CRCL/R/OBJ95

PROPOSED CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER

CHILTERN RAILWAYS' REBUTTAL PROOF OF EVIDENCE

IN RELATION TO

THE OBJECTION AND EVIDENCE OF

DR S YOUNG

1 Introduction

1.1 This rebuttal proof of evidence has been prepared on behalf of the Chiltern Railway Company Limited (Chiltern Railways) to respond to particular aspects of the objection and evidence of Dr S Young.

1.2 In particular, Dr Young has raised new points in his proof of evidence provided for the inquiry that Chiltern Railways had not previously addressed in the proofs of evidence prepared by their witnesses, which were submitted to the Inspector and to certain objectors on 1 October 2010.

1.3 It is not intended that this rebuttal proof should repeat material that witnesses for Chiltern Railways have already covered in their evidence. Cross-references to relevant paragraphs of those witnesses' proofs of evidence are given below, where appropriate.

1.4 It is intended that this rebuttal proof should be a composite response by Chiltern Railways to those new points raised in the evidence of Dr S Young and referred to above. In this respect, for cross-examination purposes, the name of the Chiltern Railways witness who is responsible for each aspect of this rebuttal proof is given at the beginning of each section below.

2 Defined Terms

2.1 The following defined terms are referred to throughout this rebuttal proof:

"the Correspondence"	means correspondence in the form of letters between Chiltern Railways and Dr S Young dated 15 February 2010, 1 June 2010, 29 July 2010 and 18 October 2010 attached as Appendix A to this rebuttal proof;
"the Objector"	means Dr Young;
"the Objector's evidence"	means the proof of evidence of Dr Young dated 30 September 2010;
"the Order application"	means the application for the proposed Order submitted on 6 January 2010 and the Proposed Modification dated 9 September 2010; and
"the proposed Order"	means the proposed Chiltern Railways (Bicester to Oxford Improvements) Order.

3 Chiltern Railways' Rebuttal of the Objector's Evidence

3.1 The Objector lives at 398 Woodstock Road, Oxford some 34 metres from the railway.

Operational Noise Impacts, Michael Fraser

3.2 The Objector believes that Chiltern Railways, in presenting day time noise levels for residents in Lakeside rising from 57 dB to 59 dB, and the use of a time averaged noise metric (L_{Aeq}) have underestimated the increase in the operational noise of the Order Scheme during the moment that a train passes. The Objector provides anecdotal evidence which he believes supports this premise. The first of these relates to noise levels adjacent to the main London Line at a similar distance to his property from the Order Scheme where he experienced a 'shock wave' of noise from a passing express train whilst passing a gap between office buildings. The second occasion quoted was in Lakeside Park when the Objector found himself 'continuously distracted by the hooting and roaring of diesel engines'. The Objector maintains that both these incidents demonstrate that the difference in noise levels from the 'express train' compared to the two carriage commuter trains that currently pass his property are significantly greater than those predicted by Chiltern Railways with the Order Scheme.

3.3 The Objector expresses concern that extensive removal of the existing line side vegetation, which he says currently acts as a noise barrier, will result in increases in noise levels in the Wolvercote Tunnel area. The Objector seeks the retention of existing vegetation wherever possible.

3.4 The Objector has not been specific about where the noise levels he refers to appear in evidence. The only mention of a noise level increase from 57 to 59 dB is in Table 6.12 of the ES [**CD/1.16**]. These figures are for daytime increases with Phase 1 of the Order Scheme in place (without mitigation beyond good maintenance). It is

noted that the noise changes are relatively low during the day in Phase 1 because there is no increase in freight, and the Phase 1 passenger service replaces the existing train service that currently runs on the line. These predictions are robust and have been carried out using the standard noise predictions methodology for railway noise CRN [**CD/5.12**]. CRN uses the L_{Aeq} metric.

3.5 Detailed surveys have been carried out into people's responses to different sources of noise and these have been used to define which noise metrics provide good relationships with perceived noisiness. PPG24 (which is the relevant Planning Policy Guidance on Planning and Noise issued by the Department for Communities and Local Government) [**CD/3.4**] which deals with the assessment of environmental noise from different sources, recommends the use of the metric L_{Aeq}, period for all types of transportation noise.

3.6 It is important to appreciate that whilst L_{Aeq} does give a measure of the accumulated noise over a period of time it is not a conventional arithmetic average. It is in fact a logarithmic average. The effect of this is to give a high weighting to high noise levels even if they are relatively short lived or infrequent peaks.

3.7 The difference between arithmetic and logarithmic (L_{Aeq}) averaging can be illustrated by considering the average age of a class of 30 children and their teacher. Suppose the children are 5 years old and the teacher is 40 years old. The arithmetic average age is just 6, whereas the logarithmic (L_{eq}) average is 16. This partly explains why L_{eq} has been found to be a good indicator of the effects of noise that comprise a series of varying signals over a period of time, such as railway noise.

3.8 A L_{Aeq} can be calculated over different time periods depending on the characteristics of the noise and how people are exposed to it. If the noise is steady, a relatively short measurement period will be sufficient to characterise it. If it fluctuates randomly or has cyclical elements, then a longer measurement period will be required to obtain a representative sample. Some standards specify a measurement period, but 10 to 15 minutes is often adequate to obtain repeatable results. In terms of train noise for Chiltern Railways, the approach that has been taken is to identify the noise levels from individual trains and to use these to calculate the noise levels over suitable day and night periods.

3.9 Since the ES was produced, refined noise modelling and monitoring has been undertaken. The results reported in Michael Fraser's evidence have been further refined, and it has been possible to show that impacts at Lakeside will not be significant at any property. This is modelled by assuming a two metre noise barrier. This information was sent to individual objectors relating to noise impacts at their properties in a letter from ERM to objectors which was sent on 29 October 2010.

3.10 The first example of train pass-by noise that is given by the Objector is of a train passing between two office blocks. It is noted that in this case the onset of noise will be much shorter than in an open situation, or where noise is constantly screened by a long barrier as is likely to be required all the way along Lakeside. Therefore, the onset of noise will be more gradual than was experienced on Milton Park.

3.11 The second example given by the Objector is that trains gave rise to 'hooting and roaring' sounds, and were found to be distracting. It is noted that a benefit of the proposals will be the closure of open crossings and the corresponding reduction in a need for whistles or "hooting". There is no requirement for drivers to sound their horns on entering or leaving the Wolvercot Tunnel. The Order Scheme will therefore have a positive effect in terms of reducing this noise source.

3.12 Trains are not likely to be on 'full power' on the section of track by the Objector's property in Lakeside. Therefore, 'roaring of diesel engines' is not likely to be a feature of the noise from the railway. The main source of noise will be the rail/wheel interface.

3.13 Lineside trees do not significantly reduce noise levels. However, in some areas they can have an amenity value. The Code of Construction Practice [**CD/1.24**] states that *"In line with best practice and relevant legislation and standards, tree and scrub removal will be avoided wherever possible. Where existing trees have amenity value, for example, at Bicester, Islip and Water Eaton stations and around Tubbs Lane, in Bicester, it will be a requirement to replace any trees that are removed with a suitably sized transplant to the approval of the local authority*."

Night Time Construction Noise Impacts, Michael Fraser

3.14 The Objector notes that 24 hour construction activity in the Wolvercote Tunnel will lead to unacceptable night-time noise levels at his property without extensive mitigation measures.

3.15 At the time of writing the ES [**CD/1.16**] it had been Chiltern Railways intention to seal the ends of Wolvercot tunnel to reduce noise from night time works, but this is not now going to be possible due to the need to keep the tunnel open for bats. Further mitigation will be needed, and this further mitigation will be set out in a Section 61 consent, and appropriate mitigation will be agreed with the local authority as described in the Code of Construction Practice (CoCP) [**CD/1.24**]. However, it may be that night-time work can be avoided through appropriate detailed design.

Vibration Impacts, Michael Fraser

3.16 The Objector is concerned that insufficient consideration has been given to the potential for increased vibration as a result of increased freight services proposed. The Objector notes much of the housing in the Wolvercote and North Oxford area is built on foundations resting on clay which the Objector states has the ability to transmit vibrations very efficiently. The Objector cites evidence of current levels of vibration rattling door frames and floors in his property when heavy freight trains pass. The Objector believes that the Order Scheme dramatically increases the volume of freight trains using the line and is concerned that the vibration levels will cause damage to his property.

3.17 In terms of vibration Page 6-42 of the ES [**CD/1.16**] highlighted that levels of ground vibration are not expected to exceed the levels in BS 6472 at or below which the probability of adverse comments is low (page 6-8 of the ES) beyond approximately 10 metres from the tracks. The Objector's property is beyond this distance from the

tracks and vibration is not expected to result in significant disturbance based on these stringent thresholds. Measurements of existing vibration carried out since the ES was written have confirmed that no structural or cosmetic damage to property will occur as a result of train vibration whether within 10m of the line or further away. They also confirm the view that ground conditions are not likely to result in unusual vibration propagation conditions with the new track in place.

Noise and Vibration Mitigation Measures, Michael Fraser

3.18 The Objector maintains for the reasons previously stated in relation to the 'under estimated' noise impacts that the proposed mitigation of noise insulation for 12 properties is inadequate.

3.19 The Objector is seeking clarification as to the most effect noise and vibration mitigation measures irrespective of cost and is seeking a firm commitment by Chiltern Railways to provide these. The Objector is also seeking that ENGAGE-Oxford be consulted on the proposed noise mitigation measures.

3.20 Michael Fraser's evidence [**CRCL/P/9/A**] identifies those properties that are likely to qualify for statutory, or non statutory noise insulation. 12 locations are identified in total, with 4 in Phase 1 and 8 in Phase 2. However, noise insulation (acoustic glazing) is only one of the mitigation measures that will be used, and measures that reduce noise at source, as well as over 1.5 km of noise barriers are expected to be implemented to minimise noise in North Oxford. The noise mitigation will be refined during the detailed design following the Noise and Vibration Mitigation Policy [**CD/1.29**].

Train Speeds and Construction Measures, Stephen Barker and Michael Fraser

3.21 The Objector believes that train speed is a contributing factor to noise and vibration impacts and should be restricted within Oxford City boundaries. The Objector believes this would mitigate noise and vibration impacts with a minimal effect on journey times. The Objector also suggests that the use of other mitigating strategies such as cut and cover tunnels and concrete barriers should be considered in this location.

3.22 The issue of train speeds is discussed in sections of Stephen Barker's proof of evidence [**CRCL/P/6/A**]**.** He notes that a 30 mph speed restriction in the built up area would add seven minutes to a round trip. This would not only adversely impact on journey times but would also be unacceptable for timetable reliability. The speed limits proposed by Chiltern Railways are needed to offer attractive journey times; to allow the efficient use of single track sections; to maintain adequate turn-round times at Oxford station; and to give a degree of flexibility in train timings to fit in with the main-line timetable between Bicester South Junction and London Marylebone.

3.23 The Order Scheme line will form part of the national rail network. All trains using it, whether operated by Chiltern Railways or other companies in future, will be required to meet the maintenance standards set by the infrastructure controller.

3.24 Chiltern Railways does not consider that the construction of a cut and cover tunnel would be practicable. The cost of constructing a tunnel over the railway would be likely to run to several millions of pounds and would substantially increase the ongoing maintenance costs as a result not only of the cost of inspecting and maintaining the tunnel structure itself but also because of the additional costs of maintaining the rest of the infrastructure within the confined space within the tunnel. The resulting structure would be very large as the internal dimensions of the structure would need to provide adequate clearances for future electrification of the route and for safe evacuation trains in the event of an emergency. As a result, the structure would have a significant visual impact.

3.25 Screening calculations procedures are included in CRN, and noise screening can be predicted without undertaking the detailed design of barriers using this method. The engineering details will be developed during detailed design, but timber barriers have been placed next to mainline railways in the UK without the need to provide tunnels or concrete barriers. A close boarded timber barrier can be designed to have sufficient surface mass sufficiently to attenuate the noise to the levels that are predicted. Subject to barriers having a minimum surface mass, the noise reductions that are achievable with a barrier are limited by the amount of noise passing over the top and around the ends of a barrier, rather than through it. Therefore, the exact material that a barrier is made from is less important than its height and location.

Air Quality, Ian Gilder

3.26 The Objector is concerned that the use of diesel engines along with the increased traffic in the vicinity of his home associated with the new Water Eaton Parkway station is likely to cause levels of pollution above the WHO guidelines.

3.27 As stated in paragraph 10.2 of Ian Gilder's proof of evidence [**CRCL/P/12/A**] the conclusion of the Environmental Statement is that pollutant concentrations at residential properties closest to the railway will not experience significant air quality impacts from either rail movements or idling trains. As such no air quality monitoring is being proposed.

Traffic at Water Eaton, Paul Tregear

3.28 The Objector is concerned that the existing road network is the one of the most congested in the country. The Objector is concerned that sufficient provision has not been made in the Order Scheme for vehicular access from the A40 to the station at Water Eaton Parkway.

3.29 The traffic modelling, reported in detail in [**CD/2.23**] and summarised in section 6 of Mr Tregear's Proof of Evidence (his reference **CRCL/P/8/A**), concludes that the impact of traffic on the surrounding highway network, including the A40 roundabout junctions of Cutteslowe and Wolvercote, will be small (**CRCL/P/8/A**, paragraph 6.25) and traffic flows through Cutteslowe and Wolvercote Roundabouts generally reduce with the introduction of the Scheme (**CD/2.23**, paragraph 3.32).

3.30 Furthermore, in the immediate vicinity of the proposed Water Eaton Parkway Station, the introduction of the Order Scheme and the associated improvements to the existing Park and Ride car park access junction significantly improve the operation of both the junction and the local A4165 highway corridor as a whole (**CRCL/P/8/A**, paragraph 6.28). The micro-simulation traffic modelling of the A4165 corridor is reported in detail in **CD/2.25**.

4 Conclusion

4.1 This rebuttal proof responds comprehensively to the evidence presented by the Objector.

4.2 The particular concerns raised about noise and vibration mitigation have been addressed. Chiltern Railways has adopted an effective policy for delivery of noise mitigation for Phases 1 and 2 [**CD/1.29**]. Chiltern Railways' evidence is that it would be undesirable and unnecessary to adopt highly restrictive speed limits for trains through North Oxford and Wolvercote.

4.3 As detailed in Paul Tregear's evidence [**CRCL/P/8/A**] disruption to traffic flows and driver delay as a result of the Order Scheme are likely to be small. Improvements to the park and ride access junction at Water Eaton as part of the Order Scheme will significantly improve the operation of both the junction and the local A4165 highway corridor as a whole. Impacts on air quality as a result of the proposed Order Scheme are not predicted to be significant and therefore no monitoring is proposed.

Appendix A

CRCL/R/OBJ95

Relevant Correspondence between Chiltern Railways and the Objector

OBJ/95

DEPARTMENT FOR TRANSPORT 2010 Transport and Works Act 1992
Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006
THE CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER

OBJECTIONS

RECEIVED IN
15 FEB 2010
TWA ORDERS UNIT

TO: The Secretary of State for Transport, Department for Transport
c/o TWA Orders Unit, Zone 1/31, 76 Marsham Street, London SW1P 4DR
Email: transportandworksact@dft.gsi.gov.uk

THIS MUST BE RETURNED BY 17TH FEBRUARY 2010 TO THE ABOVE ADDRESS

I object to the proposed scheme for the following reasons: (please place tick or cross in box if you agree)

- [ ] Individual concerns have not been properly addressed
- [x] Since the start of the consultation process, there has been an incremental and significant increase in planned numbers of trains; new passenger timetable (May 2009), trains on Sundays, more freight trains
- [x] The new track will bring trains closer to my property which will increase noise and vibration
- [x] Faster trains will increase noise and vibration
- [x] Freight trains will be longer and carry larger loads which will increase noise and vibration
- [x] Trains can be heard above the background noise in my house, such as the television, boiler, fridge, etc., even when the windows are closed. The noise and vibration from passing trains is overwhelming in the garden and in my house if the windows are open. With many more trains, living in adjacent properties to the railway line will become intolerable, our neighbourhood will be destroyed by both the exodus of those people that can afford to move and by a fall in quality of the area. This will inevitably impact on the value of my house making moving to a similarly pleasant location (as now) within Oxford much more difficult
- [x] As transport by rail increases, the numbers of passenger and freight trains will continue to increase incrementally once the scheme is complete leading to further increases in noise and vibration
- [x] Pollution levels in the immediate vicinity already exceed EU statutory guidelines, and these will be further exacerbated

Any other comments (please use an additional sheet, if necessary)
As freight trains pass our house is physically shaken causing doors to rattle. I am particularly concerned at the potential for further increased freight weight to cause structural damage.

I urge Chiltern Railways and/or Network Rail to: (please place tick or cross in box if you agree)

- [x] Ensure that everything possible is done to reduce the impact of the increased train service, such as
  - installation of fully-effective noise and vibration barriers next to the track as a matter of urgency concurrent with the work,
  - install track infrastructure designed to reduce noise and vibration including welded track, rail dampers, etc.,
  - use only well maintained rolling stock fitted with noise and vibration mitigating devices including wheel dampers, etc.,
  - use trains that retain sanitary waste for off-track disposal, and
  - review all noise and vibration mitigating measures every six months and repair or upgrade as necessary
- [x] Base mitigation on the numbers of passenger and (longer, heavier) freight trains projected to operate after completion of EastWest Rail and then no subsequent incremental increases in train traffic allowed without full consultation with residents
- [x] Provide funding to equip my house with the highest quality glazing and to undertake any repairs to my house caused by vibration
- [x] Maintain and enforce the present speed restriction (40 mph) on all trains along the sections of the track adjoining residential areas
- [x] No trains during the night from 00:00 until 05:00
- [x] Electrify the line as soon as practically possible

Any other comments (please use an additional sheet, if necessary)

FROM: Signed ..... Date 11th February 2010
Print Name STEPHEN C YOUNG
Address 238 CUMNOR RD
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1 June 2010

Stephen C Young
398 Woodstoke Road
Oxford
OX2 8JW

Ref: 0110147 OBJ/95

Dear Mr Young

Chiltern Railways (Bicester to Oxford Improvements) Order Application

The following paragraphs respond to the form that you completed and sent to the Department for Transport regarding The Chiltern Railways (Bicester to Oxford Improvements) Order, described below as the 'Scheme'.

The responses set out below are standard answers to the statements in the form that you have ticked, and that are reproduced in the bold italic typeface heading.

Since the start of the consultation process, there has been an incremental and significant increase in numbers of trains, new passenger timetable (May 2009), trains on Sundays, more freight trains

Passenger timetables are reviewed twice yearly, so as to match train services with emerging market needs. The enhanced service introduced in May 2009, including Sunday trains, resulted from an agreement between First Great Western and Oxfordshire County Council. This is part of the County Council's wider policy of improving public transport services into Oxford. Chiltern Railways is not currently the operators of the Bicester to Oxford line, and was not involved in that agreement.

The number of freight trains on any railway line depends on contracts between the freight train companies and their customers, and on the demand for the goods being moved. There have been no new freight contracts affecting the Bicester to Oxford line agreed recently, but, there will be day-to-day variation in the number of trains, due, for example, to the changing demand for construction aggregates or military supplies. Chiltern Railways does not operate freight trains and will not be involved in the operation of freight trains on this line in future.

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The current passenger and freight timetable including the most recent changes has been taken into account when describing the environmental impacts of the Scheme.

The new track will bring trains closer to my property which will increase noise and vibration

As part of the Scheme, the line from Oxford North Junction towards Bicester will be re-laid as double track. Although this effectively replaces a track which was taken up some years ago, the location of the nearest track will change compared to its current location. This is referred to as the "new" line in the paragraphs below, which describes the changes at the closest properties.

At the southern end of Ulfgar Road, the existing track is on east side of the trackbed, so the "new" line will be on the west side (i.e. the Ulfgar Road side). In this location the "new" track will be approximately 4 m nearer the boundary of the railway corridor, but this is only for a short distance affecting a few houses.

From Blenheim Drive/St Peters Road through Wolvercot tunnel to Carey Close, the existing single track is in the centre of the trackbed, so that when this is replaced with double track, the "new" line will be no more than 2 m nearer the boundary of the railway corridor on either side.

From Linkside northwards, past Lakeside, the existing track is on the east side of the trackbed, i.e. the side nearest the houses. The "new" line will thus be on the west side, away from the houses, so the proximity of the nearest track to the Lakeside houses will not be changed.

Changes at other locations along the route are discussed in Volume 1 of the Environmental Statement (ES) where the Scheme is described.

Although the track is being re-laid closer to existing residential property in some cases, the noise from individual trains passing will only be slightly greater. The repositioning of the tracks is a smaller component of the change in train noise at most locations than the increase in the frequency of passenger and freight trains and changes in speed. All of the factors including the type of train that will be used have been taken into account in the noise assessment and mitigation strategy.

The noise assessments reported in the Environmental Statement have been carried out at the three locations, called receptors, which are closest to the tracks and are representative of those properties that are likely to be most

affected by noise increases. The receptors used in North Oxford were numbers 14 (Lakeside), 15 (Wolvercote Primary School) and 16 (St Peters Road).

The predicted noise levels at these receptors, with and without the Scheme, are presented in the ES (Volume 2, Table 6.13 on page 6-35). These houses are already exposed to railway and road traffic noise, and this has been taken into account in the ES.

Since noise from the Scheme will affect people both in terms of how noticeable the noise changes are and how loud the noise is, noise has been assessed taking both of these factors into account. The factor that best describes the effect of the noise from the trains in the area being considered is used to determine the noise impact. In urban areas the change from existing ambient noise level tends to be the determinant of the effects of noise. In more rural areas, with very low ambient noise levels, how loud the noise is in isolation tends to be the determinant of the effect of noise on people. In these areas, the noise from the trains is compared to an absolute threshold level and the impact is assessed based on the amount by which the train noise is likely to exceed that level. All of these assessments are of noise levels measured outside rather than inside houses.

The ES describes noise levels both during Phase 1 of the Scheme when Chiltern Railways will operate a passenger service of up to 2 trains per hour in each direction, and during Phase 2 which will only occur if and when the East West Rail proposal is built. The noise levels shown below relate to the worst case ie after Phase 2 of the Scheme.

The results of the noise predictions for receptors in North Oxford, reported in the ES, are reproduced below. For residential areas in this mainly urban area, the assessment has been based on the change in noise levels between the existing, or ambient, noise level and those noise levels that will occur after the Scheme is built.

For residential properties the largest noise impact, before mitigation such as noise barriers is provided, is expected to be at night. At receptor 14 (Lakeside), and receptor 16 (St Peters Road) an increase of 12 dB over current ambient noise levels has been predicted as the impact before mitigation. Mitigation has been considered in the ES, and a mitigation scheme based on the use of noise barriers is presented. The final choice of mitigation measures will be determined during detailed design, but it will ensure that noise levels are no higher than the noise levels with noise mitigation in place, as is set out in the ES.

The predictions suggest that barriers are likely to be required over a total length of over 1.5 km in this area to protect residential properties. The barrier

has been designed to be 2 m high relative to the railway tracks. The resulting noise impacts are described in Volume 2, Table 6.2.3, on page 6-57 of the ES, and is summarised below for the receptors in this area:.

Receptor 14 Lakeside

With the proposed barrier in place, a 2 dB residual noise increase is predicted, compared to 12 dB before mitigation at first floor level of the nearest houses in Lakeside where the barrier screening would be least effective. The residual noise change is expected to be less than 2 dB at ground floor level.

To explain what this means, the smallest change in noise level that is noticeable under normal listening conditions (ie not in a laboratory) is 3 dB. Therefore, the noise change at this property has been classed as a "slight" noise impact in the ES because it is not expected to have a noticeable effect even at first floor level outside these properties. The barrier will be more effective at ground floor level and no noticeable noise increase will occur.

Receptor 16 St Peters Road

With a barrier in place, an 8 dB noise increase is predicted at the upper floors of properties closest to the railway (which are likely to be Quadrangle House and the closest properties on Bladon Close). These changes are likely to be noticeable, but are less than 10 dB which is generally taken to be the point at which a noise source is perceived to be twice as loud. Outside the ground floor, the noise increase is likely to be 2 dB which is not expected to be noticeable. Since these receptors are very close to the tracks, Chiltern Railways is also going to implement other noise mitigation solutions, such as noise insulation to windows, to reduce noise at the upper floor levels during the detailed design.

Receptor 15 Wolvercote Primary School

The daytime/evening noise level, measured outside, is predicted to be 59 dB without mitigation, which is 4 dB higher (ie just noticeably higher) than the 55 dB threshold value, below which significant "community disturbance" is not expected. Noise barriers that are designed to reduce noise to residential properties in the area will also run past the school, and will reduce noise effects to levels that are likely to be below the 55 dB threshold level and noise from the trains will not affect the continued operation of the school.

Noise barriers and other mitigation will be installed during construction of the Scheme, wherever it is needed to mitigate the effects of Phase 1. Additional noise mitigation measures may be needed if Phase 2 of the Scheme, for the East West Rail project, is built. The effects predicted above are for Phase 2, and the effects in Phase 1 will be less than these predictions.

The levels of vibration that will arise from the new train service and track have been carefully assessed. These will be way below the levels which could cause any sort of damage to property. Even if, at present, you can feel or hear vibration or groundborne noise from trains, new track and ballast will be provided which will reduce vibration levels, even though it is accepted that there will be a greater frequency of trains passing.

Where it is predicted that vibration levels will increase, there are engineering methods, which may have to be used to "damp" vibration from the track. These will be used to ensure that, wherever practicable, everywhere along the railway, vibration felt inside residential properties is kept to below a very strict limit, which is defined in British Standard 6472 as a "low probability of adverse comment". In one or two locations, if full vibration mitigation is not practicable, the vibration levels will, at worst, be limited to "adverse comments possible" according to BS 6472, which is still a strict limit. Even at this level, no structural or cosmetic damage to property will occur.

Faster trains will increase noise and vibration

Although most of the Scheme consists of an existing operational railway, the Scheme will result in an increase in train speeds along the route resulting in increased noise as trains pass. While higher train speeds will increase the noise from individual trains, the noise mitigation, including over 1.5 km of noise barriers in North Oxford, will offset noise increases which result from increased train speeds.

Vibration from trains will be kept below a very strict limit. In some places, engineering measures will be needed, but there will be no risk of either cosmetic or structural damage to buildings.

Freight trains will be longer and carry larger loads which will increase noise and vibration

The maximum axleload for freight trains will, in future, be 25.5 tonnes, the same as it is now. This is normally only fully used by trains carrying bulk materials, such as gravel or crushed rock. Most other freight trains are much lighter; the typical axleload on a container train is around 17 to 18 tonnes. This is partly because consumer goods weigh much less and also because containers are transported by both road and rail, and their weight is constrained by the maximum overall weight allowed for lorries.

The Department for Transport is funding work to enable trains to carry the international standard 9'6" high containers through Wolvercot tunnel without the need for special low-floor wagons (as against 9'0" high containers at

present). This does not mean there will be any significant increase in axleloads, since, as noted above this is constrained by the maximum weight of containers that can be carried on lorries.

The length of freight trains varies according to market needs, e.g. the length of the trains carrying crushed rock is a result of the demand for building materials in the Oxford area, so upgrading the line will not in itself result in increased train lengths. Train lengths could increase for these reasons if the Scheme was not implemented. Trains of up to 650 metres length already use the line on occasions.

In Phase 1, it is very unlikely there will be any change in the number of freight trains on the line, as there will be no new freight terminals. However, if and when the East-West Rail (EWR) project is built, there may be more freight trains. These are most likely to be carrying shipping containers from Southampton. We have therefore included more freight trains in the evaluations for our Environmental Statement, so that this reflects the "worst case".

Freight trains are much more environmentally sustainable than road haulage as they use far less fuel per tonne of freight moved, and moving freight off the roads greatly reduces road damage and congestion. Modern freight trains on modern track are also very much quieter than those of even a few years ago.

Trains can be heard above the background noise in my house, such as the television, boiler, fridge, etc., even when the windows are closed. The noise and vibration from passing trains is overwhelming in the garden and in my house if the windows are open. With many more trains, living in adjacent properties to the railway line will become intolerable, our neighbourhood will be destroyed by both the exodus of those people that can afford to move and by a fall in quality of the area. This will inevitably impact on the value of my house making moving to a similarly pleasant location (as now) within Oxford much more difficult.

Whilst train speed will increase the noise from individual trains, the noise mitigation, including over 1.5 km of noise barriers in North Oxford, is likely to offset increases in speed. However, the number of trains will increase.

Chiltern Railways is proposing noise mitigation which will apply to noise levels much lower than the statutory limits set out in the Noise insulation Regulations.

The ES sets out, in a form which will be legally binding on Chiltern Railways, the noise levels above which mitigation will be applied. The preferred option for noise mitigation is one that contains noise at source, such as maintaining the rails and wheels and considering infrastructure solutions to the track bed which reduce noise. Where these are not possible, measures such as noise barriers will be considered. These interrupt the path of the noise between the rails and the windows of the nearest properties. All of these measures will provide benefits in terms of reducing noise both inside and outside the properties.

Chiltern Railways is proposing noise mitigation in the form of barriers for all locations where there are noise impacts, without mitigation, of at least 5 to 7 dB. In areas such as North Oxford noise changes determine the size of the noise impact. In more rural areas away from major road noise sources, the amount by which the train noise exceeds a daytime threshold of 55 dB or the night-time threshold of 45 dB is the best way of assessing the noise impact. If impacts of more than 10 dB are likely to be experienced at residential properties, Chiltern Railways will consider installing noise insulation. Wherever possible, other forms of mitigation, such as barriers, will be preferred.

The actual location of properties which will be offered noise insulation will be determined during the detailed design stage and work is ongoing to refine mitigation, but the ES makes clear the standards that are to be achieved in Volume 2, section 6.5.2 on page 6-47.

As transport by rail increases, the numbers of passengers and freight trains will continue to increase incrementally once the scheme is complete leading to further increases in noise and vibration

Different frequencies of service have been assessed under Phases 1 and 2 of the Scheme. These frequencies take account of any likely future increase in service frequencies that may occur.

The frequency of trains using the line will be limited by the capacity of the track layout and signalling system, and the need to offer a robust and reliable service. The assessments of noise and vibration have been based on forecast numbers of all passenger and freight trains in the future, not just those on Chiltern Railways' services. These forecast numbers of services are almost at the maximum capacity of the double track line with the signalling arrangements that are proposed.

Pollution levels in the immediate vicinity already exceed EU statutory guidelines, and these will be further exacerbated

Modelling of the dispersion of emissions from rail and road traffic movements associated with Phase 2 of the Scheme (ie with more frequent train movements than in Phase 1) has indicated that pollutant concentrations at residential properties closest to the railway line will not cause significant air quality impacts. The total pollutant concentrations, including those from trains using the Scheme are likely to be within EU statutory guidelines, as implemented in UK law.

The Scheme is generally a positive development for improving air quality, as it provides a sustainable alternative to the car, particularly for commuting journeys into Oxford from surrounding areas.

In addition the standard objection included a section that urges Chiltern Railways and/or Network Rail to:

Ensure that everything possible is done to reduce the impact of the increased train service, such as:

- *installation of fully-effective noise and vibration barriers next to the track as a matter of urgency concurrent with the work;*

Chiltern Railways, in association with Network Rail, is doing everything that can reasonably be done to reduce the environmental impacts of the increased services after the Scheme is built. This includes the installation of effective noise and vibration mitigation, including noise barriers and insulation, where necessary. Those required to deal with noise from Phase 1 will be installed before any additional train services start running. If Phase 2, for the East West Rail project, is built, additional mitigation measures will be installed, where required.

- *install track infrastructure designed to reduce noise and vibration including welded track, rail dampers, etc; and*

Continuously welded track will be installed. A range of additional mitigation measures including rail dampers will be considered to mitigate impacts where these have been identified. The extent and type of mitigation at individual locations will be determined as part of the detailed design which will be

developed following the approval of the Order. However, the ES identifies the noise and vibration limits for which mitigation will be provided.

- *use only well maintained rolling stock fitted with noise and vibration mitigating devices including wheel dampers, etc.*

Chiltern Railways operates modern trains and undertakes regular inspection and maintenance including regular wheel maintenance at its own facility to correct any wheel flats or other defects that may increase operational noise. Wheel dampers are not normally fitted to trains and would only have a marginal effect under most conditions, and are not proposed for this Scheme.

- *use trains that retain sanitary waste for off-track disposal, and*

All trains built since about 1990 have toilet retention tanks and do not discharge onto the track. Any Chiltern Railways trains in regular service on the Bicester to Oxford line will have retention tanks.

- *review all noise and vibration mitigating measures every six months and repair or upgrade as necessary.*

Noise will be minimised by ensuring a high standard of maintenance during the operating life of the railway to avoid noise levels increasing unnecessarily due to wear and tear of the wheel and rail surfaces. The track and any noise barriers will be maintained by Network Rail. Furthermore, Chiltern Railways undertakes regular train inspection and wheel maintenance to correct any wheel flats or other defects that may increase operational noise. The frequency of these inspections will be commensurate with the upgraded railway.

Baseline mitigation on the number of passenger and (longer, heavier) freight trains projected to operate after completion of EastWest Rail and then no subsequent incremental increases in train traffic allowed without full consultation with residents.

The ES has assessed the likely future numbers and types of train, including the expected increase as a result of the EastWest Rail proposed level of services and has suggested appropriate mitigation measures for this, which will be implemented if Phase 2 of the Scheme, which is needed for East West Rail, goes ahead. The forecast numbers and types of trains used for the assessment of Phase 2 are almost at the maximum that could use the railway with the double track and signalling arrangements which are proposed. Mitigation is designed in the first instance for Phase 1, with a requirement

that the Phase 2 mitigation is done before the Phase 2 works are brought into use.

Provide funding to equip my house with the highest quality glazing and to undertake any repairs to my house caused by vibration.

It is very unlikely that vibrations from the operation of the trains will cause any form of structural damage. In the unlikely event that it does, owners will be able to claim for compensation under the Compulsory Purchase Compensation Code. More detail on this can be found in the booklet on compensation produced by The Office of the Deputy Prime Minister, which can be found on line at:
http://www.communities.gov.uk/publications/planningandbuilding/compulsorypurchase4

Noise insulation, usually secondary or double glazing, will be provided at a small number of properties that qualify under the Noise Insulation Regulations. The properties at which this is likely to be the case are outlined in the ES in Volume 2, Table 6.14, Page 6-38. There are a few other properties, which do not qualify under the Regulations, where Chiltern Railways believes that noise insulation should be offered. These are discussed in Volume 2 of the ES at page 6-54 and 6-59.

Maintain and enforce the present speed restriction (40mph) on all trains along the sections of the track adjoining residential areas.

The predicted increased noise levels resulting from all causes will be mitigated as set out in the ES. Speed restrictions will apply to various sections of the line for safety reasons, but restricting speeds to 40 mph, for example, from Oxford station to the edge of the built up area, would not be practicable. Timetable predictions show that reducing speed from those proposed for the Scheme would make reliable operation impractical and would not meet the aims of the project, which are to provide reliable and fast rail services between Oxford, Bicester and London. At lower speeds it would be impossible to operate a viable timetable that avoids congestion on the single track section of the route from Oxford station to Oxford North Junction and fits with the required timetable train paths onwards to Bicester and London.

No trains during the night from 00:00 until 05:00

Chiltern Railways will not be running passenger trains through the night, and services in late evening and early morning will be at a reduced frequency. A very small number of trains (perhaps 1 or 2) may arrive in Oxford after midnight or depart from Oxford before 0600.

Any overall increase in freight train numbers above those currently operated is only likely if and when the East-West Rail project goes ahead. The number of freight movements will reflect national freight demand, and will be limited by the number of available freight paths (1 per hour in each direction) and the likely market demand. Based on analysis of the number of the existing situation on the main line through Oxford, only about half of the available freight paths are likely to be used limiting the number to perhaps five freight train movements between midnight and 0500 hours, and perhaps 8 train movements between 2300 to 0700 hours.

Electrify the line as soon as practically possible

Electrification is an issue for consideration by Network Rail and the Department for Transport as it must be considered on a network wide basis. There are no proposals at present to electrify the line. However, all new and rebuilt structures on the line (bridges, tunnels, etc) will be constructed with sufficient clearances to enable electrification in future.

These responses deal with the general concerns raised on the standard form you submitted. We hope that these answers deal with your concerns. Chiltern Railways will be continuing to work with local residents to address individual concerns and if you have a particular issue that has not been addressed please contact us.

Yours sincerely

Charlene Baker
Consultant
ERM

on behalf of the Chiltern Railway Company Ltd

29 July 2010

Stephen C Young
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OX2 8JW

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charlene.baker@erm.com

Dear Mr Young,

Draft Chiltern Railways (Bicester to Oxford improvements) Order
Objection number 95– Stephen C Young

I am writing further to the letter we sent to you on 01.06.2010 in response to your letter of objection, which was sent to the Department For Transport. We have not received any response to the letter we sent to you, I trust we have addressed all of your concerns.

If you do have any further questions in relation to the proposed Order or if we have not successfully addressed your concerns, please do not hesitate to contact me on charlene.baker@erm.com. If you feel that we have addressed your concerns with the above Order then you are able to withdraw your objection by writing to the Secretary of State for Transport. Ideally Chiltern will have no objections remaining at the Public Inquiry, we welcome the opportunity to work with you to achieve this position.

Yours faithfully,

Charlene Baker
Consultant
ERM

On behalf of Chiltern Railways

18 October 2010

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Your ref: OBJ/95

Dear Stephen C Young

Proposed Chiltern Railways (Bicester to Oxford Improvements) TWA Order

I write to you as an objector to the Chiltern Railways TWA Order. Specifically, you have raised concern about the effect of noise and/or vibration of the proposed Scheme and its impact on your property.

Chiltern Railways is committed to using the Best Practicable Means to design the railway so as to avoid significant noise and vibration impacts. Enclosed is the *Chiltern Railways (Bicester to Oxford Improvements) TWA Order Draft Noise and Vibration Mitigation Policy (October 2010)*, which sets out Chiltern Railways' commitment to control noise and vibration impacts in detail. This document will be finalised following consideration of improvements that are identified during the Inquiry.

We hope that this policy, which will be legally enforced by planning condition, will satisfy your concerns regarding noise and vibration, and that you will be able to remove your objection to the Scheme.

Yours sincerely,

Ian Gilder

Ian Gilder
Head of Planning

For and on behalf of the Chiltern Railway Company Ltd