

# E4 Phase 5: Pennsylvania Close to Stocker Road

Proposals from the Exeter Cycling  
Campaign

May 2020



# Contents

<b>Proposals from the Exeter Cycling Campaign</b>	<b>1</b>
<b>Contents</b>	<b>2</b>
<b>About this report</b>	<b>4</b>
<b>Context</b>	<b>5</b>
<b>Design Principles</b>	<b>6</b>
Maintain consistency of design with the rest of the E4 route	6
Design with a view to building a city-wide network of cycle paths	6
Get the priorities right	6
Adopt best practice guidance	7
Design for an increase in cycling numbers	7
Speed Limit	7
Sense of Place	8
<b>Challenges and Considerations</b>	<b>9</b>
University proximity and density of people walking	9
No safe pedestrian crossing across Pennsylvania Road	9
Stocker Road Junction	9
HGV access	10
Adjoining cycle paths and side roads	10
Spatial Considerations	11
Car Parking on Prince of Wales Road	12
Two-way or one-way cycle paths	12
Hoopern Fields Exit/Entrance	13
<b>Proposals</b>	<b>14</b>
Core Design Proposals	14

Option 1: Bi-directional Cycle Path	15
Option 2: Single Carriageway	16
Option 3: Option 2 + One Way	17
Option 4: Cycle path through southern edge of campus	18
Junction Proposals	19
Hoopern Fields Exit / Entrance	19
(Applicable to All Options)	19
West Avenue Shared Path & St.Germans junction	19
Lower St.Germans Rd and Hoopern Lane	22
Lower St.Germans Rd	22
Family Centre	22
Stocker Road Junction	23
Additional Proposals	24
Move pedestrian traffic-light crossing west to align with Hoopern Field junction	24
Traffic lights Union Road/Pennsylvania Road	24
Remove car parking on Prince of Wales Road	25
20 mph zones	26
<b>Conclusions and Recommendations</b>	<b>27</b>

# 1. About this report

The Exeter Cycling Campaign are pleased to respond to Devon County Council Transport Team's invitation to make proposals for Phase 5 of the 'E4' strategic cycle path: from west of Pennsylvania Road to Stoker Road.

The Exeter Cycling Campaign's vision is that the city is made accessible for people of all ages and abilities, using all forms of bike, to travel on safe, convenient and connected cycle paths. Significantly increasing the cycling modal share plays an important role in addressing climate breakdown, reducing pollution, alleviating congestion and making our city more liveable

This report contains our view of the challenges faced and possible solutions for extending the E4 strategic cycle path west from Union Road. It is deliberately ambitious and visionary: describing what needs to be built to make it safe for people walking and cycling. It's purpose is to challenge DCC and their design contractors to draw upon world-best-practice and prioritise the movement of people by foot and bike above the private car.

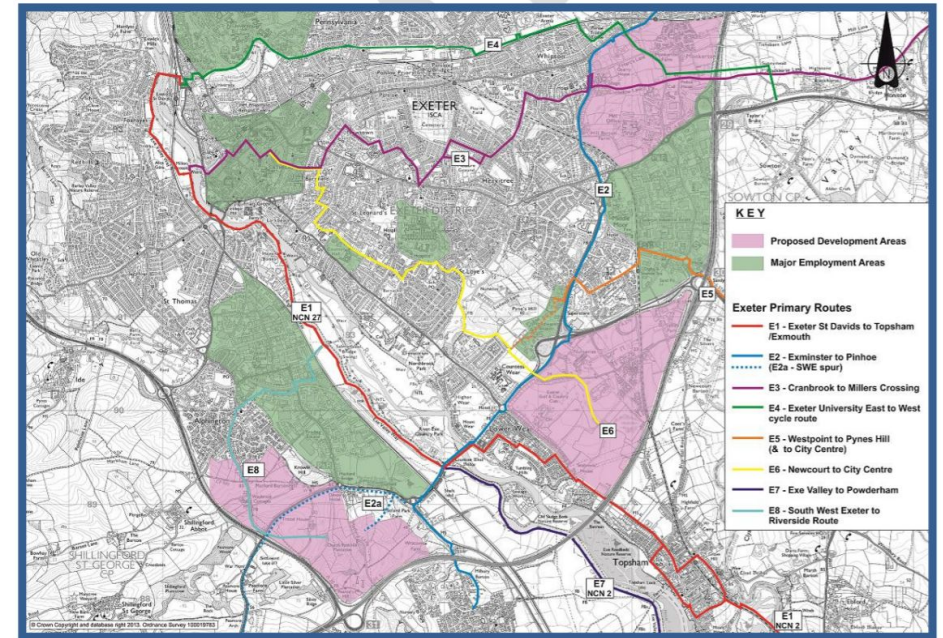


## 2. Context

Since the approval in 2015 of the [Multi-Use Trail Strategy](#) Devon County Council have been working to deliver the strategic cycle paths promised in this strategy. Over the last five years the E4 route has been developed from the east of the city. Phase 5 of this route covers the path west of Pennsylvania Road, along Prince of Wales Road to the University entrance at Stocker Road.

Devon County Council has stated that the E4 route should set the standard for good quality design of cycle paths in the city. To that end our proposals are, as far as possible, for protected cycle paths, separated from both vehicular and foot traffic.

These strategic cycle paths form the backbone of what the Exeter Cycling Campaign hopes will become a dense network of connected paths across the city.



### 3. Design Principles

The following are the design principles that should shape the development of the E4 Phase 5.

#### **Maintain consistency of design with the rest of the E4 route**

Avoid an ad hoc mix of different types of paths and junctions: a continuous approach makes a route legible and easier to navigate.

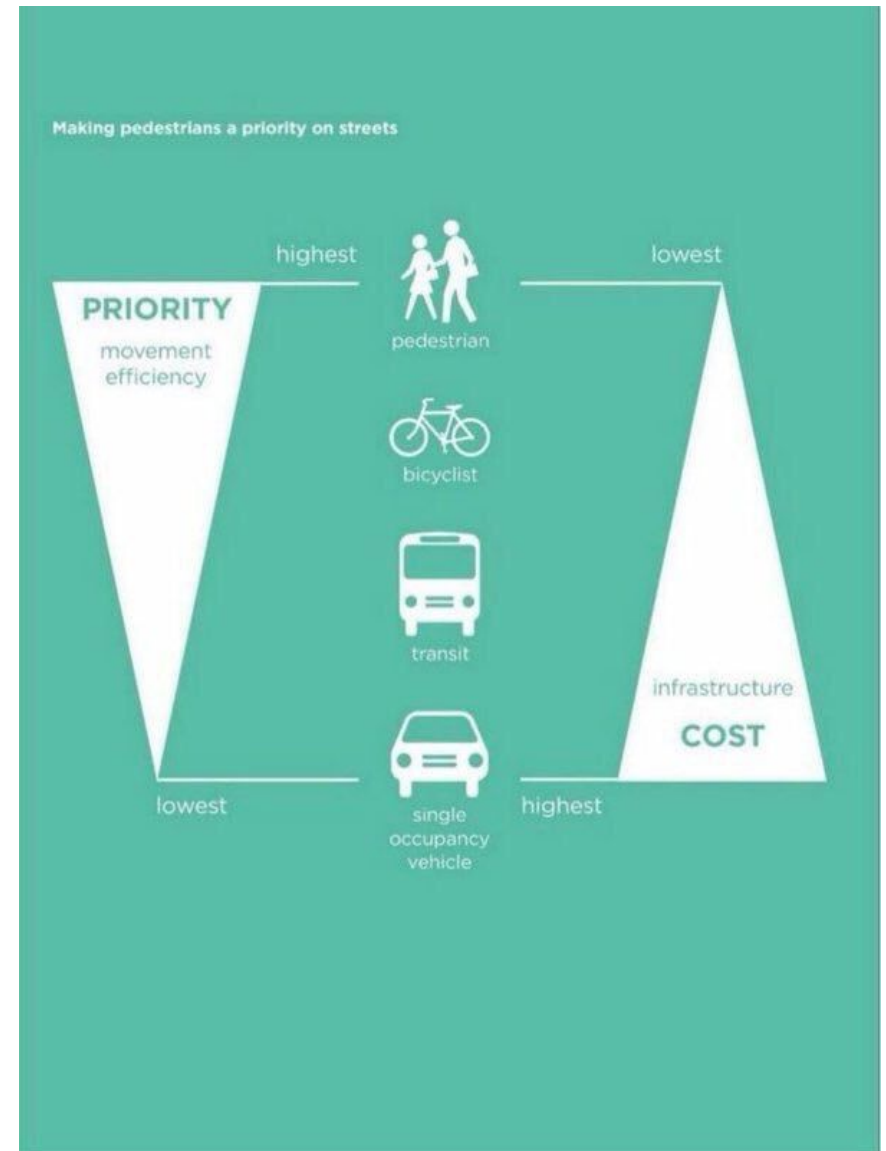
#### **Design with a view to building a city-wide network of cycle paths**

Modal shift away from private cars and onto bikes is best achieved when people have a dense network of cycle paths across the city. Such a network is what the [DfT's LCWIP guidance](#) suggests (paras 4.1, 5.2 and 6.28). The design of this part of E4 must therefore be mindful of existing and new links into a wider cycle network.

#### **Get the priorities right**

The transport hierarchy (see diagram) must be adhered to in designing E4. This is particularly important at this location because of the high volume of pedestrians. The design must be fully accessible to all, including wheelchair users and those with non-standard bikes. Active modes of transport (pedestrians and cyclists) are the most important.

Dropped curbs should be strategically placed to ensure safe crossing points for those in wheelchairs and those crossing on bikes to reach destinations on the opposite side of the road.





## Adopt best practice guidance

Whilst we await the long-promised update to the Local Transport Note design guidance the E4 design should be informed by best practice design guidance such [London Cycling Campaign's design guidance](#).

## Design for an increase in cycling numbers

Both Exeter City Council and Devon County Council have committed to quickly making our city and county net carbon zero. Since transport is the highest carbon-polluting sector we will need to see large modal shifts to cycling. The Covid-19 lockdown creates the possibility of building the city for reducing private car use. The E4 route therefore needs to be designed to accommodate three to four times more journeys by bike than are currently made, to anticipate fewer private car journeys and be able to accommodate electric scooters as a possible transport mode. Even without any modal shift there is expected to be an overall increase in pedestrians and cyclists as the university continues to grow, in line with it's long term plan.

## Speed Limit

The 20mph zone that currently ends at the Pennsylvania Rd/Union Rd junction should be extended along the Prince of Wales Rd and Union Rd. The design of the road needs to reinforce this speed limit.

A full destination analysis should be completed to ensure cycle parking is included in the designs where it is likely to be used. Where possible residential areas should also be provided with secure cycle parking options.



## Sense of Place

Good design is about more than just infrastructure. Building a sense of place is about considering the journey along that infrastructure, and a pleasant environment enhances the experience for those travelling through it. This is particularly important to consider in this area given the nature of the approach to the university.

The existing setting provides a very green and, in places, open environment with which to work. The university provides a major focal point as a key destination in the city and attracts large numbers of visitors as well as growing student and staff numbers.

The Exeter Cycle Campaign feel some key areas to consider are; how the entrance to the university is revealed on approaches, how much mental effort is required to navigate and follow the infrastructure, how naturally linked into the wider city it feels, and how the green nature of the area can be enhanced and enjoyed.





## 4. Challenges and Considerations

The Campaign has reviewed the current highway between Pennsylvania Road and Stoker Road and noted the following challenges that need to be considered when building the E4 Phase 5.

### University proximity and density of people walking

The signed-E4 route currently follows the southern boundary of the University of Exeter. High volumes of young people use these streets. At peak times (around 08:30hrs and 17:00hrs) pedestrians are the dominant mode of travel here (and need to be better accommodated). Furthermore, the nature of the campus means students access/egress the site at all times of day.

### No safe pedestrian crossing across Pennsylvania Road

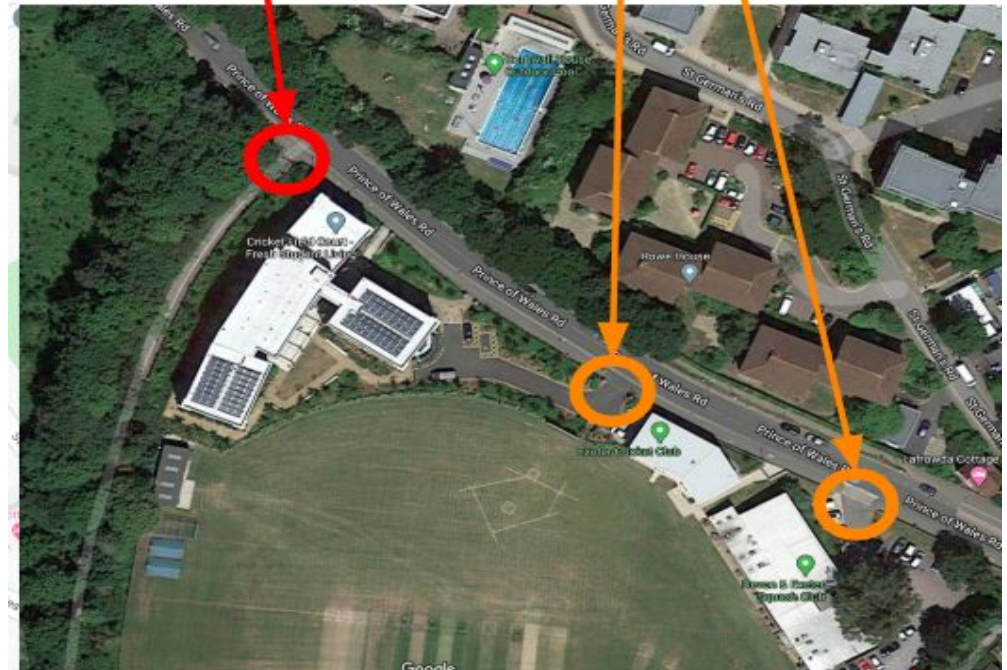
Despite the high volumes of people walking on the north side of Union Road and Prince of Wales Road there is no controlled crossing for pedestrians across the southern end of Pennsylvania Road. There are poor sight lines for pedestrians on this crossing. This needs to be rectified.

### Stocker Road Junction

This junction sees high volumes of people walking to/from the university campus. Currently the cycle/foot path to the east of Stocker Road junction does not work to keep these modes of travel separated because of the high volume of people walking and the ambiguous end of the cycle path.

High volume traffic cycle and pedestrian junction – currently poorly designed for non-standard bicycles

Low volume junctions for all types of traffic



Cycling east along the Prince of Wales road the crossing of Stocker Road is difficult to read, with fading paint and an ambiguous path to follow.

## HGV access

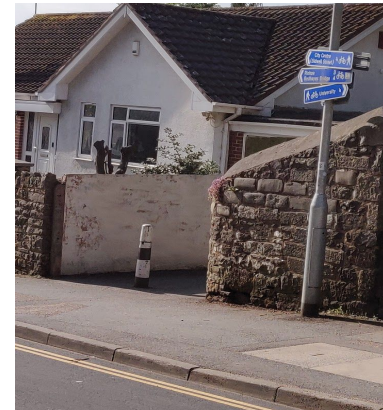
The Coop foodstore further south along Pennsylvania Road is served by articulated lorries that access along Union Road. Whilst this access is normally restricted to early mornings the design of the E4 infrastructure needs to allow for this to continue safely.

The university requires regular HGV access, not only for deliveries but also ongoing construction and expansion work. As well as using the main entrances, university construction traffic frequently comes east along Prince of Wales Rd to access St.Germans road from Pennsylvania Rd.

## Adjoining cycle paths and side roads

There are cycle and footpaths that feed to/from this E4 route which need to have safe, accessible junctions built.

In particular, the shared-use cut-through to West Avenue is an important link for people walking and cycling as are Lower St.Germans Rd and Hoopern Lane. At the western end of the section, the dual use link at Hoopern Fields towards the clocktower receives significant traffic and forms part of the Green Circle walking trail. The entrances to the University's family centre are currently designed to give ease of access for cars crossing the footway, despite the volume of pedestrians.



## Spatial Considerations

The proposals in this document have considered the spatial constraints of this highway.

We note that:

- From Pennsylvania Road west to Lower St.Germans Rd the highway width is between 13.18m to 15.48m. From Lower St.Germans Rd to St. Germans Rd junctions the width increased to between 14.81m and 18.93m (with a narrowing at Hoopen Lane junction to 12.07m).
- Between St.Germans Rd junction and Cricket Field Court the width is between 12.30m and 14.37m.
- The narrowest part of the highway is between Cricket Field Court and where the wooded area pulls away from the highway on the south. The widths here are between 11.63m and 12.28m.
- With the current car parking on the highway west of Cricket Field Court the current usable width for vehicular traffic is 4.9m
- We also note that the Cowley Bridge Road carriageway (an 'A' road) reaches a minimum of 5.82m in places, which is reduced to 4.67m in places because of parking. Furthermore, Polsloe Road is reduced to less than 4m (excl. pavements) in places (because of car parking).
- From DfT guidance we deduce minimum widths are:
  - Bi-directional traffic: 5.5m
  - Bi-directional cycle lane 3.5m
  - Pavements : 2m
  - Share-use path: 3.5m



Figure 7.1 Illustrates what various carriageway widths can accommodate. They are not necessarily recommendations.



## Car Parking on Prince of Wales Road

The spatial constraints of Prince of Wales Road mean that to be able to create space for people on foot / bike parking along Prince of Wales Road parked cars will either need to be removed or to be left to help create a single carriageway along the narrowest park (near Cricket Field Court).



## Two-way or one-way cycle paths

In common with the design of E4 along its length careful consideration needs to be made to the benefits / disbenefits of a two-way or one-way cycle path.

We note that two way cycle paths require less overall width than two, one-way paths; they better facilitate overtaking for cyclists and require engineering and parking removal on only one side of the highway. However, junction design to allow safe access/egress of cyclists to the path can be more challenging. Furthermore, junction design needs to ensure car drivers are aware of cycle traffic in both directions.

Limited space and continuity with the design of the rest of the E4 route suggest a bi-directional cycle path might best suit the Phase 5 E4 route. There is some learning from the Cumberland Way bi-directional cycle path that should be considered when designing E4 Phase 5:

- There should be provision for access to the cycle path along its length and not just at each end. The Cumberland Way path suffers from, for example, people cycling in from the B3181 being unable to access the path
- The kerb between the cycle path and the footpath should not be high and unforgiving. A lower kerb with a gentle gradient is sufficient to



protect people walking and provides a wider effective width on the cycle path.

- The kerb protecting the cycle path from the traffic lane could benefit from having a cycle-facing profile of 45 degrees to allow for a wider effective cycle path.
- Protecting the cycle path is imperative to make it safe for people of all ages to use. However, an unbroken kerb protection along its entire length may not be necessary. Kerbs with some spacing or interlaced with bollards may be sufficient and would allow access to / from the cycle path along its length.
- Cobbled surfacing next to crossings is of questionable benefit. It might have use in ensuring people cycling don't cut the corner at a signalised junction but it acts to funnel people cycling into the same narrow crossing as pedestrians, creating a conflict point.



## Hoopern Fields Exit/Entrance

The new junction of the shared-use path along Hoopern Fields onto Prince of Wales Rd requires further attention. There needs to be more space for exiting and entering, particularly when using non-standard bikes.

Sight lines need attention at this junction. There is the potential to consider moving the boundary fence to the west to improve visibility. Consideration should be given to adding give way lines for cycles joining the path / road.





## 5. Proposals

The Exeter Cycling Campaign has taken the section of road from Hoopern Fields to Lafrowda Cottage as indicative of the overall route - encompassing the narrowest section of road. The designs on this section can be extended along the whole route. In addition we have considered key junctions locations along the remainder of the route individually but fitting with the themes established on the core section.:

### **Core Design Proposals**

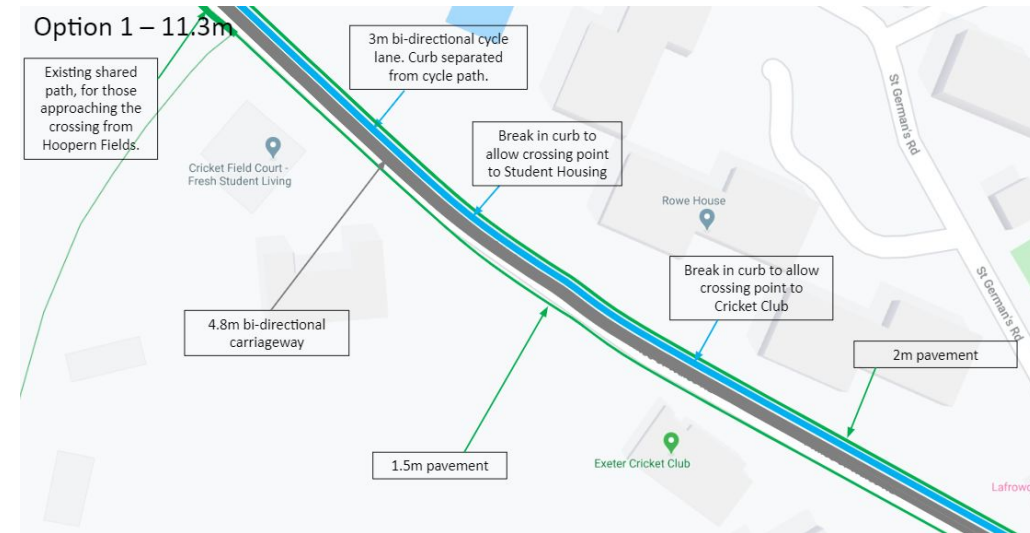
Hoopern Fields to Lafrowda Cottage

## Option 1: Bi-directional Cycle Path

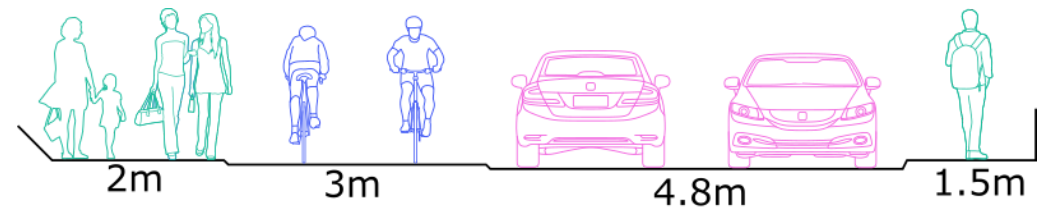
Bi directional cycle path located between the pavement and the carriageway to the northern side of Prince of Wales Road. Pavement only to the South between the Hoopern Fields turning and Lafrowda Cottage. Remove on-street parking to allow for pavement widths.

At the narrowest section reduce to 4.8m carriageway (lorries will be unable to pass but will have a sight line) with a 2m pavement and 3m cycle track to the north, 1.5m pavement to the south (fitting within the 11.5m pinch).

Consideration should be given to reclaim additional width from the verges in the narrowest sections to add width to the foot, cycle and possibly carriageway.



Pros	Cons
<ul style="list-style-type: none"> <li>• Bi-directional cycleway and road.</li> <li>• Segregated footpath on north side of the road.</li> <li>• Less conflicts between cycles and pedestrians.</li> <li>• Does not require additional space</li> <li>• Potential for improved pavement on the busier northern side.</li> </ul>	<ul style="list-style-type: none"> <li>• Cyclists need to cross from the cricket club or student accommodation.</li> <li>• Does not prioritise pedestrians and cycles as provision is still centred around priority being for cars.</li> <li>• No dedicated crossings for student halls / cricket club (our assessment is that these are low volume junctions. The Campaign would not propose shared use path to access these facilities).</li> </ul>

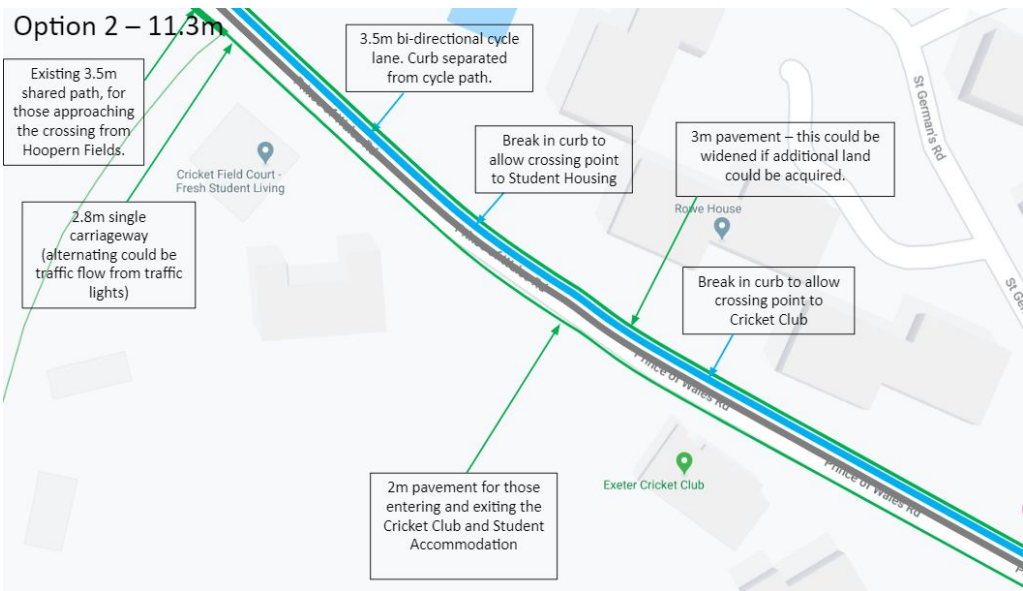


2014 Honda Civic to scale

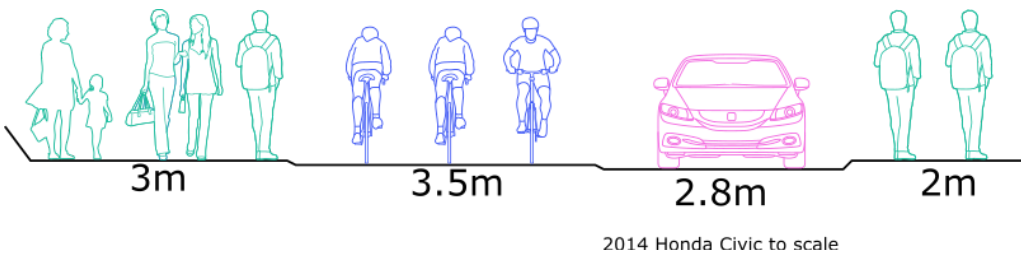
## Option 2: Single Carriageway

Bi-directional cycle path (3.5m) on the north side of Prince of Wales Rd.  
Single-carriageway for motorised traffic on the narrowest section between Hoopern Fields and the Cricket Club. Option to have the single-carriage traffic light-controlled. Increased width allows for wider cycle and pavement to the north and the inclusion of elements for aesthetic enhancement.

Pros	Cons
<ul style="list-style-type: none"><li>• Bi-directional cycleway and shared path on the opposite side.</li><li>• Segregated footpath on north side of the road.</li><li>• Road traffic can still travel in both directions; however flow will be slowed due to traffic light system.</li><li>• Does not require gaining extra land to fulfil optimum solution for active modes of transport.</li><li>• Ability for people to enter and exit all junctions on the North and South of the road safely.</li><li>• Prioritises active transport.</li></ul>	<ul style="list-style-type: none"><li>• There may be some traffic build-up; however as road users adapt, they will likely take other routes and/or use different methods of transport. Also with further measures likely being taken in the City Centre to reduce private vehicle use, this will have a positive impact on any build up of traffic in this area.</li></ul>



This is the Campaign's preferred option.



## Option 3: Option 2 + One Way

Create a one way section between Stocker Rd and St German's Rd.

Pros	Cons
<ul style="list-style-type: none"> <li>As Option 2 plus:</li> <li>No queueing traffic waiting for lights               <ul style="list-style-type: none"> <li>Less air pollution</li> <li>Less potential issues with long queues blocking junctions</li> <li>Less stop start traffic</li> </ul> </li> <li>Can tie into a wider traffic management plan</li> </ul>	<ul style="list-style-type: none"> <li>This option will restrict the flow of traffic in one direction. Careful consideration would need to be given to the reasons people travel along this road. People would still be able to travel both ways from New North Road to Stocker Road, however those using this route to the City Centre would need to remain on New North Road. Those travelling to the Pennsylvania area would need to travel on Cowley Bridge Road and turn right just before the bridges.</li> </ul>



## Option 4: Cycle path through southern edge of campus

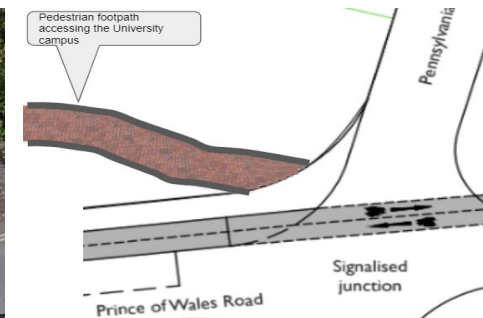
Work with the University to build a bi-directional cycle path through the southern edge of the university campus north of the Prince of Wales Road.

This requires less hard engineering to protect people cycling from cars on the Prince of Wales Rd and takes people walking away from the cycle and car traffic.

Foot path: at peak hours pedestrians (mostly students) are the most dominant form of travel along this highway. Consideration should be given to asking the University to create a better footpath link through the University campus to the Union Road / Pennsylvania Road junction. This would create a more direct path into parts of the University campus and lessen the pressure on the pavements along the Prince of Wales road. There are currently poor foot and cycle routes from the SE corner of the campus to the rest of the University buildings. Our analysis would suggest a path running near the southern boundary would be visually attractive through lightly wooded lawns and relatively straightforward to achieve



Pros	Cons
<ul style="list-style-type: none"><li>• Less hard engineering to protect people cycling from cars</li><li>• More pleasant route for both foot and bike users. Enhances the student experience (who currently have no direct route from Union Rd junction into the campus)</li></ul>	<ul style="list-style-type: none"><li>• Using University land may be a challenge</li></ul>





## Junction Proposals

### Hoopern Fields Exit / Entrance

#### (Applicable to All Options)

The junction to Hoopern Fields needs attention to make it accessible for all forms of bikes and wheelchairs and to improve visibility. The following needs consideration:

- Increase the spacing between the main and side gates by 0.5-1m
- Move the western boundary outwards including the fence post on the west side to allow more space for maneuvering non-standard cycles, mobility scooters, buggies, etc.
- Clearer Give Way markings for cyclists emerging from the junction onto Prince of Wales Road. Corduroy paving to reinforce the junction for cyclists before they cross the footpath running along Prince of Wales Road.



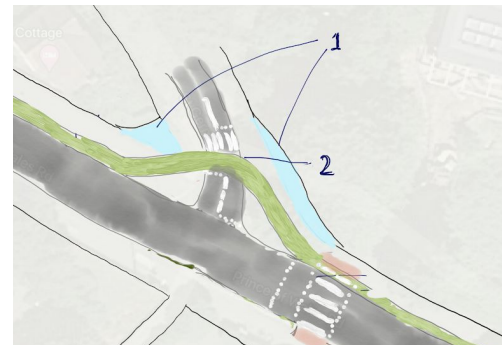
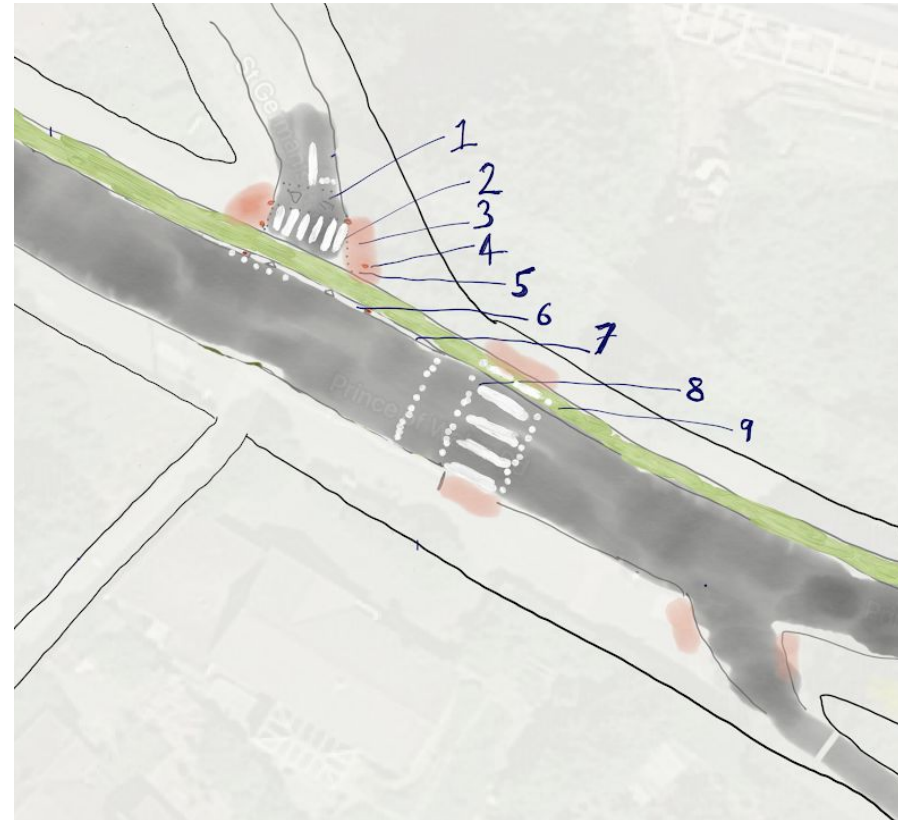
### West Avenue Shared Path & St.Germans junction

The present access to West Avenue is a popular link in towards the city centre for cyclists. St Germans Rd sees large numbers of students travelling through the area at present. To facilitate the bike lane on the northern side and to improve the facilities for Active Transport modes some modifications are suggested:



- Move the zebra crossing slightly nearer to the St.Germans Rd junction to improve the desire lines and reduce the length of path between West Avenue entrance and the crossing. (9)
- Insert a tiger crossing for cyclists alongside the zebra crossing (8)
- Improve the sight lines for people emerging from the West Avenue cut-through by lowering the wall and/or taking the corners back (although this may be beyond council control).
- Introduce a raised table junction at the level of the cycle path at St Germans Road (2), with textured pavements (3), bollards(4) and sufficient space on the cycle lane to allow non conventional cyclists (5). Small wedges (7) should bring the cycle lane back from the street edge enough for the required vehicle ramp (7). A gentler ramp can be used to the north (1)
- The bi-directional cycle path across the junction should have priority over traffic exiting this junction. This should be reinforced by Give Way markings for drivers approaching from St.Germans Road and Prince of Wales Road. (1)
- Remove parking along the north side of Prince of Wales Road to the west of the St.Germans Rd junction.
- Ensure the cycle path has wear-resistant colouring to clearly demarcate it as a cycle path.

To improve sight lines the cycle/footpaths across St.Germans Rd the path may need to be set back slightly from the straight desire line across the junction (2). This may demand taking space from the edges of St.Germans Rd (1).



## Lower St.Germans Rd and Hoopern Lane

If the shared use path to the south of Prince of Wales Rd is extended east to Pennsylvania Rd then this path should have similar treatment to ensure side road priority across Lower St.Germans Rd and Hoopern Lane.

## Lower St.Germans Rd

Lower St.German's Road is currently used by cars to avoid the Union Road / Pennsylvania Road traffic lights. Consideration should be given to restricting this traffic, such as making this a residents-only road to reduce traffic volumes.

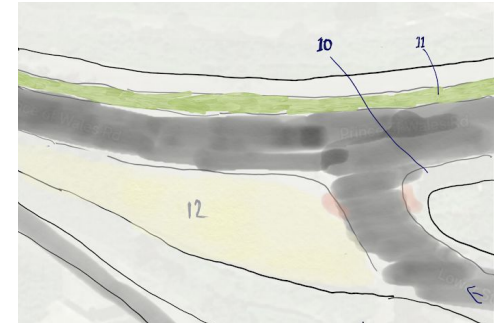
There is space to create a small parklet on the land between Lower St.Germans Rd and Hoopern Lane.

## Family Centre

The current design of the entrances to the University family centre have lowered kerbs and footpaths. This implies some sort of priority for motorised traffic across this busy pavement. These crossings need continuous foot and cycle path heights, coloured tarmac or textured surface to demarcate the foot/cycle path and have ramped kerbs for motorised traffic crossing these paths.

## Stocker Road Junction

Options considered for the Stocker Road junction included building a raised platform (similar to Barnfield Rd/Denmark Rd) or building a 'statement junction' for the university. Our proposal for this junction is to maintain the bi-directional cycle path on the north of Prince of Wales Rd.





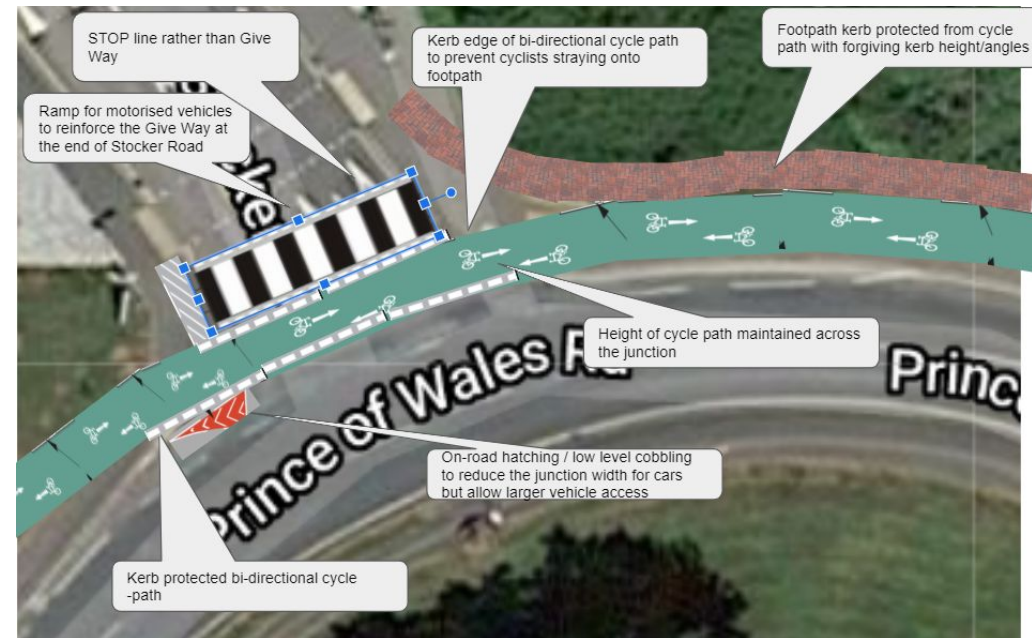
This junction is a point of conflict for people walking / cycling. Additional space for people walking should be made by widening the footpath (possibly into the University land).

Cyclists should have priority across the Stocker Rd junction and this should be reinforced with tiger crossing markings, wear-resistant tarmac crossing and maintaining the cycle path height (with ramp for cars crossing the cycle path).

The ambiguity about priority for people walking / cycling at the Stocker Rd junction needs to be removed so that these modes remain separated at this busy junction. The cycle route into the university should be highlighted so that it is easy to locate and follow.

Other considerations:

- provide on-road low level cobbling (e.g. Souden Lane, Lympton) to reduce the turning radius for cars turning left from Prince of Wales Rd into Stocker Rd (still allows HGV to turn).
- The zebra crossing currently set back on Stocker Rd should be brought nearer the junction and run directly parallel with the
- Stop markings on Stocker Rd for motorised traffic to remove ambiguity about priority.



## Additional Proposals

### Move pedestrian traffic-light crossing west to align with Hoopern Field junction

All of the options presented above would be improved if the traffic light controlled crossing were moved from the current location just east of the Stocker Junction to (almost) align with the Hoopern Lane junction.

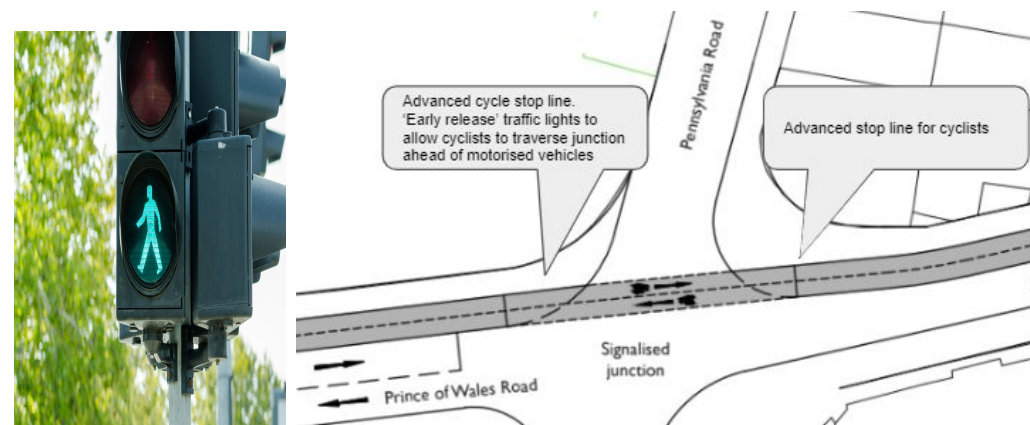
Pros	Cons
<ul style="list-style-type: none"><li>Reduces the need for a shared path on the south of Prince of Wales Rd to join Hoopern Fields junction with the crossing.</li><li>Allows access in both directions onto bi-directional cycle path</li></ul>	<ul style="list-style-type: none"><li>Traffic light crossing and junction design needs careful consideration to allow sufficient space and to ensure cyclists exit Hoopern Fields Lane safely.</li><li>Bi-directional cycle path on north of Prince of Wales may need to degrade to shared path at the north end of the traffic light crossing to allow pedestrian/cycle movement.</li></ul>



### Traffic lights Union Road/Pennsylvania Road

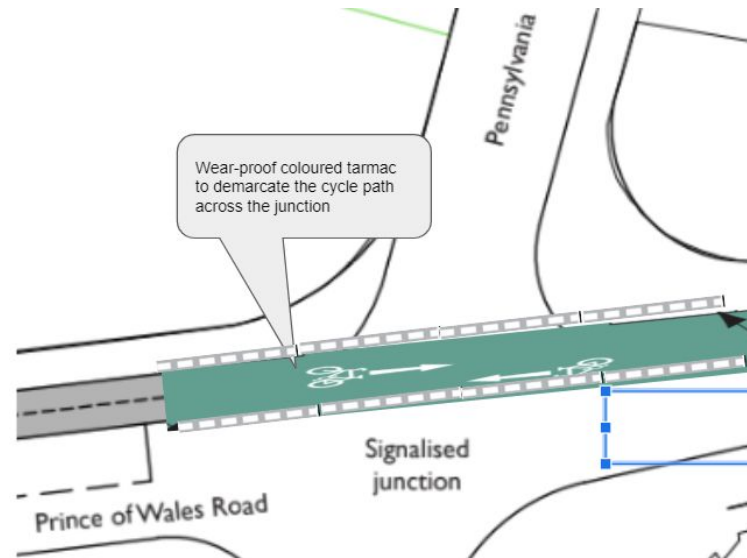
This report assumes that the E4 route along the Union Road allows for a bi-directional cycle path on the north side and that the road at the west end of Union Road is traffic-light controlled with lights at Devonshire Place junction.

Getting the design of the Union Road / Pennsylvania Road junction is key to maintaining the safety of people both walking and cycling. We would suggest the follow measures are implemented:





- People walking crossing the northern Pennsylvania Road arm of this crossing are given a traffic-light controlled crossing. This has been highlighted to the Campaign as a major issue for pedestrians at present, particularly given the poor visibility from the north western corner of the junction.
- People cycling across this junction are given 'early-off' traffic lights to enable them to traverse the junction before motorised traffic. This will enable cyclists collected at the traffic lights to then turn safely across the junction.
- The 'advanced stop' line for people cycling west from Union Road into Prince of Wales Road should be at the Pennsylvania Road junction
- The cycle path across the junction is demarcated with wear-free coloured tarmac and a clear boundary to indicate priority to the cyclist
- Consider allowing a 'simultaneous on green' light sequence to allow people walking and cycling in all directions to cross the junction. This could shorten the wait time at the lights for motorised traffic.



## Remove car parking on Prince of Wales Road

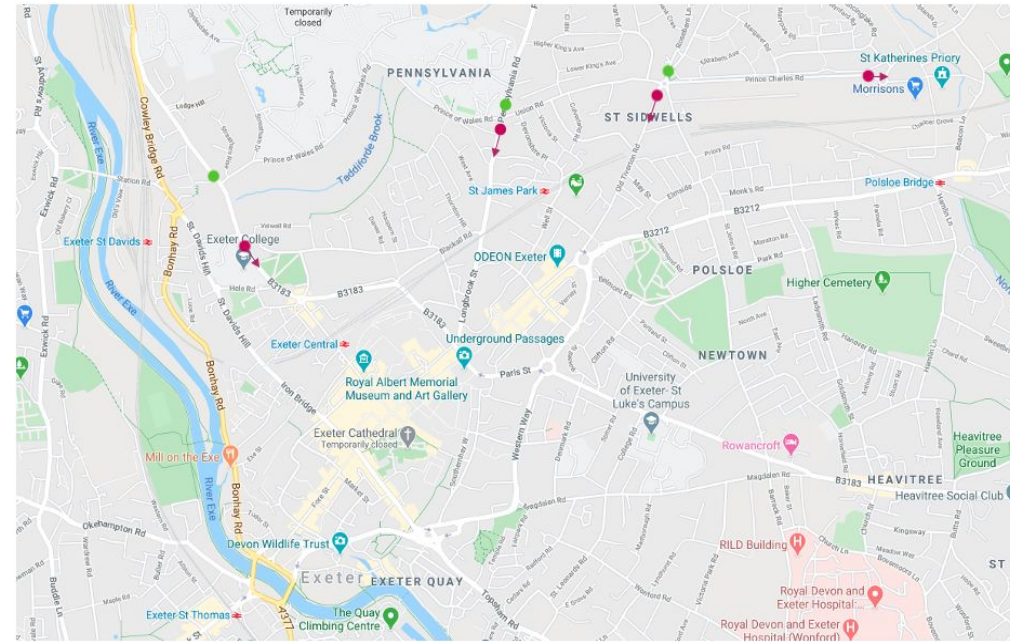
The proposals in this report require the remove of on-highway car parking on Prince of Wales road opposite squash courts and opposite Cricket Field Court. This creates more space for a bi-directional cycle path on this highway.



## 20 mph zones

Extend the 20 mph zones to include the E4 route.

- The pink dots in the map show where the 20mph zones currently begin, with arrows indicating the direction of entry into these zones.
- We propose that these zones are extended marginally in 3 specific areas in order to encompass the Prince Charles Road to University segments of the E4 route (as far as the green dots).



# Conclusions and Recommendations

There is space along the highway between Pennsylvania Rd and Stocker Rd for the proper provision of cycle paths and pavements.

The design of this part of the E4 route can and should be coherent with the rest of the route, with protected cycle paths and side road priority for active travellers.

The University should be invited to consider how their students' experience can be enhanced by opening up a foot path into the campus from Union Rd/Pennsylvania Rd junction and by clarifying the cycle entry / exit routes at Stocker Rd.

The Campaign's preferred option is to build a bi-directional cycle path on the north side of Prince of Wales Rd (option 2) with a wide footpath to cater for the high level of pedestrian traffic.

