

E6 Ranheim – Værnes

Number of addresses in yellow and red noise zones

E6RV-MUL-AC-RPT-CA#00-0003



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SUMMARY

In this report the number of addresses along the planned E6 that are in the yellow or red noise zone from the road, according to the limit values for road traffic given in T-1442/2016, are listed in two tables. The results from two different calculation models with two different traffic numbers are presented.

The results show that the increased number of traffic results is approximately 200 more addresses in the yellow or red noise zone.

INTRODUCTION

Multiconsult has, on behalf of Acciona, summarized and compared the number of addresses in yellow and red noise zones along planned E6 Ranheim - Værnes calculated by Brekke & Strand (B&S) in 2017⁽¹⁾ and Multiconsult (MC) in 2019^{(2),(3),(4)}.

B&S and MC have used two different calculation models including different road line and different traffic numbers. B&S calculated traffic noise with traffic numbers from Attachment 5 in the contract (B&S 2017). MC calculated traffic noise with traffic numbers received from Nye Veier (April 2019). The traffic numbers from Nye Veier were substantially larger than the numbers in Attachment 5.

This note aims to show the difference in the number of addresses in the yellow and red noise zones as a result of different traffic numbers. The results from both the calculations done by B&S in 2017 and MC in 2019 are presented. Also, results from calculations done with the B&S calculation model but with traffic numbers from Nye Veier (2019), and calculations with the MC calculation model but with traffic numbers from Attachment 5 (2017) are presented.

NUMBER OF HOUSES IN YELLOW AND RED ZONE

The number of addresses in yellow and red noise zones for the three municipalities Trondheim, Malvik and Stjørdal has been extracted from the calculations by B&S in 2017 and MC in 2019. To find the difference due to increased traffic numbers, it is also made calculations where traffic numbers from Nye Veier (2019) are included in the B&S model and traffic numbers from Attachment 5 (2017) are included in the MC model.

In 2017, a lower limit of $L_{den} = 55$ dB was used for the yellow noise zone in all three municipalities. In 2019 Stjørdal municipality decided that in Stjørdal the lower limit value for the yellow noise zone should be at $L_{den} = 52$ dB. The number of addresses in yellow/red noise zone with $L_{den} = 52$ dB/62 dB limits in Stjørdal are given in Table 1.

Number of addresses in yellow and red noise zones

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Table 1: Comparison of number of houses affected by noise in Trondheim (55dB/65dB), Malvik (55dB/65dB) and Stjørdal (52dB/62dB)

The number of addresses that was indicated in 2019 as necessary to consider for local noise barrier measures is highlighted in blue.

Noise model ⁽⁵⁾		Brekke & Strand (B&S)		Multiconsult			
		110 km/t		110 km/t			
Traffic numbers		Old traffic numbers	New traffic numbers	Old traffic numbers ⁽⁹⁾		New traffic numbers	
Old – Traffic 2040 from attachment 5 (2017)							
New – Traffic 2045 received from Nye Veier in April 2019							
With or without noise barrier / noise measures		⁽⁶⁾	⁽⁶⁾	With barrier	Without barrier	With barrier	Without barrier
Trondheim	Yellow zone 55 dB	297 ⁽⁷⁾	392 ⁽⁸⁾	160	192	191	213
	Red zone 65 dB	68 ⁽⁷⁾	106 ⁽⁸⁾	45	45	90	90
Malvik	Yellow zone 55 dB	140	203	209	345	279	475
	Red zone 65 dB	35	46	31	51	50	73
Stjørdal	Yellow zone 52 dB	119	133	108	112	138	138
	Red zone 62 dB	8	15	5	7	9	12
Total	Yellow zone	556	728	477	649	608	826
	Red zone	111	167	81	103	149	175
	Yellow and red zone	667	895	558	752	757	1001

The number of addresses in yellow/red zone at $L_{den} = 55 \text{ dB}/65 \text{ dB}$ limits in Stjørdal are given in Table 2.

Table 2: Comparison of number of houses affected by noise in Trondheim (55dB/65dB), Malvik (55dB/65dB) and Stjørdal (55dB/65dB)

The number of addresses that was indicated in 2017 as necessary to consider for local noise barrier measures is highlighted in blue.

Noise model ⁽⁵⁾		Brekke & Strand (B&S)		Multiconsult			
		110 km/h		110 km/h			
Traffic numbers		Old traffic numbers	New traffic numbers	Old traffic numbers ⁽⁹⁾		New traffic numbers	
Old – Traffic 2040 from attachment 5 (2017)							
New – Traffic 2045 received from Nye Veier in April 2019							
With or without noise barrier / noise measures		(6)	(6)	With barrier	Without barrier	With barrier	Without barrier
Trondheim	Yellow zone 55 dB	297 ⁽⁷⁾	392 ⁽⁸⁾	160	192	191	213
	Red zone 65 dB	68 ⁽⁷⁾	106 ⁽⁸⁾	45	45	90	90
Malvik	Yellow zone 55 dB	140	203	209	345	279	475
	Red zone 65 dB	35	46	31	51	50	73
Stjørdal	Yellow zone 55 dB	85	111	47	71	95	101
	Red zone 65 dB	3	6	4	4	4	5
Total	Yellow zone	522	706	416	608	565	789
	Red zone	106	158	80	100	144	168
	Yellow and red zone	628	864	496	708	709	957

- (1) E6 Ranheim – Værnes, Konsekvensutredning støy, endring av hastighet fra 90 til 110km/t (**Attachment 5 in contract**)
- (2) E6RV-MUL-EV-RPT-TBAXX-0001: STØYBEREGNINGER E6 RANHEIM – REPPE
- (3) E6RV-MUL-AC-RPT-CA#00-0001: STØYBEREGNINGER E6 MALVIK
- (4) E6RV-MUL-AC-RPT-CA#00-0002: STØYBEREGNINGER E6 STJØRDAL
- (5) B&S has not included noise from tunnel entrances => More noise in MC model.
B&S has a tunnel in Hommelvik => More noise in MC model.
B&S has omitted many intersections and ramps, but included some local roads => More noise in the MC model.
B&S has the same speed limit for heavy cars as for light cars. The MC model has a 90 km/h speed limit for heavy cars => Less noise in the MC model.
B&S has a speed limit of 110 km/h on the Sandfærhusbrua - Værnes section, while the MC model has 90 km/h on the same road section => Less noise in the MC model.
B&S has calculated noise on facades for all types of buildings (commercial buildings are included in the number) => Fewer addresses in MC model.
- (6) B&S has not calculated any barriers other than an embankment at Hellstranda. This is because of the conclusion in the 90km/h -zoning plan that it is difficult to shield.
- (7) B&S has included a total of 165 addresses in yellow (157) and red (8) noise zones that MC has defined to be outside the plan area (west of Vikelvvegen). => Fewer addresses in MC model.
- (8) B&S has included several addresses that MC has defined to be outside the plan area (west of Vikelvvegen). => Fewer addresses in MC model.
- (9) Traffic on the intersections / ramps / local roads that were not included in B&S's noise calculation are estimated using the percentage difference between old and new traffic numbers on E6.