Road	870	2	48	56.3	804	0	48	55.1	-1.2	Beneficial	32
114494976_114494996	Drynie Avenue	917	2	48	56.5	845	0	48	55.3	-1.2	Beneficial	21

Road Link ID	Road Name	Do-Minimum Baseline (2022)				Do-Something Baseline (2022)				Noise Level Difference (dB)	Qualitative Effect	Number of NSRs within 50m of Road Link
		18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)	18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)			
114494996_114495016	Drynie Avenue	917	2	48	56.5	845	0	48	55.3	-1.2	Beneficial	18
237404125_237404128	Longman Junction	30,042	7	48	73.2	29,685	6	35	72.1	-1.1	Beneficial	0
237404129_237404123	Longman Junction	27,195	7	48	72.8	26,763	6	35	71.6	-1.2	Beneficial	0
35664_114493875	Margaret Street	1,068	8	32	58.2	1,114	12	32	59.5	1.3	Adverse	75
114495034_114497428	Merlewood Road	1,154	2	48	57.5	972	0	48	55.9	-1.6	Beneficial	16
114497428_114495067	Merlewood Road	1,154	2	48	57.5	972	0	48	55.9	-1.6	Beneficial	14
114494533_114494634	Muirfield Road	1,686	2	47	59.1	1,498	0	47	57.7	-1.4	Beneficial	17
114494634_114494702	Muirfield Road	1,686	2	47	59.1	1,498	0	47	57.7	-1.4	Beneficial	12
114494702_114494760	Muirfield Road	1,560	2	47	58.7	1,375	0	47	57.3	-1.4	Beneficial	23
114494760_114494778	Muirfield Road	1,560	2	47	58.7	1,375	0	47	57.3	-1.4	Beneficial	7
114494778_114497927	Muirfield Road	1,560	2	47	58.7	1,375	0	47	57.3	-1.4	Beneficial	7
114494824_114494861	Muirfield Road	1,560	2	48	58.8	1,375	0	48	57.5	-1.3	Beneficial	8
114494824_114497927	Muirfield Road	1,560	2	47	58.7	1,375	0	47	57.3	-1.4	Beneficial	11
114497069_900000008	Newton Junction	1,046	4	97	62.4	476	0	97	58.1	-4.3	Beneficial	0
114494976_114494977	Temple Crescent	917	2	48	56.5	845	0	48	55.3	-1.2	Beneficial	16
114493597_114497459	Tower Road	8,875	2	60	67.6	4,413	1	62	64.5	-3.1	Beneficial	0
114494404_237404024	Tower Road	8,929	2	53	66.9	4,498	1	59	64.2	-2.7	Beneficial	5
114494436_114497458	Tower Road	8,929	2	53	66.9	4,498	1	59	64.2	-2.7	Beneficial	12
114494683_114494684	Tower Road	2,560	1	64	62.3	1,586	1	64	60.2	-2.1	Beneficial	4
114494684_114494690	Tower Road	1,753	5	64	61.8	1,448	1	64	59.8	-2.0	Beneficial	3
114497346_237403897	Tower Road	8,875	2	53	66.9	4,413	1	58	64.0	-2.9	Beneficial	10
237403897_237404072	Tower Road	7,297	2	55	66.2	2,939	0	61	62.2	-4.0	Beneficial	7
237403899_237404024	Tower Road	8,929	2	53	66.9	4,498	1	59	64.2	-2.7	Beneficial	35
237403899_237404072	Tower Road	7,297	2	55	66.2	2,939	0	61	62.2	-4.0	Beneficial	18
33559_114493764	Tower Road	8,875	2	53	66.9	4,413	1	58	64.0	-2.9	Beneficial	4
33559_114497346	Tower Road	8,875	2	53	66.9	4,413	1	58	64.0	-2.9	Beneficial	16

Road Link ID	Road Name	Do-Minimum Baseline (2022)				Do-Something Baseline (2022)				Noise Level Difference (dB)	Qualitative Effect	Number of NSRs within 50m of Road Link
		18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)	18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)			
33871_114494404	Tower Road	8,929	2	53	66.9	4,498	1	59	64.2	-2.7	Beneficial	11
33871_35052	Tower Road	8,929	2	53	66.9	4,498	1	59	64.2	-2.7	Beneficial	1
33915_114493764	Tower Road	8,875	2	53	66.9	4,413	1	58	64.0	-2.9	Beneficial	22
33915_33916	Tower Road	8,875	2	53	66.9	4,413	1	58	64.0	-2.9	Beneficial	0
33916_114493597	Tower Road	8,875	2	53	66.9	4,413	1	58	64.0	-2.9	Beneficial	0
34227_114497458	Tower Road	4,517	3	58	64.8	3,147	1	60	62.8	-2.0	Beneficial	5
34227_34228	Tower Road	4,517	3	58	64.8	3,147	1	60	62.8	-2.0	Beneficial	3
34228_114494684	Tower Road	4,517	3	58	64.8	3,147	1	60	62.8	-2.0	Beneficial	26
35052_114494436	Tower Road	8,929	2	53	66.9	4,498	1	59	64.2	-2.7	Beneficial	0

Table 2: Wider Road Network Long-term Assessment

Road Link ID	Road Name	Do-Minimum Baseline (2022)				Do-Something Future (2037)				Noise Level Difference (dB)	Qualitative Effect	Number of NSRs within 50m of Road Link	Affected Route Without the Proposed Scheme
		18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB))	18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB))				
35543_124437527	A862	1,830	3	64	61.4	3,772	4	63	64.8	3.4	Adverse	11	Yes
35543_124438528	A862	1,830	3	64	61.4	3,772	4	63	64.8	3.4	Adverse	18	Yes
114495406_114495420	Access to A9	958	5	48	57.7	2,167	6	48	61.5	3.8	Adverse	0	No
118613730_118701547	Airport Junction	570	0	97	58.9	1,220	1	97	62.4	3.5	Adverse	0	No
118613730_118701552	Airport Junction	570	0	97	58.9	1,220	1	97	62.4	3.5	Adverse	0	No
118701547_118701584	Airport Junction	570	0	97	58.9	1,220	1	97	62.4	3.5	Adverse	0	No
118701552_900000030	Airport Junction	730	2	97	60.4	1,586	3	97	64.0	3.6	Adverse	0	No
118701565_118701584	Airport Junction	570	0	97	58.9	1,220	1	97	62.4	3.5	Adverse	0	No
900000030_900000011	Airport Junction	504	0	97	58.4	1,233	1	97	62.5	4.1	Adverse	0	No

Road Link ID	Road Name	Do-Minimum Baseline (2022)				Do-Something Future (2037)				Noise Level Difference (dB)	Qualitative Effect	Number of NSRs within 50m of Road Link	Affected Route Without the Proposed Scheme
		18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB))	18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB))				
114495443_114495444	B862 Holm Roundabout - Torbreck	1,091	0	45	56.1	2,447	0	45	59.6	3.5	Adverse	2	Yes
114492908_114492911	B9039	3,035	5	20	62.3	4,153	5	80	67.0	4.7	Adverse	0	Yes
114492860_114492861	B9161	2,459	0	72	62.7	5,516	0	71	66.1	3.4	Adverse	0	Yes
114492861_124314192	B9161	2,459	0	72	62.7	5,516	0	71	66.1	3.4	Adverse	0	Yes
114492874_114492881	B9161	2,459	0	72	62.7	5,519	0	71	66.1	3.4	Adverse	0	Yes
124314192_124320554	B9161	2,459	0	72	62.7	5,516	0	71	66.1	3.4	Adverse	5	Yes
124320554_124320555	B9161	2,459	0	72	62.7	5,516	0	71	66.1	3.4	Adverse	4	Yes
124320555_124437374	B9161	2,459	0	72	62.7	5,516	0	71	66.1	3.4	Adverse	0	Yes
35294_114492860	B9161	2,459	0	72	62.7	5,519	0	71	66.1	3.4	Adverse	1	Yes
35294_114492874	B9161	2,459	0	72	62.7	5,519	0	71	66.1	3.4	Adverse	0	Yes
114495406_114497072	B9177	1,328	4	48	58.8	2,504	6	48	62.2	3.4	Adverse	1	No
114497072_237403829	B9177	1,328	4	48	58.8	2,504	6	48	62.2	3.4	Adverse	0	No
34527_114497074	B9177	1,680	3	80	62.6	3,860	3	80	66.3	3.7	Adverse	3	No
34527_34528	B9177	1,680	3	80	62.6	3,860	3	80	66.3	3.7	Adverse	4	No
34528_114494852	B9177	1,680	3	80	62.6	3,860	3	80	66.3	3.7	Adverse	8	No
114494477_114497458	Caulfield Road	4,746	1	46	63.1	2,102	0	47	59.2	-3.9	Beneficial	15	No
34225_114494477	Caulfield Road	4,746	1	44	62.9	2,102	0	46	59.1	-3.8	Beneficial	18	No
114494309_114494318	Kenneth Street	807	0	20	53.0	1,110	0	48	56.5	3.5	Adverse	4	Yes
114494475_237403837	Smith Avenue	2,245	0	31	57.8	3,144	5	30	61.9	4.1	Adverse	20	No

Road Link ID	Road Name	Do-Minimum Baseline (2022)				Do-Something Future (2037)				Noise Level Difference (dB)	Qualitative Effect	Number of NSRs within 50m of Road Link	Affected Route Without the Proposed Scheme
		18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)	18 Hr AAWT	% of Heavy Goods Vehicles	Average Traffic Speed (kph)	Basic Noise Level (L _{A10,18h}) (dB)				
114494486_114494503	Smith Avenue	2,245	0	30	57.8	3,144	5	30	61.9	4.1	Adverse	31	No
114494503_114494525	Smith Avenue	2,245	0	32	57.9	3,144	5	32	61.9	4.0	Adverse	25	No
114492838_114492847	Tornagrain - Cantraywood Road Junction	414	0	80	55.8	1,821	0	79	62.1	6.3	Adverse	2	Yes
114492865_114492866	Unnamed Road Crossing A9	1,092	0	44	56.0	3,075	0	41	60.2	4.2	Adverse	0	Yes
812212129_812212131	Unnamed Road Off Stadium Road	180	52	48	56.7	1,494	8	48	60.4	3.7	Adverse	0	Yes
114492811_114492815	Unnamed Road Passing Anlyn Grove	292	0	45	50.4	1,162	0	43	56.2	5.8	Adverse	1	Yes
114492811_124314620	Unnamed Road Passing Anlyn Grove	292	0	45	50.4	1,162	0	43	56.2	5.8	Adverse	2	Yes
114492815_114492822	Unnamed Road Passing Anlyn Grove	292	0	45	50.4	1,159	0	43	56.1	5.7	Adverse	1	Yes
124436481_124438350	Unnamed Road Passing Balgalkin	122	0	80	50.5	1,031	10	80	61.9	11.4	Adverse	1	Yes