



Comhairle Contae Mhuineacháin
Monaghan County Council

Monaghan Local Authorities

Draft Noise Action Plan

April 2013

Executive Summary

This Noise Action Plan has been prepared as required by the Environmental Noise Regulations (S.I. 140 of 2006). These Regulations give effect to the EU Directive 2002/49/EC relating to the assessment and management of environmental noise (END Directive). This Noise Action Plan is aimed at strategic long term management of environmental noise from traffic along the major routes, with greater than 3 million vehicle passages per year within Co. Monaghan. These include the N2, N53, N54 small sections of Regional roads around the towns of Monaghan, Castleblayney and Carrickmacross; R937, R162, R181, R938 & R927.

This plan is prepared by Monaghan Local Authorities, encompassing Monaghan County Council, Monaghan Town Council, Clones Town Council, Castleblayney Town Council and Carrickmacross Town Council for major roads within their respective functional areas. The actions detailed in this plan have been drawn up to assess noise exposure in priority areas, as indicated by strategic noise mapping.

This Action Plan gives an overview of the main requirements of the Environmental Noise Regulations and the authorities responsible. The methods used in production of strategic noise maps are outlined and summary results are presented. These results are analysed and several recommendations are made as to the best way to limit population exposure to environmental noise pollution.

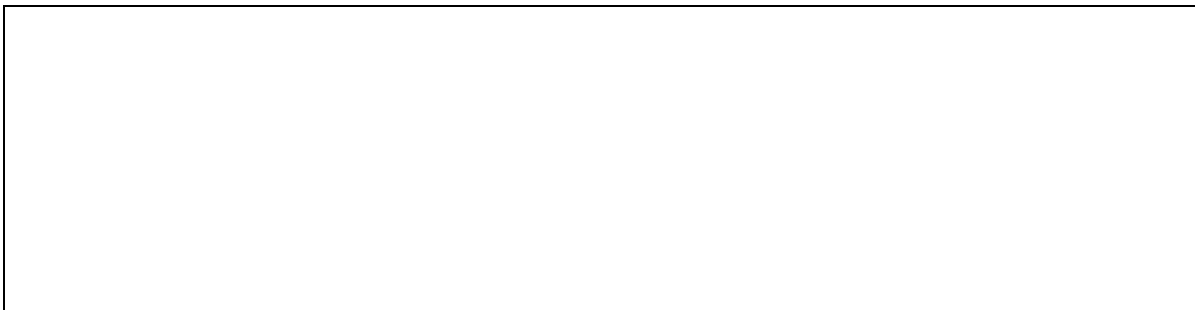


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1. Introduction

1.1 Background

This Noise Action Plan has been prepared for Monaghan Local Authorities, comprising Monaghan County Council, Monaghan Town Council, Carrickmacross Town Council, Castleblayney Town Council and Clones Town Council to meet the requirements of the statutory Noise Regulations currently in force, namely the;

- Environmental Noise Directive (END) 2002/49/EC and
- Environmental Noise Regulations, S.I. No. 140 of 2006

The Noise Action Plan was undertaken in line with the EPA “Guidance Note for Noise Action Planning”, July 2009. This Noise Action Plan, in line with the Regulations and Guidelines identifies the population exposed to excessive road noise along the National roads, N2, N53, N54 and small sections of Regional roads around the towns of Monaghan, Castleblayney and Carrickmacross; R937, R162, R181, R938 & R927. It informs the public about the relevant noise data and provides an action plan to avoid, prevent or reduce, on a prioritised basis, environmental noise exposure along the major roads within the County. This is a 5 year plan, but will be reviewed if necessary, if noise conditions change within this period.

A glossary of acoustic and technical terms used throughout this report is provided in Appendix 1.

1.2 Purpose and Scope of the END Directive

In 2002 the European Union issued Directive 2002/49/EC relating to the assessment and management of environmental noise pollution, which is commonly referred to as the Environmental Noise Directive (END).

The Directive aims to “*define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.*”

The Directive requires that Member States:

1. Undertake strategic noise mapping to determine exposure to environmental noise.
2. Ensure information on environmental noise and its effects is made available to the public and
3. Adopt action plans, based upon the noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental noise quality where it is good

1.3 Purpose and Scope of the Regulations

The END was transposed into Irish Law by the Environmental Noise Regulations, S.I. No. 140 of 2006. The Regulations define “environmental noise” as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic and from sites of industrial activity. Types of noise not included within these Regulations are noise that is caused by the exposed

person, noise from domestic activities, noise created by neighbours, noise at workplaces or noise inside means of transport or due to military activities in military areas.

The Regulations apply to environmental noise to which people are exposed, in built up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, near hospitals, and near other noise-sensitive buildings and areas.

The Regulations set out a two-stage process for addressing environmental noise from large agglomerations, major roads, railways and airports, as detailed in Table 1.

Table 1. Roads, Railways, Agglomerations & Airports falling under the scope of the Environmental Noise Regulations

Area	First Phase (2007-2008)	Second Phase (2012-2013)
Major Roads	>6 million vehicles/annum	>3 million vehicles/annum
Major Railways	>60,000 trains/ annum	>30,000 trains/annum
Agglomerations	>250,000 inhabitants	>100,000 inhabitants
Airports	>50,000 movements/annum	

There were no areas in Monaghan that fell within the scope of first phase, so no action was required at this time. In the second phase, all Major Roads within the county fall within the scope of the Regulations, so it is these that this Noise Action Plan has been devised for. The second phase thresholds will be used on an on-going basis at 5 yearly intervals, the next being 2017-2018 etc.

1.4 Roles and Responsibilities of designated bodies

There are three main designated bodies under the Regulations for the purposes of the County Monaghan Noise Action Plan, covering Major Roads.

1) Environmental Protection Agency

The Regulations designate the Environmental Protection Agency (EPA) as the national authority responsible for overseeing the implementation of the Regulations. The EPA are required to provide advice and guidance on the requirements of the Regulations and to report on Strategic Noise Mapping and Action Planning to the European Commission.

2) Noise Mapping Body

The National Roads Authority (NRA) is the designated noise mapping body for National Roads identified as major roads within the County and Monaghan County Council is the designated noise mapping body for non-National major roads (above 3million vehicles per year). However the NRA undertook the mapping of both National and non-National roads for the purposes of this Noise Action Plan in line with EPA guidelines for producing strategic noise maps for the County. A strategic noise map is a map designed for the assessment of noise exposure in a given area.

3) Action Planning Authority

The Regulations designate for major roads, the relevant local authority within whose functional area the road is located as the action planning authority. Therefore Monaghan Local Authorities, encompassing Monaghan County Council, Monaghan Town Council,

Clones Town Council, Castleblayney Town Council and Carrickmacross Town Council encompassing County Council are the action planning authorities for this Noise Action Plan.

1.5 Key Phases

1.5.1. Identification of areas required to be mapped.

In County Monaghan, strategic noise maps and action plans must be prepared for major roads only with >3 million vehicles per annum. The requirement for major railways, major airports or agglomerations >100,000 people do not apply to Co. Monaghan.

Road traffic volumes were obtained using the National Roads Authority's traffic counting system and from Monaghan County Council traffic counts, which identified the following routes under the Regulations;

- National Primary Road, N2 from Louth/Monaghan border to Monaghan/Tyrone border; 75km total
- National Secondary Road, N53 from Castleblayney to Monaghan/Armagh Border, 6.5km total
- National Secondary Road, N54 from Monaghan Town to the Monaghan/Fermanagh Border; 20km total
- Regional Road R937, Dublin Road, Monaghan town. Regional road R162, Glen Road, Monaghan Town. Regional Road R181, Main Street Castleblayney, Regional Road R938, York Street, Castleblayney, Regional Road R927 Main Street, Carrickmacross, 5km total

All traffic counts for national roads were obtained from the NRA's National Transport Model. This model supports transport investment decisions and facilitates good forecasts of traffic volumes on the road network for different future years and economic conditions. The National Transport Model provides a comprehensive representation of base demand on the transport network, in addition to a series of future year transport forecasts. The Traffic Model was used to determine traffic quantities and composition on all national major roads. All models are based on 2011 traffic counts on the national roads in question, from traffic counters managed by the NRA. Road traffic counts on regional roads were managed by Monaghan County Council and are also based on 2011 data.

1.5.2. Preparation of strategic noise maps

The National Roads Authority (NRA) carried out the noise mapping for the County and produced the strategic noise map. This was done following the EPA *Guidance Note for Strategic Noise Mapping* for the Environmental Noise Regulations 2006, Version 2, August 2011.

A strategic noise map is a graphical representation of the predicted noise level in a given area. A noise map has different colour coded bands, which represent the predicted decibels (dB(A)) within a certain range, also detailed on the map.

A noise map is produced using a computer software package. To develop a noise map a number of variables must be determined in order to correctly represent the amount of noise generated at the source i.e. by traffic driving on the road. For road traffic noise, the noise level at the source is primarily influenced by the speed at which traffic is travelling

at, the overall quantity of vehicles in the traffic flow, the proportion of heavy commercial vehicles (HCVs) in the flow and the type of road surface in the area.

The manner in which the noise propagates away from the source must then be calculated which involves determining the reduction in noise level as it propagates from the source. Distance, ground cover and the presence of barriers such as walls, noise barriers etc will all influence the level of noise attenuation.

Noise maps for County Monaghan are presented in terms of two noise indicators; L_{den} and L_{night} . L_{den} is the day-evening-night noise indicator and it represents the noise indicator for overall annoyance. It is based on day (07:00-19:00), evening (19:00-23:00) and night (23:00-07:00) time periods and it is weighted to account for extra annoyance in the evening and night periods. L_{night} is the night time noise indicator and is used in the assessment of sleep disturbance. It is based on night (23:00-07:00) time period. Both of these indicators are based on year long averages of the day, evening and night time periods and each are plotted separately for the required roads in the County. Each map presents the noise levels in 5dB contour bands.

1.5.3 Development of the noise action plans.

The Local Authorities within the County, within whose functional area the roads are located are the designated body for preparing Noise Action Plans. The plan is based on the strategic noise maps produced by the NRA, which provides the baseline predicted noise levels from major roads within the County. The noise action plan details the current situation regarding road traffic noise on major roads within the County and it forms the basis of developing a long term environmental noise strategy.

1.5.4 Public participation and their role

As required under the Regulations, the Public are invited to participate in the development of the County Monaghan Noise Action Plan. This allows the general public and relevant stakeholders an opportunity to review and participate in the formulation of strategic noise policy, with a view to preventing and reducing, where necessary, exposure to environmental noise.

1.5.5 Implementation of the plans

Noise action plans are to be implemented within a 5 year timeframe, so this Action Plan covers the period 2013-2018. The plan will be revised sooner, if a material change in the environmental noise occurs.

2. Existing noise management legislation and guidance

2.1 National Legislation or Guidance

A number of legal requirements and guidance documents have guidance levels in relation to noise, depending on the type of development e.g. road, quarry, wind turbine etc. There are no guide values for a large number of developments and scenarios and the best-fit guidelines (Irish/UK) are commonly used, which can lead to confusion, inconsistent use and incorrect use of noise levels in a large number of cases. The following list of national legislation and guidelines make reference to environmental noise.

2.1.1 EPA Act 1992

Environmental Noise Regulations in Ireland have come about on foot of the Environmental Protection Agency Act of 1992. Three Sections of the Act are of direct relevance to noise, as follows.

Section 106 gives the relevant Minister certain powers to regulate noise that may give rise to a nuisance or be harmful to health or property.

Section 107 gives powers to local authorities and the EPA to serve notice to take steps to control noise.

Section 108 sets out a process whereby noise issues may be taken to the District Court, which may make an order requiring that the person or body responsible for the noise takes steps to eliminate or ameliorate the noise in question.

2.1.2 NRA Guidance

The National Roads Authority (NRA) has published the document “*Guidelines for the Treatment of Noise and Vibration in National Road Schemes*” (2004), which sets out the procedure to be followed in respect of the planning and design of national road schemes. These guidelines set out limits for noise related to both the construction and traffic flow on new road schemes. The NRA Guidelines for the design of new national roads indicates that mitigation measures should be considered above a level of 60dB L_{den} free-field. The guidelines put forward measures for mitigating the adverse effects of road construction in so far as possible through the use of measures such as alignment changes, barrier construction, and the use of low noise road surfaces.

2.1.3 The Roads Act 1993

Under Section 77 of the Roads Act 1993, the Minister is empowered to make regulations requiring 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. To date, no such regulations have been enacted.

2.1.4 IPPC/ Waste Licensing

Certain activities that fall under the requirements for an Integrated Pollution Prevention Control (IPPC) Licence or Waste Licence from the EPA may be subject to noise conditions. The EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* (2012) sets out the requirements for noise assessments and sets the typical limit values for noise from licensed sites as;

- Daytime (07:00 to 19:00hrs) – 55dB $L_{Ar,T}$;
- Evening (19:00 to 23:00hrs) – 50dB $L_{Ar,T}$;
- Night-time (23:00 to 07:00hrs) – 45dB $L_{Aeq,T}$.

Noise limits are generally set at nearby noise sensitive locations to the development and an annual noise survey is typically required by the licence holder.

2.1.5 Wind Energy Planning Guidelines

The Department of the Environment, Heritage and Local Government have produced Planning Guidelines for Wind Energy Developments (2006), which includes noise guidelines.

These guidelines state that in general, a lower fixed limit of 45dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations is considered appropriate to provide protection to wind energy development neighbours. However, in very quiet areas, the use of a margin of 5dB(A) above background noise at nearby noise sensitive properties is not necessary to offer a reasonable degree of protection and may unduly restrict wind energy developments which should be recognised as having wider national and global benefits. Instead, in low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of the $L_{A90,10min}$ of the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A).

Separate noise limits should apply for day-time and for nighttime. During the night the protection of external amenity becomes less important and the emphasis should be on preventing sleep disturbance. A fixed limit of 43dB(A) will protect sleep inside properties during the night. In general, noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 metres. Planning authorities may seek evidence that the type(s) of turbines proposed will use best current engineering practice in terms of noise creation and suppression.

The EPA have also produced a *Guidance Note on Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3)* (2011), which proposes the following Cumulative Site and Turbine Noise Limits

- Daytime 55 dB $L_{Ar,T}$
- Night-time 45 dB L_{Aeq}
- Wind turbine noise not to exceed 45 dB L_{Aeq} at any time, or to contain any significant tonal components

2.1.6 Quarry and Ancillary Activities

The Department of the Environment, Heritage and Local Government have published *Guidelines for Planning Authorities on Quarries and Ancillary Activities* (2004). This publication contains a discussion of the primary sources of noise associated with quarrying and offers guidance in relation to the correct approach to be followed in respect of assessment and mitigation.

Suggested noise limit values are 55dB $L_{Aeq,1hr}$ and 45dB $L_{Aeq,15min}$ for daytime and night time respectively, although more onerous values may be appropriate in areas with low levels of pre-existing background noise.

2.1.7 Building Regulations

The current Irish Building Regulations (1997-2012) call for certain constructions to offer “reasonable resistance” to both airborne and impact sound. The accompanying Technical Guidance Document E of the Building Regulations 1997 (S.I. No.497 of 1997) has sound

transmission values put forward in the “Similar Construction” method described in this document.

2.2 Regional and Local Legislation or Guidance

The County Monaghan Development Plan 2013-2019 has noise conservation listed in a number of areas.

Chapter 4, Environment, Policy for Noise Control NCP1 states that;

The Planning Authority will seek to protect the amenity of individuals, dwellings, businesses, community facilities and other existing development, when assessing proposals for development that are likely to generate significant levels of noise.

Chapter 7, Development of Community Infrastructure, Objectives for Recreation and Amenity, RAO12 aims to;

Confine games/recreational activity, which would give rise to loss of amenity including elevated levels of noise, to locations, which would not create disturbance to residents or have a negative impact on the conservation status of protected structures.

The policies for Schools and Education SEP 2 (II) states that

Proposal for new educational facilities or extensions to existing facilities will normally be granted planning permission subject to the following criteria:

(ii) The proposals would not result in significant disturbance in terms of traffic, car parking and noise.

Chapter 15 on Development Management Guidelines refers to Residential dwellings and agricultural buildings. In section 15.4.4 it states

As agricultural enterprises by their nature tend to generate smells and noise, the planning authority considers it necessary to ensure that residential development does not take place in close proximity to buildings/structures associated with agricultural enterprises.

The Policy for Agricultural Horticultural and Forestry Developments, AFP2 is to

Give favourable consideration to agricultural, horticultural and forestry development where the development will not result in an unacceptable loss of residential amenity by reason of noise, smell, pollution, general disturbance etc.

On Renewal Energy Developments, Section 15.14 states that;

Particular regard will be had for the degree of visual intrusion and noise disturbance to be expected and the proximity of existing infrastructure such as power lines, railways and roads where public implications will be assessed.

Regarding Industry, Section 15.17 states that

Planning permission may be granted for the redevelopment of derelict mushroom, poultry and pig units within 2.5 km of a town or village for light industrial units subject to relevant planning policy and guidelines including road access, integration of buildings into the environment, impact on surrounding land uses, disposal of storm water and waste water, potential for noise nuisance etc.

The Policy for National Roads, NRP 9 states that

Where development is proposed in close proximity to existing or planned national roads, the applicant will be required to address potential negative impacts arising from national

roads such as noise, air, and light pollution through mitigating impacts such as appropriate design of buildings, landscaping features and site layout.

The Strategic Environmental Assessment (Environmental Report) of the Development Plan provides a summary of Environmental Pressures within the County. Under Air and Noise it states

With regard to air and noise, no significant impacts have been indentified within the County. However emissions from traffic and industrial units are associated with air and noise pollution.

3. Description of the Action Planning Area

3.1 Extent of the area

In County Monaghan, the only noise source to be considered by the Action Planning Authority relates to major roads carrying >3 million vehicles per year, as defined in the Regulations. There are 2,409 kilometres of public road in Co. Monaghan of which 107 km is national road, comprising four national routes. Three of these national roads have been included in the strategic noise map undertaken by the National Roads Authority. Some sections of non-National road were also designated a major road and included in the study. Noise maps have been produced for;

- N2, from the Louth/Monaghan border at Aclint Bridge, on the River Lagan to the Monaghan/Tyrone border at Moy Bridge, on the River Blackwater. This road bypasses the major towns of Carrickmacross, Castleblayney, Monaghan and runs through the village of Emyvale, with a total distance of approximately 75km.
- N53 from south of Castleblayney to the Monaghan/Louth border at Ballynacarry Bridge at on the Fane River, a distance of 6.5km
- The N54 from Monaghan town to Clones, to the Monaghan/Fermanagh border at Clonfad Bridge on the Finn River, a distance of approximately 20km.
- The following Regional Roads in Monaghan, Castleblayney and Carrickmacross towns, a distance of approximately 5km in total;
 - o R937, Dublin Road, Monaghan town
 - o R162, Glen Road, Monaghan Town
 - o R181, Main Street Castleblayney
 - o R938, York Street, Castleblayney
 - o R927 Main Street, Carrickmacross

An overview map of all areas modeled within the County is provided in Appendix C.

Once all required areas to be included in the strategic noise map was determined, the NRA noise model looked at receivers in the region of a major road, within approximately 1km each side of the centreline of the road. The Regulations require the Action Plan covers places near major roads affected by noise from the major sources. Noise from major sources is regarded as affecting an area if it causes either an L_{den} value of 55dB(A) or greater or an L_{night} value of 50dB(A) or greater anywhere within the area. For noise modelling purposes, the NRA took this to be within about 1km of the centreline of the major road as beyond this road traffic noise will not be a significant contributor in the background noise of an area. In practice, from examination of the noise maps produced in Appendix C, the $L_{den} \geq 55\text{dBA}$ zone and the $L_{night} \geq 50\text{dBA}$ zone extends approximately 500m from the centre line of the major road. Therefore for the purposes of noise action planning, all lands within 500m of the centreline of the major road are considered 'near' a major road. Properties within this band will be seen as eligible for inclusion in the assessment stage of noise action planning.

This definition of proximity will not hold for sections of major road passing through developed areas as factors such as reduced vehicle speed and more complex sound propagation will influence the results in these areas. This can reduce the noise exposure distance significantly. Therefore it is proposed that, within a built up area only properties in the immediate vicinity of the road be designated as being 'near' the source.

3.2 Description of the topography/ geographical location.

Monaghan is one of the country's landlocked counties, characterised by rolling drumlin hills and wetlands. It contains 129,093 acres of land or 1.9% of the total area of the Republic of Ireland. Of this total, 69% of the area is dedicated to agriculture (mainly grassland), 4% to forestry and 1.7% covered by lakes. County Monaghan is located in the Border, Midlands and Western Region as defined under the National Spatial Strategy (NSS). It is one of three Ulster Counties bordering with Northern Ireland. The county shares 108 miles of border with Northern Ireland, giving the county the longest share of border between Northern Ireland and the Republic of all southern counties. There are six counties in total that border Monaghan; Fermanagh, Tyrone and Armagh in Northern Ireland and Louth, Meath and Cavan in Southern Ireland. Four of these counties are significant in terms of this noise action plan as the county's major roads adjoin them; Louth (N2), Tyrone (N2), Armagh (N53) and Fermanagh (N54).

3.3 Description of the general population

County Monaghan has a population of 60,483 (2011 census). It is a predominantly rural county with approximately 80% of its population living in population centres of less than 1,000 people. There are five major towns in the county: Monaghan (6,641), Carrickmacross (4,925), Castleblayney (3,634), Clones (1,761) and Ballybay (1,461).

The housing units in the county are predominantly single dwelling with multi unit development generally confined to larger towns and some villages. Within the Noise Action Plan area, single unit dwellings predominate, comprising once off rural housing. There are some areas of ribbon development adjacent to sections of national and non-national roads near built up areas and a number of rural houses adjacent to the road, which are continually exposed to environmental noise from road traffic. More recent developments such as the N2 bypass of Carrickmacross and Castleblayney had noise mitigation measures (noise barriers) included within the design process.

3.4 Location of noise sensitive groups

A noise sensitive location is a dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels. For the purposes of this Noise Action Plan, the following locations are considered noise sensitive within the action plan area detailed in Section 3.1.

- All residential properties within 500m of the centreline of the major road
- In a built up area, only residential properties in the immediate vicinity of the major road
- Schools located along the major routes, N2, N53, N54 and the short sections of the R937, R162, R181, R938 & R927 also designated as major routes.

3.5 Description of the main infrastructure/services.

Monaghan provides an important transport link between the north and south and the N2 which travels through the county has been recognised as an important strategic link servicing Derry and the North West.

4. The Responsible Authority for Action Planning

4.1 Name and contact details for the Responsible Authority

In County Monaghan, the only noise source to be considered by the Action Planning Authorities relates to major roads in excess of 3 million vehicles per year, as required under the Regulations. The functional areas of Monaghan County Council, Monaghan Town Council, Clones Town Council, Castleblayney Town Council and Carrickmacross Town Council are affected by road traffic noise under this Noise Action Plan. Therefore all five local authorities are considered designated action planning authorities. Monaghan County Council is the lead authority in developing the Noise Action Plan.

The contact details for the five responsible authorities are;

Lead Authority: Monaghan County Council
Council Offices
The Glen
Monaghan
Tel: 047 72060
Fax: 047 72061
Email: info@monaghancoco.ie

The Roads Department of Monaghan County Council is responsible for this Noise Action Plan
Telephone: 047 30597, 30541 & 30570.
Email: roads@monaghancoco.ie

Town Councils:

Monaghan Town Council
Town Hall
1 Dublin Street
Monaghan
Tel: 047 82600
Fax: 047 84549
Email: clerk@monaghantc.ie

Clones Town Council
Pringle Building
Clones
Co. Monaghan
Tel: 047 51018
Fax: 047 52006
Email: clerk@clonestc.ie

Castleblayney Town Council
Town Clerks Office
Main Street
Castleblayney
Co. Monaghan
Tel: 042 9740048/9740058
Fax: 042 9749109
Email: clerk@castleblayneyc.ie

Carrickmacross Town Council
Carrickmacross Civic Offices
Convent Lands
Carrickmacross
Co. Monaghan
Tel: 042 966 1236 / 966 1618 / 966 3662
Fax: 042 966 1236
Email: clerk@carrickmacrosstc.ie

4.2 Description of other bodies of relevance

The Environmental Protection Agency (EPA) is the designated national authority responsible for overseeing the implementation of the Regulations. The EPA is required to provide advice and guidance to the relevant noise mapping bodies and action planning authorities and is responsible for reporting information to the European Commission. Further details can be found at <http://www.epa.ie/downloads/advice/noisemapping/>.

The National Roads Authority (NRA) is the designated noise mapping body for National Roads identified as major roads within the County and Monaghan County Council is the designated noise mapping body for non-National major roads. However the NRA undertook the mapping of both National and non-National roads for the purposes of this Noise Action Plan. The NRA prepared the noise maps for the major road with >3million passenger vehicles for County Monaghan. Further details can be found at <http://www.nra.ie/Environment/NoiseMaps/>.

The National Roads Authority has overall responsibility for the national road network, and provides funding to the Council for the maintenance and improvement of the national roads within the county. Monaghan County Council Roads Department is responsible for the planning, design, improvement and upkeep of the road network within the county. Non national roads are funded through the Department of Transport and from the Council's own resources.

4.3 Description of any noise-reduction measures already in force within the action planning area, or projects in preparation

Three sections of bypass were constructed in the along the N2 in recent times. These diverted traffic (hence noise) away from towns and concentrate it in less built up areas. Noise barriers formed part of the Carrickmacross and Castleblayney bypass schemes on sections of road near houses.

N2 Carrickmacross bypass: The N2 Carrickmacross to Aclint Road Realignment involved the construction of 8.5 km of single carriageway roadway to improve the existing road alignment and provide a bypass for the N2 National Primary route of Carrickmacross town. This road was opened to traffic on 21st January, 2005.

N2 Monaghan bypass: The reconstruction and realignment of 2.3 km of the N2 from the townland of Corlat south of Monaghan Town to the existing N2/N12 junction in the townland of Coolshannagh to the north was opened on 25th September 2006 and reduces the volume of traffic, hence noise for the Town.

N2 Castleblayney bypass: Realignment of the existing N2 National Primary route from the townland of Tullybuck north of Clontibret to the townland of Drumcrew south of Castleblayney was officially opened to traffic on 5 November 2007. This road scheme was 15.8km in length.

N2 Monaghan to Emyvale Road Widening Scheme: This scheme is currently under construction from the Townland of Coolkill East to the Townland of Corracrin, a distance of 8.3km. A full noise assessment was undertaken for this work at planning application stage, in line with NRA guidelines.

N2 Clontibret to Northern Ireland Border Road Scheme

A preferred route corridor (400m) wide has been selected to upgrade the N2 between Clontibret and Northern Ireland, a distance of 28km and this has been put on public display. The progression of the road scheme will be dependent on funding availability. The requirements of the Noise Action Plan, in compliance with the Regulations will be taken into account if this road scheme progresses.

5. Summary of the results of the noise mapping

5.1 Overview of the preparation of the noise map

A noise map is a graphical representation of the various noise levels in a particular area with different colours representing different noise levels in dB(A). The NRA was designated to produce the noise maps for major roads. In County Monaghan roads with > 3million vehicle passages per year were identified for noise mapping under the Regulations. These included the N2, N53, N54 and the short sections of the R937, R162, R181, R938 & R927.

A noise map is produced using computer software and the NRA used *Predictor Version 8.11* Noise Model. To conduct noise modeling using the software and to produce the noise map a number of variables are determined in order to correctly represent the amount of noise generated at the source, in the case of roads, by traffic driving on the roads. The following information was obtained and input into the noise model. Additional details on information used for presentation of results, is also provided in the table.

Table 2. Data input into Noise Model

Data	Details	Source	Additional Details
Traffic	Volume of traffic, proportion of heavy commercial vehicles (HCVs)	NRA Traffic Model was used to determine traffic quantities and composition	The UK Method "Calculation of Road Traffic Noise" (CRTN) methodology was used for the assessment of road traffic noise levels, with reference to supplemental reports specified in the EPA Guidance Note for Strategic Noise Mapping.
Contours & Buildings	Contour heights on / near the road, presence of embankments, Building heights and location	Aerial LiDAR survey completed in 2011 with 1m contours of all national roads, building height information and a digital terrain model was used in the model.	GeoDirectory datasets provide a definitive address database for the country and were used to calculation the population exposed to the various noise bands. CSO (2011) 'small area' data was also used for population statistics.
Roads	Width, surface, speed limit, noise barriers	NRA Roads Database provides information on carriageway types, road widths, noise barriers, surface types, texture depths and speed limits.	As built drawings for roads kept by the NRA provide details on the position, type and height of noise barriers.

5.2 Presentation of results

Two noise maps were produced by the NRA in September 2012 for the County's major roads; one showing the L_{den} (dB) and one showing the L_{night} (dB) noise contour bands, with additional details of area, buildings and population exposed. The noise maps are

provided in Appendix C, with different colour coded bands showing the noise level in 5dB bands moving from the road.

The L_{den} map shows the loudest noise is the road itself (>75dB – dark blue), while moving out from the road, the noise level reduces. The lowest noise band shown is 55-59dB (orange) and beyond this the noise level from the road (L_{den}) is not reported under the Regulations i.e. <55dB.

The L_{night} map similarly shows noise contours in 5dB bands. The highest noise on the road itself at night is in the 65-69dB range, with no L_{night} noise >70dB for any of the major roads. Moving out from the road, the noise level decreases with distance with the lowest noise band shown as 45-49dB (yellow) and beyond this the noise level from the road (L_{night}) is not reported under the Regulations i.e. <45dB.

As detailed in Section 3.1 noise from major sources is regarded as affecting an area if it causes either an L_{den} value of 55dB(A) or greater or an L_{night} value of 50dB(A) or greater anywhere within the area. Therefore the extent of the orange band (55-59dB) in the L_{den} map and the pale yellow (ochre) band (50-54dB) in the L_{night} map is the extent of the area eligible for inclusion in the assessment stage of this Noise Action Plan. This area extends approximately 500m from the centre line of the main road. On some stretches of road, the extent is much less and some areas, it may be slightly greater.

Based on data supplied from the NRA regarding the noise modeling, the following table shows the exposure statistics over an average 24hour period for major roads.

Table 3. L_{den} – Population Exposure Statistics for Major Roads in Co. Monaghan

Noise Level Band dB	Approximate No. of People
<50	15,750*
55-59	2,094
60-64	1,279
65-69	1,399
70-74	513
>75	33

* This figure is taken from the population living within 1km either side of the major road.

Table 4. L_{den} - Area, Houses and Population Exposure Statistics for Major Roads

Noise Level Band dB	Approximate Area km ²	Approximate No. of Dwellings	Approximate No. of People Exposed
>55	46	2,451	5,317
>65	10	1,019	1,945
>75	1.5	18	33

Table 5. L_{night} – Population Exposure Statistics for Major Roads in Co. Monaghan

Noise Level Band dB	Approximate No. of People
<50	17,547*
50-54	1,366
55-59	1,459
60-64	660
65-69	67
>70	0

* This figure is taken from the population living within 1km either side of the major road.

Table 6. L_{night} - Area, Houses and Population Exposure Statistics for Major Roads

Noise Level Band dB	Approximate Area km ²	Approximate No. of Dwellings	Approximate No. of People Exposed
>50	28	1,682	3,552
>60	5	411	727
>70	0	0	0

5.3 Limitations of the maps/results

The strategic noise maps produced for this Noise Action Plan provide a best estimate, rather than a complete and wholly accurate account of noise in a given area. There is no actual noise measurements included in this model to verify results. Therefore it will be necessary to confirm that the noise levels indicated by the strategic noise maps are being experienced by the population within a certain area, prior to the review of potential noise mitigation measures and any subsequent commitment of budget.

Under the Regulations it is required to delimit quiet areas in the open countryside. This is an area that is “undisturbed by noise from traffic, industry or recreational activities.” The strategic noise mapping undertaken did not delimit quiet area in open countryside. This is due to the nature of the assessed noise source i.e. traffic noise and due to the area of coverage of the strategic noise mapping, which is near to major sources and therefore no locations which will be undisturbed by them.

The EPA guidelines on Noise Action Plans requires that the onset level for assessment of noise mitigation is L_{den} 70dBA and L_{night} 57dBA. The strategic noise maps produced do delimit the L_{night} >57dB noise band.

6. Identification of areas to be subjected to noise management activities

6.1 Description of the criteria/ decision matrix to be used for the identification of areas qualifying for action

The results of the strategic noise maps provide an indication of the extent of noise exposure near major roads. For assessment purposes, the EPA Guidelines propose onset levels for assessment of noise mitigation measures and onset levels for assessment of noise level preservation where they are good, as detailed in Table 7. The noise levels in Table 7 represent an annual average 24hour period.

Table 7. Onset Levels for Assessment of Noise

Onset Level for	L _{den} dB	L _{night} dB
Noise Mitigation	70	57
Assessment of Noise Level Preservation where they are good	55	45

From examination of the Noise Maps it is estimated that approximately 546 people or 292 dwellings are affected by an L_{den} noise >70dB. A greater number of people and dwellings are affected by L_{night} noise, as this limit is lower so extends out a greater distance from the road.

Because a number of locations on major roads within the county exceed the EPA onset level for noise mitigation, an approach to establish locations where noise mitigation measures are necessary, feasible and cost effective has been recommended in the Guidelines, in the form of a decision support matrix.

A decision support matrix is a table which takes into account factors such as noise exposure level, type of noise receptor and type of noise source, to facilitate the assessment of the relative importance of each. Table 8 shows the matrix used for this Noise Action Plan. This matrix is conducted for each noise sensitive location or group of noise sensitive locations within an area. It contains a score rating under three different categories, based on the information specific to each location. The total score calculated and a score of 17 or above indicates locations that should be shortlisted for further assessment.

From examination of the matrix provided, the only type of noise source in Monaghan relevant to this Noise Action Plan is road noise. The type of location along the major roads in Monaghan is primarily one-off houses i.e. residential. Around towns the location is classified as commercial and other area e.g. schools is classified as Noise Sensitive Locations. As schools are not functional at night, they are not considered noise sensitive locations. Therefore L_{night} readings are not applicable in the decision support matrix for schools.

Table 8. Decision Support Matrix

Location:		Score Range	Score Range	Subtotal
Decision Selection Criteria		L_{den}	L_{night}	
Noise Band	<45	5	6	
	45-49	4	5	
	50-54	3	4	
	55-59	2	2	
	60-64	1	3	
	65-69	2	4	
	70-74	3	5	
	75-79	4	6	
	>80	5	7	
Type of Location	City Centre	1	1	
	Commercial	1	2	
	Residential	2	3	
	Noise Sensitive Location	3	3	
	Quiet Area	3	3	
	Recreational Open Space	2	2	
Type of Noise Source	Air	3	4	
	Industry	2	3	
	Rail	2	3	
	Road	3	4	
Total Score				

6.2 Quiet Areas

A Quiet Area is an area where environmental noise levels are deemed to be good. As detailed in Table 7, the onset level for noise preservation where they are good is L_{den} 55dBA and L_{night} 45dBA.

Under the Regulations there is a requirement to delimit Quiet Areas within agglomerations. However, as there are no agglomerations (population >100,000) with County Monaghan, this is not relevant. The Regulations also require to delimit quiet areas in the open country. The requirement for such an area is that it is “undisturbed by noise from traffic, industry or recreational activities”. The strategic noise mapping undertaken by the NRA for this Noise Action Plan is not suitable to delimit quiet area in open countryside as it did not take into account industrial noise or noise from recreational activities and it was undertaken near major noise sources (major roads) and not at location which will be undisturbed by them.

The EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* outline how to undertake Quiet Area Screening of a Development Location, according to the Agency publication *Environmental Quality Objectives - Noise in Quiet Areas*. This Guidance Note only applies to Scheduled Activities that require a licence with the EPA and not to other potential noise sources which could impact upon a currently quiet area in open countryside. However, it can be used as a guideline for this purpose, in the absence of other Guidelines on this issue.

The County Monaghan Development Plan 2013-2019 has two objectives under Landscape Protection.

***LPO 1.** Sustain, conserve, manage and enhance the landscape diversity, character and quality of the County for the benefits of current and future generations*

***LPO 2.** Zone important landscape features and elevated lands within settlements as Landscape Protection/Conservation Areas, to ensure that developments do not detrimentally impact on the amenity of the landscape or on the natural setting of settlements.*

The County Monaghan Landscape Character Assessment (LCA), August 2008 assesses and categorises the county's landscapes by their character and capacity to accommodate development types. The LCA defines thirteen Landscape Character Types (Physical Units) and divides the county into nine Landscape Character Areas (Image Units). The LCA will inform decision making in relation to the protection of the environment, natural resources and heritage and will be used to guide development.

Based on the current NRA noise maps available, there is not sufficient information on the acoustic environment in Quiet Areas in Open Country to enable specific areas to be delimited for approval. However, the Landscape Character Assessment for the County may be used as a starting process to determine possible areas that can be delimited as Quiet Areas in Open Countryside. The EPA Quiet Area Screening Method may also be used in this assessment. Any proposals to designate Quiet Areas would be discussed with the EPA.

6.3 Application of the criteria/matrix.

Table 7 provides the threshold noise levels for onset of assessment for noise mitigation and onset levels for preservation of noise levels where they are good.

Table 8 provides the Co. Monaghan decision support matrix, which can be used to provide a rating scheme which would initially help to identify locations beyond to assessment thresholds, but also provide the process of ranking the locations to help develop an initial prioritisation for further investigation.

The decision support matrix will be used to draw up a short list of potential areas for consideration for further action for noise mitigation, which takes into account any area with a score of approximately 17 or above. Further action for noise mitigation is subject to availability of funding over the lifetime of the plan.

6.4 Results of the analyses

An assessment of all noise sensitive locations along the major roads mapped, above the onset level of $L_{den} >70\text{dBA}$ and $L_{night} >57\text{dBA}$ will be undertaken using the decision support matrix. It is intended to programme this work within Year 1 of this plan. All houses within this area may be examined to determine if they fall into the above criteria.

An assessment of all schools near the major roads was examined to determine if any fell within the above bands. As schools do not operate at night (23:00-07:00), the L_{night} levels were not taken into account as the building ceases to be a noise sensitive location at night. None of the schools along the major routes fell into the $L_{den} >70\text{dBA}$ category.

7. Mitigation and protection measures

7.1 Processing Areas above Onset of Assessment Criteria

Any areas identified as being priority for further action { æ be further assessed to confirm the noise levels stipulated in the strategic noise mapping are experienced by the properties and population within the areas being addressed.

This { æ be done by reviewing and refining the strategic noise model and by undertaking field survey work to measure noise levels. Once the extent of the noise impact has been confirmed for the locations under review, the potential noise mitigation measures { æ be investigated and a cost benefit analysis undertaken for each, with the aim of developing a selection matrix which leads towards a recommendation for action.

7.2 Preservation of Areas Below & Between Protection Threshold

The current Planning and Licensing system will manage potential development within the Monaghan area, where noise impact of developments are required to be assessed before planning is granted.

Any potential noise impacts from increased traffic on major roads can be addressed by reviewing and revising this Noise Action Plan every 5 years or sooner, where a material change in environmental noise occurs in an area.

7.3 Future Developments and Noise Impacts

A preferred route corridor (400m) wide has been selected to upgrade the N2 between Clontibret and Northern Ireland, a distance of 28km and this has been put on public display. The progression of the road scheme will be dependent on funding availability. If it goes ahead it will move the current noise impact experienced by residential areas along this 28km stretch to a different area. All future road developments will be undertaken in line with NRA guidelines.

7.4 Confirming the Extent of Noise Impact

The extent of the noise impact from major roads { æ be confirmed by reviewing and refining the noise models if appropriate and by undertaking field survey work to measure noise levels. The field survey work , [~ |å also ascertain whether the property being assessed has noise sensitive rooms on the most exposed facades or whether noise mitigation measures were already present which may not have been taken into account by the noise mapping model.

7.5 Review of Possible Mitigation Measures

Where the decision support matrix analysis identifies locations for which noise mitigation measures may be considered appropriate a review of available measures { æ then be undertaken. For this process, a balanced approach needs to be taken to help sustainably manage the interests of the residents, the aims of the Noise Action Plan.

Development Plan.

There are a wide range of potential noise mitigation measures, some of which may act at a national or regional level, others which may be purely localised. Likewise there are a number of levels of authority which may be capable of making actions. Some examples of measures which may be considered include:

- At EU level, vehicle noise emissions and tyre noise regulations would be set.

- At national level, national planning guidance or noise regulations would be set.
- At regional level transport policy objectives may be set such as;
 - Improved public transport;
 - Getting people out of cars; and
 - Increasing bus, train, bicycle journeys.
- At local level there are powers to
 - Replace diesel vehicles with compressed natural gas / electric;
 - Designate truck routes;
 - Restrict night time delivery or limits;
 - Control noise emitting and noise sensitive development;
 - Set speed limits;
 - Introduce road closures / traffic routing;
 - Resurface roads
 - Smooth broken surfaces;
 - Use low noise road surfaces on higher speed routes;
 - Define planning zones:
 - Locate noise sources and population with consideration to potential for noise impact;
 - Require façade insulation:
 - Require secondary or triple glazing as a mitigation measure;
 - Specify building construction details for new developments exposed to environmental noise;
 - Specify noise barriers;
 - Liaise with the public groups; and
 - Set long term targets
- Roads authorities could undertake the following:
 - Traffic management – routes and HGVs;
 - New road construction (bypass);
 - Re-surfacing of roads;
 - Vehicle speed management;
 - Noise screening measures; and
 - Façade insulation measures.

From the above list it is apparent that the Authorities only have powers to act within a number of the possible mitigation scenarios.

Research has been undertaken within EC funded projects looking into the design of noise mitigation measures and estimates of the extent of costs and benefits. The conclusion is often that there is no single solution which provides the optimal solution, rather a range of measures, each of which may provide an incremental improvement in the situation.

These actions against noise will be considered during the assessment of possible noise mitigation for sites identified through the decision support matrix. The Noise Action Plan will be considered within local and regional development plans, road maintenance proposals and the planning process.

7.6 Assessing Effectiveness of Potential Measures

Once the list of areas for potential mitigation are drawn up and prioritised, the potential measures to reduce noise may be examined on a case by case basis. This may then be subject to a cost benefit analysis, in order to develop a prioritised list of actions to be undertaken. This is necessary in order to maximise value for money and deliver benefit from investment.

7.7 Budget and Cost Benefit Analysis

The cost-benefit analysis should address lifetime construction and maintenance costs against noise reduction benefit i.e. reduction in sound level achieved and the number of people it benefits. As funding from national roads will come from the NRA, the cost benefit analysis will be done in consultation with the NRA.

7.8 Outcome

Areas with predicted noise levels above the onset of assessment criteria will be prioritised using a standardised decision support matrix. This follows a review to confirm that the predicted noise levels are accurate. Mitigation measures outlined in Section 7.5 will be assessed for each area and following a cost-benefit analysis a list of achievable actions for noise mitigation will be agreed with the NRA or other appropriate authority.

8. Public Participation

The Regulations require that Action Planning Authorities consult with the public when drawing up and revising Action Plans. Therefore submissions or observations on this Draft Plan are invited from the public.

The Draft Noise Action Plan is put on public display for 6 weeks, beginning on 2nd May 2013, with a further 2 weeks for submissions, ending at 5pm on 27th June 2013. During this time, written invitations are invited. A notice was placed in the local paper, the Northern Standard in advance advising the public of the locations where and when the plan is on display. A copy of the Draft Action Plan is put in the following public buildings:

- Monaghan County Council, Roads Section, M-TEK II Building, Armagh Road, Monaghan
- Monaghan Town Council, Town Hall, 1 Dublin Street, Monaghan
- Monaghan County Council, County Offices, The Glen, Monaghan
- Clones Town Council, Pringle Building, Clones, Co. Monaghan
- Castleblayney Town Council, Town Clerks Office, Main Street, Castleblayney, Co. Monaghan
- Carrickmacross Town Council, Civic Offices, Convent Lands, Carrickmacross, Co. Monaghan

A copy of the Draft Noise Action Plan is also available to download on the Monaghan Local Authorities website www.monaghancoco.ie

Please submit any observations, comments or suggestions in relation to the plan in writing to the following address:

Monaghan Local Authorities Draft Noise Action Plan
Monaghan County Council
County Buildings
The Glen
Monaghan

In addition to seeking submissions from the general public, the following stakeholders have been asked to comment on this Noise Action Plan.

- Environmental Protection Agency
- National Roads Authority
- Louth County Council
- Newry & Mourne District Council
- Dungannon & South Tyrone Borough Council
- Fermanagh District Council
- The Department for Regional Development (DRD) (Northern Ireland)
- Department of Environment, Heritage and Local Government (DEHLG)
- Department of Transport, Tourism and Sport
- An Taisce

9. Implementation Plan

This Noise Action Plan covers the period 2013 - 2018.

9.1 Roles and Responsibilities.

Monaghan Local Authorities are the designated Action Planning Authority for this Noise Action Plan and will endeavour to review and where necessary revise this Noise Action Plan.

The implementation of the Planning and licensing regulations is a matter for the appropriate statutory body including Monaghan County Council and the Town Councils, EPA and An Bord Pleanála.

The NRA is the key external stakeholder during the implementation of this Action Plan. They developed and retain the strategic noise mapping. Review of the strategic noise maps will be carried out in consultation with the NRA and the EPA.

The NRA also allocates and administers funding for the construction, maintenance and improvement of National Roads.

9.2 Targets and Objectives

This 5 year Noise Action Plan is intended to manage noise issues from major roads, avoiding, preventing or reducing on a prioritised bases the harmful effects of environmental noise based on a communal approach within the European Community.

9.3 Programme of Works

All measures identified in the programme of works shall be subject to funding and resources and cost benefit analysis.

Year 1

- Apply the Matrix assessment method described in Section 6.1 to identify from the NRA strategic noise maps, specific areas for which further assessment may be warranted (i.e. monitoring). Prioritise these areas.
- Ensure that accurate traffic data is being collected from major roads for future requirements.

Year 2

- Identify the budget for external noise consultants and begin verification process on the areas of most of concern regarding noise exposure. This will entail re-checking the noise model and verification of the model by on-site noise measurements.
- Consult with the EPA on the process of delimiting Quiet Areas in line with their guidelines and the County Monaghan Landscape Character Assessment Study.
- Conduct a feasibility study to identify possible mitigation measures.

Year 3

- Conduct cost-benefit analysis for noise mitigation and identify funding sources and the potential budget available for these works, including a timetable for implementation
- Identify areas for noise mitigation, apply for statutory approval where applicable and apply for funding.

- Commence the implementation of relevant noise management actions where budgets permit

Year 4

- Continue with the implementation of relevant noise management actions where budgets permit
- Evaluate the effectiveness of works, through re-measurement.

Year 5

- Review the success of the action plan
- Incorporate action planning measures and best practice environmental noise policy into new Development Plan and Local Area Plans.

9.4 Evaluation, Review and Corrective Action Programmes

A review of this Noise Action Plan will be carried out by Monaghan County Council to assess progress against the programme of works. Interim summary reports will be prepared. This report will highlight progress in implementation of action plan measures and will also identify areas where corrective action is required or where the proposed measures must be modified for reasons unforeseen at present.

There are a number of risk factors associated with the delivery of this Noise Action Plan, particularly financial risks. Some critical elements of the Action Plan are outside the control of Monaghan County Council and will require the approval of other statutory bodies. Also the financial resources required to deliver the programme has yet to be determined and the delivery of the noise action plan will be contingent on adequate funding being available. In view of these uncertainties, it is important that the programme is subject to an ongoing review so as to alert all relevant parties to any change in circumstances.

In 2018 the Council will carry out a review of the program of works implemented under this action plan. Progress and results will be evaluated using information gathered through local assessment of environmental noise exposure. This will include “before and after” evaluations of any noise mitigation measures. A review of new noise maps will also be carried out, giving an indication of the change in environmental noise levels and the numbers of people exposed.

10. DRAFT Summary and Conclusions

The Environmental Noise Regulations 2006, which gives effect to the EU Environmental Noise Directive, requires that Noise Action Planning Authorities prepare Noise Action Plans for their functional areas in respect of specified environmental noise sources. Noise Action Plans must be based upon the results of strategic noise mapping carried out by the designated noise mapping bodies.

In County Monaghan only traffic noise on major roads in excess of 3 million vehicles per year applies to this Noise Action Plan. This includes the N2, N53, N54 and short sections of the R937, R162, R181, R938 in the towns of Monaghan, Castleblayney and Carrickmacross. Strategic noise mapping in respect of those roads, was carried out by the National Roads Authority in 2012.

This Noise Action Plan, which is based on the results of these noise maps, was prepared by Monaghan Local Authorities, including Monaghan County Council, Monaghan Town Council, Clones Town Council, Castleblayney Town Council and Carrickmacross Town Council. The Noise Action Plan describes the action planning area and the responsible authorities. It discusses existing noise management legislation and guidance. A summary of the results of the strategic noise mapping is included and the areas that are to be subject to noise management activities are identified. Mitigation and protection strategies are set out for these areas and an implementation plan has been drawn up.

The Noise Action Plan covers a five year period beginning in 2013, and must be reviewed and revised if necessary at least every 5 years. The views of the public will be taken into account by by conducting an 8 week public consultation process on the Draft Plan. The results of the public participation will be taken into account when preparing the final document and the public will be informed of the decisions taken. Other bodies including the National Roads Authority, adjacent Local Authorities and other relevant organisations will be consulted on the draft document. Guidance and advice was obtained from the designated national authority, the EPA, at all stages of the process.

The results of the strategic noise mapping indicates that, in the County as a whole, an estimated a population of 546 (approx 292 dwellings) have predicted noise levels above the onset levels for assessment of L_{den} noise mitigation measures. No additional noise sensitive locations (schools) have been identified.

The Noise Action Plan has been drawn up with the twin aims of:

- Protecting the future noise climate
- Improving the existing noise climate where necessary

With this in mind the following key actions are proposed;

1. The potential noise impact of future development will be managed through the Planning and Licensing processes, including existing provision for Environmental Impact Assessments. Implementation of existing regulations will continue and guidance will be provided on noise limits in next County Development Plan.

2. The potential noise impact from increased traffic on major roads will be adequately addressed by reviewing (and revising, if necessary) the Noise Action Plan every 5 years, or sooner where a material change in environmental noise in the area occurs.
3. Carry out an assessment of Quiet Areas in open countryside, following the EPA screening process and from a review of the landscape character assessment for the County. Identify areas for delimiting, and submit proposal to EPA and Minister for approval.
4. The accuracy of predicted noise levels will be confirmed and potential noise mitigation measures identified on a priority basis. A cost-benefit analyses on potential actions will be carried out and a list of beneficial, achievable actions for noise mitigation drawn up.
5. A budget will be identified with each relevant authority and a programme of works agreed and implemented.

Appendix A - Glossary of Acoustic and Technical Terms

Agglomeration	Major continuous urban area as set out within the Regulations
Acoustical planning	Controlling future noise by planned measures, such as land-use planning, systems engineering for traffic, traffic planning, abatement by sound-insulation measures and control of noise sources
ADDT	Average Annual Daily Traffic
EPA	Environmental Protection Agency established under Section 19 of the Environmental Protection Agency Act 1992 (No. 7 of 1992);
CRTN	Calculation of Road Traffic Noise 1988. The Road traffic prediction methodology published by the UK Department of Transport
dB	Decibels
EC	European Commission
END	Environmental Noise Directive (2002/49/EC)
Environmental Noise	Unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity including those defined in Annex I to Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevent and control (2)
HCV	Heavy Commercial Vehicle
IPPC	Integrated Pollution Prevention Control Licence
L _{day} (L _d)	Noise indicator for annoyance during the day period L _{Aeq,12hr} (07:00 to 19:00)
L _{evening} (L _e)	Noise indicator for annoyance during the evening period L _{Aeq,4hr} (19:00 to 23:00)
L _{night} (L _n)	Noise indicator for sleep disturbance L _{Aeq,8hr} (23:00 to 07:00)
L _{den}	Day-evening-night noise indicator, which is the noise indicator for overall annoyance
Major airport	A civil airport which has more than 50,000 movements per year, excluding those movements purely for training purposes on light aircraft; in this context, "a movement" means a single take-off or landing of an aircraft;

Major railway	A railway line which has more than 30,000 train passages per year
Major road	A national, regional or international road which has more than three million vehicle passages per year
NRA	National Roads Authority, established under Section 16 of the Roads Act 1993 (No. 14 of 1993);
Noise Action Plan	A plan designed for the purpose of managing noise issues and their effects, including noise reduction if necessary
Noise Model	All the input data collated and held within a computer program to enable noise levels to be calculated.
OSI	Ordnance Survey of Ireland
Scheduled Activity	Activity normally subject to an Integrated Pollution Control Licence under the EPA Acts

Appendix B: Bibliography and References

EU Directive 2002/49/EC relating to the assessment and management of environmental noise (END Directive).

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The Department of the Environment, Heritage and Local Government, *Planning Guidelines for Wind Energy Developments* (2006)







The Department of the Environment, Heritage and Local Government, *guidelines for Planning Authorities on Quarries and Ancillary Activities* (2004).

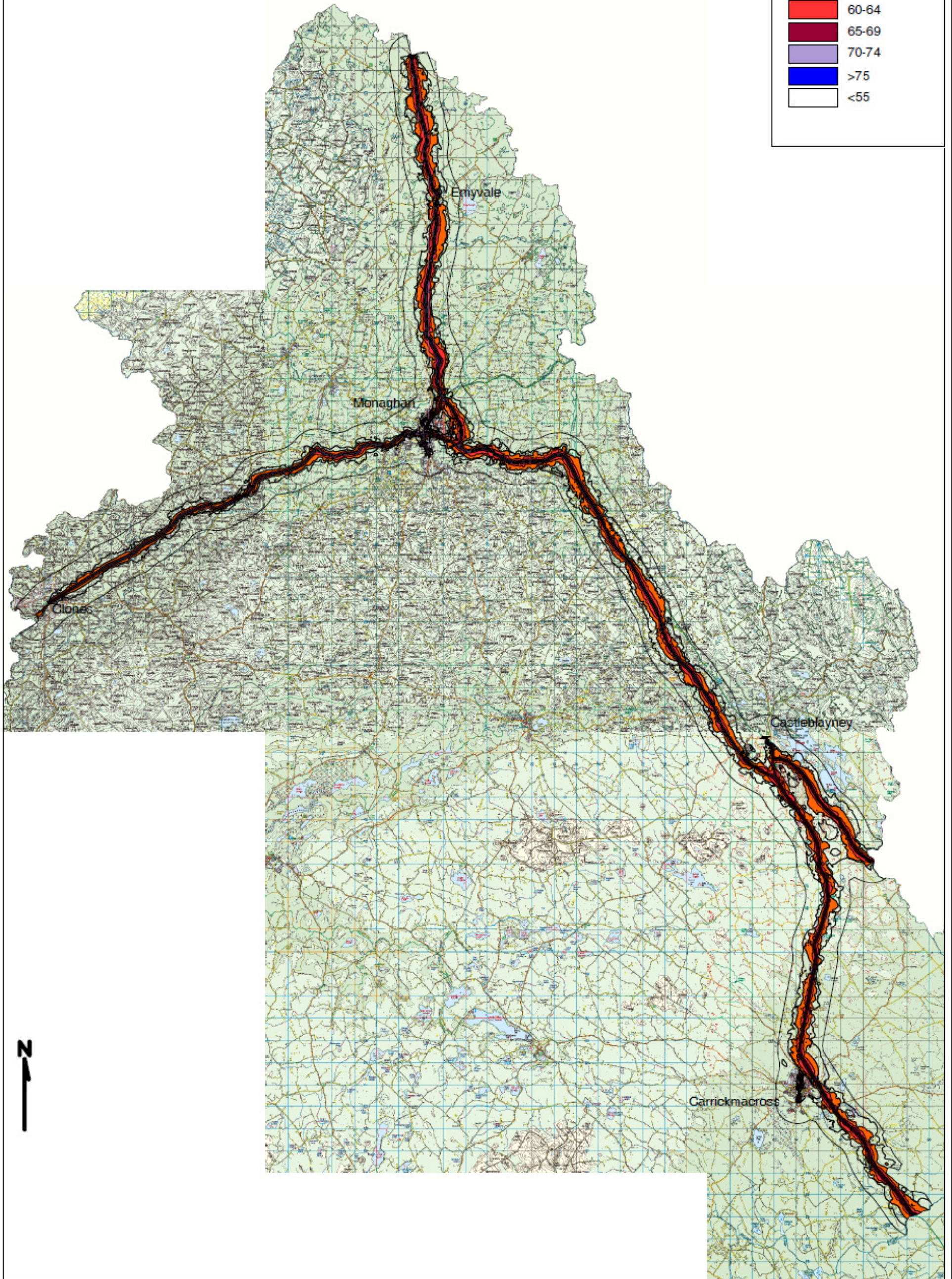
The County Monaghan Development Plan 2013-2019

The County Monaghan Landscape Character Assessment (LCA), August 2008

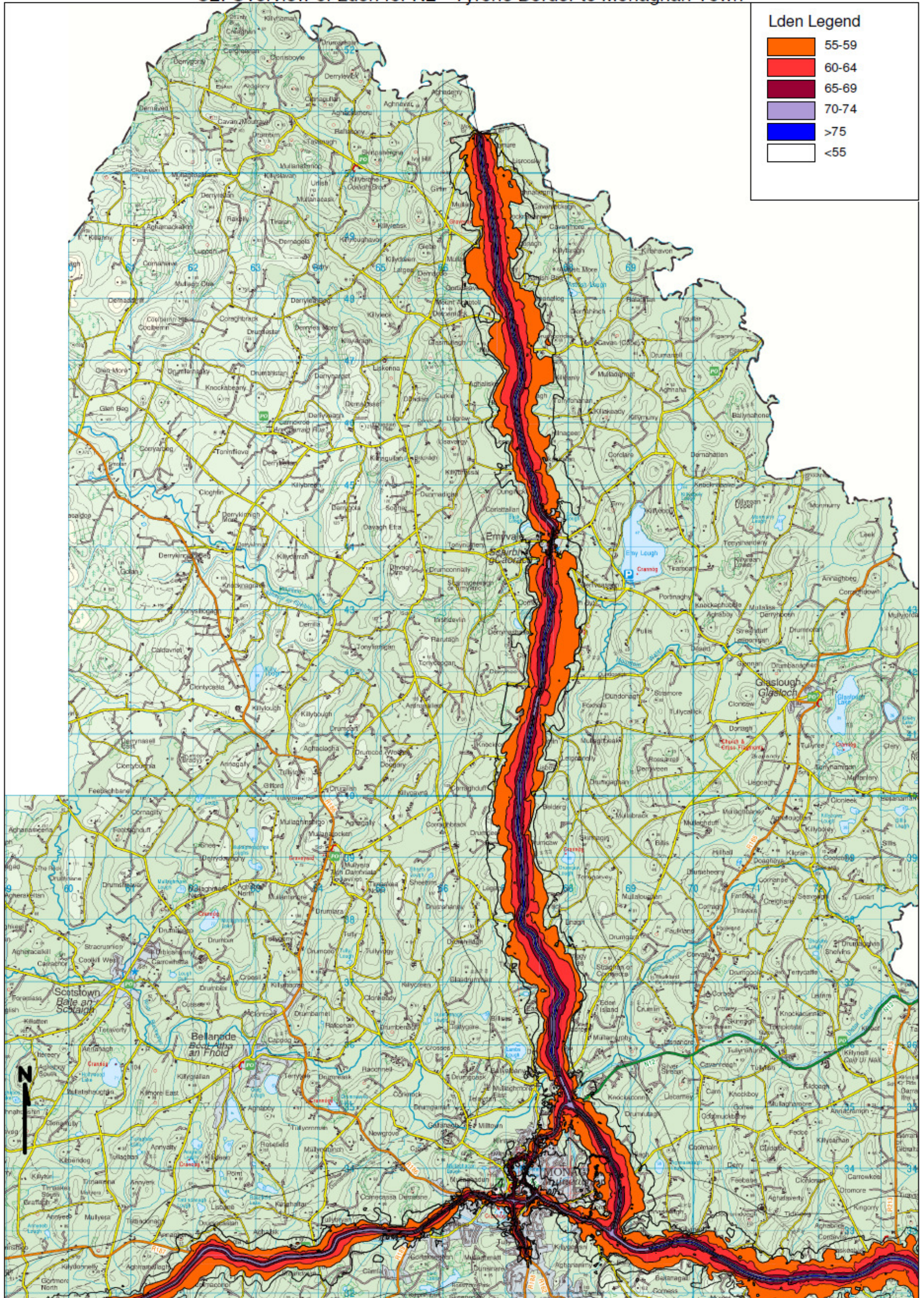
Appendix C. Strategic Noise Maps
C1. Overview of Lden for Major Roads in Co. Monaghan

Lden Legend

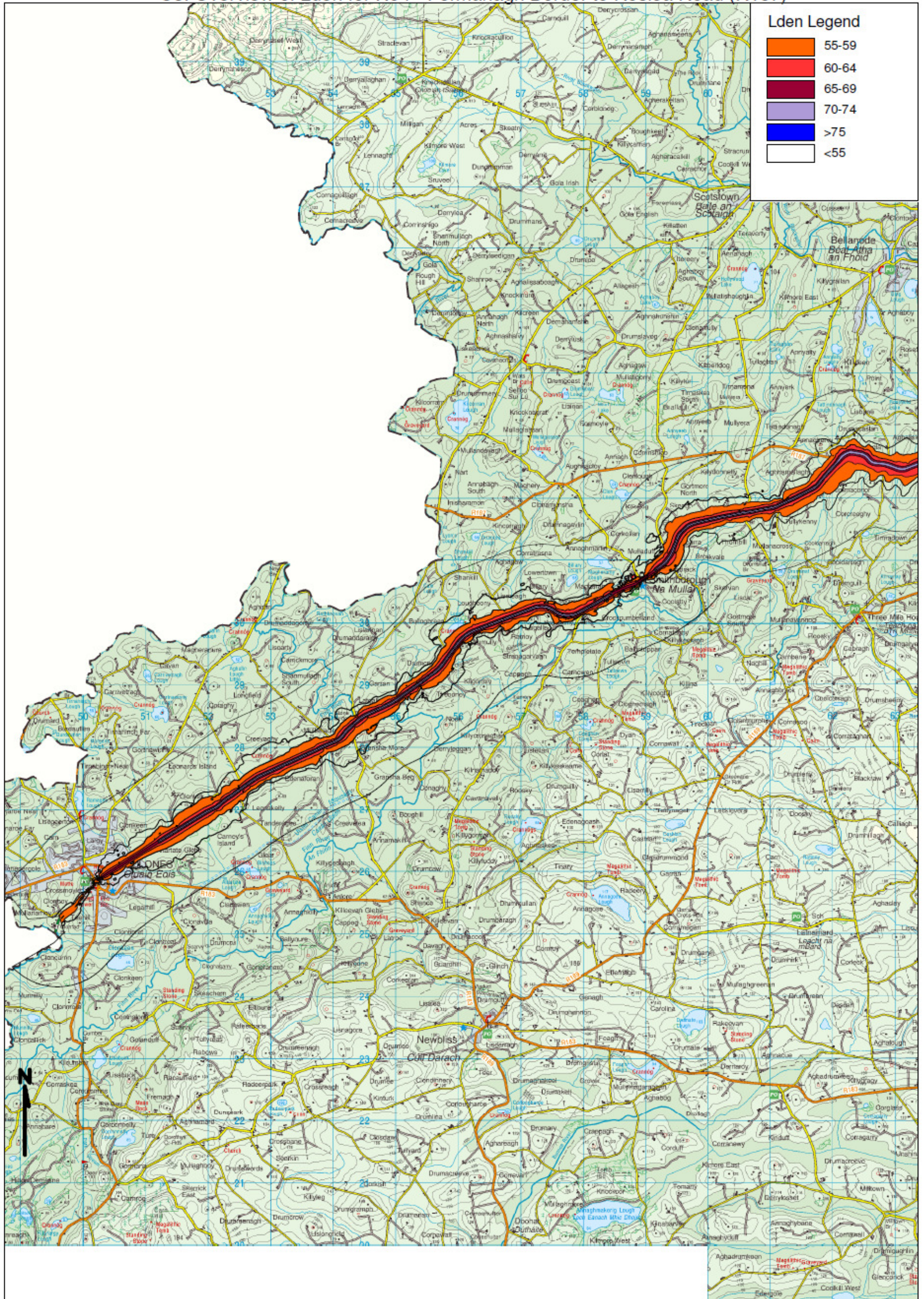
	55-59
	60-64
	65-69
	70-74
	>75
	<55



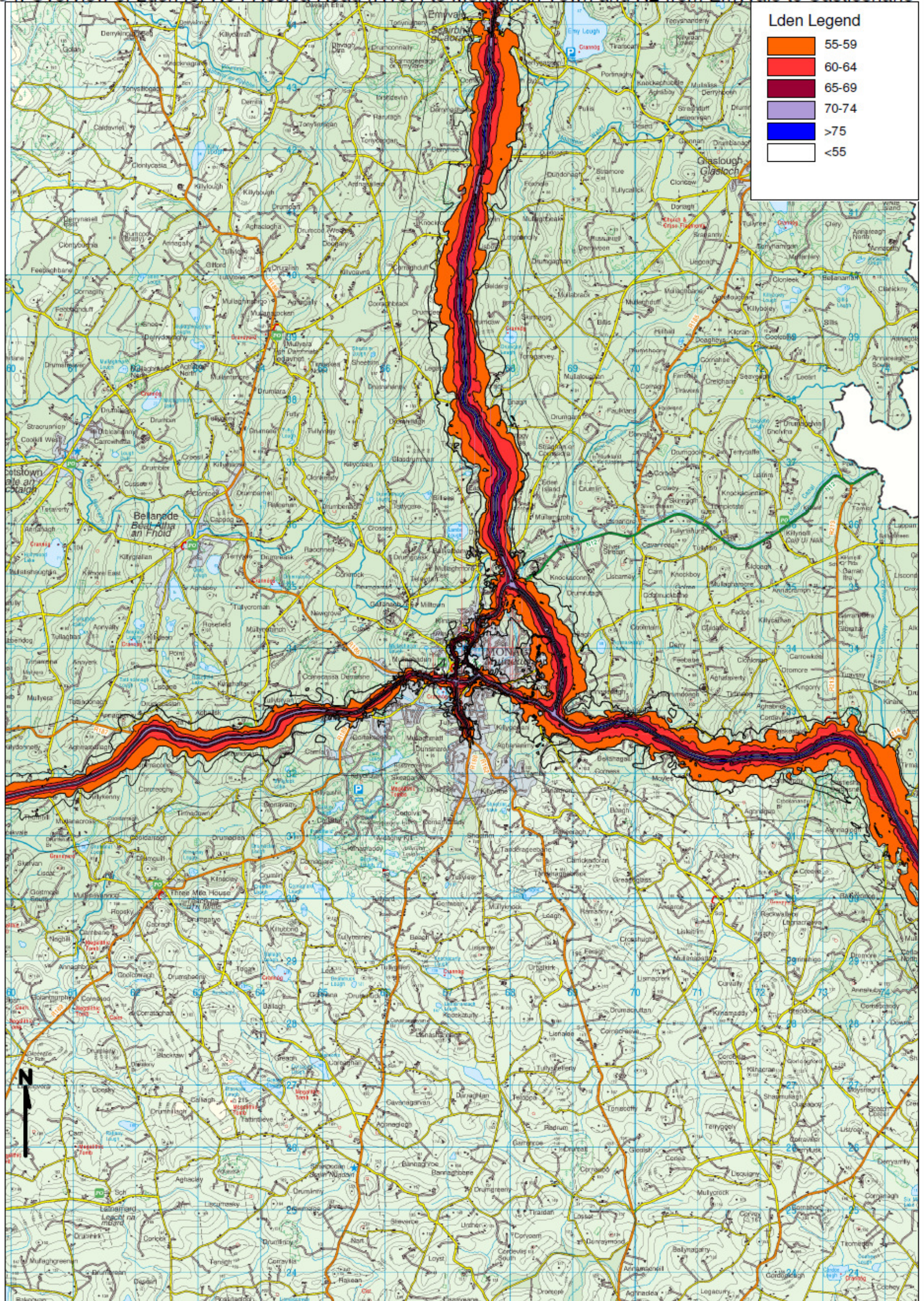
C2. Overview of Lden for N2 - Tyrone Border to Monaghan Town



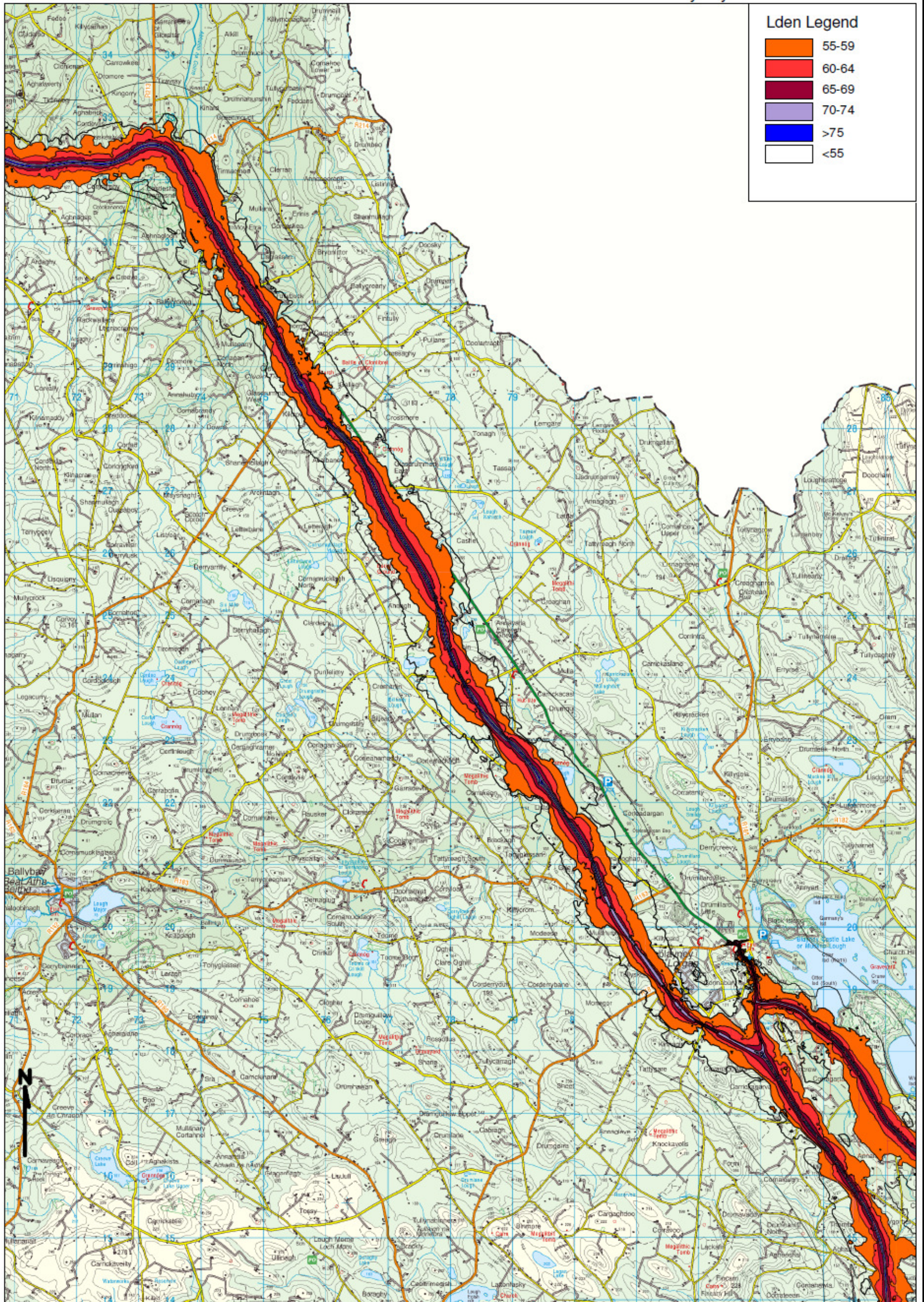
C3. Overview of Lden for N54 - Fermanagh Border to Roslea Road (R187)



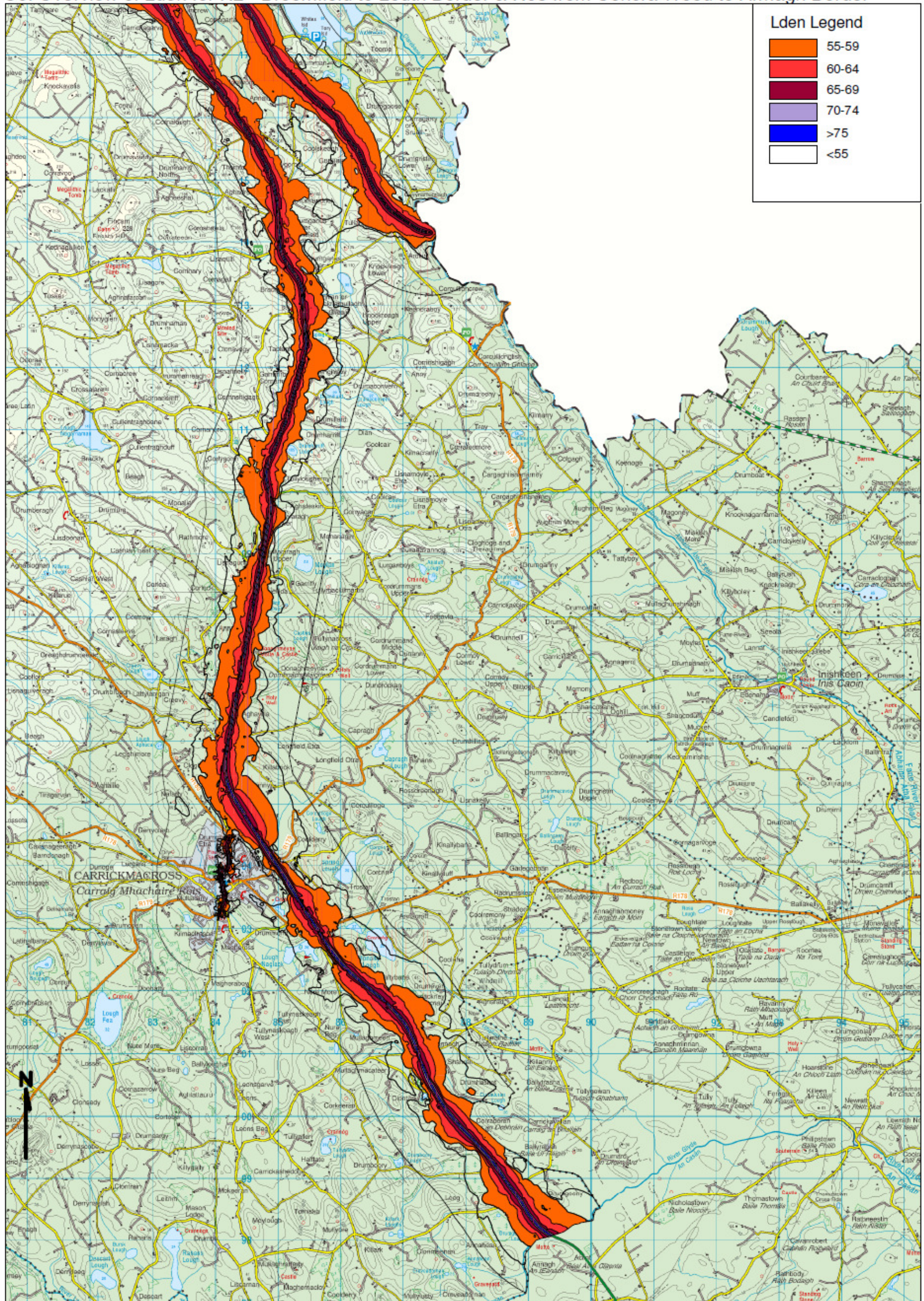
C4. Overview of Lden for N54 Roslea Road (R187) to Monaghan Town and N2 from Emyvale to Castleshane



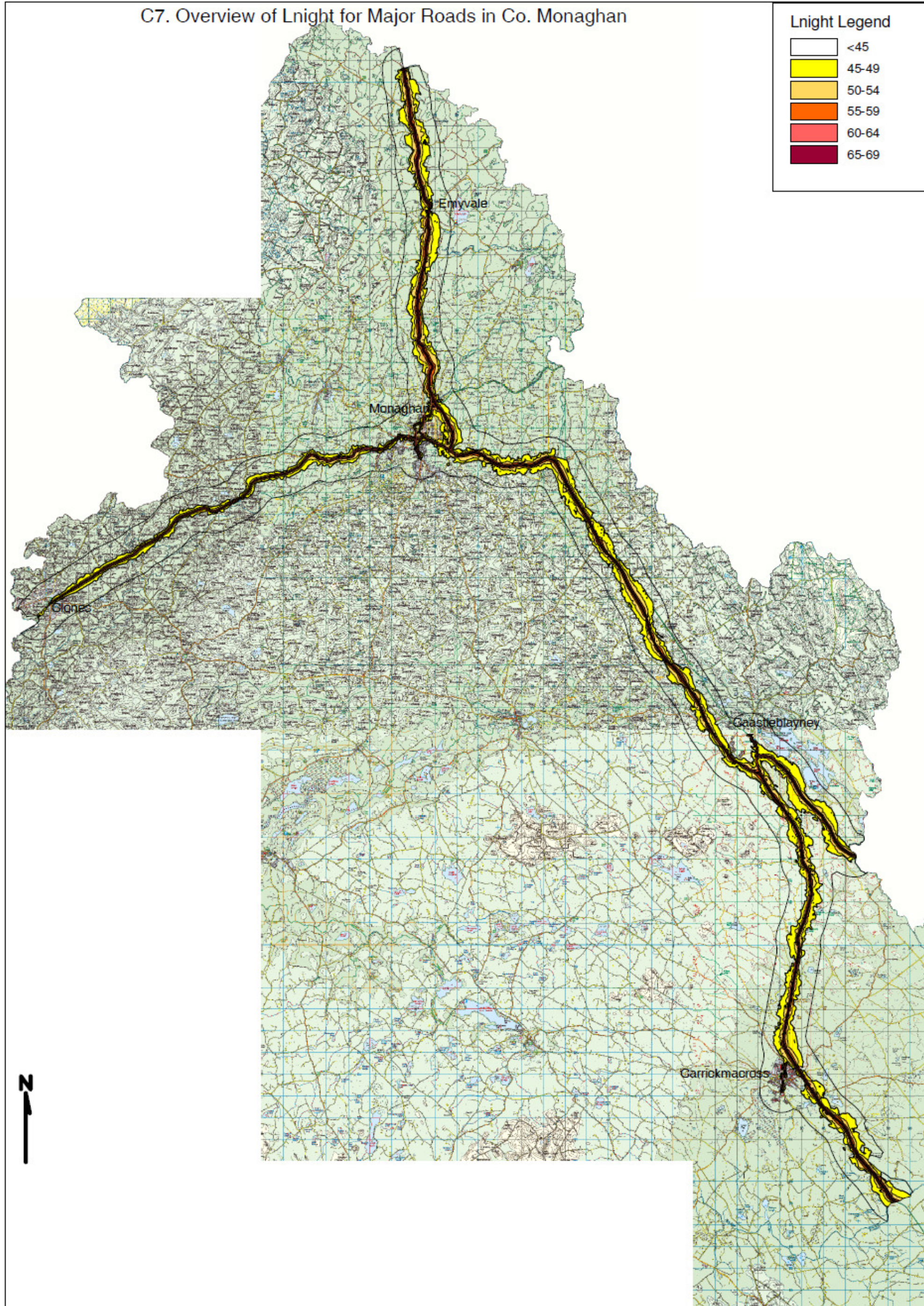
C5. Overview of Lden for N2 Castleshane to Broomfield and N53 from Castleblayney to Concra Wood



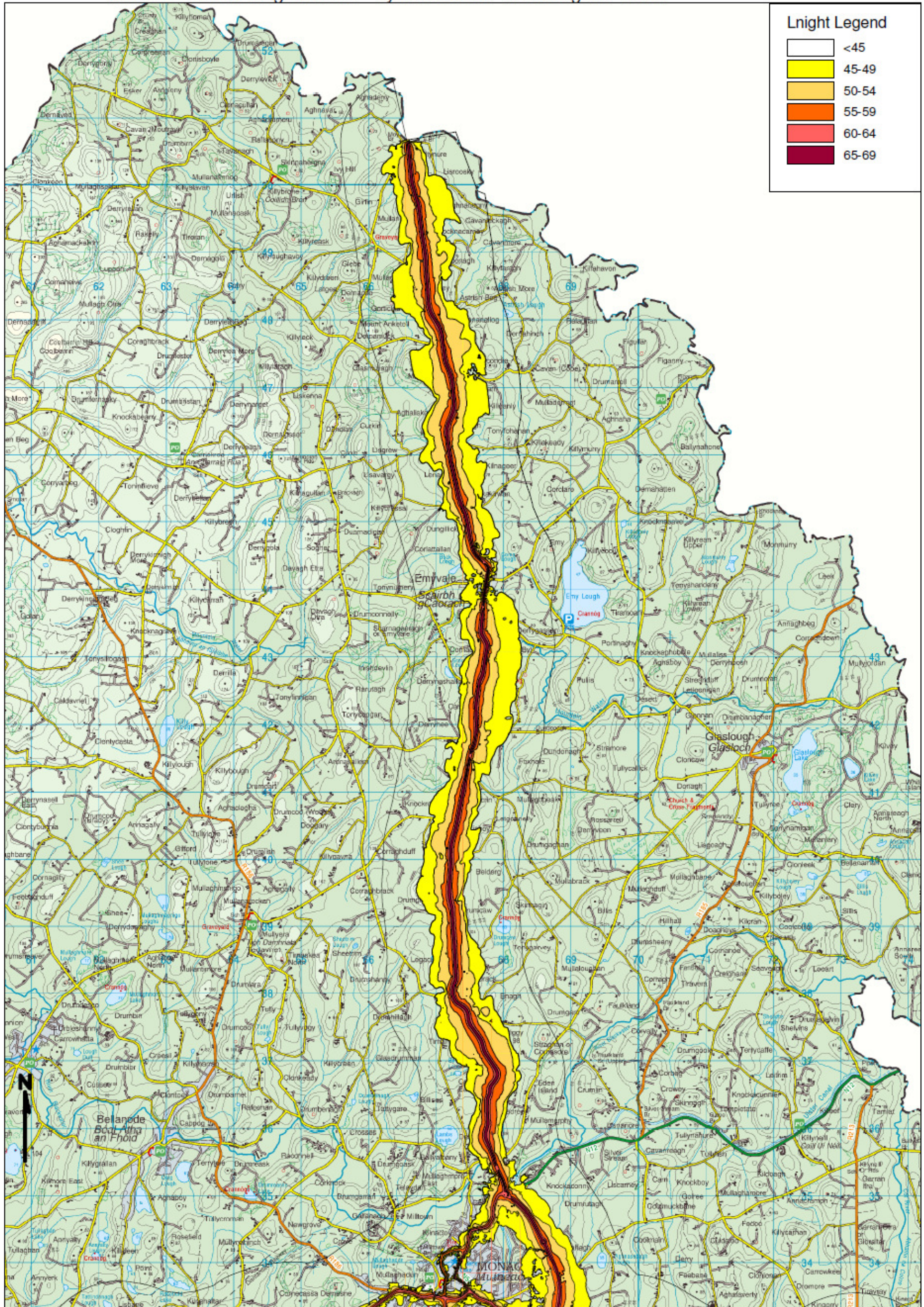
C6. Overview of Lden for N2 - Broomfield to Louth Border & N53 from Concra Wood to Armagh Border



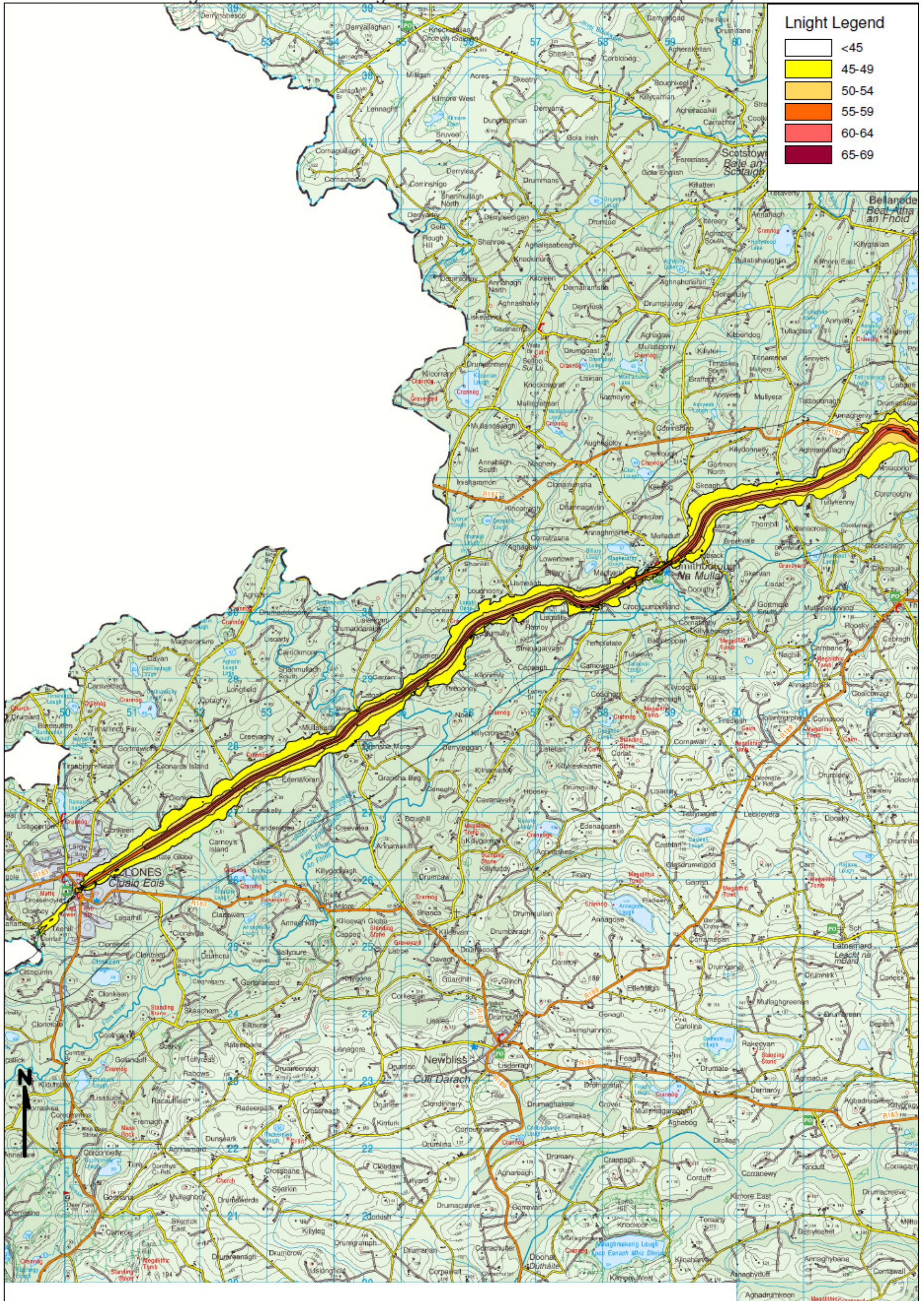
C7. Overview of Lnight for Major Roads in Co. Monaghan



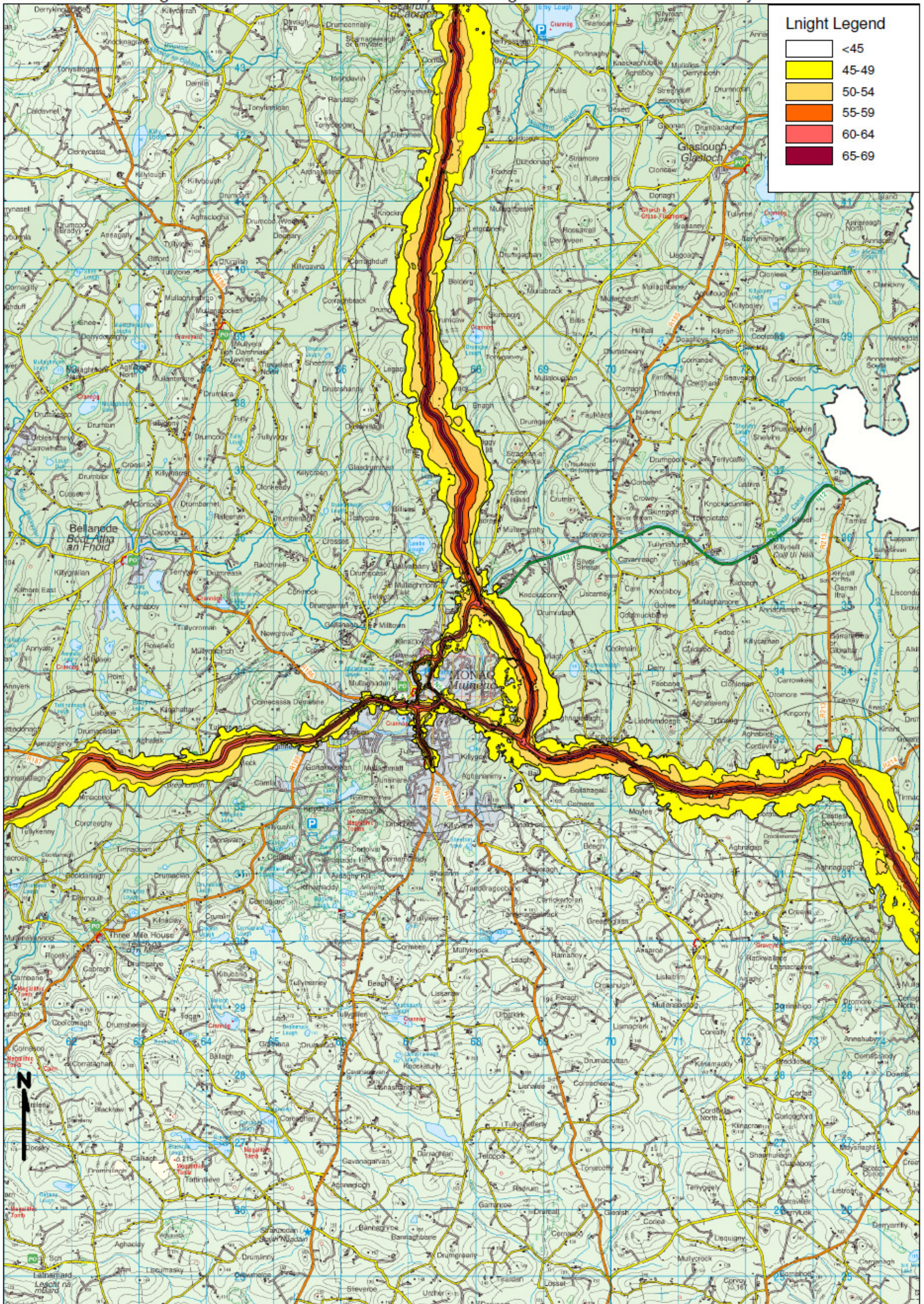
C8. Overview of Lnight for N2 - Tyrone Border to Monaghan Town



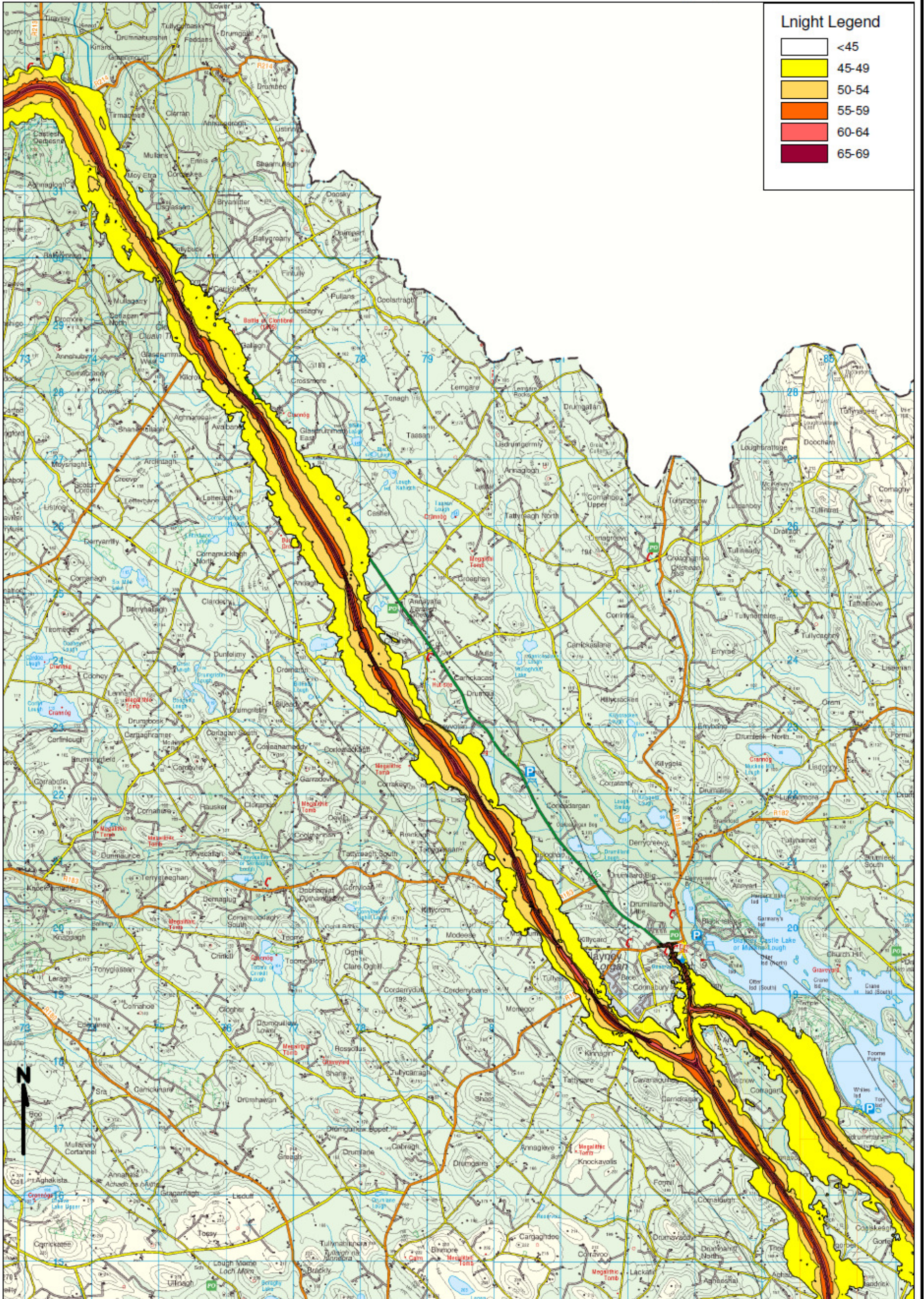
C9. Overview of Lnight for N54 - Fermanagh Border to Roslea Road Junction (R187)



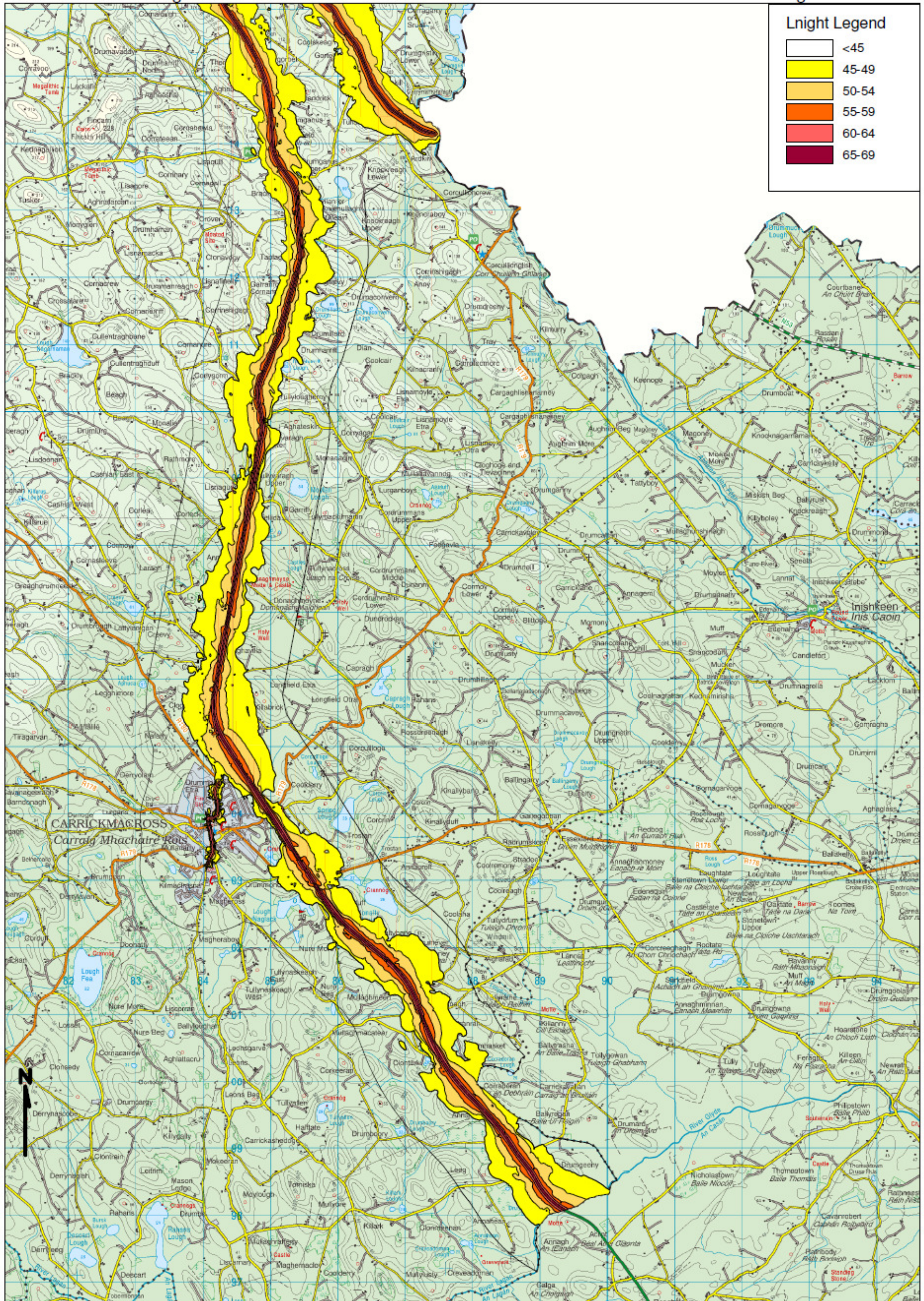
C10. Overview of Lnight for N54 Roslea Road (R187) to Monaghan Town and N2 from Emyvale to Castleshane



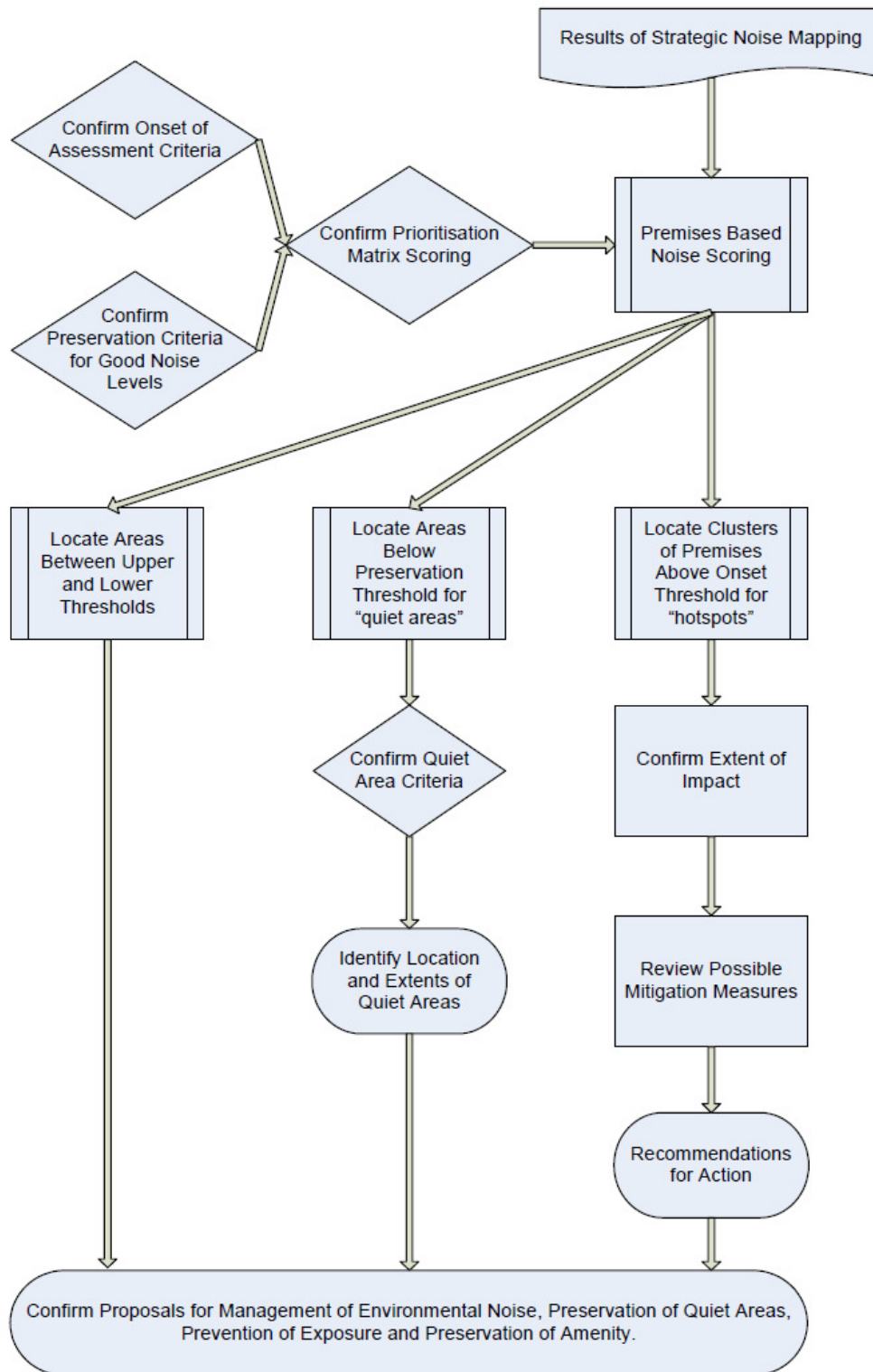
C11. Overview of Lnight for N2 Castleshane to Broomfield & N53 from Castleblayney to Concra Wood



C12. Overview of Lnight for N2 - Broomfield to Louth Border & N53 from Conra Wood to Armagh Border



Appendix D: Overview / flow diagram of process for action planning decision making



Appendix E: Final/Completed Decision/Selection Matrix

A decision support matrix is a chart which enables identification, analysis and rating of the strength of relationships between various sets of information. It enables a number of different factors to be examined and facilitates the assessment of the relative importance of each.

Table E1 presents the prioritisation decision support matrix to be used to support the action planning decision making process.

Table E1. Decision Support Matrix to Identify and Prioritise Noisy Areas

Location:				
Decision Selection Criteria		Score Range	Score Range	Subtotal
		L_{den}	L_{night}	
Noise Band	<45	5	6	
	45-49	4	5	
	50-54	3	4	
	55-59	2	2	
	60-64	1	3	
	65-69	2	4	
	70-74	3	5	
	75-79	4	6	
	≥80	5	7	
Type of Location	City Centre	1	1	
	Commercial	1	2	
	Residential	2	3	
	Noise Sensitive Location	3	3	
	Quiet Area	3	3	
	Recreational Open Space	2	2	
Type of Noise Source	Air	3	4	
	Industry	2	3	
	Rail	2	3	
	Road	3	4	
Total Score				

Each noise sensitive premises is allocated to one of the “Type of Location” categories, and the noise level at the most exposed façade scored as per the “Noise Band” and the source scored as per the “Type of Noise Source”.

An example of the use of the matrix for a residential property exposed to road traffic noise levels of 73 dB L_{den} and 60 dB L_{night} is shown in Table E2.

Table E2. Decision Support Matrix to Identify and Prioritise Noisy Areas

Location:				
Decision Selection Criteria		Score Range	Score Range	Subtotal
		L_{den}	L_{night}	
Noise Band	<45	5	6	
	45-49	4	5	
	50-54	3	4	
	55-59	2	2	
	60-64	1	3	3
	65-69	2	4	
	70-74	3	5	3
	75-79	4	6	
	≥80	5	7	
Type of Location	City Centre	1	1	
	Commercial	1	2	
	Residential	2	3	5
	Noise Sensitive Location	3	3	
	Quiet Area	3	3	
	Recreational Open Space	2	2	
Type of Noise Source	Air	3	4	
	Industry	2	3	
	Rail	2	3	
	Road	3	4	7
Total Score				18

A score of approximately 17 or above indicates that the threshold levels have been exceeded and the location should be included in the shortlist for further assessment.

Similarly a location with low noise levels may also score above 17, which then indicates that it should be short listed for consideration as a location where environmental noise levels are currently considered good.

Appendix F: Public Consultation

Details to be included in final Action Plan