

The Secretary,
An Bord Pleanála,
64 Marlborough Street,
Dublin 1.

Clonshire,
Adare,
Co. Limerick.
01.02.20.
AN BORD PLEANÁLA
LDG- _____
ABP- 024429-20
14 FEB 2020
Fee: € 50 Type: PMO.
Time: 9.44 By: Post

RE: FOYNES TO LIMERICK ROAD (INCL. ADARE BY-PASS) AND INCL. RELATED WORK
AN BORD PLEANALA (COMPETENT AUTHORITY) APPLICATION REF. PL 91.306146

Dear Sir,


I wish to make this submission in relation to the above application which Limerick City & County Council have submitted to you.

- A. The final route selection as described in the Final Route Selection document attached to their application is flawed and this has resulted in a sub-optimal route being chosen for the development.
- B. The motorway design in question was not completed in accordance with prescribed procedures or acceptable noise limitations of the Limerick City & County Council Noise Action Plan 2018-2023 as adopted into the County Development Plan.

These points are more fully explained in the attached pages and I hope they are reasonably presented.

Thank you for your time.

Yours Sincerely,


Mary Brosnan.

The Route Selection Report has been submitted as part of the application.

It states that eventually the options were narrowed down to two possibilities, Option 2 (Blue) and Option 3 (Orange).

The difference between these routes is after passing Adare the Option 3 departs the railway line path and turns towards Croagh to follow alongside the current Croagh-Rathkeale Bypass which itself was put in place about 30 years ago to improve the N21 Limerick to Killarney Route.

The yellow route is less than 9 km long and follows a much more densely inhabited and intricate route that is available by following the more remote, more direct and flatter route along the old Limerick to Foynes railway line (now closed).

Brief descriptions of both routes are given on Page 6/28 final paragraph and Page 6/29 in the final sentence clearly describing Option 2 as preferred to Option 3.

As expected table 6.1 gives a Potential Impact Rating (PIR) of 506 to Route 2 and 578 to Route 3. Inexplicably despite the much higher PIR, Route 3 is deemed to be the "Preferred" in this table and that outcome is then fed into other matrices for route comparisons.

Thus initial assessment it was deemed overall there was nothing to separate Options 2 and 3 so further noise impact assessments were carried out via desktop study.

Page 6/63 describes the bizarre methodology used in this analysis. As I understand it dwellings along option 3 were only considered for additional noise impact above the current levels experienced from the current N21 whereas dwellings on the more remote Option 2 were assessed based on full noise impact.

It is absolutely unreasonable to apply two different standards to otherwise equal citizens in this way and thus the outcome is prejudicial and unacceptable.

Thus the final route selection is flawed and not in accordance with correct planning law and procedures.

Limerick City & County Council has adopted a Noise Action Plan into the County Development Plan in accordance with European and National legislation and its current version is 2018-2013.

In its policy statement the document states:

"Limerick City and County Council will adopt a strategic approach to managing environmental noise from major roads, within its functional area, and will aim to:

- identify appropriate mitigation measures to reduce noise levels where they are potentially harmful;
- prevent additional members of the community being exposed to undesirable noise levels through robust planning policies based on the principles of good acoustic design in line with Professional Practice Guidance on Planning & Noise (2017) and based on the guidance and recommendations of the World Health Organisation".

The WHO upper limits for noise are listed in section 2.1.9 as 50dB day in outdoor living to avoid moderate annoyance.

It also states:

"It is recommended that the population should not be exposed to night noise levels greater than 40 dB Lnight,outside (a long-term eight hour average between 23:00 and 07:00 hrs).

The level can be considered a health-based limit value necessary to protect the public"

6.12.3 Landscape and Visual

This section assesses the four route corridor options in terms of landscape and visual impact. The assessment has been undertaken in accordance with the *TII Project Management Guidelines*, the *UK Design Manual for Roads and Bridges (DMRB)* and the *Guidelines for Landscape and Visual Impact Assessment* by The Landscape Institute / Institute of Environmental Assessment.

The landscape and visual impact was assessed with regard to the vulnerability of the landscape to change and the location of visual receptors relative to the proposed road development. The landscape and visual impacts associated with the scheme were assessed approximately 500m to either side of the edge of the route corridor option.

All of the proposed route corridors would generate negative effects on the existing landscape and visual environment. Due to the nature of the settlement pattern within the study area, there are few parts of the proposed route corridor options that do not have visual sensitive receptors (i.e. residential dwellings or important views) within a short distance and therefore visual impact registers particularly high on the scale. The most significant impacts occur where the proposed road would form a new element in the view.

Landscape impacts are highest where the route impacts on the Shannon Coastal zone and the rural landscape, particularly where these areas are removed from existing development. Removal of mature trees, hedgerows and woodlands also generates significant negative impacts.

All routes will have consequential negative effects in several respects. In summary the effects of the routes are tabulated in the following table 6.4. The higher the score, the more negative the impact. These numbers were calculated by rating each of the identified landscape and visual receptors from 1-9. This rating was based on their value in the landscape, according to pre-determined criteria, and the level of potential impact in order to assign a numerical value. Thus, the relative level of impact generated by each of the routes could be evaluated, with the aim of determining a preferred route corridor.

Table 6.4 Summary of Impacts

| Impact | Option 1 | Option 2 | Option 3 | Option 4 |
|-----------------------------|-----------------|---------------------|---------------------|---------------------|
| Overall landscape impact | 144 | 92 | 91 | 98 |
| Overall visual impact | 2827 | 851 | 924 | 1041 |
| Total | 2971 | 942 | 1015 | 1139 |
| Landscape and Visual Impact | Major Negative | Moderately Negative | Moderately Negative | Moderately Negative |
| Preference | Least Preferred | Preferred | Intermediate | Intermediate |

As can be seen from the above table, Option 2 is the preferred option from a landscape and visual perspective, although it has some significant negative effects. The principal advantages of this option are that the proposed route corridor passes a relatively smaller number of dwellings than the other routes and avoids some of most sensitive landscapes. It also follows the route of the railway line closely for a substantial part of the route which is a less sensitive and less populated area. There will be residual impacts relating to removal of trees, woodland and visual impacts to

dwellings that are close to this alignment. An assessment rating of Moderately Negative is assigned to this option.

Option 1 is the least desirable route from a landscape and visual perspective as the route traverses the Shannon Coastal zone to the north of the study area and this generates significant landscape impact due to the high scenic value of this area. This is also a heavily populated area of the study area, so the proposed road would result in significant visual impacts to the dwellings and the intrinsic scenic quality. A new crossing structure close to the mouth of the River Mague would also generate significant negative effects, as it would be larger and more visible at this point than at almost any other in the study area. An assessment rating of Major Negative is assigned to this option.

Options 3 and 4 are marginally less favourable than Option 2, primarily because they run through more sensitive landscapes and more densely populated areas. Option 4 runs within 30m west of the Curraghchase Woods (SAC and forest park) and Askeaton Fen Complex (SAC) which add to the scenic quality in this area, and there are more sensitive visual receptors in this area, consistent with the general increase in housing density on the eastern side of the study area, closer to Limerick City. Where Option 3 diverges from Option 2, it runs close to Rathkeale and Croagh and as a result has the potential to affect more sensitive visual receptors in open countryside than Option 2, which runs parallel to the railway line for much of the comparable route.

An assessment rating of Moderately Negative has been assigned to Options 3 and 4.

The detailed impact assessment of the route corridor options is contained in the Landscape and Visual Effects Report in Volume 3 – Appendix D of this Report.

Table 6.1 Summary assessments for each route corridor option

| Assessment criteria | Option 1 | Option 2 | Option 3 | Option 4 |
|--|---------------------|---------------------|---------------------|---------------------|
| Potential Impact Rating (PIR) | 773 | 506 | 578 | 697 |
| No. of properties likely to require noise mitigation | 20 | 37 | 29 | 26 |
| No of properties with reduction in noise >3dB(A) | 219 | 191 | 191 | 169 |
| Noise impact | Moderately Negative | Moderately Negative | Moderately Negative | Moderately Negative |
| Preference | Least Preferred | Intermediate | Preferred | Least Preferred |

On consideration of the above assessment criteria, the route options are considered to have a ranking of Moderately Negative.

Whilst there are marginal differences between all route options from a noise point of view, on consideration of the Potential Impact Assessment (PIR) value for Route Corridor Option 1, this would indicate that a high number of properties overall would be affected by this option. In addition to the above, should Route Corridor Option 1 proceed as the preferred option, traffic volumes through Adare village would remain nominally unchanged. This would result in a missed opportunity to address one of the key "hotspots" identified in the Limerick County Council Noise Action Plan as an area which would benefit from noise mitigation and noise management measures. In this regard, whilst this route corridor option is considered to be moderately negative, it is least preferred from a noise point of view.

A moderately negative ranking has been applied to Route Corridor Option 2 given this option has the highest number of properties calculated to require noise mitigation compared to the other route options, albeit a lower PIR.

A moderately negative ranking has also been applied to Route Corridor Option 3. This has been applied taking account of the PIR when compared to the other options, the lower requirement for noise mitigation and the benefit in terms of noise reduction to existing properties.

A moderately negative ranking has similarly been applied to Route Corridor Option 4 given the relatively higher PIR calculated for this route and the number of properties likely to require noise mitigation compared to the other route options in addition to the least benefit provided in terms of noise reduction to existing properties.

On consideration of the above, route corridor options 1 and 4 are considered to be least preferred given the high PIR values and the missed opportunity to bypass Adare village with Option 1.

Route Corridor Option 3 has a marginal preference over Route Corridor Option 2. This is due to the overall noise footprint of Option 2 compared to Option 3. On assessment of the indicative horizontal and vertical alignment of both, a higher number of properties are calculated to exceed 60dB L_{den} for Option 2 compared to Option 3. Taking account these factors with the other assessment criteria being similar, Option 3 has been ranked ahead of Option 2 from a noise point of view.

The detailed impact assessment of the route corridor options is contained in the Noise and Vibration Report in Volume 3 – Appendix C of this Report.

preferred. On account of the closeness of the result it was considered that further examination of the assessment carried out in Table 6.30, using the seven point scoring system, was warranted.

Table 6.30 shows that the only areas of difference between Route Corridor Options 2 and 3 occur under the environmental assessment headings considered. The two options achieved the same totals under the criteria of Economy, Safety, Accessibility and Social Inclusion and Integration. The scores presented under the Environmental criterion are based on an assessment of the various environmental sub-headings considered over the entire length of both routes in question i.e. from Node A to M (Figure 6.10 refers). It will be noted that Route Corridor Options 2 and 3 follow a common route apart from the sections which diverge between Node E (Ballingarrane) and Node K (Tuogh). In order to investigate the differences between these particular sections of route in more detail a separate assessment was carried out under each of the key environmental sub headings. This assessment is described in the following paragraphs, and the results are presented in [Table 6.32](#).

Noise and Vibration - When comparing the diverged sections in isolation, the relevant sections of route corridor between Node G and K were assessed to determine the potential impact rating (PIR). Based on this assessment, Route Corridor Option 3 has a higher value (i.e. a PIR of 299) compared to Route Option Corridor 2 (i.e. a PIR of 227) over the full length of the diverged section. This count, however, includes all properties along the existing N21 Road from Rathkeale (Node G) to node K a large proportion of which are already exposed to road traffic noise.

An important consideration when ranking routes for noise relates to the potential change in the noise environment and hence, the significance of the impact. Analysis of traffic flows for both route corridor options indicates that noise levels along the On-line sections of the N21 will not alter by more than 25% between the Do Nothing and Do Something scenarios and hence no perceptible change in noise level will be experienced at these properties. The PIR values counted for 'Off line' sections of road, i.e. for properties which will be impacted by a new road alignment only, are considered to represent a more realistic assessment for comparison of both routes.

When properties along the 'Online' section of the N21 are removed from the PIR assessment, Route Corridor 3 has a lower PIR value (111) compared to Route Corridor 2 (170).

Further analysis was carried out on the number of properties which are likely to be specifically impacted by the scheme and which exceed an operational noise level of 60dB L_{den} through consideration of traffic volumes, the vertical alignment and road surfaces.. Based on this assessment, a total of 16 properties along Route Corridor Option 3 were determined to require noise mitigation compared to Route Corridor Option 2 where 26 properties were identified.

Taking the above assessments in consideration, Route Corridor 3 has been ranked as minor negative and Route Corridor Option 2 has been ranked as moderately negative.

Air Quality - Over the divergent sections both options are rated Moderately Negative. Although there would be a slight preference for Route Corridor Option 2 under this heading, the difference is not deemed sufficient to separate the ratings. The divergent section of Route Corridor Option 2 received a NO_x exposure index score of 197831 and the divergent section of Route Corridor Option 3 received a NO_x



Comhairle Cathrach
& Contae **Luimnigh**

Limerick City
& County Council

NOISE ACTION PLAN 2018 - 2023



EXECUTIVE SUMMARY

The Environmental Noise Directive (2002/49/EC) aims to put in place a European wide system for identifying sources of environmental noise, informing the public about relevant noise data and taking the necessary steps to avoid, prevent or reduce noise exposure. The Directive was transposed into Irish Law by Statutory Instrument 140 of 2006, known as the Environmental Noise Regulations. This Noise Action Plan has been prepared in accordance with those regulations and is aimed at strategic long term management of environmental noise from transport systems i.e. traffic noise in Limerick City and County.

Under the regulations, Strategic Noise Maps and Noise Action Plans were required to be prepared in respect of noise from the following sources:

- Sections of rail route above a flow threshold of 30,000 train passages per year;
- Major airports with more than 50,000 movements per year - a movement being a take off or landing;
- Sections of major roads with a flow threshold of 3 million vehicles per annum;
- Agglomerations with more than 100,000 inhabitants

As no airports or rail routes in Limerick City and County Council's functional area were above the threshold and as the agglomeration of Limerick has less than 100,000 inhabitants, only noise from major roads is considered in this Plan.

Transport Infrastructure Ireland (TII) as the Noise Mapping Body for national roads, prepared Strategic Noise Maps for all relevant motorways and national routes. TII also produced Strategic Noise Maps for non national roads with more than 3 million vehicles per year on behalf of Limerick City and County Council.

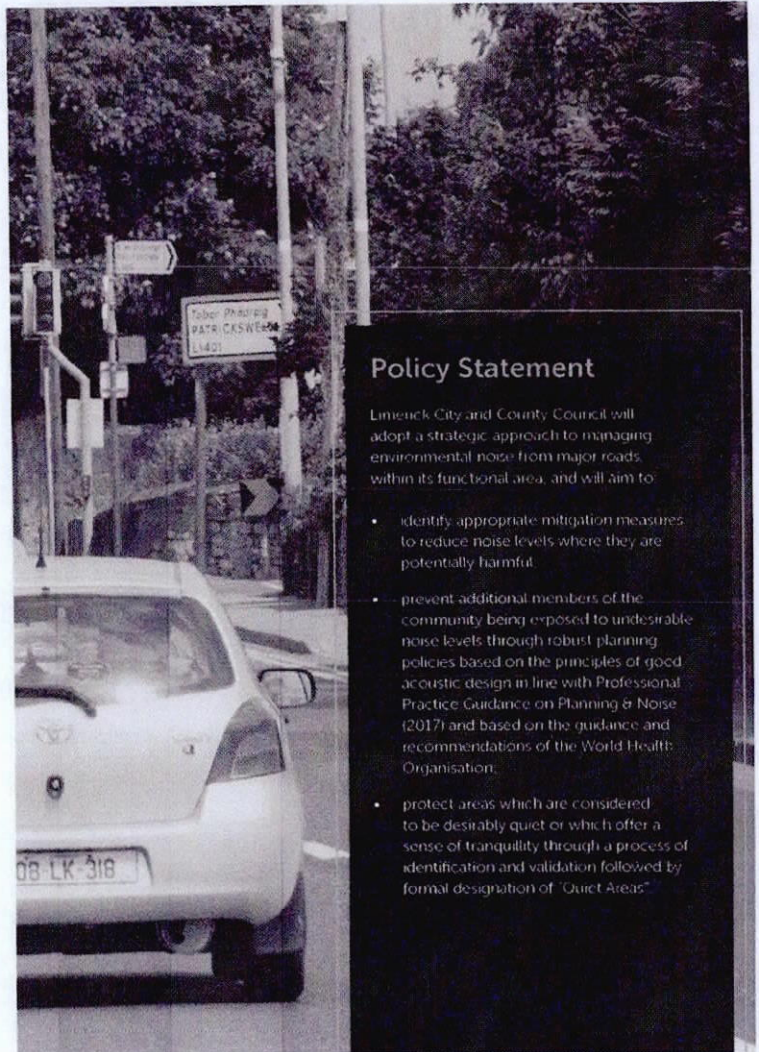
Based on these maps, population exposure to various noise bands has been estimated and a number of noise "hot spots" identified in addition to those identified under the Noise Action Plan for 2013. These areas will be subject to further assessment to confirm noise levels.

Potential noise mitigation measures are identified in the plan along with proposed roads projects which are likely to have a beneficial impact on the noise environment. The plan also outlines policy measures which it is proposed to introduce to prevent additional members of the community being exposed to excessive road noise and to protect "quiet areas" which are of amenity value.

A review of actions taken under the 2013 plan is presented and a five year programme for implementation of the 2018 plan has been set out.

The actions detailed herein have been drawn up to assess noise exposure in priority areas, as indicated by strategic noise mapping located on the identified routes within the respective functional areas of Limerick City and County Council.

(Note: This action plan relates only to road traffic noise from major roads and does not relate to other noise sources such as industrial noise, neighbourhood noise etc)



Policy Statement

Limerick City and County Council will adopt a strategic approach to managing environmental noise from major roads within its functional area, and will aim to:

- identify appropriate mitigation measures to reduce noise levels where they are potentially harmful;
- prevent additional members of the community being exposed to undesirable noise levels through robust planning policies based on the principles of good acoustic design in line with Professional Practice Guidance on Planning & Noise (2017) and based on the guidance and recommendations of the World Health Organisation;
- protect areas which are considered to be desirably quiet or which offer a sense of tranquility through a process of identification and validation followed by formal designation of "Quiet Areas"

Section 107 – Power of Local Authority or Agency to Prevent or Limit Noise

This section gives powers to Local Authorities or the Environmental Protection Agency to control and limit noise from any premises, process or work.

Section 108 – Noise as a Nuisance

This section gives provision for local authorities, the EPA or any individual to complain to the District Court regarding noise nuisance causing unreasonable annoyance. The Court may order the offending person or body to take specific measures to limit or prevent noise pollution.

In relation to general neighbourhood noise problems, the Councils encourage complainants to exert their rights under the Environmental Protection Agency Act 1992 (Noise) Regulations, 1994 (S.I. No. 179 of 1994), which provides straightforward access to the Courts by individual or groups concerned about excessive noise.

2.1.4 The Roads Act 1993

Under section 77 of the Roads Act 1993, power is given to the Minister to make regulations requiring relevant road authorities to take measures to mitigate the effects of road traffic noise. The Minister may also specify limits for road traffic noise which, if exceeded, would require mitigating action from the road authorities.

There are currently no Irish statutory limits or standards for governing road traffic noise, or its assessment on either new or existing roads.

The legislation was amended in 2015 with the creation of Transport Infrastructure Ireland from the National Roads Agency and the Railway Procurement Agency.

2.1.5 Transport Infrastructure Ireland (TII) Guidelines
In light of the lack of standardised methods for the assessment of road traffic noise the then National Roads Authority published the 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes'. These guidelines propose design goals for noise related to both the construction and operational stages of new road schemes. Following a review of similar guidelines in the UK and adapting methodologies in line with the requirements of the END, the Authority proposed an operational design goal of $L_{den} \leq 60dB_{free}$ field value. Essentially what this means is that for any new road scheme the Environmental Impact Statement must take this target into account with regard to any existing sensitive residential property likely to be affected by the road scheme. The guidelines present an approach to mitigating the adverse effects of road construction in so far as possible through the use of measures such as alignment changes, barrier construction e.g. earth mounds, and the use of low noise road surfaces. The

responsibility for noise mitigation policy relating to any proposed new sensitive properties in the vicinity of the road scheme lies with the relevant Planning Authority.

2.1.6 IPPC Licensing

The EPA's Integrated Pollution Prevention Control Licensing terms require that certain bodies must limit environmental pollution caused by industrial activities in order to obtain a license to operate. The criteria relating to noise pollution are outlined in the EPA publication 'Guidance Note for Noise: Licence Applications, Surveys and Assessment in Relation to Scheduled Activities (NG4), January 2016. This document recommends a "Best Available Technique" approach to the assessment and mitigation of noise pollution. The document contains typical limit values for daytime ($55dB LA_{r,T}$), evening ($50dB LA_{r,T}$) and night time ($45dB LA_{r,T}$) noise, at sensitive locations, from licensed facilities.

2.1.7 Building Regulations 1997 - 2007

Technical guidance document Part E (2014) of the Building Regulations 1997 (S.I. No. 497 of 1997) relates to the mitigation of sound transfer between dwellings and rooms within a building. The regulations simply state that walls and floors must have "reasonable resistance" to airborne and impact sound. No consideration is given to the nature or location of the building or potential noise sources. The guidance document contains details of design goals and mandatory pre-completion testing required in order to demonstrate compliance.

2.1.8 BS 8233:2014: Guidance on sound insulation and noise reduction for buildings

BS 8233:2014 is intended to provide recommendations for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new or refurbished buildings undergoing a change of use rather than to assess the effect of external noise sources. The guidelines for noise levels in a residential property are generally in accordance with WHO Guidelines for Community Noise and Night Noise Guidelines.

The standard suggests suitable internal noise levels within different types of buildings including residential dwellings for steady external noise sources. It recommends the following maximum ambient noise levels:

Table 1.1. Table provides recommended internal LAeq target levels for overall noise in the design of a building. See BS 8233 for particular caveats and notes.

| Location | LAeq,16hr (7am-11pm) | LAeq,8hr (11pm-7am) |
|--------------|----------------------|---------------------|
| Living Rooms | 35 dB | - |
| Dining Rooms | 40 dB | - |
| Bedrooms | 35 dB | 30 dB |

With regard to noise levels in external amenity areas, BS 8233 states: "It is desirable that the steady state noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T. It is also recognized that these guideline values are not achievable in all circumstances."

BS 8233 also provides guidance on appropriate internal noise levels within different types of workplaces such as offices.

In designing buildings to control noise levels internally, the Standard suggests the following sequence:

- Assess the site, identify significant existing and potential noise sources, measure or estimate noise levels and evaluate layout options;
- Determine design noise levels for spaces in and around the building(s);
- Determine sound insulation of the building envelope, including the ventilation strategy;
- Identify internal sound insulation requirements;
- Identify and design appropriate noise control measures;
- Establish quality control and ensure good quality workmanship.

2.1.9 World Health Organisation (WHO)

Guidelines produced by the World Health Organisation make a number of recommendations for noise levels in specific environments which will minimise the health impact of environmental noise. In the context of the WHO definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" these guideline values can be seen as aspirational targets based on the precautionary principle. The guidelines set out a number of external and internal values for daytime and night time noise levels which aim to minimise all identified adverse health effects, including annoyance, for residential properties and other noise sensitive premises. Examples of the WHO 'Guideline values for Community Noise' in specific environments are:

$LA_{eq,day} \leq 55dB$ outdoor living area, to avoid serious annoyance.
 $LA_{eq,day} \leq 50dB$ outdoor living area, to avoid moderate annoyance.

$LA_{eq,day} \leq 55dB$ dwelling indoors, to avoid moderate annoyance.

$LA_{eq,night} \leq 30dB$ inside bedrooms, to avoid sleep disturbance.

$LA_{eq,night} \leq 40dB$ outside bedrooms with open window, sleep disturbance, and
 $LA_{max,night} \leq 45dB$ noise maxima inside bedrooms, to avoid sleep disturbance.

The Night Noise Guidelines for Europe (2009) were subsequently developed to provide expertise and scientific advice in developing future standards in the area of night noise exposure control. The document presents guideline values with the intention of preventing the harmful effects of noise. These are grouped into biological effects, sleep quality, well-being and medical conditions. It is recommended that the population should not be exposed to night noise levels greater than 40 dB $L_{night,outside}$ (a long-term eight hour average between 23:00 and 07:00 hrs). The level can be considered a health-based limit value necessary to protect the public, including most of vulnerable groups such as children, the chronically ill and the elderly, from the adverse health effects of night noise. Adverse health effects are observed among the exposed population between the range of 40 and 55 dB $L_{night,outside}$ and those among vulnerable groups will be more severely affected. The effect of noise levels above 55 dB $L_{night,outside}$ are increasingly hazardous to public health. An interim target of 55 dB $L_{night,outside}$ is recommended in the situations where the achievement of the guideline level of 40 dB $L_{night,outside}$ is not feasible in the short-term for various reasons. However, it is not a health-based limit.

2.1.10 Physiological Health Effects of Noise
In July 2010 in response to a request from the EU member states the World Health Organisation published a report that aims to assist policy-makers in quantifying the health impacts of environmental noise. The report entitled 'Burden of disease from environmental noise. Quantification of healthy life years lost in Europe'. The evidence-base on burden of disease contained in the report will inform the new European health policy, Health 2020.

The report summarises the many reviews of evidence on the relationship between environmental noise and specific health effects, including cardiovascular disease, cognitive impairment, sleep disturbance, tinnitus and annoyance. For each perceived health effect, the environmental burden of disease methodology, based on exposure-response relationship, exposure distribution, background prevalence of disease and disability weights of the outcome, is applied to calculate the burden of disease in terms of disability-adjusted life-years (DALYs). With conservative assumptions applied

to the calculation methods, it is estimated that, in the European Union Member States and other western European countries due to environmental noise, there are 61,000 DALYs for ischaemic heart disease, 45,000 DALYs for cognitive impairment of children, 903 000 DALYs for sleep disturbance, 22,000 DALYs for tinnitus and 654,000 DALYs for annoyance lost per annum.

It is estimated that at least one million 'healthy life years' are lost every year from traffic related noise in the western part of Europe. The main contributors in Europe are sleep disturbance and annoyance, mostly related to road traffic noise.

2.1.1.1 Professional Planning Guidance (PPG) on Planning & Noise: New Residential Development
The PPG for new residential developments was published in May 2017 by the Acoustics and Noise Consultants (ANC), Chartered Institute of Environmental Health and UK Institute of Acoustics of Noise. Its primary goal is to provide assistance in planning to deliver sustainable development by promoting good health and well-being in relation to noise. It encourages the use of good acoustic design process in and around proposed new residential development, having regard to national policy.

Any issues related to noise should be given consideration at the earliest stages of the development process in order to facilitate streamlined decision making in planning. The PPG follows a systematic, proportionate, risk based, two-stage, approach.

Stage One is an *Initial Site Noise Risk Assessment* which should be conducted to establish the level of risk from noise, not including any mitigation measures. There are four noise risk categories (negligible, low, medium and high). The outcome of this assessment should not directly inform a decision, rather to allow for the consideration of good acoustic design.

Stage Two is a full noise assessment including four recommended key elements:

- Element 1 - demonstrating a 'Good Acoustic Design Process' avoiding 'unreasonable' and preventing 'unacceptable' acoustic conditions;
- Element 2 - observing 'Internal Noise Level Guidelines';
- Element 3 - undertaking an 'External Amenity Area Noise Assessment';
- Element 4 - consideration of 'Other Relevant Issues'

To support proposals for a development an Acoustic Design Statements should be produced which will aid recommendations formulated by the decision maker. Further detail in relation to this guidance is provided in Section 8.2.1.

2.2 REGIONAL AND LOCAL LEGISLATION AND GUIDANCE

Consideration of regional and local legislation and guidance is given below.

2.2.1 Limerick City Development Plan 2010-2016 (as extended)

The Limerick City Development Plan identifies the dominant source of noise in the city as being from roads. A policy of the Council is to adopt a Noise Action Plan.

In general, the policy of the Council is to minimise the adverse effects of noise pollution by guiding development so that activities that generate noise are located away from noise sensitive areas such as housing estates and schools. Where this is not practicable, the Council can place planning conditions on permissions for new development which seek to control and reduce noise levels.

2.2.2 Limerick County Development Plan 2010-2016 (as extended)

The Limerick County Development Plan takes cognisance of noise pollution and noise nuisance in several scenarios. In all cases it is the policy of the Council to reduce both the number of people exposed to noise and the extent of noise related annoyance and disamenity. Some areas of particular note are outlined below.

The Development Plan requires that due consideration be given to the noise impact caused by activities such as the extractive industry, take-away premises and small scale businesses in residential areas. Consideration must also be given to noise pollution at the planning application stages for proposals such as wind farms and as part of sustainable development planning.

Economic Development Strategy
Specific consideration is given to the resulting noise situation arising from industrial premises located close to residential areas. The Development Plan states that the noise level arising from any commercial development should not exceed 55dB L_{eq} during the daytime, and 45dB L_{eq} during the night, when measured at noise sensitive locations. These values are in line with those suggested in the IPPC Licensing guideline document. Lower limits may be enforced in sensitive areas where the background noise levels are particularly low.

Development Control Guidelines
The Development Control Guidelines take cognisance of several noise pollution and annoyance issues relating to residential and industrial properties. Specifically, consideration is given to noise nuisance in apartments. It is the aim of Limerick County Council to give consideration to the possible noise nuisance

and disturbance which can be experienced in multiple occupancy dwellings when considering planning applications.

The Transport and Infrastructure section of the guidelines makes particular reference to traffic noise, stating that developments along primary roads will only be permitted when it is proven that the noise levels due to the roadway will be below guideline values. A minimum set back distance of 90 metres is recommended for developments near any new national primary roads, in order to curtail noise disturbance. A shorter distance may be acceptable if measures are taken to limit noise to guideline values.

The Council's Sustainability Statement makes reference to the Council's aims to mitigate traffic noise by planning to reduce noise levels from cars and to reduce their use, which will contribute to an overall improvement in the long term environmental noise climate.

These points highlight some of the main steps which the Council has taken, through the Development Plan and use of the Planning and Development Regulations to provide a framework for taking consideration of noise pollution during the planning process in order to protect the general population from the effects of noise exposure.

2.2.3 Amalgamated Development Plan

The process of the development of an amalgamated Limerick City and County Development Plan will commence within one year of the adoption of the Regional Spatial and Economic Strategies (RSES). The Strategy for the Southern Region is presently being prepared with an anticipated adoption date of Quarter 1, 2019. It will provide a long-term regional level strategic planning and economic framework in support of the implementation of the National Planning Framework. The RSES is a link between the National Planning Framework, the City and County Development Plans and the Local Economic and Community Plans.

2.2.3 Castletroy Local Area Plan

Limerick City & County Council has commenced a review of the Castletroy Local Area Plan. A public information evening occurred in September 2017 to allow issues/views to be highlighted and to be addressed in the preparation of the plan.

2.3 Noise Assessment for Action Planning
There is no existing legislation that limits noise levels to a particular value. Several difficulties arise when attempting to choose a reasonable value for noise level limits: the effects of noise exposure are highly dependent on the perception of the exposed person and the effectiveness of noise reduction can often be dependent as much on relative changes as on absolute levels. Attempting to apply the same limit value to a city centre park and rural country side may be inappropriate, despite the fact that both can be perceived as tranquil areas relative to the surroundings.

To address the lack of legislative measures and unify the approach taken by Action Planning Authorities the EPA have issued guidelines for the assessment of noise exposure and prioritising areas for noise mitigation measures. The suggested onset of assessment levels relating to road traffic noise are given below.

EPA suggested onset levels for noise assessment:

- 70dB L_{eq}
- 57dB L_{night}

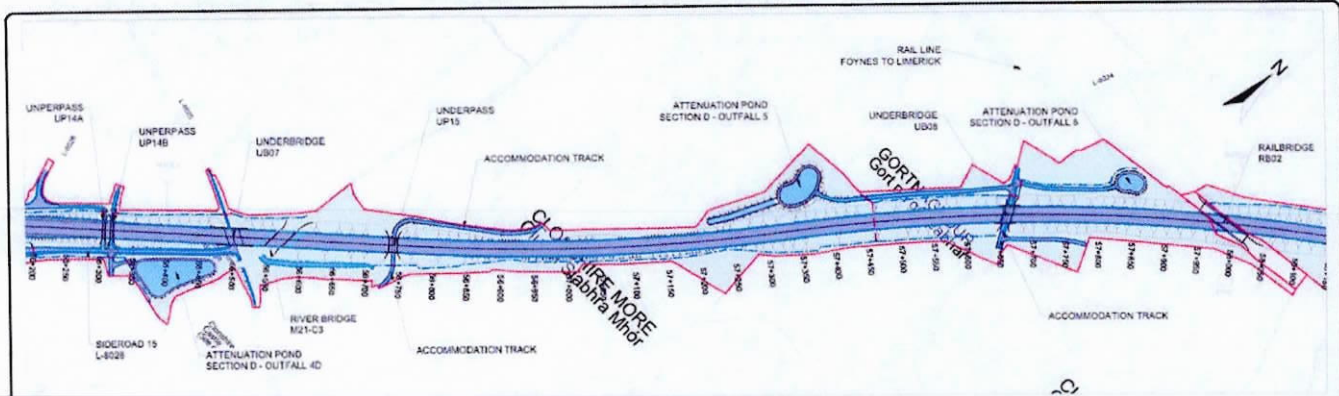
EPA suggested onset levels for measures to preserve the existing noise situation (quiet areas):

- 55dB L_{eq}
- 45dB L_{night}

These levels reflect an annual average 24 hour period.

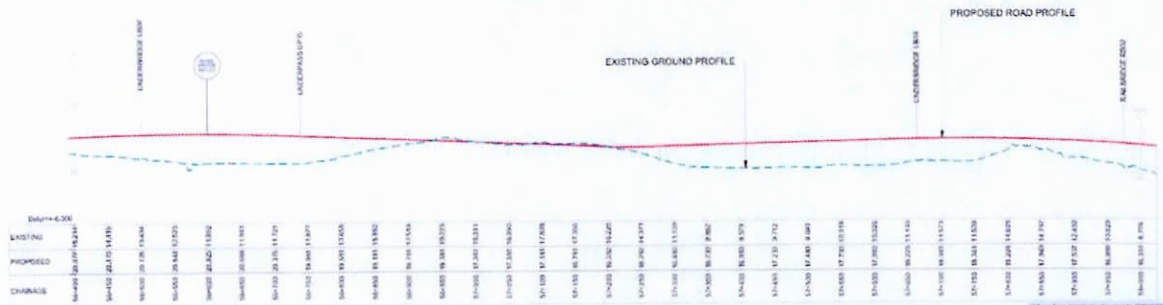
It is important to note that the above L_{eq} and L_{night} values do not represent desirable or recommended noise levels and are well above what might be considered an acceptable noise environment. They are a suggested threshold for notification of assessment to determine if mitigation measures may be required.





- LEGEND**
- PIPE LINE
 - ATTENUATION POND
 - PITCH/RECEPTION BENCH
 - PIPED POND
 - BOX CULVERT
 - PPS CULVERT
 - EXISTING PPS CULVERT
 - CLEAN SPAN STRUCTURE
 - BRIDGE
 - PROPERTY TO BE ACCOMPANIED
 - PROPOSED BIVALENT COMPANION
 - TABLE LAYOUT AND HAND SPECIFIED
 - GRADE PROFILE
 - PROPOSED ROAD PROFILE
 - EXISTING ROAD PROFILE
 - PROGRESS ROAD PROFILE
 - GRADE PROFILE
 - WATERCOURSE OVERPASS
 - EXISTING ROAD PROFILE
 - PROGRESS ROAD PROFILE

NOTE:
 The design has been developed to a stage to permit a full Environmental Impact Assessment to be undertaken. It is anticipated that the design will be subject to further development. Modifications may be made to meet the requirements of the design or the design or other provisions, provided this has no significant adverse environmental effects and does not compromise the current Environmental Impact Assessment.



| STATION | PROPOSED | EXISTING |
|---------|----------|----------|
| 84+00 | 10.00 | 10.00 |
| 84+10 | 10.00 | 10.00 |
| 84+20 | 10.00 | 10.00 |
| 84+30 | 10.00 | 10.00 |
| 84+40 | 10.00 | 10.00 |
| 84+50 | 10.00 | 10.00 |
| 84+60 | 10.00 | 10.00 |
| 84+70 | 10.00 | 10.00 |
| 84+80 | 10.00 | 10.00 |
| 84+90 | 10.00 | 10.00 |
| 85+00 | 10.00 | 10.00 |
| 85+10 | 10.00 | 10.00 |
| 85+20 | 10.00 | 10.00 |
| 85+30 | 10.00 | 10.00 |
| 85+40 | 10.00 | 10.00 |
| 85+50 | 10.00 | 10.00 |
| 85+60 | 10.00 | 10.00 |
| 85+70 | 10.00 | 10.00 |
| 85+80 | 10.00 | 10.00 |
| 85+90 | 10.00 | 10.00 |
| 86+00 | 10.00 | 10.00 |
| 86+10 | 10.00 | 10.00 |
| 86+20 | 10.00 | 10.00 |
| 86+30 | 10.00 | 10.00 |
| 86+40 | 10.00 | 10.00 |
| 86+50 | 10.00 | 10.00 |
| 86+60 | 10.00 | 10.00 |
| 86+70 | 10.00 | 10.00 |
| 86+80 | 10.00 | 10.00 |
| 86+90 | 10.00 | 10.00 |
| 87+00 | 10.00 | 10.00 |
| 87+10 | 10.00 | 10.00 |
| 87+20 | 10.00 | 10.00 |
| 87+30 | 10.00 | 10.00 |
| 87+40 | 10.00 | 10.00 |
| 87+50 | 10.00 | 10.00 |
| 87+60 | 10.00 | 10.00 |
| 87+70 | 10.00 | 10.00 |
| 87+80 | 10.00 | 10.00 |
| 87+90 | 10.00 | 10.00 |
| 88+00 | 10.00 | 10.00 |
| 88+10 | 10.00 | 10.00 |
| 88+20 | 10.00 | 10.00 |
| 88+30 | 10.00 | 10.00 |
| 88+40 | 10.00 | 10.00 |
| 88+50 | 10.00 | 10.00 |
| 88+60 | 10.00 | 10.00 |
| 88+70 | 10.00 | 10.00 |
| 88+80 | 10.00 | 10.00 |
| 88+90 | 10.00 | 10.00 |
| 89+00 | 10.00 | 10.00 |
| 89+10 | 10.00 | 10.00 |
| 89+20 | 10.00 | 10.00 |
| 89+30 | 10.00 | 10.00 |
| 89+40 | 10.00 | 10.00 |
| 89+50 | 10.00 | 10.00 |
| 89+60 | 10.00 | 10.00 |
| 89+70 | 10.00 | 10.00 |
| 89+80 | 10.00 | 10.00 |
| 89+90 | 10.00 | 10.00 |
| 90+00 | 10.00 | 10.00 |

| | | | | | | | | | |
|--------|------------|--|---|-------|------------|-------|--------|--------|--|
| | | Foynes to Limerick Road (including Adare Bypass) Environmental Impact Assessment Report | SCALE PLAN & PROFILE RATHKALE TO ATTYPUN - SECTION D SHEET 5 OF 12 | | | | | | |
| | | | <table border="1"> <tr><td>DATE:</td><td>11/11/2014</td><td>S/CAR</td></tr> <tr><td>SCALE:</td><td>1:1000</td><td></td></tr> <tr><td>DATE:</td><td>11/11/2014</td><td>Fig 4.41</td></tr> </table> | DATE: | 11/11/2014 | S/CAR | SCALE: | 1:1000 | |
| DATE: | 11/11/2014 | S/CAR | | | | | | | |
| SCALE: | 1:1000 | | | | | | | | |
| DATE: | 11/11/2014 | Fig 4.41 | | | | | | | |

The dominant noise during the setting up and removal of the monitoring equipment was road noise from the M7. The results of the sound level monitoring are compared against the noise levels expected under the 2012 and 2017 strategic noise mapping in Table 3.2.

Table 3.2 Results of Council's sound level monitoring of road noise from the M7 in the Monaleen area.

| Location | Period | Strategic noise mapping 2012: Expected L _{den} (dBA) | Strategic noise mapping 2017: Expected L _{den} (dBA) | Measured L _{den} (dBA) | Strategic noise mapping 2012: Expected L _{night} (dBA) | Strategic noise mapping 2017: Expected L _{night} (dBA) | Measured L _{night} (dBA) |
|----------|----------------------|---|---|---------------------------------|---|---|-----------------------------------|
| Monaleen | 14/02/15 to 14/04/16 | 65 - 70 | 65 - 70 | 63 | 55 - 60 | 55 - 60 | 54 |

The L_{den} level of 63 dBA is greater than the operational design goal of 60 dBA L_{den} free field value published in the "Guidelines for the Treatment of Noise and Vibration in National Road Schemes". It also indicates that the day-time sound level would likely cause serious annoyance in an outdoor amenity area based on levels presented in the WHO "Community Noise Guidelines".

The microphone in the garden of the complainant's premises was at a height of 1.5 metres and greater than 3 metres from any acoustically hard reflective surfaces, other than the ground. The monitoring was not undertaken at 4 metres height, the height which are calculated for the strategic noise mapping, and so the measurements will likely be an underestimate, potentially by 3 to 5 dBA, due to the presence of a barrier (the concrete block wall at the boundary of the site). This indicates that night-time noise levels are likely to exceed even the interim target of L_{night} 55 dBA set by the WHO.

The issue of road noise potentially having an adverse impact on residents in the Monaleen area adjacent to the M7 has been raised with TII (the responsible road authority) and the Council will continue to liaise with TII in order to determine any feasible mitigating measures.

3.2 MITIGATION MEASURES

While no specific mitigation measures were taken to reduce noise, a number of infrastructural changes have occurred that have had an impact on the noise environment during the life of the 2013 to 2018 Noise Action Plan. These are summarised below:

3.2.1 Green Routes

Limerick City Council has continued a program of installing Green Routes to improve access to the City Centre for public transport and cyclists. This will encourage commuters and recreational users to take these routes, thus reducing their impact to noise in the City. The development of Green Routes has involved upgrading the existing road corridors to provide lanes that give priority to bus transport and cyclists. Green Routes in the City that have been completed are presented in Figure 3.5.

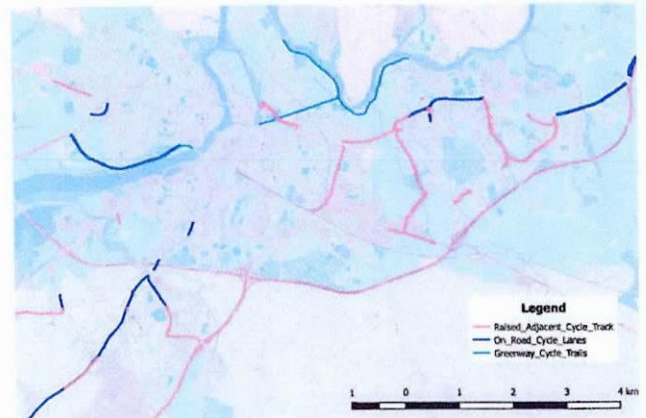


Figure 3.5 Green Routes in Limerick City.

The Rhesogue Neighbourhood Greenway and the cycle route in Castletroy/Newtown have now been completed and the Old Tipperary Road route is currently under construction.

The existing cycle network in the Limerick Metropolitan Area is presented in Figure 3.6.



Figure 3.6 Existing cycle network in the Metropolitan Area of Limerick.