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Burgess Hill - Wivelsfield Station Area Access & Connectivity Scheme

Feasibility Study

May 2020

About Sustrans

Sustrans is the charity making it easier for people to walk and cycle.

We are engineers and educators, experts and advocates. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute.

Sustrans works in partnership, bringing people together to find the right solutions. We make the case for walking and cycling by using robust evidence and showing what can be done.

We are grounded in communities and believe that grassroots support combined with political leadership drives real change, fast.

Our vision

A society where the way we travel creates healthier places and happier lives for everyone.

Our mission

We make it easier for people to walk and cycle.

How we work

We make the case for walking and cycling by using robust evidence and showing what can be done.

We provide solutions. We capture imaginations with bold ideas that we can help make happen.

We're grounded in communities, involving local people in the design, delivery and maintenance of solutions.

What we do

Join us on our journey. www.sustrans.org.uk

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Revision	Description	Author	Check	Date
0	First Issue	HM/VS/CD	PS	27/02/20
A	Second issue	HM	PS	05/03/20
B	Third Issue	HM	PS	06/05/20

Executive Summary

Sustrans has been commissioned to support the delivery of the Burgess Hill Place and Connectivity Programme which aims to create safe, direct and attractive sustainable transport routes and public realm improvements to encourage modal shifts towards walking, cycling and use of public transport. The Place and Connectivity Programme supports the sustainable delivery of the Burgess Hill Strategic Growth Programme which aims to deliver housing, jobs, infrastructure and social and community facilities to the town.

This report focuses on the Wivelsfield Station Area Access and Connectivity Scheme, which seeks to improve the access to the station from the south and promote townwide east to west connectivity movements by active travel modes. This will be achieved by creating a shared cycle/footway on an area of open space linking Leylands Road with an existing traffic free route between Junction Road and St. Wilfrid's Road, which is to be upgraded.

The scheme was selected as a priority area for improvement because of the significant activity that the Wivelsfield station area generates.

Sustrans has outlined recommendations for the Wivelsfield Station Access and Connectivity Scheme which aim to help deliver transformational change to Burgess Hill by supporting the sustainable growth of the town.

1. Introduction

1.1 Summary

Sustrans has been commissioned to assist Mid Sussex District Council with its Burgess Hill Place and Connectivity Programme, including improvements to access Wivelsfield Station, particularly from the south. In addition, this scheme will focus on improving east to west connectivity.

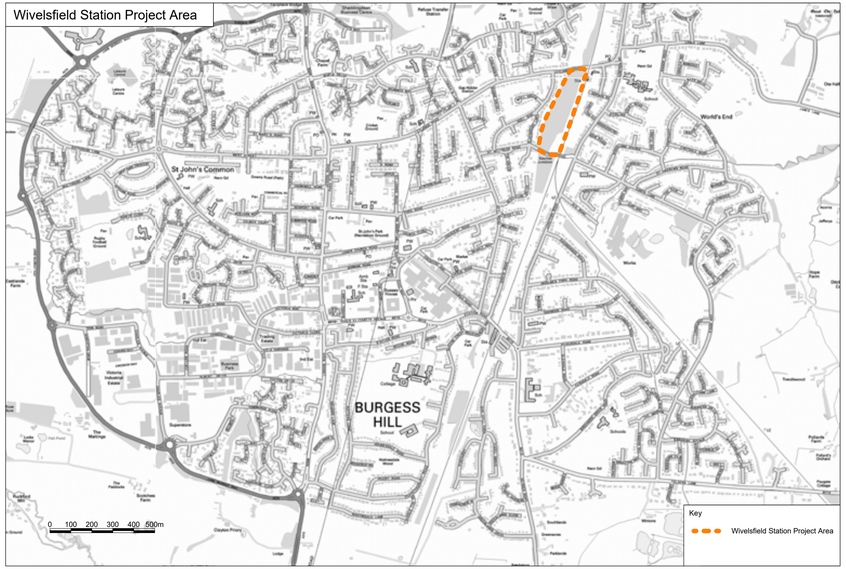
This scheme is of particular importance due to the increasing usage of Wivelsfield Station, especially due to future developments within the town in the vicinity of the station, creating a demand for high quality walking and cycling infrastructure linking to the station.

1.2 Route Overview

A new north to south link will connect the existing traffic free route between St Wilfrids Road and Junction Road to the south, with Leylands Road and Wivelsfield Station to the north, through the open space to the west of the railway line.

It is hoped that the existing east to west connection between St Wilfrids Road and Junction Road, utilising the existing Junction Overline Bridge, will be upgraded as part of a later phase.

This scheme has potential for high quality walking and cycling infrastructure to link Wivelsfield Station, and improve active travel infrastructure within the town as a whole.



1.3 Background Context

Burgess Hill is a market town in the Mid Sussex District of West Sussex, situated on the edge of the South Downs National Park, close to the border with East Sussex. It is located approximately 6.5km south of Haywards Heath and 17km north of Brighton.

The area of Burgess Hill has been settled since the Saxon period, indeed its founding ancient parishes were mentioned in the Doomsday book. The whole area was primarily dependent on agriculture and remained that way until the Victorian period which saw the arrival of the Railway.

Following completion of the London to Brighton Railway in the 1840s, the area was transformed into a country town with the construction of Victorian middle class and terraced workmen's houses. From this time, Burgess Hill began to attract residents who would commute to Brighton for work[1]. Either side of the two World Wars, Burgess Hill saw steady residential development and remains one of the fastest growing towns in West Sussex with a population of over 30,600[2].

Economy

With good links to Brighton and London, Burgess Hill is a commuter town with many residents travelling out of the town for work. Indeed, data from the 2011 census demonstrates that whilst 53% of usual residents aged 16+ and in employment work within Mid Sussex District, only 29% work in Burgess Hill itself. Some 10% work in Crawley Borough, which includes the large employment site of Gatwick Airport whilst 9% commute to the cities of Brighton and London respectively[3].

Mid Sussex District has one of the lowest unemployment rates in the country and residents have above average earnings. Nearly 58% of Mid Sussex residents are employed in Groups 1-3 of the Standard Occupational Classification as managers, directors, senior officials, professional and associated professional and technical occupations. This is well above the average for the South East of 49% and West Sussex 47%[4].

1 Burgess Hill Town Council https://www.burgesshill.gov.uk/briefhistoryofthetown
2 Census 2011
3 Census 2011 WU03EW - Location of usual residence and place of work by metod of travel to work

Transport

There are two railway stations within the town; Burgess Hill, located on the eastern side of the town centre, and Wivelsfield, located in the neighbourhood of World's End in the north of the town.

The typical service from Wivelsfield Station is as follows:

- 2tph in each direction between Bedford and Brighton; and
- 1tph in each direction between London Victoria and Eastbourne, extended to Ore at peak times.

There are 10 cycle parking spaces covered by CCTV provided at the station front but there is no car park provided, other than two disabled car parking spaces. Bus stops are provided close by on Leylands Road which are served by approximately three buses per hour.

There is an extensive network of Public Rights of Ways (PROWs) in the countryside surrounding Burgess, which becomes somewhat more limited within the built up area, although the network remains slightly denser in the south western quarter of the town. Notwithstanding, footways are provided along the majority roads within Burgess Hill which facilitate pedestrian access across the urban area.

Policy

At a national policy level, the government's Cycling and Walking Investment Strategy (CWIS) (2017) set's out the following objectives:

- Double levels of cycling by 2025
- Reduce each year the rate of cyclists killed or injured on English roads
- Reverse the decline in walking activity, and
- Increase the percentage of children aged 5-10 who usually walk to school.

4 Mid Sussex Economic Profile 2018 MSDC

At a more local level and in addition to setting out the approach for maintaining, managing and investing in transport, the main objective of the West Sussex Transport Plan (2011-2026) is improving quality of life for the people of West Sussex. This will be met by the following targeted strategies:

- Promoting economic growth
- Tackling climate change
- Providing access to services, employment and housing
- Improving safety, security and health

In relation to the above, and in respect of walking and cycling in particular, the objectives of the West Sussex Walking an Cycling Strategy (2016-2026) are:

1. To ensure that cycling and walking are recognised as important travel modes and therefore part of the transport mix
2. To make cycling and walking the natural choice for shorter journeys (such as journeys to school), or as part of a longer journey
3. To reduce the number of cyclists and pedestrians that are killed or seriously injured on our roads
4. To support economic development by facilitating travel to work and services without a car
5. To reduce congestion and pollution by encouraging and enabling people to travel without a car
6. To increase levels of physical activity to help to improve physical health
7. To help to maintain good mental health and staying independent later in life
8. To increase the vitality of communities by improving access by bicycle and on foot
9. To help people to access rural areas and enjoy walking and cycling

In the context of local authority policy, strategic objective 15 of the Mid Sussex District Plan relates to supporting healthy lifestyles and is to "To create places that encourage a healthy and enjoyable lifestyle by the provision of first class cultural and sporting facilities, informal leisure space and the opportunity to walk, cycle or ride to common destinations".

2. Design Principles and Relevant Infrastructure Design Guidance

Sustrans believes that active transport should be the obvious and easiest choice for local journeys and that highway and street design should reflect and encourage this. We strive to deliver infrastructure of the highest quality, with benefits for its users, their communities and the environment. Our work is rooted in industry best practice but reaches far beyond this into new thinking and innovative ways of working.

Design Criteria

The design of this route will aim to create attractive, safe and convenient walking and cycling facilities.

Segregation

The decision of whether to segregate different users is related to the impact of users with higher momentum on those with less; principally motor vehicles on cycles and cycles on pedestrians. West Sussex Cycling Design Guide outlines the minimum provision for cycle users in relation to motor traffic conditions.

Speed Limit	Annual Average Daily Traffic (AADT)	Anticipated peak hour number of non-motorised users per hour (either 1-way or 2-way depending on the Cycle Route Type)	Cycle Route Type	Desirable Minimum Effective Width	Absolute Minimum Effective Width
20 or 30 mph	Below 2,500	Any	Cycle friendly street design		
20 or 30 mph	2,500 - 5,000	<150	Cycle lanes (Mandatory or Advisory)* **	2.0m	1.5m
20 or 30 mph	5,000+	<150	1-way cycle track (including stepped cycle track)* **	2.5m	1.5m
		150-750		3.0m	2.5m
		>750		4.0m	3.5m
30 mph	5,000+	<150	2-way cycle track or shared path **	3.0m	2.5m
		>150	2-way cycle track (segregated from pedestrians) **	4.0m	3.5m
40 mph and above	Any	<150	2-way cycle track or shared path ***	3.0m	2.5m
		>150	2-way cycle track (segregated from pedestrians) ***	4.0m	3.5m

* Where the minimum width cannot be attained over the majority of its length, cycle lanes should not normally be provided, in such circumstances, and where demarcation of a route is deemed appropriate, the use of signing and cycle symbol logo patches located 1.5m from the kerb may be an alternative option.
** Light forms of cycle lane segregation, such as wands or armadillos, can also be considered.
*** Tracks on high speed roads should be separated from the carriageway by verge space or hedge. See 1.2.7.

Table 1 - Cycle facility specifications, West Sussex Cycling Design Guide

Where cycle and pedestrian numbers are low, shared provision can be sufficient and successful, but it is usually best to segregate cycles and pedestrians for the comfort and safety of both. Scottish guidance (Cycling by Design, Transport Scotland, 2011) provides a useful consideration of this requirement.

Table 6.1: Cyclist and pedestrian flow density

Combined density (users/km/m)*	Recommended arrangement
< 100	Shared use is usually appropriate (cycles give way).
101 – 199	Segregation may be considered.
> 200	Segregation should be considered.

Table 2 - Cycling by Design, Transport for Scotland

Figure 6.2: Indicative pedestrian flow densities

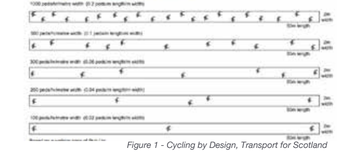


Figure 1 - Cycling by Design, Transport for Scotland

In practical terms, this would suggest that anything beyond a minimal pedestrian flow should be provided for specifically and shared use is appropriate only in areas away from residences and services likely to drive footfall.

The 'cycle design vehicle'

Highways England cycling design guidance, CD 195 uses a conceptual 'cycle design vehicle' 2.8m long and 1.2m wide in order to aid design for all path users. This is based on a 1.8m bicycle with a 1m trailer.

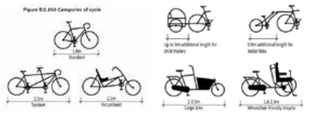


Figure 2 - CD 195, Highways England

Design Guidance

There is a library of useful design guidance available in the UK that helps to inform and direct our work. Below is a list of some of the guidance we will refer to:

- West Sussex Cycling Design Guide - A guide for Developers, Planners and Engineers (2019)
- CD 195 'Designing for cycle traffic' (formerly IAN 195/16) – Highways England
- Designing for walking - CIHT
- WSCC Guidance and Equestrian Guidance
- Inclusive mobility – DfT
- Manual for streets – DfT

It is however noted that in retrofit locations it might not always be possible to achieve minimum widths recommended in the Guidance and it may be necessary to compromise.

Greenways

Sustrans has a long history of delivering off road paths, often referred to as Greenways, with the standard design of these developing and improving over the years. In general terms, these seek to achieve routes that provide an opportunity for people to not only connect between places by non-motorised means, but also to have an accessible means to access the countryside whatever their ability, along attractive 'linear country parks' with a strong sense of place to enable all to enjoy the natural environment.

	Shared use	Separated use
Absolute minimum	2.5m	4.5m
Desirable minimum	3.0m	5.0m

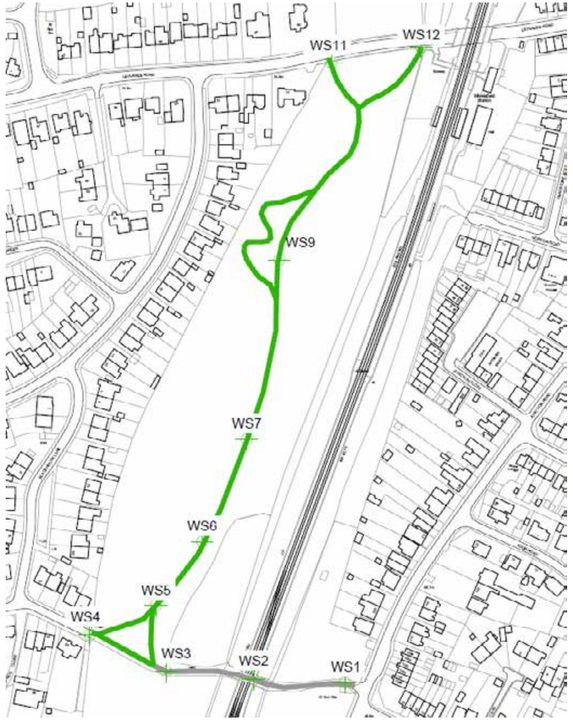
Table 3 - Recommended effective widths of shared use routes, Traffic free routes and Greenways design guide, Sustrans

Ecology

Sustrans delivers ecologically sound projects, seeking to deliver net biodiversity gains through our work. Ecological enhancements improve access to, and engagement with, nature for route users as well as create a positive impact on the quality and attractiveness of the route itself and are therefore a key part of our design approach. We also recognise the value of wildlife to the local community and seek to work with local stakeholders in identifying and delivering any enhancements.

Equestrian Use

Where horse riders are likely to interact with walkers and cyclists, on bridleways for instance, it is important to take the needs of this unique group into consideration. Highways England document CD 143 'Designing for walking, cycling and horse riding' provides useful guidance and the British Horse Society have a range of useful leaflets and guides relating to route design.



3. Design Overview


WS1 - Existing barriers at Junction Road


WS2a - Existing conditions on the railway bridge


WS2b - Bollards on the approach to the bridge


WS2c - Longitudinal cracking of the path

3.1 Route Corridor Assessment

The Wivelsfield Station Area Access and Connectivity Scheme can be broadly defined by two sections; one is an existing traffic free, east-west link between Junction Road and St. Wilfrid's Road which requires upgrading. The other section is a north-south link which involves the creation of a new shared cycle/ footway on an area of open space and through woodland, connecting the east-west link to Leylands Road to the north.

The section of the route between Junction Road including the Junction Overline Bridge is considered in the Townwide Walking and Cycling Strategy (Route 16).

General principles are that the path should be upgraded throughout by raising path level above existing surrounding levels and surfacing with neutral bonded gravel, ensuring a minimum width of 3m. Where levels are very low, create drainage ditches beside the path to provide enhanced attenuation and soak-away features as required.

A map showing the opportunities of the route can be seen in Section 4, and some example images in are shown in Appendix 1.

Junction Road to St. Wilfrid's Road

Existing conditions

There is a slight uphill gradient on the section from Junction Road to Junction Overline Bridge.

The path is currently narrow - less than 2m, with encroaching vegetation on both sides.

The path surface is of poor quality with longitudinal cracking in some places.

The Junction Overline bridge, a Network Rail asset, has metal bollards on the approaches which are unattractive and do not appear to serve a purpose. While the parapets have fencing attached to them which exceeds the 1.4m minimum height recommended, they are unattractive and there is a sense that the area has room for improvement aesthetically.

There are a few lighting columns along the route.

Towards the west side, near St Wilfrids Road, a damaged metal fence runs adjacent to the open green space, with a metal field gate and two metal kissing gates, making the green space inaccessible for some users. There is a dog waste bin and litter bin next to the fence.

A single demountable bollard is placed in the centre of the path at the western extent, with a concrete bollard and wooden post either side.

The route currently isn't used for vehicular access and it is not a PROW.

It appears that cycling is not currently permitted on the route. Despite this the route currently experiences high levels of use by cyclists.

Barriers to active travel

At the eastern extent at Junction Road there are two metal barriers, making the route inaccessible for some users. This may prevent certain users with adapted cycles from accessing the route.

Furthermore, the existing kissing gates linking the green space and bollards along this route adds further constraints to the accessibility of the path.

The existing path is narrow with poor quality surfacing in places. This can reduce the comfort and perceived safety of the route. This is exacerbated at night time due to the limited existing lighting along the route.

It is understood that a Traffic Regulation Order is in place preventing cycling on this route (Refer to image WS2d - MSDC sign).

Recommendations

Generally widening to a 3m minimum by cutting back vegetation and resurfacing. Improve/ upgrade the lighting and install signage.

WS3 Remove the existing metal fencing and gates to open out the whole area, enabling access for all users travelling north towards the station.

WS4 Remove the existing bollards and replace with single demountable bollard. Opportunity to incorporate gateway feature to mark the start of the route.


WS2d - MSDC sign preventing cycling


WS3a - Fencing between path and green space


WS3b - Kissing gate access to green space


WS4 - Bollards at St Wilfrids Road path access

St Wilfrids Road to Leylands Road (north-south link)

Existing conditions

This area of green space comprises sections of open space, with some dense wooded areas. There is currently no formal path, although desire lines are visible for some stretches, where dog walkers and pedestrians currently pass throughl. Some of the wooded sections become waterlogged during winter months.

Access onto Leylands road is through a kissing gate to the west of the station and existing signalised crossing, which is to be relocated as part of a parallel scheme. This is often inaccessible due to drainage issues. An informal access onto Leylands Road closer to the western Wivelsfield station entrance seems to have been created adjacent to the fence line.

Barriers to active travel

There is no existing formal path along this route, and much of the area experiences flooding during winter months. This can make the path impractical or inaccessible for users, particularly during the winter.

The route currently has no lighting, which is likely to be a barrier to users.

Exposed tree roots are seen close to the desire lines through much of the wooded sections. This can make accessibility difficult in addition to being a trip hazard for users.

The section of the route closest to Leylands Road has significant gradients. This makes the route extremely difficult to use for some users. At times there is no functioning formal access to Leylands Road due to the tendency for flooding at the kissing gate.

Recommendations

A new walking and cycling path is proposed through this section of green space to the west of the railway line and south of Leylands Road. Generally, the path should be 3m-4m wide, with appropriate lighting and a sealed surface.

WS5 Construct two paths which tie in to the east-west link to the south discussed above, which merge to form a triangle shaped area, bounded by the paths. It is recommended that this is used as a placemaking opportunity. This may include a natural play feature for children, a wildflower meadow or wildlife area which may incorporate seating.
Further stakeholder consultation will be necessary to determine the best use for this space.

WS6 No-dig path construction for root protection through the wooded area to follow the desire line. Incorporate SuDs features.

WS7 Path construction through the open space. Placemaking opportunity; it is recommended that benches and resting places are incorporated here. Additional features may be included which may be decided upon further stakeholder engagement.

WS9 Path construction continues through wooded area and emerges into another green open space, at which point it is recommended the path diverges into two paths; one direct path, and one longer, less direct meandering path with a shallower gradient. Subject to review of topographical survey to assess existing gradient. It is recommended that benches and/ or other placemaking features are installed in this area.

WS11 Path ties in to Leylands Road (west). New path construction along desire line and existing gate to be replaced.

WS12 Path ties in to Leylands Road (east). Exact location to be confirmed as the existing crossing on Leylands road is proposed to be upgraded and relocated further east, nearer to Wivelsfield station entrance as part of a parallel scheme (Refer to Section 5.5 Parallel Works). It is recommended that the new path also ties in directly to the station forecourt, to avoid users needing to use the narrow shared use footway to access the station. However, the feasibility of this will be largely dependent on parallel schemes.


WS5a - Desire line through open green space


WS5b - Open green space with existing fenceline


WS6a - Wooded section of the route


WS6b - Flooding along a wooded section


WS7 - Open section of the route


WS12b - Wivelsfield Station entrance


WS9 - Steep section of the route


WS11 - Existing access gate onto Leylands Road


WS12a - Informal access onto Leylands Road

3.2 Placemaking and Art

The route will be designed using the principles of placemaking; an urban design technique used to create a place with a strong identity or a memorable route, engaging successfully with its surrounding buildings, natural environment and associated activities. It enhances the character of an area, combining surface materials, planting, furniture, lighting and art to provide an attractive place.

'A route designed using placemaking principles is more distinctive and legible. The more attractive and legible a route is, the more people will use it, and return to use it as part of their day to day journeys.'

In relation to this route, the project will consider:

- Surface materials, texture and colour
- Planting
- Seating
- Art and Sculpture
- Water and water features
- Lighting
- Legibility and wayfinding
- Accessibility for users
- Access points
- Crossing points

Additionally the project will aim to:

- Conserve and enhance the existing ecological value of the route
- Improve water management along the route to reduce likelihood of flooding, using Sustainable Drainage systems (SuDs)

Seating artwork by Katy Hallett, Bristol

3.3 Barriers

Restrictive barriers can be problematic for many legitimate path users, particularly for mobility impaired users and family groups. Design should presume against the use of access control; however, where it is needed, a simple arrangement of bollards, either as a single or staggered where speed is a concern, with 1.5m minimum clear spacing, is an effective way of prevent unauthorised access without negatively affecting legitimate path users.

Centrally placed bollard

A centrally placed bollard presents no significant issues to legitimate path users whilst staggered bollards can be used to introduce horizontal deflection for cyclists without creating undue delays or conflict.

Staggered bollards

3.4 Dig Once - Auxiliary Ducting

Path construction presents an opportunity to carry out works on the same alignment that will either add value to the project, 'future proof' the path or avoid additional construction and disruption in the future.

The design will include opportunities to implement this approach, and engagement is ongoing to ensure coordination between the Place and Connectivity Programme and Full Fibre projects. Additionally, auxiliary ducting should be considered to support future schemes and growth and could be utilised for lighting, electric charge points, digital wayfinding and the like. Auxiliary ducts and chambers should be located in such a way that they are easily identified and that future maintenance will disrupt the structure of the path as little as possible.

3.5 Lighting

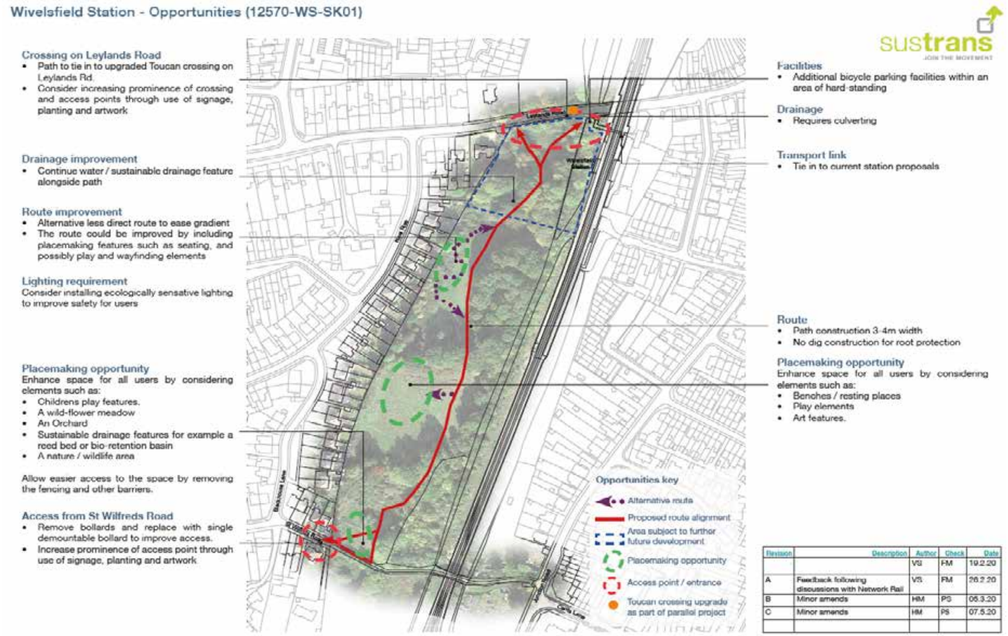
Sustrans recommends that utility cycling and walking routes are lit to improve visibility and reduce issues of personal security and perceptions of safety, in order to encourage greater numbers of users and to assist in modal shift away from motor vehicles. This is particularly important in key commuter routes that are likely to be used throughout winter during the hours of darkness.

Appropriate provision of lighting should be considered as a future phase of the route development. Where continual lighting of a route is not desirable or possible, consideration should be given to lighting at key junctions, locations and access points.

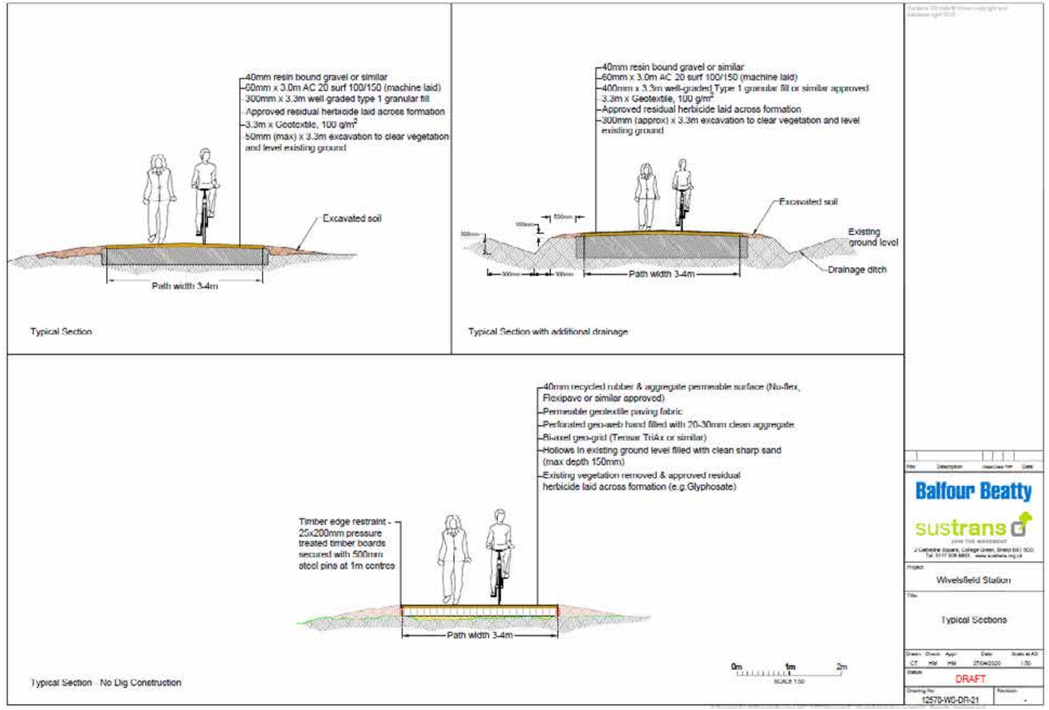
Where ecological concerns regarding lighting exist, products including low level down lights and inset stud lights are available that allow for appropriate lighting of the path and help to produce a pleasant environment.

4. Route Review and Initial Design Concepts

This plan was developed following a site visit and assessment of the Wivelsfield Station area. It highlights the opportunities for pedestrians and cyclists along the route.



Below are typical cross sections to illustrate path construction. (Note: path surface specification indicative. To be agreed during design phase.)



5. Data and Constraints

5.1 Flood Maps

Environment Agency flood mapping for the area shows that there is minimal risk of flooding in the area of Wivelsfield Station.

5.2 Land Ownership Information

The site is under ownership of Network Rail and leased to Mid Sussex District Council (MSDC).

5.3 Surveys

5.3.1 Topographical Surveys

Topographical surveys are being commissioned and will form part of the design phase of the project.

5.3.2 Geotechnical Surveys

Limited superficial geological information is available and geotechnical surveys and interpretive reports are not available and have not been carried out. Where required, these will be undertaken in the design phase of the project.

5.3.3 Ecological Surveys

Preliminary Ecological Surveys are in the process of being commissioned at the time of writing, and are anticipated to be complete in Spring 2020, in time for any follow up surveys to be carried out in the 2020 survey window

These are likely to be take place concurrently with the final design phase of the project. The consequential ecological risk is acknowledged, and mitigations will take place as necessary.

5.4 Utilities / Statutory Undertakers Information

Preliminary inquiries (C2) have not been undertaken at this time and will form part of the design phase of the project. Buried and overhead utilities are not anticipated to place substantial constraints on the project.

5.5 Parallel Works

There are proposed parallel works for improvement of the Wivelsfield Station area. These include improvements to Leylands Road, and proposed station accessibility improvements (step free access) south of Leylands Road and west of the platforms. Coordination will be required to ensure that the schemes complement each other.

6. Conclusions and next steps

This feasibility study provides recommendations for the Wivelsfield Station Area Access and Connectivity Scheme, which Sustrans believes to be a deliverable scheme to provide a multi-user route connecting Wivelsfield Station to St Wilfrids road and Junction road to the south, helping to support the sustainable growth of Burgess Hill. If key stakeholders agree that development of this alignment should continue, then a number of steps will be required to progress.

Planning

A planning application may be required before any construction work can commence, as a requirement for installing the full fiber ducting network. Exact details of this are to be established at the next phase.

Ecology

A preliminary Ecological Assessment (PEA) is currently being commissioned. The findings of this assessment will dicate whether any further investigation required.

Any tree works need to be undertaken outside of the bird nesting season (end of March to beginning of October).

Detailed Design

Should the proposals in this report be deemed deliverable then detailed designs will need to be produced. Although much of the route will be straightforward to deliver in engineering terms, there are locations where detailed surveying and engineering designs are required.

Maintenance Management Plan

If there is not already one in place, it is recommended that a Wivelsfield Station Access Management Plan is produced to address the ongoing maintenance required to keep the route accessible all year round, and to enhance the biodiversity of the route through specific maintenance regimes. This could be produced in collaboration with relevant stakeholders.

Appendix 1: Example Images


Widen crossing on Leylands Road


Wildflower meadow


Entrance


Swale


Log seating


Artwork


Small ponds


Natural play features


pond dipping


Orchard


Signage