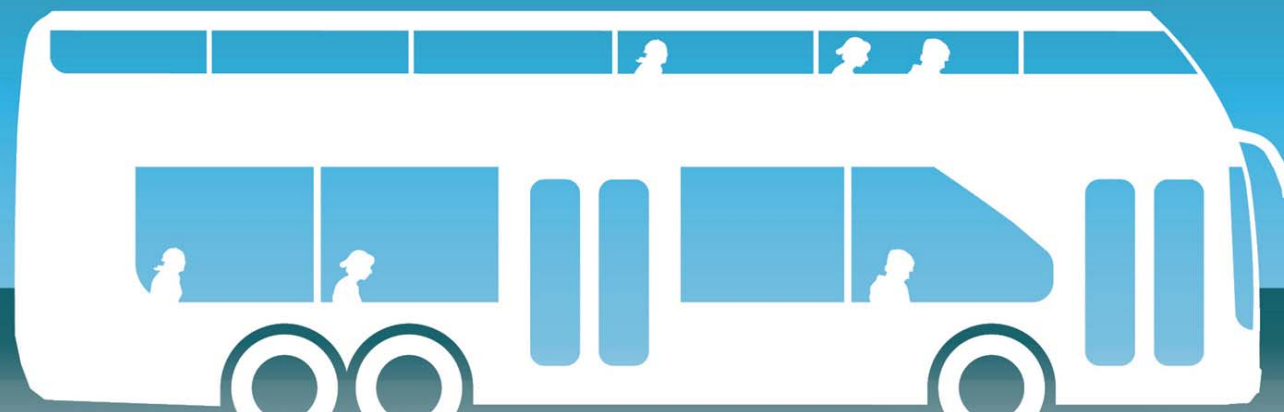


# A428 Cambourne to Cambridge Better Bus Journeys Green Lane Concept

August 2017



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Revision

1.0

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## Introduction

This report sets out a landscape approach to the future development of the A428 Cambourne to Cambridge Better Bus Journeys Project and identifies key principles to be followed and applied at each stage of the Scheme. It is to be read alongside the Planning Appraisal (April 2017) which provides an overview of key planning policy considerations in relation to the delivery of the Scheme and identifies further assessment that will be undertaken as the Scheme progresses.

The Landscape and Planning Considerations report (January 2017) identified that local guidance and policy documents suggest the development of a "Green Lanes" approach would be appropriate, with the aspiration of the Scheme becoming a positive environmental asset.

This report sets out what a Green Lane concept might look like if applied to a bus corridor and the principles to be adopted that could be followed in future project stages. It is supplemented by two Appendices:

- Appendix A: Further Studies - used to inform the 'Concept' and Application to proposed Route Options'.
- Appendix B: Application of the Green Lanes Concept - plans and sections demonstrating how the Green Lane Concept could be applied to the proposed Route Options.

The Options Assessment Report states that the Scheme objective is to deliver new high quality public transport infrastructure to achieve improved connectivity and reduced congestion between residential and employment areas and improving quality of life. It further states that the Scheme will seek to achieve a modal shift from cars to public transport and active modes such as walking and cycling, and improve quality of life and environmental sustainability in Greater Cambridge.

## Mitigation Approach

From a landscape perspective, the design of new infrastructure should respond to the context within which the Scheme is located so far as is practicable.

It is likely that the provision of new infrastructure in any location will result in impacts on the environment, landscape and on views of people.

Through the process of environmental assessment these potential impacts will be identified and, where possible (considering factors such as engineering design requirements, access, maintenance, space available, secondary impacts etc.), the Scheme will be developed to respond to those potential impacts in accordance with the following principles.

### Avoid

This may include refinement of the alignment, or provision of design features, to avoid loss or damage to environmental/landscape features.

### Reduce

This may include minimising the extent of potential impacts on a particular feature, whilst not fully avoiding it, through the approach identified above or by minimising the required Scheme footprint during construction and/or operation.

### Mitigate

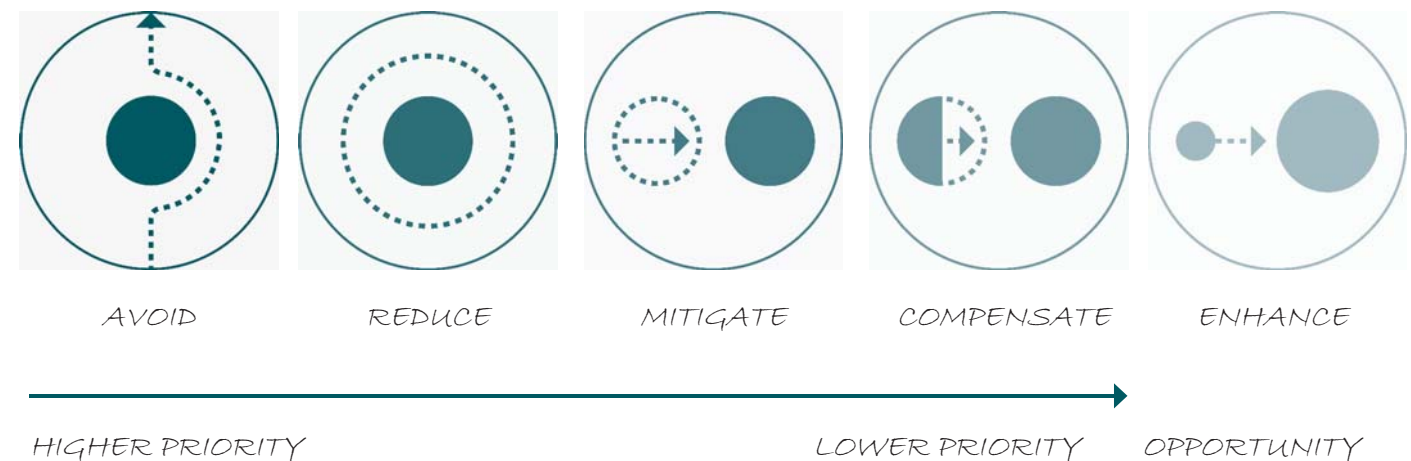
Where potential impacts cannot be avoided or reduced, mitigation could be provided which aims to restore the previous environmental condition (for example re-planting hedgerows lost during construction, or providing a new planting to mitigate impacts on a specific view). Mitigation will generally take place within the project boundary.

### Compensate

Where mitigation of potential impacts cannot be realised within the project boundary then compensation elsewhere can be considered. An example could include the planting of trees in a public park as compensation for the loss of trees in a location nearby where constraints may mean it is not possible to replant in that location.

### Enhance

Separate to the four principles above, enhancement is about looking for opportunities to improve the environment or landscape as a result of the Scheme. This may be achieved through collaboration with other projects or community initiatives, or the identification and realisation of opportunities provided by the project (for example provision of signage and interpretation for public footpaths, improvement of access, creation of new habitat which is in addition to any mitigation or compensation for lost habitat).





## Green Lane Approach

A bus corridor has the potential to result in a range of adverse and beneficial environmental impacts depending on the location, design and mitigation and enhancement measures incorporated into the Scheme. From a landscape and planning perspective, some of these potential adverse impacts are outlined below.

### Effect on green belt

Through potential reduction in openness, loss of historic setting and other national and local green belt purposes.

### Visual impact

Through the presence of new permanent infrastructure and transient bus movements that change the context or character of existing views.

### Urbanising features

Through the presence of additional surfacing, signage and vehicles.

### Reduced tranquillity

Derived from vehicle movements, potential noise and change to landscape setting.

### Severance

Including division of field patterns, reduction in links between landscape features or division of landscape features such as woodland blocks.



PERMANENT INFRASTRUCTURE



TRANSIENT BUS MOVEMENTS



EFFECT ON  
GREEN BELT



VISUAL  
IMPACT



URBANISING  
FEATURES



REDUCED  
TRANQUILLITY



SEVERANCE





If the bus corridor was to be considered as a “Green Lane” rather than just a transport corridor, then a number of potential benefits could be realised such as those described below.

### Improved access to the countryside

Through additional walking, cycling and bridleway routes or improved accessibility, signage and interpretation for a range of user groups.

### Reinforcement/enhancement of the existing landscape infrastructure

This could be achieved through new tree, hedgerow, meadow or wildflower planting matching the style and species of the local landscape, providing green infrastructure connections between existing landscape features, restoring gaps in hedgerows, or improving the management of existing features.

### Increased biodiversity

Where the impacts and loss of biodiversity as a result of the Scheme are outweighed by new planting (for example trees, hedgerows or wildflowers), particularly in locations where existing land has little or no biodiversity value.

### Improved water quality

As a result of drainage features that could be incorporated into the Scheme such as ditches, swales and ponds.

### Enhanced journey experience

As a result of potential improvements to access, biodiversity, signage and interpretation the experience of some or all user groups (and their understanding of the landscape through which they are travelling) could be improved.



FEATURES ALONGSIDE ACCESS ROUTES PROVIDING INTERPRETATION AND ENHANCED JOURNEY EXPERIENCE



ARTWORK SUITABLE TO THE LOCAL ARE PROVIDING POINTS OF INTEREST



IMPROVED  
ACCESS TO  
COUNTRYSIDE



REINFORCED  
LANDSCAPE  
STRUCTURE



INCREASED  
BIODIVERSITY



WATER  
QUALITY



ENHANCED  
JOURNEY  
EXPERIENCE





This Green Lane approach aligns with local policy and design guidelines as described in the Landscape and Planning Appraisal (January 2017). It can be achieved through the avoidance of key environmental impacts, development of the design with local planning and environmental stakeholders and through consultation with the local community. The following 10 principles could be adopted to help achieve the stated approach:

- Avoid loss of existing natural features and increase overall biodiversity.
- Minimise built infrastructure - lighting, signage, structures, fencing.
- Place route out of key sightlines and utilise existing features to screen bus movements.
- Facilitate wider landscape connectivity and improvements.
- Design for the context – consider design and material of signs, appropriate surfacing, human scale.
- Transform rights of way into green lanes for cyclist, pedestrian and equestrian use.
- Design multi-functional infrastructure - drainage, biodiversity, landscape, bridges.
- Use left over land (e.g. field corners) to provide woodland, orchards or other public amenity and stronger landscape structure near settlements.
- Set the alignment parallel to the contours, minimising movement up and down slopes.
- Create focal points along the route with artwork, viewpoints, benches and interpretation boards.



MATERIAL TYPES AND FEATURE DESIGNS CAN BE TAILORED TO RESPOND TO THE LOCAL LANDSCAPE CHARACTER, BENCHES ENCOURAGE PEOPLE TO STOP AND APPRECIATE THE LOCAL CONTEXT, WHILST CYCLE PARKING AND MAPS ENCOURAGE PEOPLE TO EXPLORE THE WIDER ENVIRONMENT



INFRASTRUCTURE CAN BE INTEGRATED INTO THE LANDSCAPE THROUGH A VARIETY OF MEASURES INCLUDING GREEN BRIDGES AND AN INTEGRATED ENGINEERING/ENVIRONMENTAL DESIGN APPROACH





## Green Lane Features

At this stage of the project, the type and design of the potential bus corridor has not been determined. As there are a number of potential bus corridor design options (including a traditional surface route, kerb guided, optical guided and magnetic guided) we have selected just one bus corridor design option for the purpose of demonstrating how the Green Lane concept could be developed and applied. A kerb guided busway has been selected for use in this report as the most appropriate for a Green Lane solution because:

- The corridor width for a kerb guided busway is narrow as buses can pass each other, in close proximity, at high speed, reducing potential width.
- The design of a kerb guided busway allows for the provision of green/soft treatments between the kerbs as the wheel positions are fixed.
- The maintenance track required alongside a kerb guided busway can also be utilised for pedestrian, cycling and equestrian use, providing opportunity to improve accessibility.
- Where a Route Option would utilise the existing road corridor for part or all the route, a kerb guided system would not be required, minimising the scale of changes needed to accommodate the corridor at these locations.

If another type and design of the potential bus corridor is selected, the potential treatments may differ in type, extent, location or value but the same overall approach and principles can be applied.

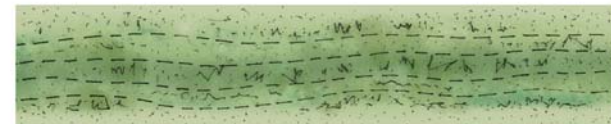
The design of the Green Lane can be split into two aspects:

- The functional bus corridor.
- Integration with the surrounding landscape.

For a kerb guided busway, the functional busway corridor includes the two kerb guided tracks, verges and a maintenance track, which would be the minimum viable corridor width (with earthworks and structures where required). Integration with the surrounding landscape can include features such as hedges, footpaths, road corridors, green bridges, fences, ditches/swales, hedgerows, tree planting, farmland and blocks of trees/vegetation.



ARABLE LAND



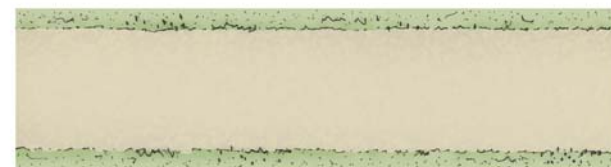
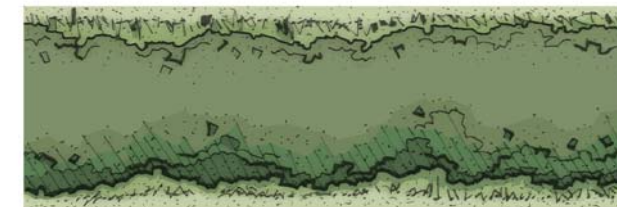
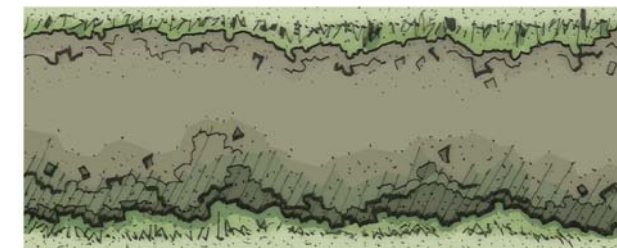
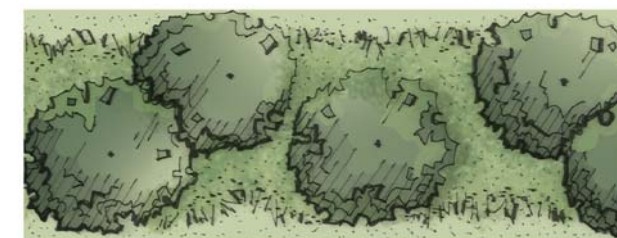
DITCH / SWALE



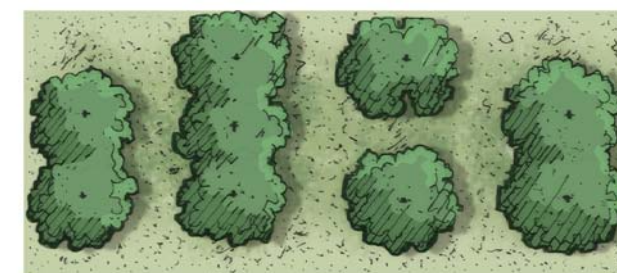
FENCE



CLIPPED HEDGE

MAINTENANCE  
TRACK OPTION 1MAINTENANCE  
TRACK OPTION 2KERB GUIDED  
BUSWAYNATURALISTIC  
HEDGEROW  
(PROPOSED)NATURALISTIC  
HEDGEROW  
(EXISTING)

TREE PLANTING

ORCHARD  
PLANTING



## Minimum Width Green Lane

A minimum width green lane could consist of the busway itself (~8m), the maintenance track (~4m) and verge (~0.5m) along each side resulting in a total width of ~13m to enable the corridor to operate as a busway. Whilst the minimum width option would provide no specific landscape-only components, features such as grass, sedum or wildflowers could still be provided between the busway tracks, within the verge between the busway and the maintenance track and within the outer verges. This option would be suitable for locations where potential impacts on environmental/landscape features were trying to be avoided or reduced, or where the openness of the existing landscape is to be retained.



VERGE  
MAINTENANCE  
TRACK  
VERGE  
GUIDED  
BUSWAY  
VERGE

## Multifunctional Green Lane

Alongside this minimal width corridor, landscape enhancement and connectivity measures would increase the width of the green lane corridor, but embed a multifunctional green infrastructure approach, which can help to mitigate or compensate potential impacts and integrate the Scheme into the local landscape in so far as is possible. These treatments could also be considered as enhancements in certain locations depending on the potential effects of the Scheme and the current condition and character of the landscape within which the Scheme would be located. Specific green components could be added to the corridor to provide single or combined functions such as increased biodiversity, habitat connectivity, visual screening, landscape integration, drainage and improved user experience. These features could be designed to be of an appropriate scale and appearance to the local landscape character.



TREE PLANTING  
DITCH /  
SWALE  
MAINTENANCE  
TRACK  
CLIPPED HEDGEROW  
VERGE  
GUIDED  
BUSWAY  
VERGE  
NATURALISTIC  
HEDGEROW

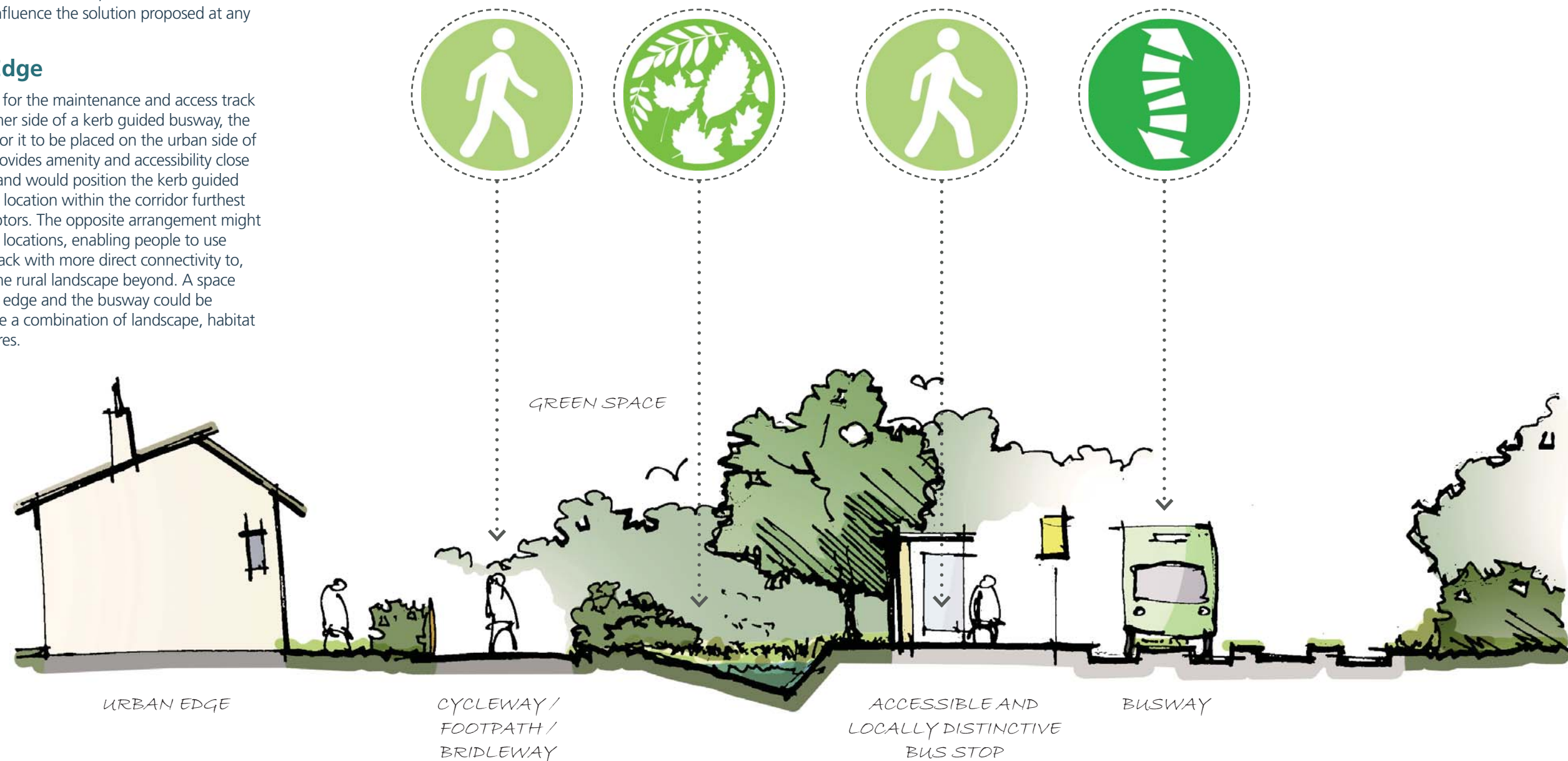


## Green Lane Concept

A demonstration of what a Green Lane Concept could look like and how it may be applied to different scenarios is described below and considers the Mitigation Approach, Green Lane Approach and Green Lane Features described above. As these scenarios are theoretical, the actual features, constraints and opportunities will influence the solution proposed at any one location.

### The Urban Edge

Where it is possible for the maintenance and access track to be placed on either side of a kerb guided busway, the suggestion here is for it to be placed on the urban side of the corridor. This provides amenity and accessibility close to the urban edge and would position the kerb guided busway itself at the location within the corridor furthest from sensitive receptors. The opposite arrangement might be suitable in some locations, enabling people to use the maintenance track with more direct connectivity to, and views across, the rural landscape beyond. A space between the urban edge and the busway could be provided to facilitate a combination of landscape, habitat and drainage features.





## Sensitive Visual Receptors

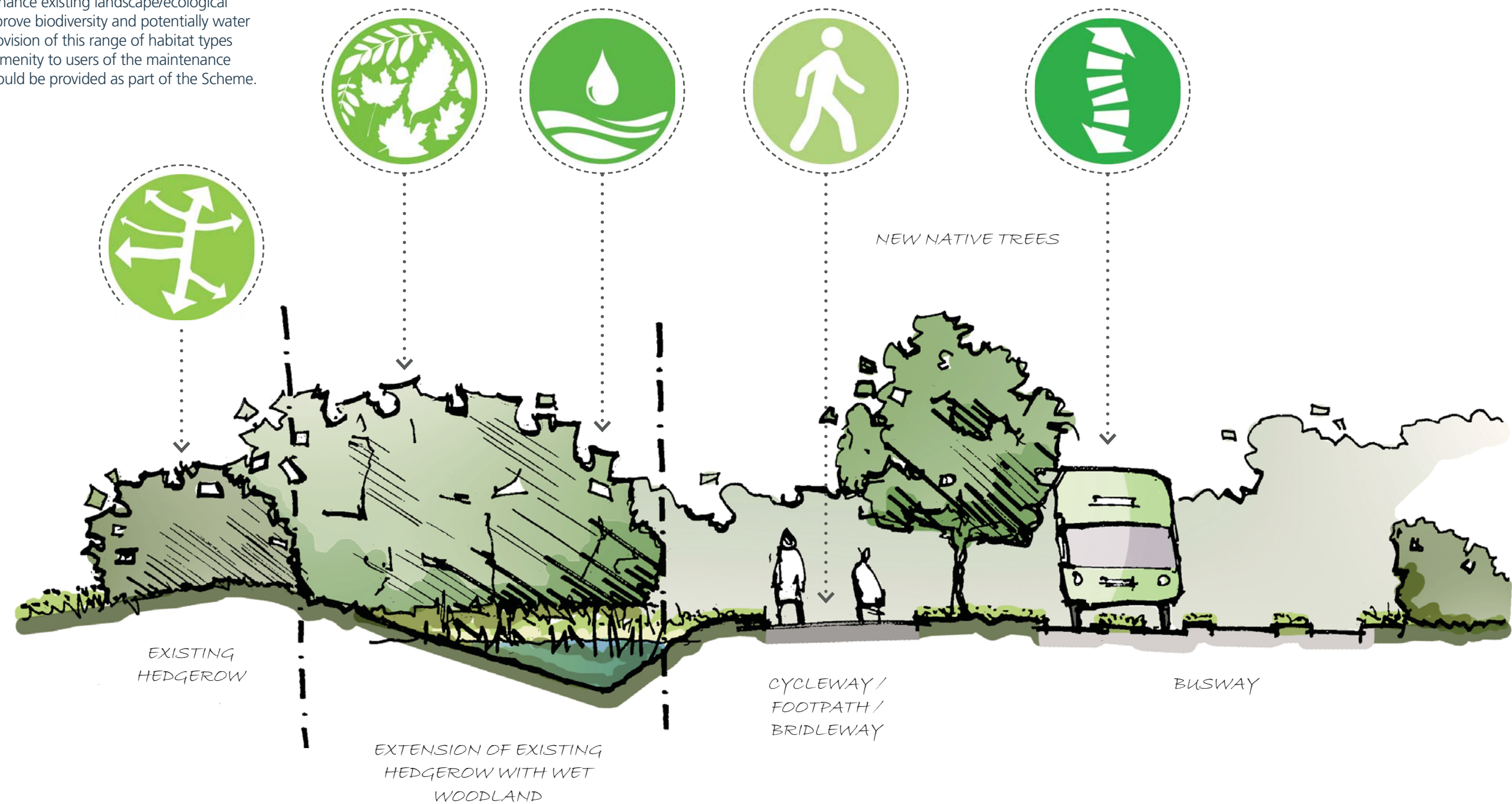
In a similar scenario to the above, the priority may be to provide visual separation between sensitive receptors and the busway corridor. The creation of a woodland screening buffer (or enhancement of existing boundary hedgerow) would help to achieve this and would also provide the additional functions of landscape connectivity and habitat creation. With the maintenance and access track placed on the urban edge side of the corridor, the woodland screening buffer would also provide some amenity benefits to users of the track and would position the kerb guided busway itself at the location within the corridor furthest from sensitive receptors.





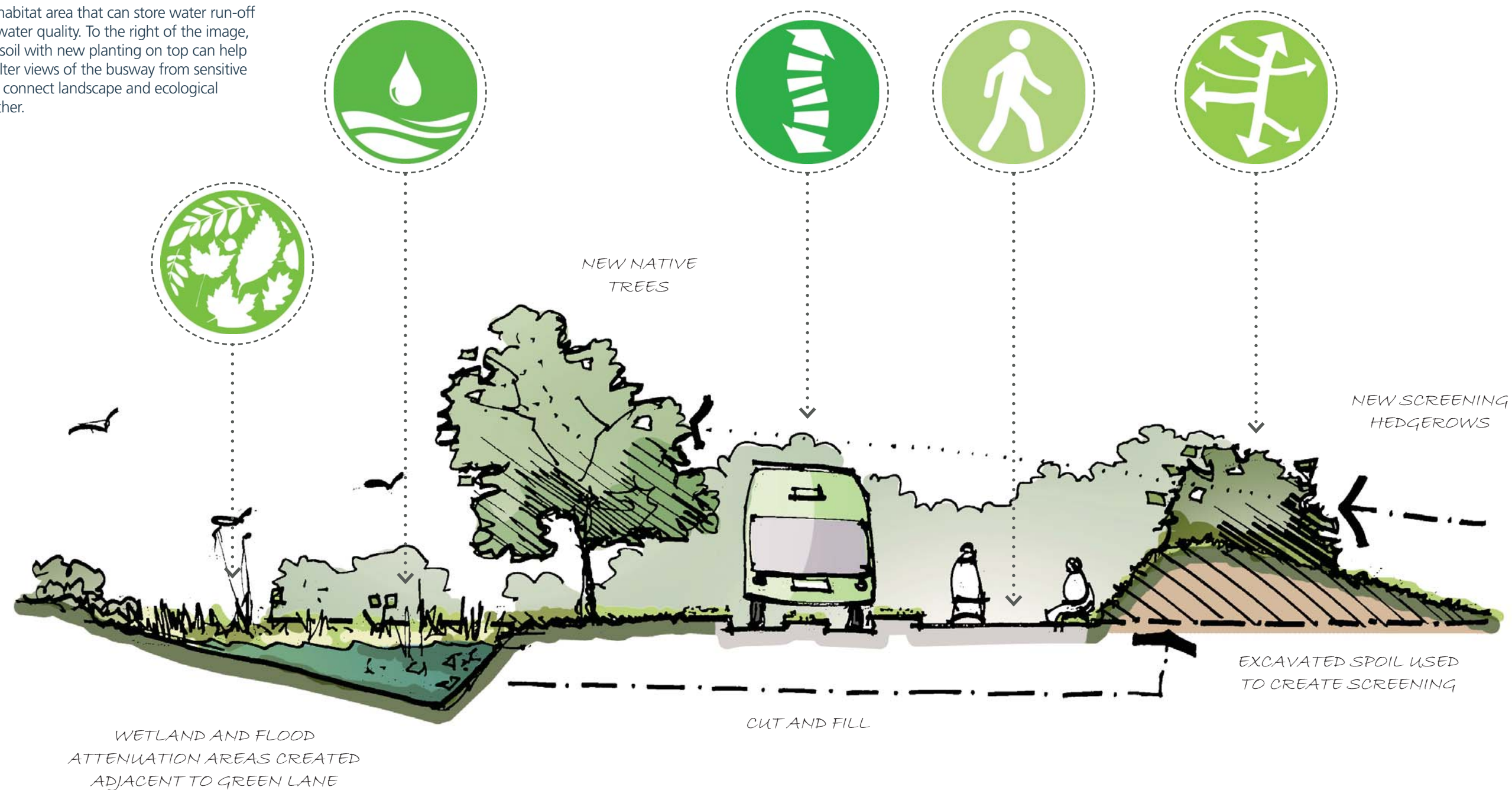
## Enhancing Existing Features

In a rural scenario, the bus corridor should aim to follow the existing landscape pattern where possible, rather than cut directly through fields and other landscape features. This example shows how, if placed near an existing field boundary, the project could extend and enhance existing landscape/ecological features to improve biodiversity and potentially water quality. The provision of this range of habitat types also provides amenity to users of the maintenance track which would be provided as part of the Scheme.



## Improved Biodiversity/Water Quality

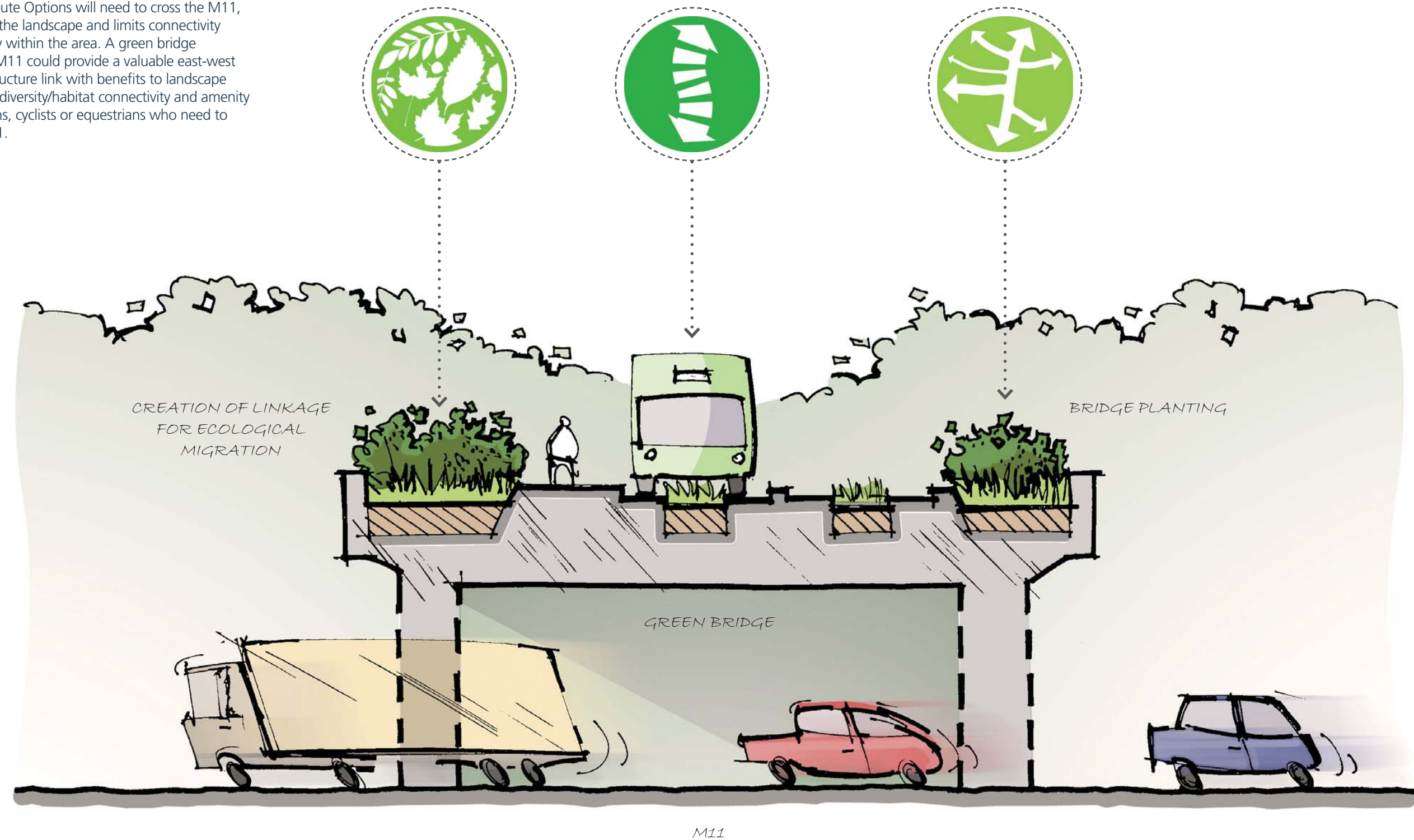
This scenario demonstrates how the re-use of soil could provide multiple benefits. To the left of the image the excavation of soil has facilitates the creation of a wetland habitat area that can store water run-off and improve water quality. To the right of the image, mounding of soil with new planting on top can help to screen or filter views of the busway from sensitive receptors and connect landscape and ecological features together.





## Green Bridge

All current Route Options will need to cross the M11, which severs the landscape and limits connectivity of biodiversity within the area. A green bridge crossing the M11 could provide a valuable east-west green infrastructure link with benefits to landscape character, biodiversity/habitat connectivity and amenity for pedestrians, cyclists or equestrians who need to cross the M11.





## Application of Green Lane Concept to Proposed Route Options

To demonstrate how the Green Lane Concept could work in practice for the A428 Cambourne to Cambridge Better Bus Journeys Project, it has been applied to a number of the potential Route Options currently under consideration. For this exercise, the work has been undertaken for the Tranche 1 section of the corridor (Cambridge to Maddingley Mulch roundabout) as this is the first part of the route to come forward and the Route Options cover a range of locations, scenarios and issues.

The application of the Green Lane Concept to the proposed Route Options is based on the current understanding of potential issues and opportunities within the area, as well as the potential engineering requirements of the Scheme. The proposals illustrate what might be considered as “design year”, when the green features have established to achieved their design objectives.

The application of the Green Lane Concept has been informed by the information contained in the Landscape and Planning Considerations document, as well as further baseline studies contained in Appendix A. An overview plan for each Route Option considered is provided in this report and more detailed plans and sections are provided in Appendix B. Draft Green Lane Concepts were presented at a workshop with South Cambridgeshire District Council and Cambridge City Council on 27th April 2017 and have been developed further in response to comments and discussions at that workshop.

For each Route Option the key landscape and visual issues and potential responses, as well as opportunities, are identified.

All alignments presented are subject to change as the project progresses. The potential responses are based on early stage information, and other integration and mitigation techniques could be identified or be deemed suitable as more detailed information on the design and potential impacts is known. There are a number of potential variations on alignments presented within this document for Route Option 3a and, although they have not been presented here, the principles, issues and opportunities can be equally applied to those variations.







## Route Option 1

Key landscape and visual issues and potential responses:

- Visual impact on receptors along the A1303 could be difficult to mitigate in some circumstances due to potential reductions in available land between the carriageway and adjacent private land as a result of carriageway widening.
- Removal of the northern wooded field boundary between Madingley Windmill and the Cambridge Road junction could be mitigated with new woodland and hedgerow planting adjacent to the revised carriage position, as well as biodiverse meadow planting to the south of the carriageway.

- Losses to hedgerows and wooded field boundaries, as a result of cumulative vegetation removal across the route, would have adverse effects to the landscape character and quality of multiple sections of the A1303. Where possible, replacement planting could be provided alongside the new carriageway boundary.
- A wider, more highway dominated carriageway outside the Cambridge American Cemetery & Memorial will adversely impact the character and visual amenity of the entrance to the Grade I Registered Park and Garden.
- The widened carriageway is likely to encroach into, or result in work to trees within, the grounds of the Ancient and Semi-Natural Woodland and Site

of Specific Scientific Interest at Madingley Wood. Where possible the alignment should be located as far south as possible to avoid or reduce loss of trees and vegetation at this location.

- The widened carriageway is likely to require complete removal of the existing northern mature hedgerow between the A428 roundabout and Madingley Wood. There is potential to mitigate this with replacement hedgerow planting.
- Madingley Road is a primary approach to the city and would become more urban/highway dominated. This potential impact could be limited to some degree through use of minimal signage and lighting and maintaining or replacing as much vegetation as possible alongside the road.

Key landscape and visual opportunities:

- An on-carriageway Route Option avoids potential adverse landscape and visual impacts to and around the West Fields, Coton Orchard and Coton.
- Changes to the A1303 carriageway present an opportunity to improve provisions for pedestrians and cyclists along the road.







### Route Option 3a (Cyan)

Key landscape and visual issues and potential responses:

- Potential visual impact on high sensitivity receptors along Herschel Road, Cranmer Road, Dane Drive and Gough Way could be mitigated through planting with low under-storey that retains views across agricultural land for pedestrians alongside the busway route but screens views of buses from those sensitive receptors.
- Loss of vegetation and change of character around Bin Brook could be mitigated through the use of the minimal cross-section corridor and appropriate habitat creation around the corridor.
- Loss of habitat within Coton Traditional Orchard and other vegetated areas could be reduced

through use of a minimum width busway corridor and compensated with new orchard planting elsewhere.

- Loss of amenity for users of existing footpaths/ rights of way alongside potential busway route mitigated by providing a greater access network, situating the access track alongside the open agricultural landscape and separating the route from the busway through hedgerow planting at suitable locations.
- Visual impact on high sensitivity receptors at Coton avoided where possible through detailed route alignment selection and limited or no use of vertical elements such as fences and hedgerows.
- Potential visibility of Route Option from Red Meadow Hill to be considered in alignment development and mitigation measures.

- Potential loss of trees and vegetation within conservation area west of Grange Road avoided or reduced so far as possible through detailed design of alignment and design solution, arboricultural survey and impact assessment and providing opportunity for mitigation planting if trees are removed.
- Loss of part of a group tree preservation order at the junction of Long Road and St Neots Road could be limited through the use of the minimum width cross-section.

Key landscape and visual opportunities:

- Follow field boundaries where possible to retain landscape pattern and use existing boundary features as visual barriers.
- Utilise existing pedestrian corridor between public footpath and Grange Road.

- Provide new linkage and access routes to the west fields landscape and improve accessibility for a range of user groups.
- Retain amenity of views from the public footpath and cycle route south of University of Cambridge West Cambridge campus.
- Green bridge over M11 to link habitats and enhance journey experience for pedestrians and other users.
- Provide opportunity for pedestrians, cyclists and equestrians to experience, and potentially access, part of the Coton Traditional Orchard.
- Utilise severed field parcels to increase biodiversity and amenity through orchard and wildflower planting.
- Using ditches to provide boundary definition rather than fencing to retain openness of green belt and provide drainage/biodiversity features.







### Route Option 3a (Green)

Key landscape and visual issues and potential responses:

- Potential visual impact on high sensitivity receptors along Adams Road, Sylvester Road and Wilberforce Road could be reduced through any signage and road markings being sensitive to the location in their appearance and position, and being the minimum amount required for safety and operational purposes.
- Loss of vegetation to the north of University of Cambridge Sports Ground could be limited through the use of the minimum width cross-section.
- Potential loss of cycle and pedestrian route connectivity and amenity south of the University Campus could be avoided to some degree by placing the route to the south of the busway, retaining connections west and north without the need to cross the route, retaining views across the agricultural landscape and by separating the route from the busway through hedgerow planting.
- Loss of habitat within Coton Traditional Orchard and other vegetated areas could be reduced through use of a minimum width busway corridor and compensated with new orchard planting elsewhere.
- Severance of Coton Orchard would be difficult to mitigate, but it may provide an opportunity allow access to the orchard for pedestrians and other users.
- Potential visibility of Route Option from Red Meadow Hill considered in alignment development and mitigation measures.
- Visual impact on high sensitivity receptors at Coton avoided where possible through detailed route alignment selection and limited or no use of vertical elements such as fences and hedgerows.
- Loss of part of a group tree preservation order at the junction of Long Road and St Neots Road could be limited through the use of the minimum width cross-section.

Key landscape and visual opportunities:

- Green bridge over M11 to link habitats and enhance journey experience for pedestrians and other users.
- Provide opportunity for pedestrians, cyclists and equestrians to experience, and potentially access, part of the Coton Traditional Orchard.
- Utilise severed field parcels to increase biodiversity and amenity through orchard and wildflower planting.
- Using ditches to provide boundary definition rather than fencing to retain openness of green belt and provide drainage/biodiversity features.







### Route Option 3a (Red)

Key landscape and visual issues and potential responses:

- Visual impact on high sensitivity receptors along Herschel Road and Sylvester Road could be reduced through signage and road markings being sensitive to the location in their appearance and position and being the minimum amount required for safety and operational purposes.
- Reduce impact of severance of field parcel within West Fields by retaining the openness of the area and views to the south from existing pedestrian and cycle footpath through limited or no use of vertical elements such as fences and hedgerows.

- Loss of habitat within Coton Traditional Orchard and other vegetated areas could be reduced through use of a minimum width busway corridor and compensated with new orchard planting elsewhere.
- Visual impact on high sensitivity receptors at Coton avoided where possible through detailed route alignment selection and use of limited vertical elements such as fences and hedgerows.
- Potential visibility of Route Option from Red Meadow Hill considered in alignment development and mitigation measures.
- Loss of part of a group tree preservation order at the junction of Long Road and St Neots Road could be limited through the use of the minimum width cross-section.

Key landscape and visual opportunities:

- Follow field boundaries where possible to retain landscape pattern and use existing boundary features as visual barriers.
- Place the maintenance track to the north of the route across the west fields to facilitate links to the existing public footpath and cycle route. Provide further linkage and access to the west fields landscape with connections to the rights of way network to the south.
- Green bridge over M11 to link habitats and enhance journey experience for pedestrians and other users.

- Provide opportunity for pedestrians, cyclists and equestrians to experience, and potentially access, part of the Coton Traditional Orchard.
- Utilise severed field parcels to increase biodiversity and amenity through orchard and wildflower planting.
- Using ditches to provide boundary definition rather than fencing to retain openness of green belt and provide drainage/biodiversity features.







## Route Option 6

Key landscape and visual issues and potential responses:

- Visual impact on receptors along the A1303 could be difficult to mitigate in some circumstances due to potential reductions in available land between the carriageway and adjacent private land as a result of carriageway widening.
- Partial removal of the northern wooded field boundary between Madingley Windmill and the junction to Cambridge Road could be mitigated with new woodland and hedgerow planting adjacent to the revised carriageway position.
- Losses to hedgerows and wooded field boundaries, as a result of cumulative vegetation removal across the route, would have adverse effects to the

landscape character and quality of multiple sections of the A1303. Where possible, replacement planting could be provided alongside the new carriageway boundary.

- A wider, more vehicle dominated carriageway and the addition of overhead gantries would adversely impact the character and visual amenity of the road corridor. The design of any gantries should be carefully considered to limit the effect of them on the character of the area so far as is possible.
- The widened carriageway is likely to significantly encroach into privately owned land and impact existing boundary hedges, walls, fences and entrances. This is most significant in areas such as outside Madingley Mill and Cambridge American Cemetery & Memorial Grade I Registered Park and Garden.

- The widened carriageway is likely to encroach into, or result in work to trees within, the grounds of the Ancient and Semi-Natural Woodland and Site of Specific Scientific Interest at Madingley Wood. The alignment should be located as far south as possible to avoid or reduce loss of trees and vegetation at this location.
- The widened carriageway is likely to require partial/complete removal of the existing northern mature hedgerow between the A428 roundabout and Madingley Wood. There is potential to mitigate this with replacement hedgerow planting.
- Madingley Road is a primary approach to the city and would become more urban/highway dominated. This could be limited to some degree through use of minimal signage and lighting and maintaining or replacing as much vegetation as possible alongside the road.

Key landscape and visual opportunities:

- An on-carriageway Route Option avoids all potential negative impact to the West Fields, Coton Orchard, and agricultural land surrounding Coton.
- Changes to the A1303 carriageway present an opportunity to improve provisions for pedestrians and cyclists along the road.





## Summary

A summary of the potential landscape and visual effects and opportunities for mitigation for each Route Option is set out below. They have been grouped under the headings of Route Option 1 and Route Option 6 (on road Options), Route Option 3a (Cyan), Route Option 3a (Green) and Route Option 3a (Red) (off road Options with Green Lane Concept applied).

### Route Option 1 and Route Option 6

Route Option 1 and Route Option 6 would result in landscape and visual effects to receptors along Madingley Road, particularly the Madingley Wood Ancient and Semi-Natural Woodland and the Cambridge American Cemetery & Memorial Grade I Registered Park and Garden. If selected as a preferred route, options should be explored to avoid or reduce the potential impact on those landscape features.

The extent of potential landscape and visual effects would generally be limited to the area within and around the existing road corridor, thereby avoiding landscape and visual effects within the wider area. However, the corridor does form a predominantly green transport corridor to the city and that overall character should be retained if possible through detailed design consideration. The gantries proposed as part of Route Option 6 would create an urbanising feature within the corridor which would result in a slightly greater landscape and visual effect than Route Option 1.

There are limited opportunities to mitigate the potential landscape and visual effects of Route Option 1 and Route Option 6 due to the space available within the corridor and the location of sensitive designated features.

### Route Option 3a (Cyan), Route Option 3a (Green) and Route Option 3a (Red)

East of the M11, each Option follows a different alignment. Route Option 3a (Cyan) is the southernmost route and is predominantly located away from the urban edge. The potential landscape and visual effects as a result of this include loss of mature trees west of Grange Road, change to the character of part of the Bin Brook corridor and views from surrounding residential properties and users of the public rights of way within the area.

The alignment and mitigation measures of Route Option 3a (Cyan) can be developed to avoid and reduce potential impacts (such as avoiding existing hedgerows, following the existing landscape pattern and planting to screen sensitive views) however the presence of a new piece of infrastructure within a greenfield location would still be a notable change to the landscape. Route Option 3a (Red) (east of the M11) is the only Option within this section of the corridor that would run diagonally across a field parcel. This would result in views, from the footpath and cycleway south of the University Campus, of buses in the fore to middle ground crossing the open landscape. A section of mature vegetation at the end of Herschel Road would be lost as a result of Route Option 3a (Red). Route Option 3a (Green) (east of the M11) would result in less landscape and visual effects than Route Option 3a (Cyan) and Route Option 3a (Red) as a large section of the route would consist of a bus utilising existing infrastructure through the University Campus and along Adams Road. Therefore, the potential landscape and visual effects would be focused within a small section of this Option.

Route Option 3a (Cyan), Route Option 3a (Green) and Route Option 3a (Red) all require a bridge across the M11. Some woodland would need to be lost to accommodate the bridge but this could be mitigated to some degree through the provision of a green bridge which would connect the wooded habitats on either side of the motorway and provide an improvement in visual amenity for people crossing the M11.

Route Option 3a (Green) would have a greater potential effect on Coton Traditional Orchard as its position further north would result in a greater severance effect. As Route Option 3a (Cyan) and Route Option 3a (Red) are positioned further south they are located closer to the edge of Coton Traditional Orchard and, whilst the quantity of loss of orchard features would be similar to Route Option 3a (Green), the effect on landscape pattern would be less. For all Route Options, the presence of trees and vegetation within Coton Traditional Orchard, and along the southern boundary, would help to screen of filter views towards this section of the corridor from properties and rights of way within the surrounding area.

Between Coton Traditional Orchard and Long Road, the potential landscape and visual effects of Route Option 3a (Cyan), Route Option 3a (Green) and Route Option 3a (Red) are broadly similar. The potential visual effects of these route options would be limited to a small number of visual receptors such as residential properties in close proximity to the Route Options and public rights of way. The sight lines demonstrate that a kerb guided busway could be positioned out of sight within key views from Whitwell Way, however the transient movement of buses along the corridor would be visible from some locations.

The extent of potential landscape and visual effects for these Options would be wider than for the on road Options due to the availability of views towards the corridors and variety of features that may be affected. However, as the area around the Route Options is less physically constrained there is accordingly a greater opportunity to avoid, reduce and mitigate those potential effects to varying degrees.

## Conclusion

The Green Lane Concept has the potential to help guide and facilitate a Cambourne to Cambridge Better Bus Journeys Project for any of the potential Route Options. It embeds an approach which ensures that the selected Route Option will respond to the environment and the changing landscape and visual constraints it would pass through.

Whilst all the Route Options would result in adverse landscape and visual effects to varying degrees, this will not be the only consideration in selecting a preferred Route Option. However, a Green Lane Approach advocates avoiding, reducing, mitigating or offsetting potential effects, and also looks beyond this to identify the opportunities that may be facilitated by the Project, encouraging a response to the specific local landscape and visual context that a preferred Route Option would be located within.



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