# Norwich Western Link

# Environmental Statement

# Chapter 4: Reasonable Alternatives Considered

# Appendix 4.6: Environmental Mitigation and Enhancement Measures Brochure

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Document Reference: 3.04.06

Version Number: 00

Date: March 2024

# Contents

# 1 Introduction

1.1.1 This Appendix is a brochure that was used to support landowner engagement and outlined the type of environmental measures the Proposed Scheme was looking to implement in the wider area and to inform discussion on identifying potential land to use.

1.1.2 We have included a summary of key information shown in this document in an accessible format. However, some users may not be able to access all technical details. If you require this document in a more accessible format please contact norwichwesternlink@norfolk.gov.uk


# Environmental Mitigation and Enhancement Measures

# Introduction

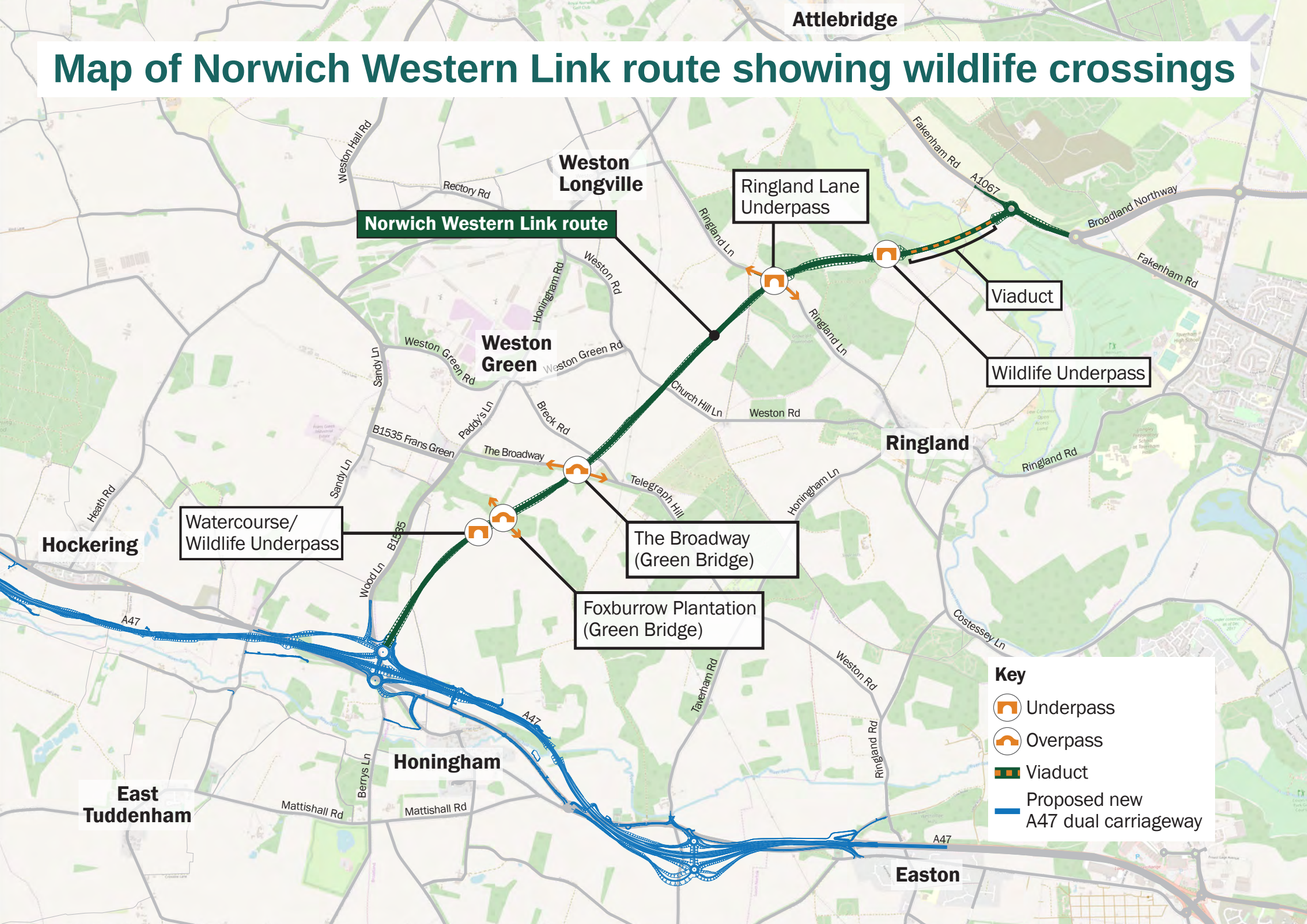
Norfolk County Council is planning to build a new 3.8 mile dual carriageway road, the Norwich Western Link, to connect the A1270 Broadland Northway (formerly the Northern Distributor Road) from its junction with the A1067 Fakenham Road to the A47 trunk road near Honingham.

The new link road is needed to tackle existing problems with traffic congestion and delays on local roads and in communities, so that our transport networks can cope with planned housing and job growth in and around Norwich in the years ahead.

We're committed to building the Norwich Western Link in an environmentally responsible way. As well as limiting and mitigating significant impacts on the local landscape, wildlife and communities, we also want to seek opportunities to improve and create new habitats in the local area. We're aiming to achieve 'biodiversity net gain' on all applicable habitats as part of the project, which means leaving them in a measurably better state than before construction, as set out by Defra.

Our specialists have been carrying out surveys for the last two years to understand which species are found in the area around the route of the Norwich Western Link and identifying which measures and improvements could most effectively support them, working with Natural England and the Environment Agency as part of this process. We want to create habitats that will help wildlife to thrive and for local communities to enjoy, and to safeguard the environment for future generations.

# Map of Norwich Western Link route showing wildlife crossings



# Proposed Habitat Creation and Improvements

## Woodland Creation

### WHAT?

Planting a mix of deciduous, native broadleaved tree species including young and more mature trees. Planting of native flora for the understory and edge habitat. Management to encourage newly planted trees to remain free from competing vegetation and maintenance of fences and other protective features is likely to be required.

### WHY?

Broadleaved woodland encourages species including hedgehogs, marsh tit, brambling, common toad, common reptile species and bats.

Diversity in age and species of trees and plants is key to a healthy woodland and maximises the habitat to benefit prey species of the protected barbastelle bat (e.g. moths).

Woodland also helps to reduce carbon dioxide, flooding and soil erosion.

## Woodland Enhancement

### WHAT?

Enhancement of existing woodland habitats could include:

- Additional planting to enhance diversity of age and height structure of woodland;
- Installing fencing, bat boxes and bird boxes;
- Selective removal of some coniferous species;
- Repurposing of dead or felled trees as deadwood habitat; and
- Low intensity management to promote preservation and development of mature and dead trees.

### WHY?

Creating carefully planned and small woodland openings would allow light to the woodland floor, which aids the growth of plants in the understory. These areas are important for a variety of species including reptiles and invertebrates.

Mature trees and bat boxes provide roosting sites for barbastelle bats, while bird boxes encourage nesting. Standing dead wood and felled trees provide habitat for prey species, including insects. Fencing protects the woodland from damage from herbivores, particularly deer.

## Scrub Creation

### WHAT?

Scrub is a general term for shrubs such as wild privet, dogwood, buckthorn, hawthorn and spindle which typically form an intermediate community between grassland or heath and woodland. A mixture of seedlings, saplings, young and mature shrubs would be included.

### WHY?

Creation of scrub habitat limits soil erosion and helps capture water to reduce downstream flood risks and maintain water quality in streams and rivers.

Scrub also supports species such as invertebrates, bats and birds. Having a mix of grassland, scrub and woodland gives a mosaic of habitats which increases species diversity and connectivity through the landscape.

## Hedgerow Creation

### WHAT?

Planting of mixed native species in staggered double rows with the inclusion of suitable species to develop into fully grown trees within the hedgerow. Managing and replanting as necessary to limit gaps and achieve a height of at least two metres and width of at least 1.5 metres.

### WHY?

Creation of hedgerows creates a new habitat for species such as hedgehogs, birds and bats also improves connectivity for wildlife between existing habitats, aiding safe navigation.

## Hedgerow Improvement

### WHAT?

Improvement would include allowing hedgerows to grow wilder and larger, with relaxed management regimes.

### WHY?

More natural, wider and taller hedges would have a larger wildlife benefit.

## Grassland Creation

### WHAT?

Grassland may constitute a large open area or strips of land covered with grass, commonly used for grazing. A native seed mix would be used, including wildflower species. Management would be required to limit areas of bare ground and encroachment of scrub and bramble.

### WHY?

The diversity of plants and wildflower species present in grassland habitat attracts a variety of insects (including butterflies and bees) and arthropods (from spiders to millipedes). This in turn provides foraging habitat for predators including birds and mammals.

## Pond Creation

### WHAT?

Ponds of varying sizes planted with native species and some with a raised island.

### WHY?

Ponds provide habitat for species such as water voles, frogs, newts and toads as well as for the rare Desmoulin's Whorl Snail, which are found close to the River Wensum.

Raised islands provide additional edge habitat above the flood level for water vole to use for burrowing, act as a refuge for different species and are safe from potential grazing cattle, if present.

## Pond Improvement

### WHAT?

Improvements may include the removal of any invasive species, removal of excessive aquatic vegetation and dredging the pond bottom to remove excess silt.

### WHY?

Improving existing ponds would help enhance established habitat and encourage species to return.

## Ditch Creation

### WHAT?

New lengths of ditch to be created close to the River Wensum, protected from cattle through fencing or extra-wide margins. Vegetation from existing ditches could be 'translocated' to the new ditches.

### WHY?

Ditches with suitable vegetation provide prime habitat for the Desmoulin's Whorl Snail.

## Ditch Improvement

### WHAT?

Widening and reconnecting existing ditches and translocating suitable vegetation into them. Adding fencing or extra-wide margins to protect them from cattle.

### WHY?

Improve connected ditches to expand the suitable habitat available to Desmoulin's Whorl Snail.

# River Improvement

## WHAT?

Linking to the wider Wensum Restoration Strategy, improvement measures could include creating new habitats close to the river such as:

- Wet woodland, characterised by trees such as willows, birches and alder that thrive in wetland such as marshes and fens;
- Chalk wetland; excavation of existing dips in floodplain to create inter-connected pools; and
- Backwater habitats, features that have little or no current that provide a safe habitat for aquatic species during flood events.

Other potential improvements would include creating shallow ponds in floodplains, tree planting to provide structural integrity to the riverbank and habitat, building and planting up riverbanks and adding gravel to the river to reduce depth, encouraging aquatic plant growth and improving habitat diversity.

## WHY?

Improvement of the riverbanks would help create a substantial buffer and transition between the river and its surrounding floodplain. This would reduce bank erosion and associated loss of land and reduce soil erosion (if it is arable land).

Additional planting on the riverbank would help diversify habitat within the floodplain and help sustain high biological diversity.

# Floodplain Compensation

## WHAT?

Floodplain compensation land is an area that can be freely floodable and free draining.

## WHY?

When land is taken for development purposes from within the floodplain, additional land is required to mitigate this loss in flood storage. Floodplains provide a multitude of environmental benefits including filtering and storing water, facilitating both natural flood protection and the healthy functioning of river ecosystems, as well as sustaining high biological diversity.

# Land Requirements

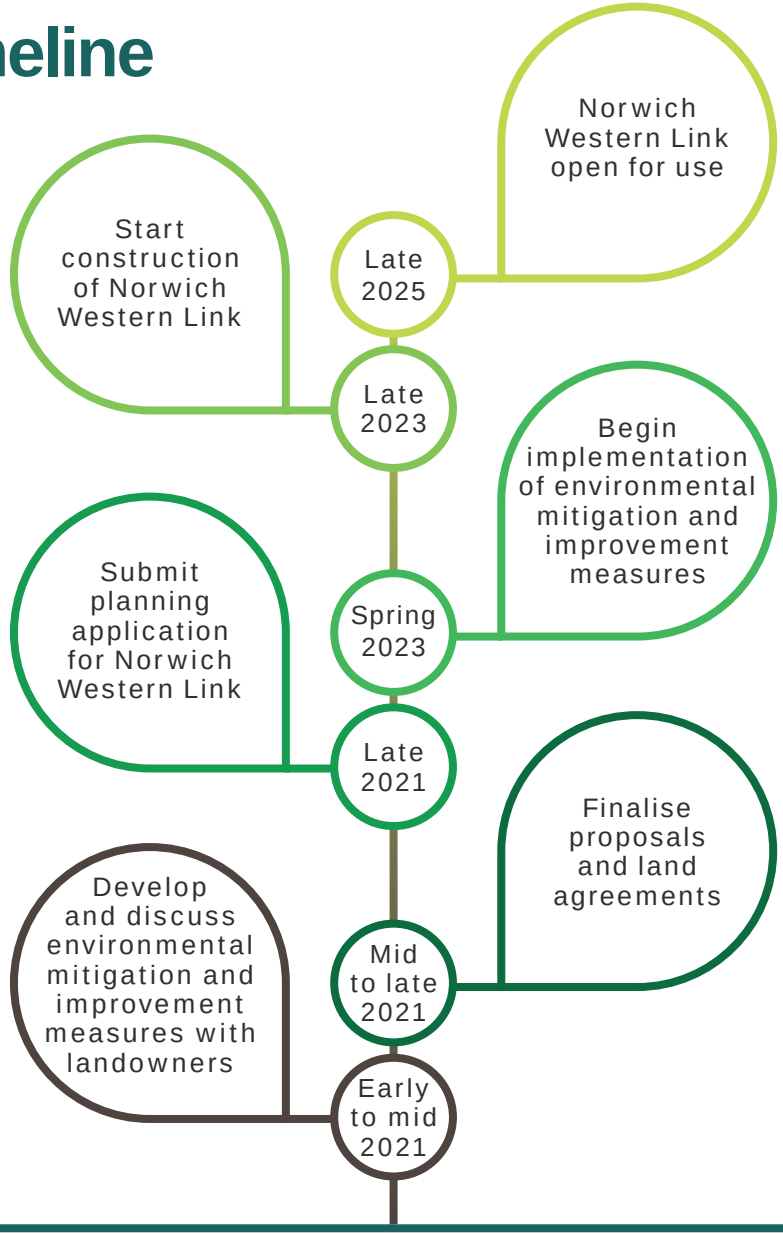
Norfolk County Council wants to work with local landowners to create, improve and protect habitats as part of the Norwich Western Link project.

Individual areas of land that could be used for environmental mitigation and improvement could vary from very small to extensive, and the work required to create or improve habitats on them will also vary. We will need to fulfil planning and government requirements for work of this nature, however there is some flexibility within this and we would be happy to discuss ideas and approaches with landowners.

We would seek to enter into agreements or leases with individual landowners which would set out the requirements for the area of land concerned, covering both the initial work and any ongoing management or monitoring so that the habitat is maintained. The duration of any agreements would be likely to last a minimum of 30 years, to maintain the longevity of the habitats.

Depending on the nature of the specific measures and work involved, and taking into account landowners' preferences, we would consider making a one-off payment or ongoing payments over the period of the agreement. We will discuss the terms of any agreement and adapt them as appropriate to suit individual requirements.

# Timeline




# Contact Us

For information about land requirements and agreements, please email **norwichwesternlink@nps.co.uk**

For information about the Norwich Western Link project, please visit **www.norfolk.gov.uk/nwl** or email **norwichwesternlink@norfolk.gov.uk**