

# **LANCASHIRE COUNTY COUNCIL**

## **CALLED IN PLANNING APPLICATION FOR PROPOSED HEYSHAM TO M6 LINK ROAD**

LAND TO THE NORTH OF LANCASTER BEGINNING AT THE END OF  
THE A683 HEYSHAM TO M6 LINK PHASE 1 AND RUNNING IN AN  
EASTERLY DIRECTION TO CONNECT WITH THE M6 AT JUNCTION  
34 OF THE M6

Planning Inspectorate reference:  
APP/Q2371/N/07/1200928 and  
APP/Q2371/N/07/1200929

LPA reference:  
01/05/1584

**PROOF OF EVIDENCE**  
**CLIVE FREDERICK LOFFLER-THOMPSON**  
Principal Engineer Roads

Traffic Noise

June 2007

## **1. INTRODUCTION**

1.1 I am Clive Frederick Loffler-Thompson employed as a Principal Engineer (Roads) by Lancashire County Council in the Roads Division of the Highways and Environmental Management Section of the Environment Directorate. I have a Bachelor of Science with Honours Degree in Civil Engineering and am a Chartered Engineer and Member of the Institution of Civil Engineers. I have thirty-one years experience in highway design and supervision.

## **2. BACKGROUND**

2.1 The sensitivity of the human ear to different frequencies in the audible range is not uniform. In order to rank the noisiness of road vehicles, sound pressure levels have to be adjusted to give comparatively more weight to the frequencies that are most readily detected by the human ear. The "A" weighting gives the best correlation with the perceived noisiness of vehicles and noise levels are expressed in dB(A) where the (A) refers to the "A" weighting.

2.2 The noise from a traffic stream varies from moment to moment, and for assessment purposes an index is used to arrive at a single figure estimate for the overall noise level. The index adopted to assess traffic noise is  $LA_{10, 18h}$  which is the arithmetic mean of the noise levels exceeded for 10% of the time in each of the 18 one hour periods between 6am and midnight. A good correlation has been shown to exist between this index and residents' dissatisfaction with traffic noise over a wide range of exposures.

2.3 The noise level of two sources can be calculated by adding a correction to the higher level, the bigger the difference between the two noise levels to be added the smaller the correction. As noise levels are added together using a logarithmic scale the correction rapidly diminishes as the difference between the two noise levels increases. The maximum correction is 3dB(A) and this occurs when the noise levels to be added are equal and the difference is zero. The rapid decrease in the correction value is demonstrated by only 1 dB(A) being added for a difference of 6 dB(A) and nothing is added for differences exceeding 19 dB(A). It has been shown that an addition of 10 dB(A) is perceived as a doubling of the noise level and this would require the addition of ten equal noise levels.

2.4 Research into the relationship between traffic noise and its nuisance impact on people has shown that people are more sensitive to abrupt changes in traffic noise associated with new road schemes than to a gradual change that takes place over a period of time such as that associated with general traffic growth. In the period following a sudden change in traffic flow, people may experience benefits or disbenefits (nuisance) with noise changes as small as 1dB(A) and these effects may last for a number of years.

2.5 An increase or decrease in traffic noise of 1dB(A) is equivalent to an increase in volume of traffic of 25% or a decrease in volume of traffic of 20%. Only the proposed highway scheme and highways that have at least these changes in traffic flows have been included in the noise assessment. Additionally only properties lying within 300 metres of these highways have been included in the assessment. As a rough guide the noise level would be 38 db(A) in a quiet bedroom, 60 db(A) in a busy office and at 55 db(A) conversation starts to become difficult.

### **3. EXISTING TRAFFIC NOISE**

3.1 As part of the Environmental Impact Assessment Study the County Council commissioned a Noise Survey Report of the existing ambient noise levels at 5 sites situated along the prospective route. The survey showed that the highest recorded ambient noise level was 65.2 dB(A) at Shefferlands approximately 90 metres west of the M6, with the lowest reading being 49.8 dB(A) at Beaumont Junction approximately 48 metres west of the A6.

3.2 The existing traffic conditions are such that the whole of the main highway network within the conurbation is working at or near capacity and severe traffic congestion on the main highway arteries occurs at peak periods throughout the working week as well as at weekends. Throughout the working day there is still a high level of congestion that prevents the free flow of traffic along Morecambe Road, the Greyhound and Skerton Bridges and the City Centre gyratory systems. The congestion on the main routes has led to a large number of motorists “rat-running” through residential and rural areas spreading traffic congestion and disruption during the peak travel hours.

- 3.3 At the present time the roads generating the most traffic noise within the conurbation are the M6 Motorway, A6, A589 and the A683. The Motorway, while generating the highest noise levels, causes the least traffic noise disruption due to its location with respect to the main housing areas and the topography of the area it runs through. However along the eastern side of the conurbation the motorway does provide the “ambient” noise where it bypasses Lancaster. The motorway crosses the River Lune at an elevated level and here it is particularly intrusive.
- 3.4 In the assessment area in the Do Minimum situation in 2010 820 residential, 126 commercial and 15 industrial properties will experience noise levels in excess of 70 db(A).

#### **4. TRAFFIC NOISE IMPACT**

- 4.1 On completion of the Link Road there will be a radical redistribution of road traffic within the Lancaster-Morecambe area and as a direct result of this a considerable number of properties will see a change in noise level. The forecast traffic figures on scheme opening show a range of increases and decreases from +125% on the A683 between Mellishaw Lane Roundabout and Northgate to -62% on the A5105 Coastal Road between Hest Bank and the A6.
- 4.2 In general terms the traffic flows move from the existing road network on to the Link Road. In particular the A5105 Coast Road, the A6 between the Link Road and the A683 Morecambe Road, the B5321 Torrisholme/Lancaster Road and the A683 between the Link Road and M6 Junction 34 are beneficiaries.

- 4.3 On the other hand the A683 Lancaster-Morecambe Bypass, A589 Morecambe Road between Shrimp Roundabout and the Link Road, B5273 Mellishaw Lane and the A6 between the Link Road and the A5105 Coast Road have the greatest increases in traffic flows.
- 4.4 In the assessment area in the Do Something situation by 2025 2,784 properties will have an increase and 11,696 properties will have a decrease of between 1 and 3 db (A), 1 property will have an increase and 3,189 properties will have a decrease of between 3 and 5 db (A), 741 properties will have an increase of between 5 and 10 db (A) and 107 properties will have an increase of between 10 and 15 db (A).

## **5. MITIGATION MEASURES**

- 5.1 The proposed mitigation measures would consist of landscaping works by way of the provision of earth bunds, false cuttings, together with the provision of noise attenuation barriers on both sides of the scheme from the A683 Morecambe Road to the commencement of the false cutting some 100 metres northeast of the proposed Torrisholme Road Bridge. It should also be noted that the "Calculation of Road Traffic Noise" states "calculations will slightly underestimate the attenuation effects, particularly where intervening ground is intensively cultivated or planted". Thus the extensive tree, shrub and other planting that would be incorporated into the landscaping works would, when established, improve noise attenuation and reduce the noise level received at properties adjacent to the Link Road.

- 5.2 It should be noted that the noise calculations carried out to date have been concerned with general noise levels with a façade correction added rather than specific facade noise levels at any particular property. Therefore, each property within 300 metres of the scheme would be reassessed for eligibility and qualification for noise insulation under the Noise Insulation Regulations.
- 5.3 Additionally the calculations of road traffic noise have assumed that the road surface would be hot rolled asphalt. The proposals are now to use a “quieter” road surfacing material that would reduce road traffic noise levels from the Link Road. The reductions for these products range from 2 to 4 db(A) in dry weather, but are less effective on low speed roads and at junctions where tyre noise is not the predominant source of road traffic noise. The County Council will be specifying that the road surfacing material should provide an attenuation in dry conditions of at least 3db(A). This attenuation will benefit 2,480 properties.

## **6. CONCLUSIONS**

- 6.1 It is not possible to completely remove the impact of road traffic noise associated with the Link Road itself. However the proposed mitigation measures will reduce the impact of the proposed scheme.
- 6.2 As with all highway improvement schemes the Link Road will have both advantages and disadvantages with respect to road traffic noise. The main centres of population that will be disadvantaged will be in Torrisholme and Skerton where a number of properties would experience an increase in noise. However the assessment shows 3,633 properties will have an increase in road traffic noise and 14,885 will have a decrease in road traffic noise.