

Wind Turbines near Public Rights of Way

Working Practice Guidance Note



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1. Introduction

- 1.1. There are over 1368 kilometres of public rights of way in Central Bedfordshire. Whilst some of these are within towns and villages, the majority are out in the wider countryside. There are large swathes of Central Bedfordshire suitable for the erection of wind turbines used to generate renewable energy. There is the potential for planned new turbines to impact on nearby public rights of way. This Working Practice Guidance Note (“WPGN”) is intended to provide guidance in responding to wind turbine planning applications. It does not consider any aesthetic or environmental effects of wind turbines or the planning issues related to proximity to residential dwellings - solely the impact that a turbine could have on the legitimate users of a public right of way.
- 1.2. The accompanying Technical Appendix outlines the data and reasoning behind the recommendations made in this WPGN.

2. Existing policies and guidance

- 2.1. Planning Policy Statement 22 on Renewable Energy (PPS 22) states “...*there is no statutory separation between a wind turbine and a public right of way. Often, fall over distance is considered an acceptable separation, and the minimum distance is often taken to be that the turbine blades should not be permitted to oversail a public right of way...*”.
- 2.2. Central Bedfordshire Council’s Core Strategy and Development Management Policies - November 2009 refer to renewable energy within Policy CS 13 (Climate Change) and DM 1 (Renewable Energy). Criteria for proposals within DM 1 relate to impacts on residential, visual and noise amenity, as well as impacts on AONB sites, and other areas highlighted in Land Character Assessments.
- 2.3. Central Bedfordshire Council’s Planning Department does not have a policy relating to the proximity of wind turbines to highways. Bedfordshire Highways’ working practice is to consider each case on its merit and generally not to allow a turbine within topple distance¹ of a highway.
- 2.4. The document ETSU-R-97 provides guidance in relation to the acceptable levels of noise emissions from turbines. This guidance regulates the impact of turbines on residential dwellings close to turbines but does not cover the noise impact on any nearby highway.

¹ “Topple distance” is the total height of the turbine which equals nacelle (hub) height plus rotor radius (=half the rotor diameter).

- 2.5. Published guidance from the Ramblers and the British Horse Society, although biased towards their interests, do provide a degree of rationality and the following guidance concurs to some degree with these views. The British Horse Society's April 2010 advisory statement on wind farms identifies a target separation distance of four times the turbine tip height for national trails and Ride UK routes and a distance of three times tip height for all other routes, with a minimum separation distance of 200 metres where it can be shown this would be acceptable.
- 2.6. Repealed legislation contained within the 1822 Turnpike Act and the Highway Act 1835 respectively prohibited the erection of a windmill within 200 yards of a turnpike road, and required a minimum distance of 50 yards between any carriageway or cartway and the base of a windmill "...so that the same may not be dangerous to passengers, horses or cattle..."². Currently there are no statutory restrictions on the erection of wind turbines next to highways.
- 2.7. Very few local authorities appear to have guidance on separation distances of wind turbines. Only Torrington District Council and Milton Keynes Council (in draft) refer to turbine separation from public rights of way; these are summarised below.

Council	Footpath	Bridleway
Torrington District Council Wind Energy Policy, May 2010	Wind turbines should not oversail footpaths.	Minimum of 200 m based on BHS recommendation.
Milton Keynes Council Draft Wind Turbines Supplementary Planning Document and Emerging Policy, January 2012	The minimum distance requirement is the fall-over distance (i.e. tip height plus 10%).	An initial target separation distance of 4x the tip height for national trails and Ride UK routes; a distance of 3x tip height for all other routes, including roads; with 200 m being seen as the minimum distance, where acceptable in a particular case. This is the current BHS guidance.

3. Aspects to be considered

- 3.1. Public rights of way generally have five legitimate types of users. These are: walkers, horse riders³, cyclists, vehicular users, and residential/occupational users. These can also be grouped into: those users that live close to the turbines and use public rights of way for access; those users that are not significantly impacted by the presence of wind turbines (walkers, cyclists, motorists); and those users that are susceptible to the disturbance caused by wind turbines (horse riders and carriage drivers).

² As reported in the British Horse Society's Advisory Statement No.20 Wind Farms.

³ Includes the very minor use of byways (both "restricted" and "open to all traffic") by horse and cart.

- 3.2. In drafting this WPGN a number of issues have been identified relating to the effect of wind turbines on the environment and users of public rights of way. Broadly, these are issues of safety, visual and audible stimuli, physical presence, and secondary infrastructure effects (e.g. access roads and anemometer towers).
- 3.3. The impact of a wind turbine on not just the types of users of a right of way, but on the type of right of way (abandoned route, local route, or regional/national route) has also been explored to some degree. As a general principle, the level of use of a rural public right of way is assumed to be lower than that of a rural road, or urban path.
- 3.4. How the Countryside Access Team responds to a planning application for a wind turbine will therefore depend on the type of user, the effects envisaged, and the type of route. The response based on the above criteria is summarised below.

4. Safety

- 4.1. Wind turbines are designed to withstand high winds and to shut down when wind speeds increase beyond the design speed, or when ice forms on the blades. In extremely rare cases, high winds can cause structural failure of the turbine tower resulting in the tower toppling. Alternatively, should the braking mechanism fail, turbines can accelerate to beyond their rotational design speeds and can disintegrate. This again is an extremely rare occurrence.
- 4.2. In cold climates, ice can form on turbine blades. Engineering solutions to this utilise vibration sensors to detect rotor imbalance, and occasionally heated blades. Ice throw, whilst likely to be more common than catastrophic mechanical failures, is still likely to be a relatively rare occurrence in Central Bedfordshire.
- 4.3. The area affected by a potential topple, blade disintegration, or ice throw event can be modelled and included within any proposed exclusion area.

5. Visual and audible impacts of wind turbines

- 5.1. Wind turbines are relatively quiet, and are designed to operate within 5 dB of the ambient noise levels at nearby residential dwellings. The noise heard consists of: a constant high pitched turbine whine⁴, a much lower frequency blade swoosh, occasional blade “thump”; and a mid-frequency sound caused by the motor controlling the orientation of the turbine which operates intermittently to keep the rotor-disc facing the wind direction.
- 5.2. For users of public rights of way, the visual impact is likely to come from the movement of the turbines’ blades, or from the movement of the blades’ shadows over the ground and against the faces of buildings and hedges. The rotational movement of turbine blades, according to the British Horse Society, is likely to be a lower risk factor than the passage of the blades’ shadows over

⁴ Next-generation turbines use a direct-drive technology which reduces the frequency and level of noise emitted by the generator.

the ground. The area affected by blade shadows is governed by the time of day and date and can therefore be numerically modelled and included within any exclusion area. Consequently, turbines can be programmed to shut down at certain time of the day/year to mitigate shadow effects on nearby bridleways as part of any planning conditions.

6. General requirements

- 6.1. Different factors are pertinent to different types of users. Consequently, exclusion distances of public rights of way from wind turbines, rather than being taken as single zone, can be modified to take into account the class of user, prevailing wind directions, sun direction, and sun angle to shape the exclusion zone to a limited degree.

Walkers

- 6.2. The main risks to walkers from wind turbines are likely to be from rare turbine-topple events, potentially even rarer blade disintegration events, or rare (for Bedfordshire) ice-throw events. Events in high wind conditions are unlikely to affect users of a public right of way as the routes are unlikely to be used in such inclement conditions.

Equestrians

- 6.3. Where public rights of way are used by horses, the effects of moving blade shadows are potentially a more important factor than turbine-topple, or ice throw. Moving blade shadows also can extend to a greater distance - potentially over 700 metres. However, it should be noted though that at extreme distances the shadows cast will be weaker and less distinct. Furthermore, the longest shadows are likely to occur at dawn and sunset. During the summer months equestrians are unlikely to be utilising rights of way at the times when the longest shadows are cast.

Notable routes

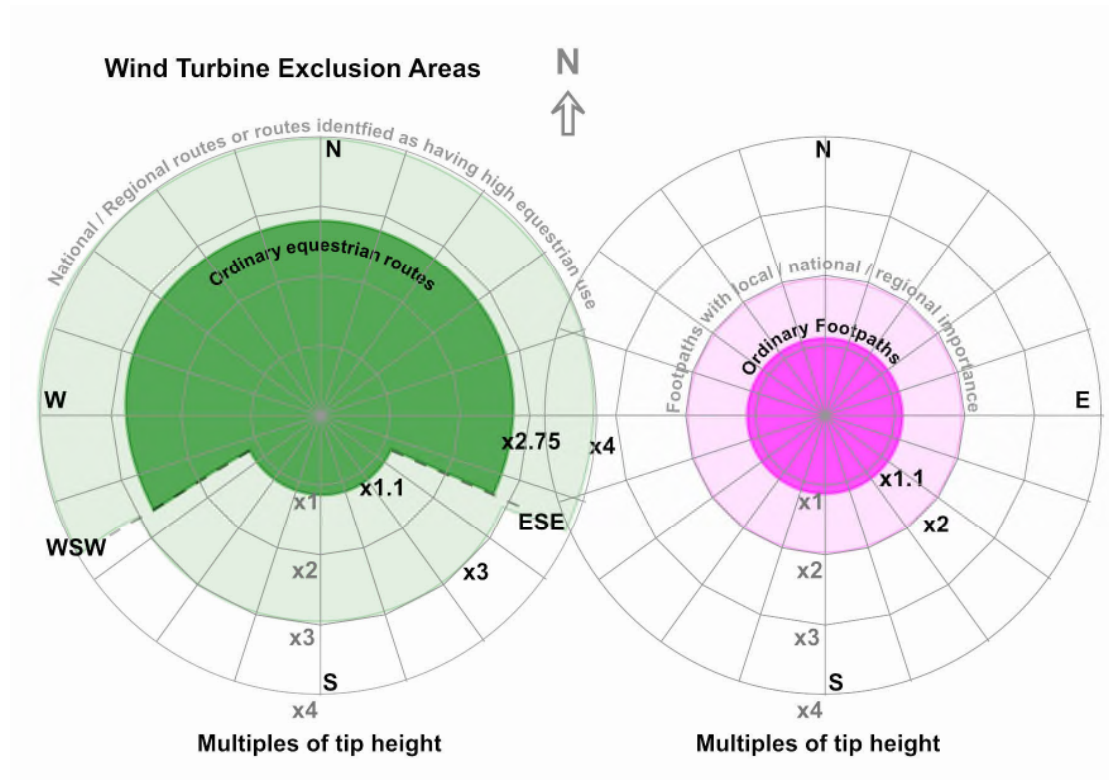
- 6.4. The distances recommended below are *desirable* safety minima. Where wind turbines are situated close to well established local routes, routes noted for their views, or routes of regional or national importance, officers should consider extending the minimum distance to provide an appropriate and enhanced degree of separation. This is to protect both the character of the right of way and to reflect the increased amount of traffic along it.
- 6.5. Where an enhanced degree of separation cannot be obtained due to the spatial separation of turbines required within a site, consideration should be given to stipulating a planning⁵ condition that requires the diversion of the

⁵ A "Grampian condition" is a planning condition attached to a decision notice that prevents the start of a development until off-site works have been completed on land not controlled by the applicant. It was established by Grampian Regional Council v City of Aberdeen District Council (1984) 47 P&CR 633. Further case law (*Merritt v SSETR and Mendip District Council*) it is not possible to impose such a condition when there are no prospects at all of the action in question being performed within the time limit imposed by the permission.

right of way to a more suitable location to be completed prior to construction of the wind turbines.

Exclusion Zones - large commercial turbines

6.6. As working practice guidance for Area Rights of Way Officers in responding to planning applications, the following should be considered as the desirable minima for a wind turbine exclusion zone.



Graphical depiction of recommended exclusion zones.

Compass segment	Minimum exclusion distance for ordinary routes	
	Footpaths	Bridleways and Byways
WSW - N - ESE	Tip height x 1.1	Tip height x 2.75
ESE - S - WSW	Tip height x 1.1	Tip height x 1.1

Compass segment	Recommended minimum exclusion distances for high use or nationally or regionally important routes	
	Footpaths	Bridleways and Byways
WSW - N - ESE	Tip height x 2	Tip height x 3
ESE - S - WSW	Tip height x 2	Tip height x 4

Exclusion Zones - domestic “micro” and “small wind” turbines, anemometer masts, and agricultural wind pumps

- 6.7. Where smaller scale wind turbines (“*micro*” or “*small wind*”) have a tip height of less than 15 metres, and consequently do not require an environmental impact assessment, the exclusion zone shall be equal to twice the tip height for both pedestrian and equestrian routes.
- 6.8. Additionally, for stayed mono-pole designs of smaller wind turbines and anemometer masts, the stays must not impinge on or pass over a right of way. Stays must not terminate within 10 metres of an unfenced⁶ bridleway, byway or road; stays close to this limit should be sheathed with high-visibility material to a height of 2.5 metres.
- 6.9. A reduced exclusion zone equivalent to tip height x 1.1 should be applied to anemometer masts and agricultural wind pumps for water extraction.

Secondary infrastructure

- 6.10. Secondary infrastructure such as crane pads, assembly areas, and anemometer towers should not be situated on, or next to existing public rights of way.
- 6.11. Turbine structures (tower sections and blades) are extremely long and require specialised access routes. These may utilise existing farm tracks occupied by public rights of way which may need re-surfacing, widening or straightening. Where possible access routes should not utilise existing public rights of way.
- 6.12. Where use of a public right of way is unavoidable during the installation, running, or decommissioning phases of a turbine, conditions within the planning consent should seek the full restoration or improvement of the path’s surfacing. Additionally, a temporary diversion should be sought during the construction and restoration phases.
- 6.13. Officers should also consider the potential for additional permissive routes within, or extending beyond, the planning area as long as these remain outside of the exclusion zones identified by this WPGN.

⁶ Includes unhedged or otherwise unbounded route



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