

**Crediton Town Council**

# Crediton Traffic & Urban Realm Feasibility Study

**FINAL DRAFT**

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## Version Control and Approval

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## I Introduction

1.1.1 **Phil Jones Associates (PJA) are appointed by Crediton Town Council to prepare a Traffic and Urban Realm Feasibility Study in Crediton Town Centre. This builds on previous traffic and streets advice given to the Town Council, in the form of a Scoping Study.**

1.1.2 This study seeks to fully analyse the current traffic and urban realm conditions within the town centre and main approach roads. A future street design vision for the High Street which is based on clear aims and outcomes was then developed at a Street DEMONstration workshop with local stakeholders.

1.1.3 Through a process of strategy testing and street engineering, the study presents a series of conceptual designs for various parts of the High Street and its approaches. It is these areas where conflict is highest between motorised traffic and pedestrians and their relationship with the surrounding urban environment.

1.1.4 These study areas are listed below and shown on Figure 1;

- Western gateway
- Core retail area
- Haywards & Church Area
- Eastern gateway



Map showing 4 main study zones



Typical Crediton High Street Street scenes



## 1.2 Methodology & Scope of Study

1.2.1 The study is structured in three parts and includes the following;

### Part 1 Analysis

1.2.2 Part 1 presents the problems and issues identified through a series of site visits, discussion with key stakeholders and a review of available data, such as traffic volumes, speeds and accident records. Further data has also been collected on parking / loading operations, pedestrian movement and vehicle delay.

1.2.3 Given the size of the study area, general data has been collected for each of the 5 identified zones (Figure 1). However, as the core retail area (Area 2) is likely to be a focus of any initial work, a full audit of the whole urban realm has been undertaken. This includes a CAD based audit of carriageway treatment, junction control, lane allocation, kerbside space, footway condition and building frontage type. It also notes principle street furniture. The outcomes are presented in a series of schematic diagrams, CAD drawings, tables, pictures and text and presented within Chapter 2 of this study.

### Part 2 Vision & Options

1.2.4 Part 2 includes details of a stakeholder workshop, which was conducted in a Street DEMOnstration\* style, involving a site walkabout, presentation, issues discussion and design workshop. As an outcome, the project aims were debated and agreed, and a series of early design ideas developed.

[Nb \* Street DEMOnstration is a collaboration between PJA and Chartered Institution of Highways and Transportation (SW Branch) and seeks to showcase good practice in street design through stakeholder workshops.]

### Part 3 Conceptual Design

1.2.5 This stage involves the development of a series of design studies for all areas within the study boundary. Given the likely need for phased delivery, the schemes are developed to allow independent and phased delivery over time. The designs illustrate the traffic engineering and urban realm detail and are tested using relevant guidance and design standards.

1.2.6 The design layouts are vehicle swept path tested to ensure the safe operation for various vehicles, especially larger vehicles where appropriate. Where junction control is changed or altered, then preliminary local junction models have been run, to assess the initial traffic capacity implications.

1.2.7 Engineering viability is an important consideration and the concept design layouts are based on known utility constraints, gained through a utility search of known providers and through further site inspections.

1.2.8 The preliminary design for the central area and wider schematic work has been costed by a Quantity Surveyor to ensure that an accurate cost plan is developed, and any cost risks are identified.

1.2.9 There are several items which will fall outside the initial scope of works, but these could form natural next steps. These include;

- Volumetric Traffic Surveys
- Detailed traffic modelling
- Road Safety Audit
- Accessibility Audit
- DCC Maintenance Audit
- Topographic Survey
- Detailed Design / DCC Section 278 Approval

1.2.10 It is anticipated that as opportunities for funding are identified then further, more detailed, work is undertaken on the various design projects, in whole or part.

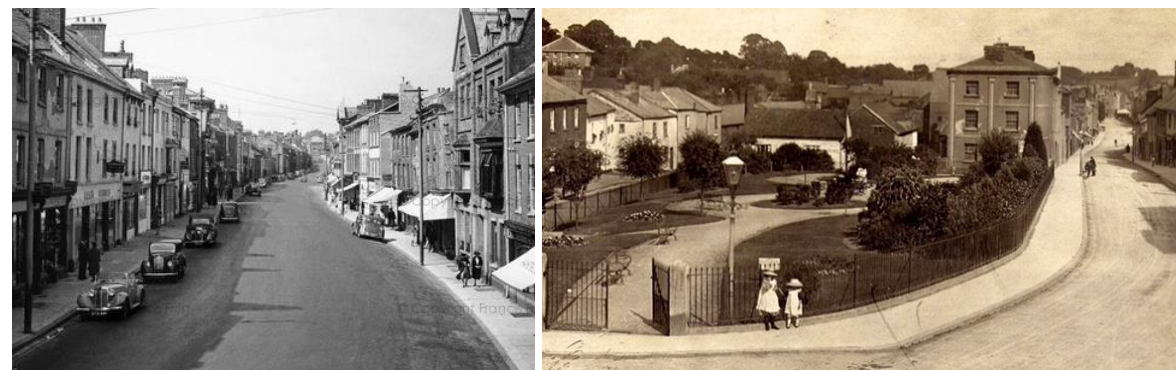




## 2 Understanding & Analysis

### 2.1 General Context

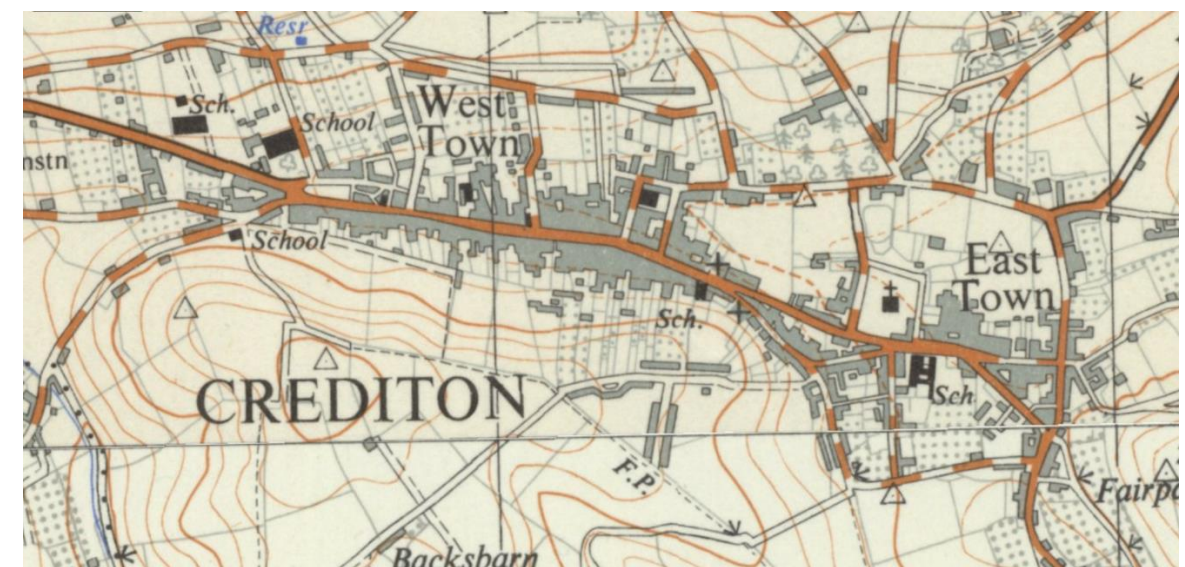
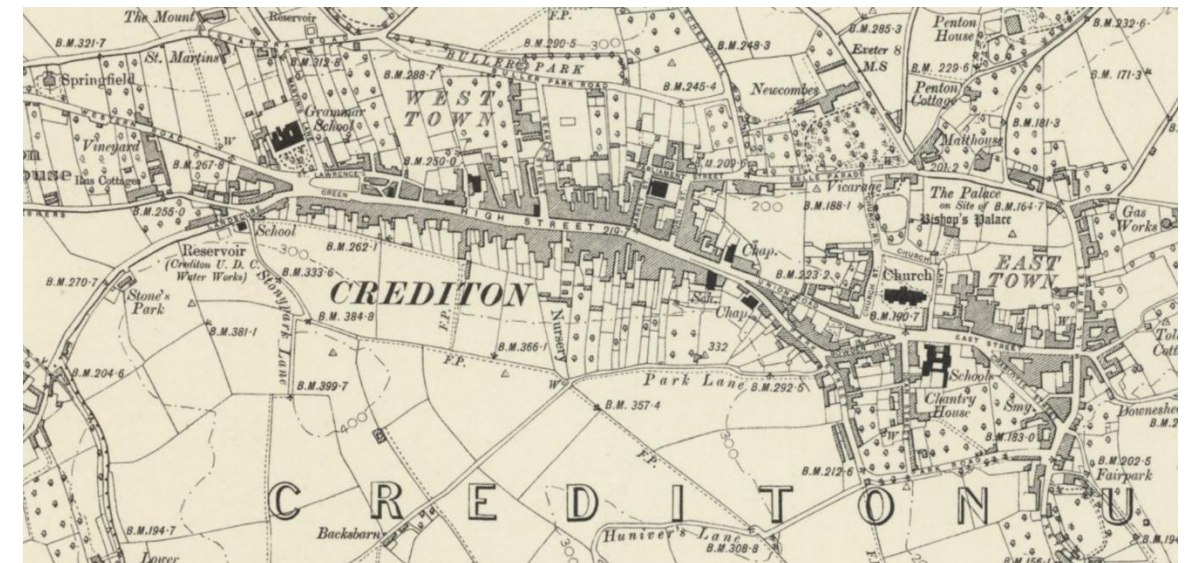
- 2.1.1 The impact of traffic on market town communities, especially close to the edge of major areas of population like Exeter, is the main source of concern for many Town Councils across the country. The slow loss of pedestrian space, and the consequent effect on pedestrian and informal activity and movement within towns has ongoing implications for the economic and social viability of those communities. Without functional streets, people tend to retreat indoors and turn away from streets and public spaces. This in turn reduces the distinctive qualities of place and sense of community on which long term investment and confidence in Devon town communities depends.
- 2.1.2 This is especially relevant for the historic town of Crediton. Located on the important A377 traffic route and providing one of the few roads between Exeter and North Devon, the quality of the town’s architecture and streets are being increasingly affected by traffic pressure. The town has a solid, if fragile, local economy dependent to a large degree on the industrial estate, historic industries, its rural farming communities and out commuting to Exeter and other larger settlements. The proximity of the industrial estate and local industry contributes to the higher volumes of HGVs, and the town also lies on several commuter routes to Exeter and the M5. Although the County recently opened the Crediton Link Road serving the industrial estate, the route has not significantly changed traffic patterns on the main High Street, although has reduced traffic on the East Street gyratory and Mill Street, towards the south east of the town centre.
- 2.1.3 The future success of Crediton partly depends on its unique qualities and urban fabric. However, Crediton continues to experience housing growth and other edge of settlement land uses. In this context, the Town Council has sensibly embarked on the preparation of a Neighbourhood Plan to guide and influence its future over the plan period. Extensive local discussions have confirmed traffic as a key issue.



Historic Images of Crediton (High Street Left, St Lawrence Green right)

### 2.2 General Observations

- 2.2.1 Crediton is a very historic linear market town on an important route between Exeter and Barnstaple, designated as an A-Road (A377). The High Street framed by a fine mixture of buildings provides the natural focus for the town centre and should be seen as a significant town asset. The High Street is of generous width (circa 16m building to building) and lined with some attractive Georgian and Victorian architecture.
- 2.2.2 The High Street is very historic and has always formed an important linear part of the town’s structure. This is evident from historic mapping of Crediton in 1888 and 1937, showing how the High Street formed a backbone to the market town. It also shows the important gateways at St Lawrence Green and the East Street / Holly Cross Church area. With the advent of the car, the 1937 plans show the classification of the High Street as an A Road and its relationship with more minor roads.



Historic Mapping





2.2.3 Over time, increases in traffic volumes, of speeds, and in the size and weight of goods vehicles have badly eroded the intrinsic qualities of Crediton High Street. Some highway measures, installed in response, have further undermined its character and public spaces. One success is Town Square, located north of the High Street and is a great example of transformative placemaking in action.

2.2.4 Traffic speeds are particularly problematic on the approaches to the High Street. These lack clear points of entry or transition between the higher speed town approach highways, and the lower speed context of the town centre. This is especially evident on the approach from the west near QE Upper School and eastern gateway at Haywards. As a result, the pedestrian environment leading to the town centre is surprisingly poor, reducing the willingness of residents and visitors to walk or cycle to local destinations or their ability to cross the road safely.



Typical High Street Scenes – current

2.2.5 There is a reasonable quantity of short term on-street parking and loading in the core High Street area. This is important for encouraging local trade. There are several off-street car parks, but at some distance from the centre and a steep walk in places.

2.2.6 The poor pedestrian environment and unsatisfactory off-street parking locations diminishes the value of such parking. Pedestrian crossings are limited, poorly located and do not coincide with pedestrian desire lines.

2.2.7 There is currently no significant cycle infrastructure in the town centre such as cycle lanes or advanced stop line facilities at traffic lights. Cycle parking provision is limited in Crediton with just the occasional Sheffield stand facility located along the High Street and in the Town Square. This is a concern previously raised by the Sustainable Crediton Group.

2.2.8 Air quality is a present and ongoing concern and higher levels of vehicle-based pollution have led to the whole town being designated as an Air Quality Management Area (AQMA).

2.2.9 The High Street has a broad mix of public realm materials which have been installed over many decades. However, few of the highway, pavement or street furniture features help enhance the historic High Street character. Although there are some green spaces on entry to the town near QE Upper and Haywards Schools, the main part of the town centre has a very hard landscape with little green landscape apparent, except occasional glimpses of the rolling hills of Mid Devon.

2.2.10 Flash flooding is an increasing problem in rural Devon. In recent years the intensity of rain storms seems to have increased leading to localised flooding events on some streets becoming a persistent problem, at often unpredictable locations.

## 2.3 Stakeholders Meetings

### Crediton Town Council

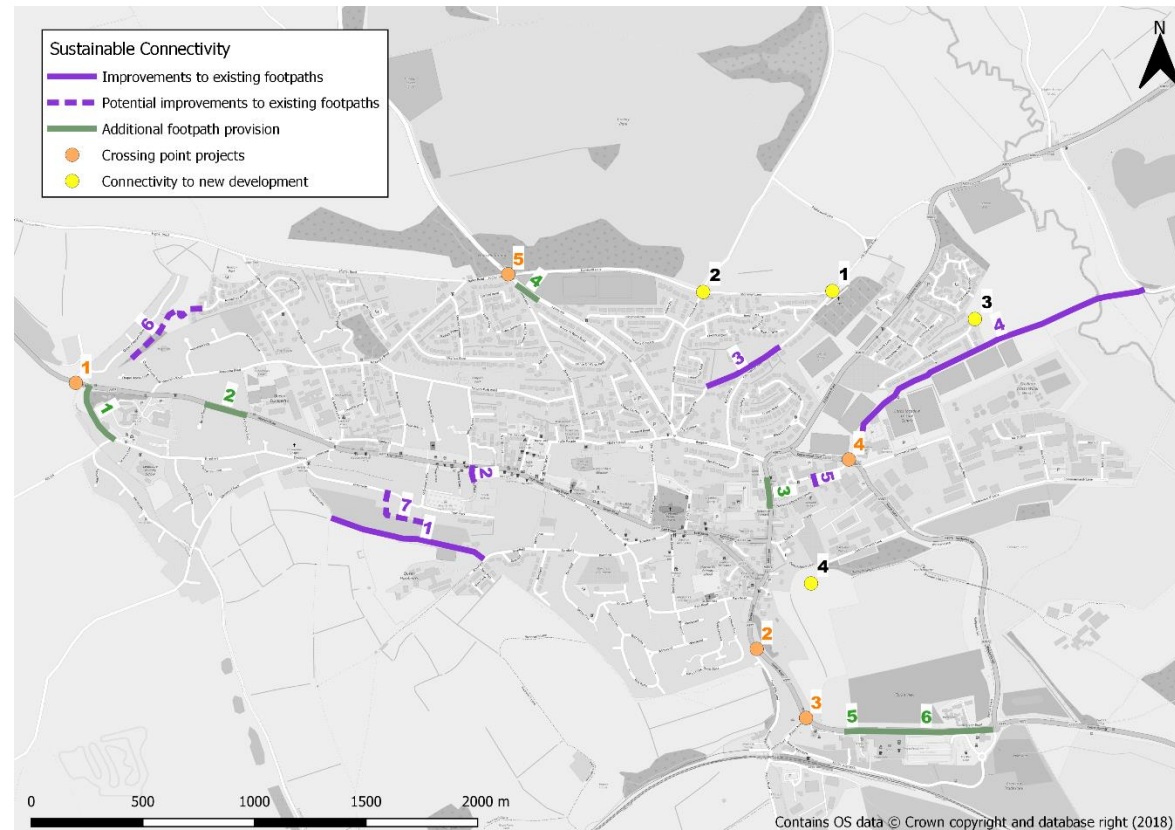
2.3.1 As principal client and promotor of the study, Crediton Town Council have key objectives which they wish the study to address. Firstly, they are concerned that gradual growth in traffic over time has created problems which are not being dealt with by the normal public sector bodies and problems are being further aggravated by both planned (Local Plan) and unplanned development growth.

2.3.2 Secondly, they wish the study to further develop some of the principles identified in the Neighbourhood Plan. These ideas are promoted by the local community and include calming traffic and making Crediton a more walkable and cycle friendly town.

2.3.3 Scheme delivery also forms a key part of the Town Council thinking and they wish the study to ensure that the strategy can be delivered in phases as opportunities arise. As part of ongoing initiatives including the Neighbourhood Plan and ‘Sustainable Crediton’ the Town Council has developed a strategy for improving walking and cycling across the whole town.

2.3.4 Key identified projects are illustrated and tabulated below.

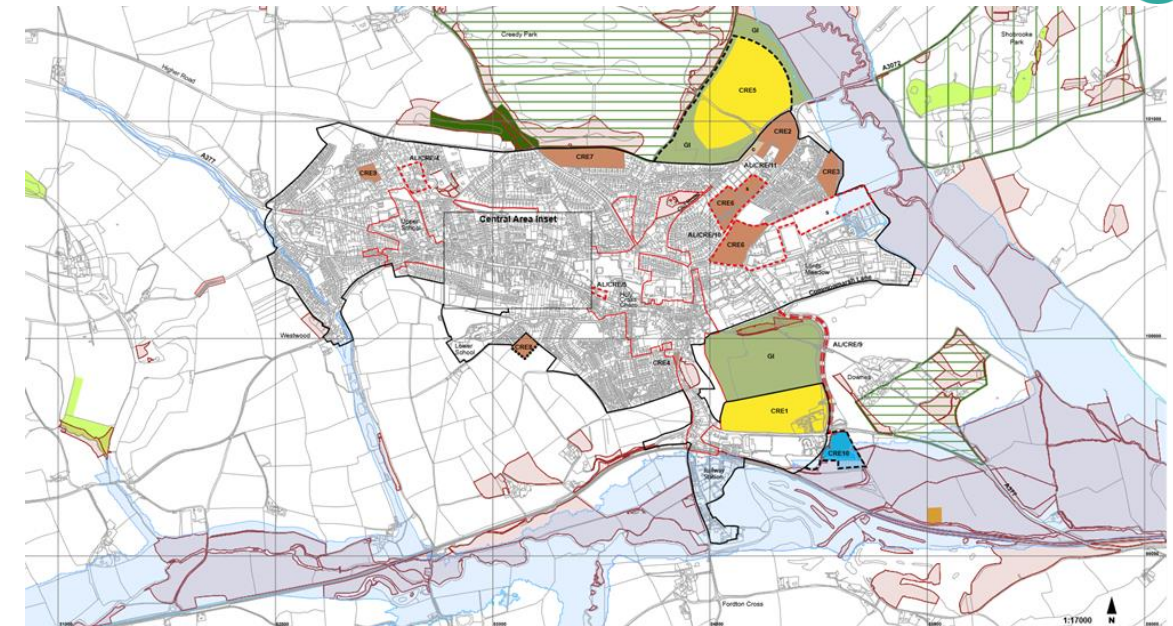
Footpath Improvement	New Footpath Provision
1 Tin Pot Lane	1 Threshers west end
2 High St to SSW car park	2 A377 south side between Broad Close and St Boniface
3 Penton Lane/The Lynch lighting	3 Mill Street west side between Morrisons and Mole Avon
4 Leisure centre/back Willow Walk/R Creedy (footpath 24)	4 Jockey Hill at Five Ways Cross
5 Hawkins Way, dropped kerb at PO site	5 Exeter Road to Joseph Locke Way at Boniface vets
6 QE Drive to Avranches Avenue	6 A377 south side between St Boniface vets and Tesco roundabout
7 Tin Pot Lane to Greenway (via open space)	
Crossing Point Projects	New links to development
1 QE Drive to Threshers	1– Pedlerspool - Stonewall Lane/Old Tiverton Road
2 Four Mills Lane (north end)/Exeter Road	2 - Pedlerspool - Longbarn Lane/Pounds Hill
3 Station Cross	3 Cromwells Meadow – all use path into footpath 24
4 Jockey Hill at Five Ways Cross	4 Well Parks – all-use leisure path via Commonmarsh Lane
5 Commercial Road/Hawkins Way	



Map showing wider walking and cycling projects

### Mid Devon District Council

- 2.3.5 As Planning Authority for the town, MDDC via their Local Plan (see plan extract below) guide new development in the town, which includes nearly 1000 new residential units in coming years. Due to ongoing air quality concerns, the locational strategy for growth is to focus development to the eastern and southern edges of CREDITON to minimise traffic impact in the central area, most affected by air quality.
- 2.3.6 Much of the town centre is designated as 'Conservation Area' and this designation includes a large proportion of Listed Buildings fronting the High Street.



Extract from MDDC Development Allocations Map showing planned development (yellow / brown)



Extract from Crediton Conservation Appraisal (Listed buildings in orange)

- 2.3.7 MDDC also have a Statutory duty to manage Air Quality as part of their Environmental Health function. Parts of CREDITON exhibit chronic air quality pollution arising from traffic, as well as other forms of pollution. In places this pollution exceeds stated safe standards. Poor Air Quality in CREDITON is caused by many inter-related traffic issues, including vehicle delay from bus stopping / layover, on-street parking, loading, ped crossings, junction delay and HGV traffic, as well as other sources of pollution, like local industry.
- 2.3.8 MDDC has designated CREDITON as an Air Quality Management Area (AQMA), meaning special measures and strategies are in place to help reduce levels of air borne pollution. These include measure like;
  - Location of development growth focused to the east of the town
  - Promoting Active Travel Strategy (walk / cycle)
  - Promoting smoother traffic flow





## Devon County Council

- 2.3.9 Devon County Council (DCC) have many functions, but their role as Highway and Drainage Authority are most relevant to the study.
- 2.3.10 As Highway Authority, they have a duty to manage highway operation including road safety within the town. Highway Maintenance also forms a key part of this function and recent constraints on public sector funding have led to maintenance costs becoming a larger concern to the authority. Maintaining the asset is an ongoing countywide problem, and DCC are seeking ways to minimise ongoing liability using a reduced and rationalised highways palette. This comes at a time of increasing local interest and control in the local neighbourhoods and may point toward new approaches to street care.
- 2.3.11 An important aspect of DCC's role in Crediton is recognising that Crediton High Street is an A-Road and therefore the need to carry mixed traffic on longer distance journeys including larger vehicles and HGVs. Promoting active travel in the form of cycling and walking routes also forms a key part of the strategy for the town.

## 2.4 Technical Analysis

- 2.4.1 This section outlines the technical analysis which PJA has undertaken to inform the study.

### Street Audit

- 2.4.2 Based on OS CAD mapping, a street inventory survey has been undertaken to capture the usage of the street in terms of carriageway, kerbside use and footway. The survey also recorded the frontage type and names of key retailers. Utilities constraints mapping has been obtained and has been overlaid on the base maps. Additionally, details of highway ownership have also been obtained and are included on the base maps. This further information is available upon request from PJA.

### Traffic Flow

- 2.4.3 Various forms of traffic data have been obtained to inform the study. Firstly, Automatic Traffic Count data has been obtained for 4 sites over a 7-day period in mid-September 2016. The data is recorded after the opening of the Crediton Link Road in late 2014. The surveys recorded bi-directional traffic link flow, vehicle classification and speed over the period. The traffic flows are summarised below as 12hr daily flow for a 5-day weekday average.

Location	Westbound	Eastbound	Total
A377 Western Road	3,756	4,057	7,813
High Street	6,032	5,947	11,979
Union Street	6,007	5,726	11,733
Exeter Road	6,027	5,514	11,541

- 2.4.4 The table below summarises the typical bi-directional traffic speeds. The data expresses a 7-day average (mean) and 85th percentile, which highlights the highest speed of 85% of drivers. This figure is typically used in highway design to determine design speed criteria.

Location	Speed (Ave)		Speed (85%)	
	Westbound	Eastbound	Westbound	Eastbound
A377 Western Road	37	33	43	40
High Street	23	24	26	26
Union Street	23	25	26	25
Exeter Road	25	26	26	26

- 2.4.5 The data indicates that typically the percentage of HGV is 3 – 4% on the High Street.

- 2.4.6 To supplement ATC data, traffic turning count data has also been obtained from DCC at the junctions of Western Road / Lansdowne / High Street and Union Street / East Street. The surveys indicate that about 70 – 80 % of traffic is as expected on the main road and 20 – 30% on side roads.

### Pedestrian Movement

- 2.4.7 To gauge levels of pedestrian activity on different parts of the High Street, pedestrian flow surveys were conducted for 5-minute periods at a number of locations from west of St Saviour's Way to east of North Street. The surveys were undertaken on a typical weekday mid-morning.

- 2.4.8 The survey shows a large variation in pedestrian volume in different parts of the main High Street. The busiest section is between Searle St and Market Street, with over 55 peds / 5 mins recorded. This suggests a likely flow of over 660 people / hour on each footway. The section of High Street from St Saviour's Way and Market Street was also busy with over 30 pedestrians / 5 mins recorded. Beyond this area, pedestrian volumes reduced significantly. The survey is visualised in the heat map below.



Heat Map showing recorded pedestrian volumes – typical weekday

- 2.4.9 A further pedestrian survey was undertaken to investigate pedestrian crossing behaviour. The survey recorded all crossing movements over the High Street within 4 zones for 20 minutes each. The survey recorded the point of departure from the kerb to the point of arrival at the opposite kerb. Importantly, the survey was able to differentiate between crossing at ‘formal crossings’ like Pelican crossings and ‘informal pedestrian’ crossings. Informal pedestrian crossings fall into two categories, firstly, crossing at places where some assistance is provided like drop kerbs or a pedestrian refuge island and other locations where no pedestrian crossing assistance is provided, but where pedestrians still choose to cross.
- 2.4.10 Within the survey area, there is one formal Pelican crossing and three designated informal pedestrian crossing areas. All other areas in the survey zone, have no crossing assistance.
- 2.4.11 During the 80min survey, 226 people were recorded to have crossed the High Street. Of these, only 11 were recorded to cross at the Pelican crossing, whilst 65 were recorded at the other designated crossing locations, whilst a huge 150 people crossed at other non-designated locations.
- 2.4.12 The survey outcomes are illustrated visually below, as a heat map. This shows that crossing movements are broadly distributed along the whole survey area. The informal crossing opposite Books and near St Savours Way are the two highest observed crossing locations. It can therefore be concluded that people are choosing to cross informally. This is likely to be due to there being numerous desire lines which are not being met by a designated crossing. This behaviour points to highway solutions which accept informal crossing but seek to make it safer.



Heatmap showing crossing activity

**Road Danger**

- 2.4.13 A review of road traffic accidents involving personal injury has been undertaken by looking at the 5 years previous accident records for the High Street area. This indicates several ‘slight’ accidents have occurred within the study area. During this period, no ‘serious’ or ‘fatal’ accidents were observed. There appears to be two main clusters of accidents. Firstly, at or near the St Lawrence Green traffic signals and secondly, on the High Street near St Savours Way and towards Searle Street. Of these accidents most only involved vehicles with few pedestrian or cycle incidents.



PIA Data – 5-year period





- 2.4.14 To assess vehicle speed and delay, drivetime surveys were undertaken during and just after the AM peak. These were conducted within a moving vehicle with a GPS device which regularly recorded the time and location (and thus average speed) along route. The survey recorded a typical journey from the Shell Garage (eastern gateway) to the QE Upper School car park (western gateway), a route of about 2km.
- 2.4.15 The results show an average westbound speed of 18mph and eastbound 17mph. In both cases the drive speeds varied significantly along the route, with higher speeds on the eastern approach, Church Lane area and the western area beyond Searle Street. The area between Searle Street and North Street was the observed lowest speed, typically sub 20mph. Key sources of delay included the St Lawrence Green traffic lights, slow moving and stopping buses and the East Street zebra crossing (esp. during school drop off with lollipop man).

### **Parking & Servicing**

- 2.4.16 There is a large amount of on-street parking within Crediton Town Centre. Within the core area there are 56 bays on the High Street and further parking stock in side roads. During the day, parking is restricted to a 45min maximum duration, to promote turnover of spaces. It is understood from traders, this helps to drive local retailing.
- 2.4.17 Observation of this parking indicates it is very well used and 'at capacity' during much of the day. In practice, once a parking space is free, it will be retaken very rapidly, often within seconds.
- 2.4.18 There are two public off-street car parks serving the town centre, both operated by MDDC. The Burrows is a short-term (2-hour max) car park located near Town Square and has 27 spaces. The Long Stay High Street car park has about 200 spaces and is located up St Saviour's Way but has a pedestrian accessway linking to the High Street opposite Searle Street. The car parking is observed to be well used with typical daytime demand 40 - 60%, more on a Saturday morning.
- 2.4.19 There are several designated on-street loading bays with the central area, which are signed and marked red for legibility. Additionally, there are a handful of designated taxi and disabled bays located within the High Street area.



## 2.5 Summary of Issues

2.5.1 This section brings together the technical analysis and seeks to synthesise the issues onto a series of zonal plans which highlight traffic issues within different parts of the study area.

### Eastern Gateway



The area is characterised by the East Street gyratory and one-way system on East Street and Mill Street. Key issues include;

1. Unmet crossing demand near bus stops – road is very difficult to cross.
2. Large junction space (heavy right turn), severance, under utilised greenspace.
3. Busy junction (poor sight lines), access to neighbourhood and Lower School.
4. Key town gateway space – but currently scruffy.
5. Historic crossroads



Problematic junction (issue 4)

### Haywards & Holy Cross Area



The area of High Street near Bowden Hill is less retail focused and contains a number of community uses and some houses and other businesses. Issues include

1. High approach speed (downhill), creating danger at junctions and for pedestrians
2. Zebra crossing serving church, school and arts centre.
3. Heavy HGV turning.
4. Wide carriageway with excess guard railing



Wide carriageway zone



Zebra crossing near church





### Western Gateway



Western Road provides access to Crediton. There are a number of clear traffic issues, which are annotated and described below;

- (1) **Fast approach speeds** – the speed of traffic due to the straight and wide nature of Western Road creates conflict with the start of the town centre near QE Upper School. These speeds are incompatible with a large school with heavy footfall and crossing requirements.
- (2) **Excess carriageway** – there is a clear excess of carriageway space at the junction with Kiddicott. This creates long pedestrian crossing distances and means narrow pedestrian footways.
- (3) **Long straight road** – the High Street heading towards Crediton Congregational Church is straight and encourages higher vehicle speeds, which are incompatible with a local High Street.



### Town Centre Core



The core retail area starts near Greenway and extends eastwards. Pedestrian intensity is observed to be highest in this area. Identified issues and observations include;

- 1. **High vehicle speeds** incompatible with narrow 2-phase informal crossing.
- 2. **Unmet pedestrian crossing demand** - creating road danger for those choosing to cross near busy Tesco metro and bus stop.
- 3. **Informal crossing** - cars often stop for pedestrians here, (showing that driver behaviour can be changed by context)
- 4. **Busy junction**, often difficult to egress.
- 5. **Town Square is high pedestrian attractor** but the square lacks legibility or signage from the High Street.
- 6. **Single Pelican crossing** on High Street is well used.



Informal Pedestrian crossing with fast traffic approaching







## 4 Design Options

### 4.1 General Street Design Philosophy

- 4.1.1 A detailed review of Crediton indicates that traditional traffic engineering measures, such as signage, road markings and speed limits, have had limited effect in addressing the impact of growing traffic. Furthermore, despite its reasonably compact layout and small scale, Crediton continues to generate high volumes of local car trips, especially to the primary schools, leisure centre and large out of town Tesco supermarket. This may be partly due to its large rural catchment, land use dispersal, but the poor quality and lack of connectivity of the pedestrian environment must clearly be limiting the town's potential.
- 4.1.2 Conventional traffic engineering responses are unlikely to address the difficult balance between traffic and the historic context. A more locally responsive strategy, drawing on the distinctive characteristics of the Crediton community, is therefore a logical step for the direction of this study. More recently successful projects like the Town Square are needed to improve Crediton as a place to live and work.
- 4.1.3 In seeking fresh approaches, Crediton is not alone. Across the UK, as well as in other parts of Europe, new ideas and principles are being explored and tested. These draw on a growing understanding of safety and driver psychology, as well as on practical experience gained in other rural town areas. The Feasibility Study therefore uses recent best practice and policy advice in this field, tempered by the reality of increasingly limited budgets available to highway authorities. It takes account of local development issues and the aspirations of the many partner organisations with an interest in Crediton. It should inspire and encourage greater involvement and participation by local residents and businesses in the design and management of the roads and streets in Crediton, and to understand how these might protect the town's special qualities.
- 4.1.4 The feasibility study explores ways to manage the impact of vehicles, and to retain and enhance the coherence and quality of the historic town. Given prevailing budget difficulties, the study seeks to examine and illustrate a range of small and larger scale measures, capable of implementation over time as resources permit, that would together influence traffic speeds and change driver expectations, enhance walkability, improve safety, minimise noise and physical damage, and maintain the distinctive qualities and coherence that underpins the attractive character of the town. Collectively, these outcomes will create a better place and a town with higher levels of civility, but also a High Street which continues to meet the operational transport needs.

### 4.2 Agreed Study Aims

- 4.2.1 Based on the initial observations and outcomes of the stakeholder input, it is recommended that the Feasibility Study seeks to deliver the following aims;

#### Walkability

- Improve ability to walk and cross the road
- Improve accessibility for disabled and people with pushchairs or mobility aids.

#### Air Quality / Environment

- Better manage air quality
- Improve cycle access
- Review storm drainage and climate change reliance
- Manage of the impact of HGV's and noise impacts

#### Traffic Behaviour

- Reduce traffic speed
- Create smoother traffic flow

#### Bus Movement

- Better manage location and operation of bus stops
- Improve bus stop waiting realm

#### Urban Realm

- Enhance public realm
- Improve natural landscaping through street trees and green landscaping
- Better manage current on-street parking stock
- Optimise frontage loading operation
- Review and better manage the ongoing maintenance burden.

- 4.2.2 The following sections of this chapter present the design thinking on an area by area basis. For each area, a concept plan is presented along with relevant best practice examples and an annotated design drawing. The outcomes for each zone are then presented for key topics including vehicle speed, air quality impact, walkability, bus movement and urban realm.





### 4.3 Haywards / Holly Cross Church Area – Design Concept

This area important gateway and arrival space contains many civic uses including a large primary school, art centre, community centre and large town church. The resulting pedestrian footway will benefit from speed reduction, crossing enhancements and a series of placemaking schemes to reinforce the nature of this area for civic uses.

#### Core Strategies

- 1 – Speed reduction and place-marker
- 2 – Side road entry treatment
- 3 – Table Junctions to highlight church access and reinforce historic space
- 4 – Bus stop grouping formed in laybys
- 5 – Significant reduction in carriageway to form wider footway with some parking and street trees. Full guardrail removal subject to risk audit.



#### Taunton, Somerset

The East Street war memorial in Taunton forms an important part of the town centre structure, being located in the centre of East St, at its junction North Street and Fore Street. The memorial is enhanced by streetscape which acts as a place-marker seeking to reduce road dominance and highlight the townscape.



#### Blundell's 20mph Zone, Tiverton, Devon

The recent DCC scheme at Blundell's is designed to mitigate increases in traffic caused by an urban extension East of Tiverton. The scheme highlights how textured table junctions at 'intermediate grade' can help reduce traffic speed to around 20mph and significantly enhance the urban realm of a conservation area.



#### Clapham Old Town

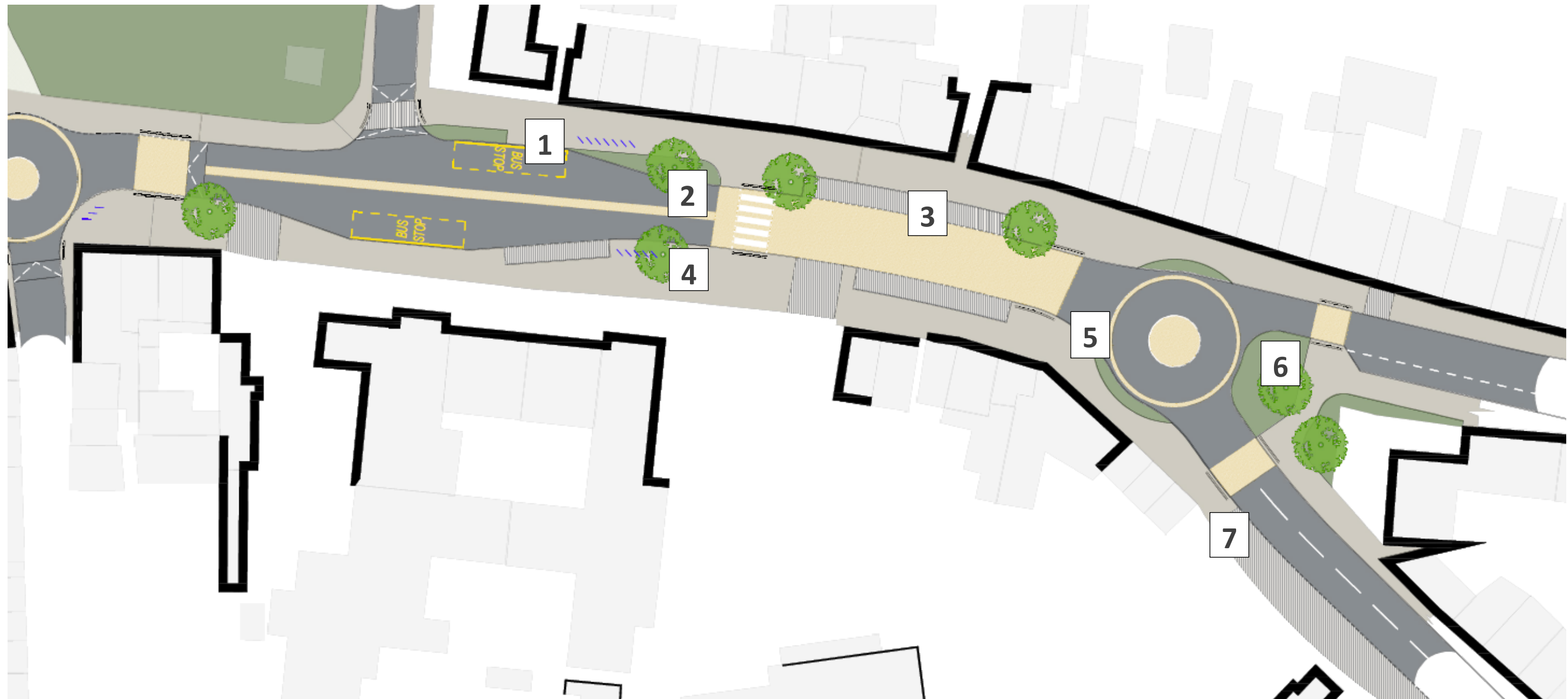
This award-winning built project highlights the benefits of carriageway reduction and footway extension. These measures help improve walkability and reduce speed. New public realm is created allowing tree planting and other furniture to be installed. The combined effect is a much-enhanced place.







### Concept Design Layout – East Street / Haywards Area



#### Design Interventions

- 1- Eastbound bus stop relocated to newly formed layby to form bus stop grouping pair.
- 2 - Significant reduction in East Street carriageway width to around 6.5m – 7.0m.
- 3 - Footway extension near café with new parking and street trees.
- 4 - Footway extension near Haywards main pupil entrance / vehicle access maintained.
- 5 - New roundel junction to manage road alignment (existing bend), right turning traffic, act as gateway speed reduction and improve walkability / placemaking.
- 6 - SUDS features to roundel edge and green landscape enhancements / footway improvement – retention of existing conifer tree to be assessed.
- 7 - Full access to Fire Station maintained

#### Design Considerations

There are currently 7-8 on-street parking bays to the northside and 3-4 to the southside. All retained, albeit relocated.

Traffic modelling of the current East St priority turn indicates that westbound delay is typically 6 seconds. The roundel junction is forecast to exhibit similar performance. However, the roundel will create further benefits which need to be considered in conjunction with highway capacity.

There is power, gas and water infrastructure in the carriageway to the northside side, in the proposed tree planting zone. The southside is less constrained.





Artist Impressions showing street design concepts in Hayward area





### Concept Design Layout – Church Lane / Holy Cross Church Area



#### Design Interventions

- 1 – Side Road Entry treatment with table to Church Lane
- 2 – New informal roundel junction at intersection of A377 East Street, Bowden Hill, and Dean Street to reduce junction complexity, reduce vehicle speeds and improve placemaking.
- 3 – Provide new crossings to clarify safe pedestrian route around junction to the south of East Street.
- 4 – General public realm enhancement

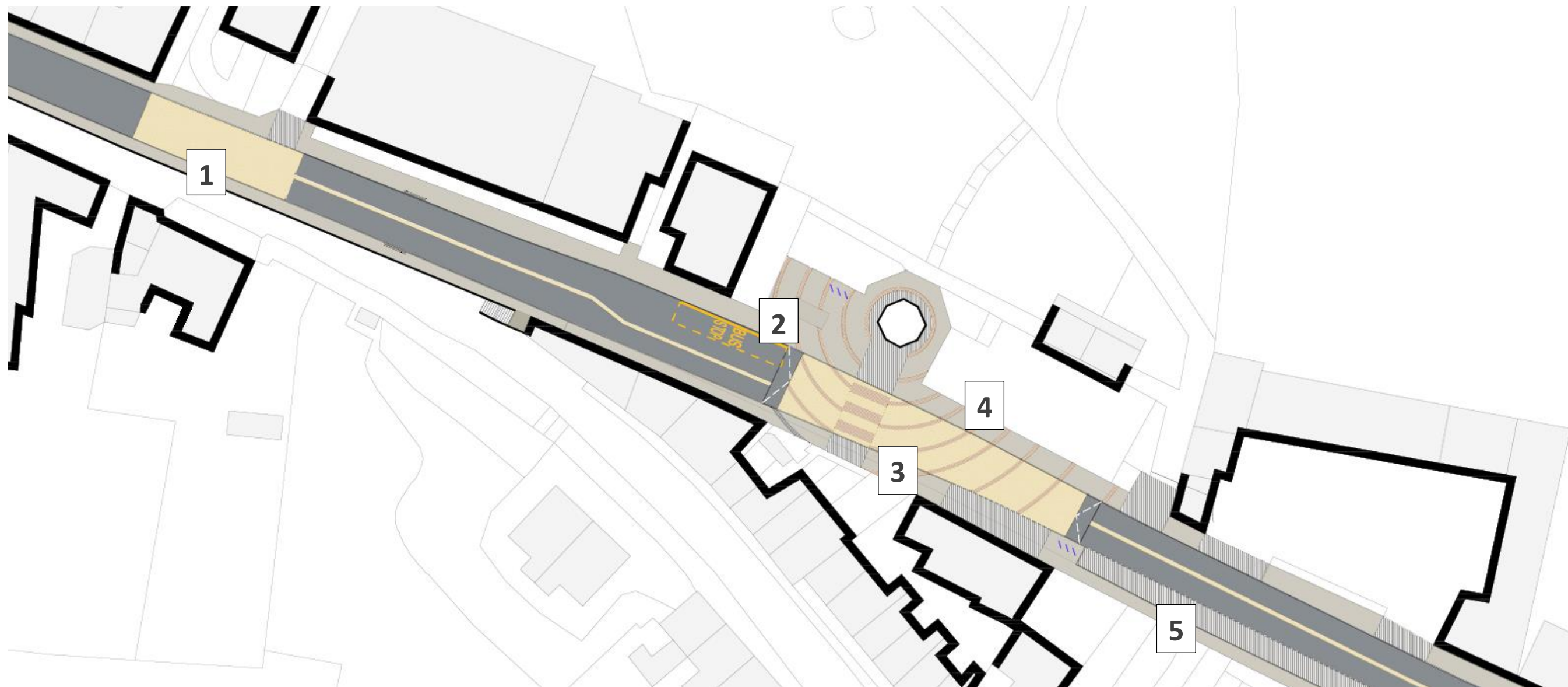
#### Design Considerations

There is currently delay experienced from the Zebra crossing at times of peak school demand. School related crossing movements are currently assisted by a 'lollypop man' on route between the car park behind Holy Cross and Haywards. It is suggested this crossing is relocated east (see Haywards scheme on next page).

No identified utility concerns.



### Concept Design Layout – Union Road Area (War Memorial / Bike Shed Area)



#### Design Interventions

- 1 – Speed reduction feature near Methodist Church.
- 2 – Retain bus stop near War Memorial.
- 3 – Raised table with courtesy crossing introduced.
- 4 – Place marker feature at War Memorial in form of concentric flush bands on carriageway which continue into adjacent public realm.
- 5 – Parking bays retained and treated in same fashion as High Street to visually narrow the road.

#### Design Considerations

Extent of raised table constrained by bus stop location and the need to provide a raised loading platform.





#### 4.4 Town Core – Design Concept

The core retail area will benefit from reduction in carriageway space to reduce crossing distances and better manage traffic flow. Creating further and safer crossing opportunities and greening the street with trees with enhance the area and help drive trade. Retaining a good stock of on-street parking and bus stopping will also help local trade, whilst seeking to remove bottlenecks and unwanted stopping delay.

##### Core Strategies

- 1 – Textured junction control and courtesy pedestrian crossing
- 2 – Streets trees and rain gardens in parking areas
- 3 – Textured junction, informal crossings & bus stops with 2-vehicle passing
- 4 – Central median with super courtesy crossing near Boots
- 5 – Textured junction with Market St 2-Way retained.
- 6 – Footway extension to Market Street with new ‘Branded’ Town Sq.
- 7 – Retain Pelican crossing and provide trees
- 8 – Place-marker / speed reduction near Methodist Church



##### Fishergate, Preston

Highlights the benefits of forming identifiable large-scale courtesy crossings at a regular rhythm. These include central waiting areas, to allow 2-phase crossing. This means pedestrians can form eye contact with one driver at a time and wait in the centre if needed.



##### Fishergate, Preston

A further feature of Fishergate is the central median strip formed from low profile kerbing and textured setts. This allows pedestrians to cross informally in two phases, whilst allowing a degree of vehicle overrun if necessary. Rumble strips to the road edge also help to reduce carriageway width and thus reduce speed.



##### Bexleyheath, Suburban London

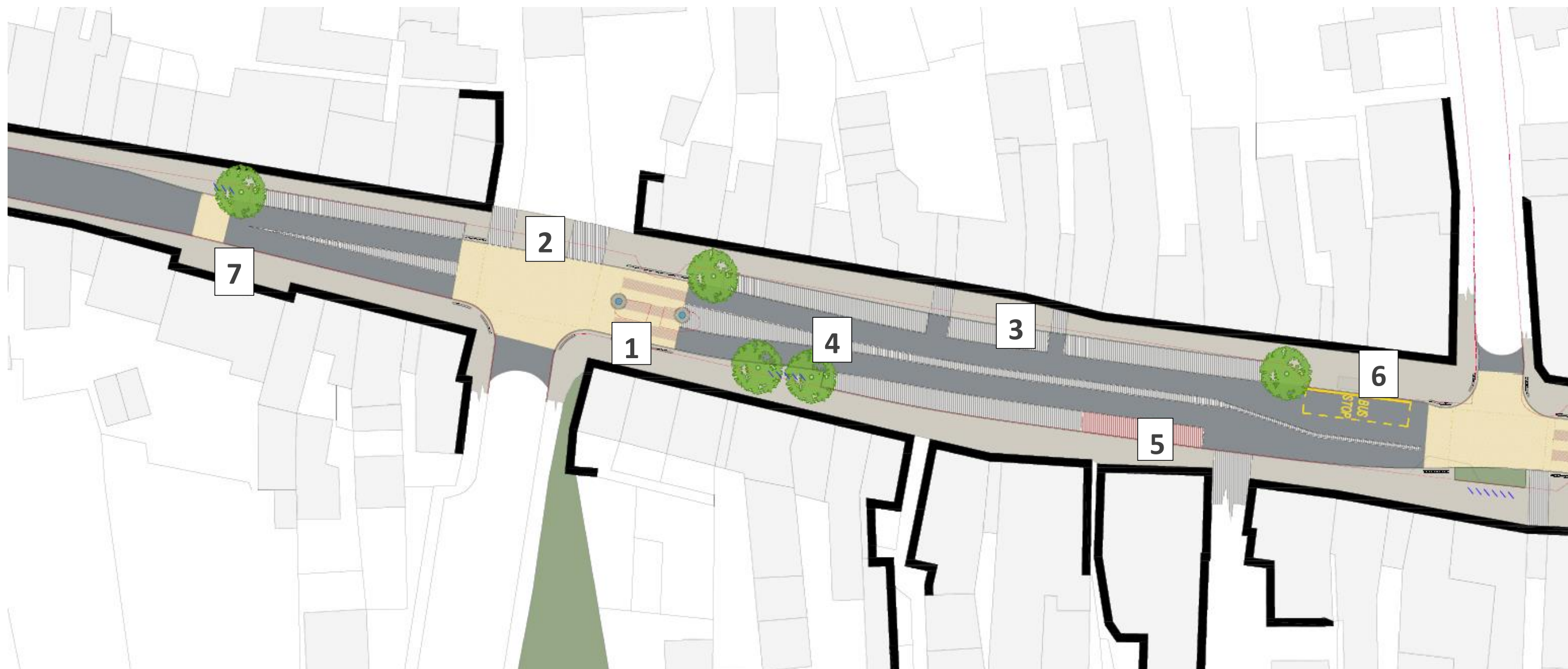
Shows the advantages of forming different carriageway surfaces at key locations, such as junctions and corners. These are often used in conjunction with courtesy crossings or formal crossings, like Pelicans or Zebras.







### Concept Design Layout – St Savours Way / Searle Street



#### Specific Design Interventions

- 1 – New primary courtesy crossing near St Savours Way with textured junction treatment with central area protected by stone/sculptural bollards (inc. drop kerb crossings/tactile).
- 2 – Footway extension opposite Crediton Congregational Church with access maintained (former kerb line show dotted red).
- 3 – Exiting parking maintained with new tree planting to ends.
- 4 – New central medium (laid in setts with low upstand kerb).
- 5 – Loading bays retained.
- 6 – Existing bus stop maintained with 2-way vehicle clearance maintained and highlighted.
- 7 – Textured surface treatment at gateway to signal approach to High Street.

#### Design considerations

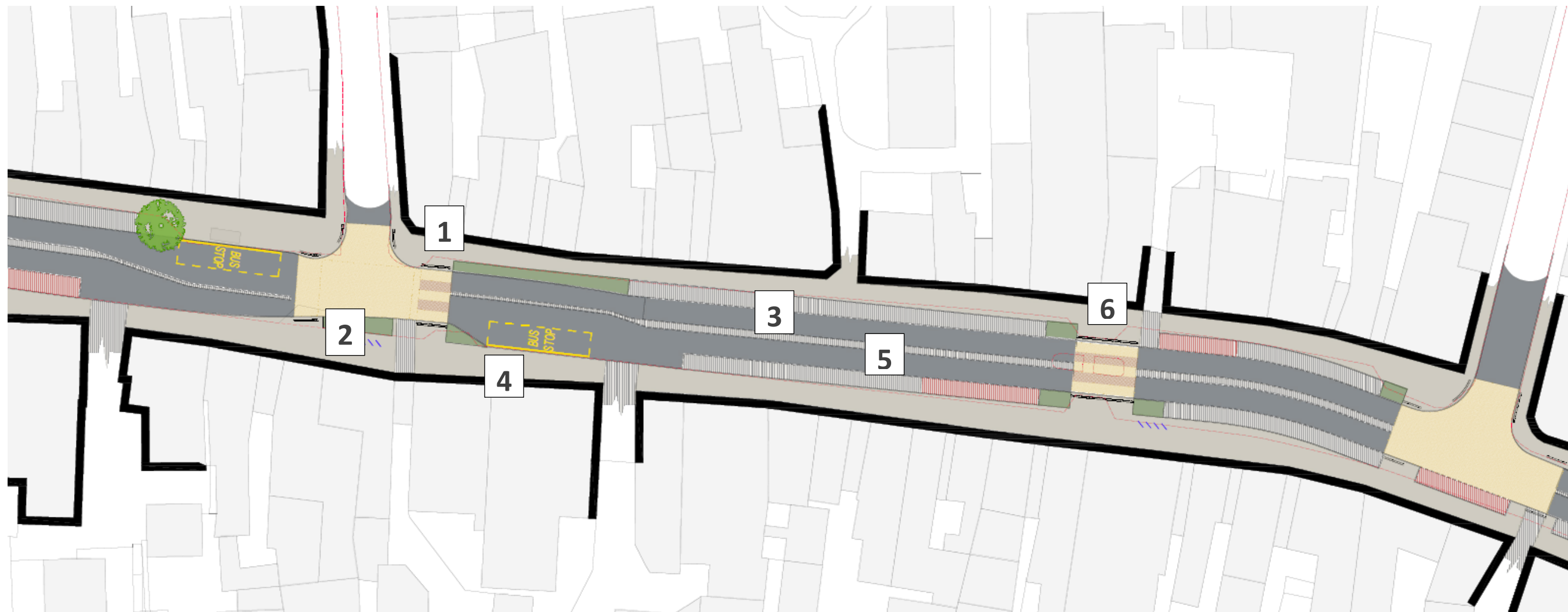
There are 22 on-street parking bays, 1 taxi bay, 1 loading bay and 1 disabled bay – no changes proposed.

There is buried water and gas infrastructure in the suggested tree planting zone (High Street northside), which will require further investigate. There are no other identified utility plant impacts at this stage.





### Concept Design Layout – Searle Street – North Street



#### Design Interventions

- 1 – New primary courtesy crossing near Searle Street with textured junction treatment (inc drop kerb crossings).
- 2 – Kerb build out opposite Searle Street provides space for rain garden and cycle parking with access maintained.
- 3 – Majority of parking maintained with tree planting to ends and rain gardens to northern edge.
- 4 – Existing bus stop maintained with 2-way clearance maintained and highlighted.
- 5 – New central medium (laid in setts with low upstand kerb).
- 6 – Primary courtesy crossing near Boots.

#### Design Considerations

There are 26 on-street parking bays, 2 disabled bays and 2 loading bays – it is proposed to lose 3-4 spaces to achieve new rain garden / soft landscaping.

There is water and gas infrastructure in the suggested rain garden / tree planting zone (High Street northside), which will require further investigate. There are no other identified utility plant impacts at this stage.

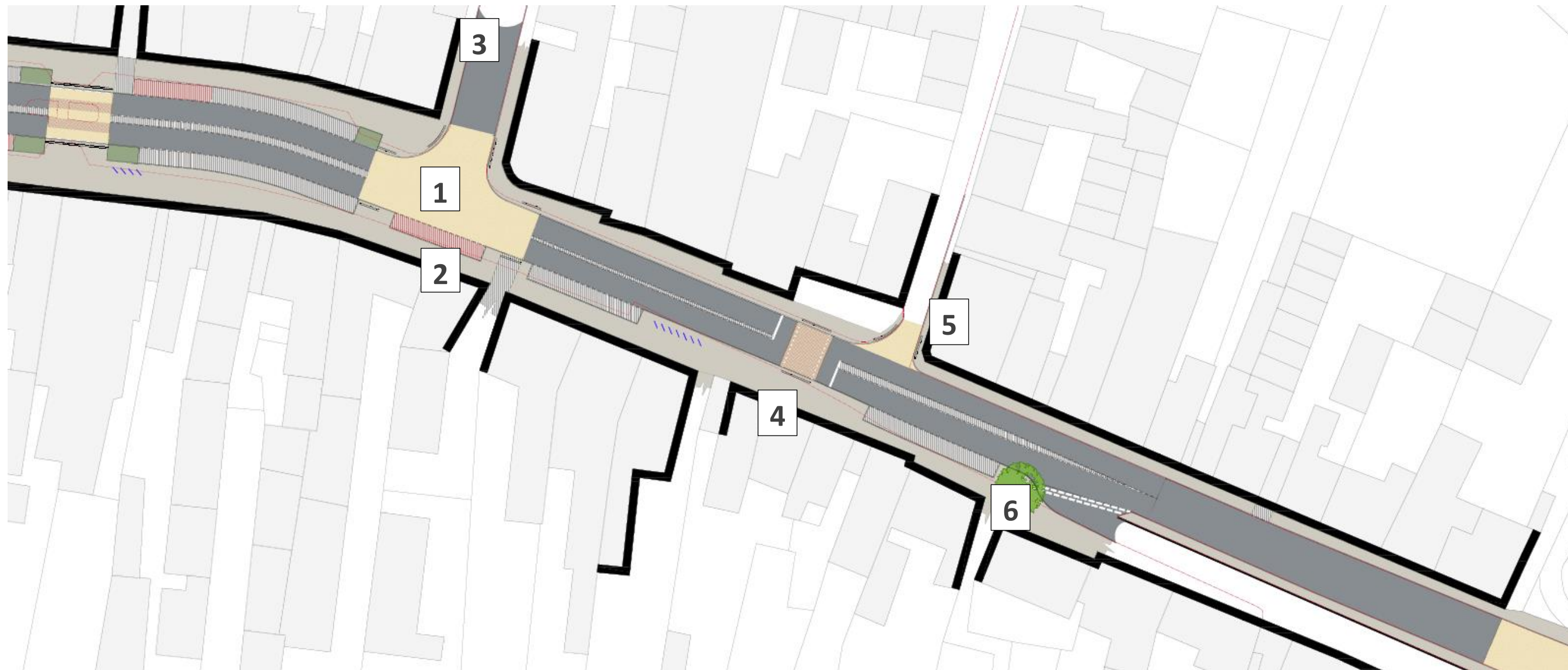


*Artists Impression showing concept design on High Street (looking east from Searle Street)*





### Concept Design Layout – North Street / Union Terrace Area



#### Design Interventions

- 1 –Market Street textured junction treatment (inc drop kerb crossings).
- 2 – Footway extension opposite Market Street with loading pad/bay.
- 3 – Existing kerb line maintained on Market Street.
- 4 – Pelican crossing retained near North Street.
- 5 – Side road texture treatment to North Street, to highlight crossing.
- 6 – Footway extension to end of Union Terrace with tree planting at gateway for screening.

#### Design Considerations

- Larger vehicles need to enter the Town Square via Market Street as North Street offers limited turning width.
- There are currently 4 on-street parking bays, 2 disabled and 1 loading bay, all of which are retained or re-provided.
- There may be basements extending into some of the carriageway zone, which could impact on the introduction of rain gardens.





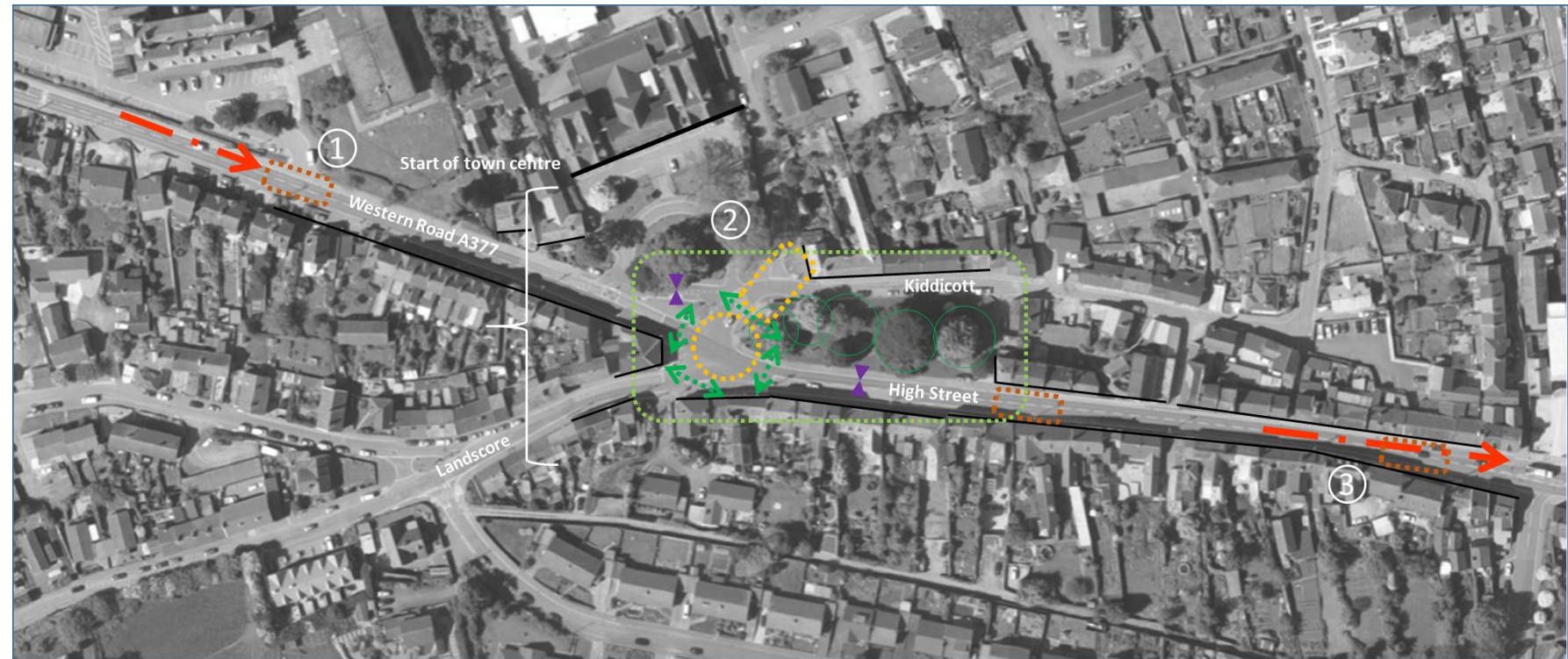
### 4.5 Western Gateway / St Lawrence Green – Design Concept

The Western gateway will benefit from a strong gateway feature near QE Upper school to help slow higher traffic speeds (red) prior to the important gateway junction with Landscore / Kiddicott.

The existing traffic signal junction will benefit from removal and installation of a ‘Roundel’ style roundabout to better manage traffic flow, speed and stopping delay. The proposal will also enhance the western gateway and better reflect the historic nature and public open space of St Lawrence Green, which is has existed since Tudor times.

**Core Strategies**

1. Speed reduction / town gateway measures
2. Gateway public realm and junction improvements, combining school access, bus stopping / standing and greenspace usage
3. Repeated speed reduction measures



**Poynton, Cheshire**

Experience at Poynton highlights the benefits of installing ‘Roundels’ in place of traffic signals. The successful scheme which is located on a busy A-Road (20k veh /day) has helped create a slower and more steady flow of traffic. Pedestrian crossing has been enhanced via new courtesy crossings installed on all arms. The altered environment has created conditions where most cars yield (stop) to allow pedestrians to cross.



**Frideswide Square, Oxford City Centre**

This recent scheme gateway scheme in Oxford highlights the benefits of roundel junctions and a mix of formal and informal crossings. The scheme also promotes a slower and more steady flow of traffic forming a significant improvement from the former complex traffic signals, which caused much standing traffic and delay for all users.



**Southgate, Gloucester**

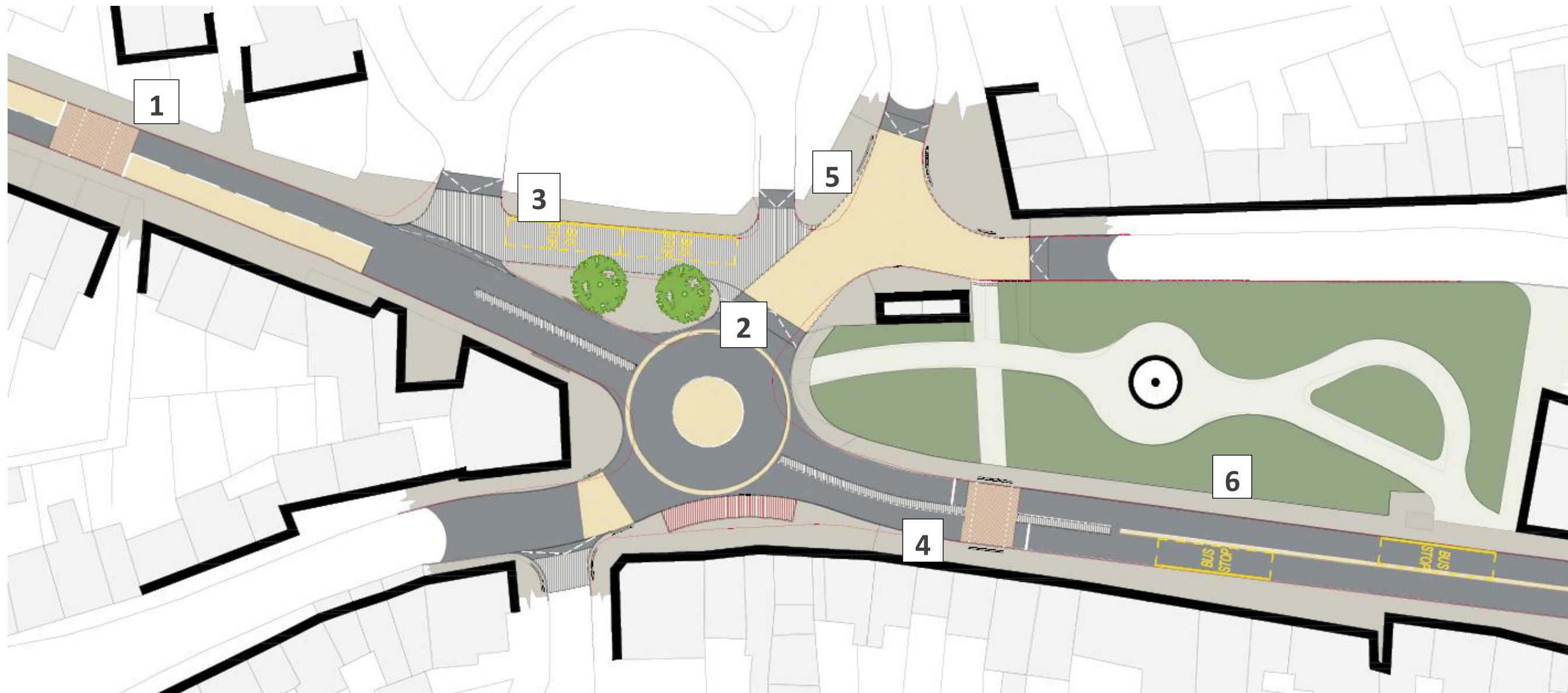
The city centre scheme at Southgate Gloucester highlights the benefits of transformational change to a central area. In this example, the scheme promotes use of ‘Shared Space’, and the whole area is treated with ‘Zonal Entry Signs’. [nb shared Space is not being proposed in Crediton, but this example highlights a zonal treatment].







### Concept Design Layout



#### Specific Design Interventions

- 1 – New Pelican crossing
- 2 – Removal of traffic signal junction and installation of roundel junction to better manage traffic speed, turning conflict and walkability.
- 3 - Review use of QE bus stopping / standing area and enhance urban realm generally.
- 4 - Pelican crossing on Western Road to manage peaky (esp School) pedestrian demand
- 5 - Table junction installation on Kiddicott to improve walkability of St Lawrence Green area and slow traffic further as it approaches slower neighbourhood roads and school crossing areas.
- 6 – Option A – relocate eastbound bus layover to QE area, but retain eastbound bus stop for short stopping only.  
*[Option B, not drawn - Relocate eastbound bus stop (& layover) to new bus layby and install bus stand area (requires 3m strip of St Lawrence Green). Project undertaken in conjunction with landscape improvements to St Lawrence Green].*

#### Design Considerations

Initial traffic modelling (Linsig) work has indicated the current traffic signals operate near their practical capacity. During peak times, the model indicates that average queuing delay per vehicle is circa 50 seconds. An outline traffic model (Arcady) of the proposed roundel indicates that delay would be in the order of 10 – 15 seconds per vehicle.

Discussion with stakeholders highlights the importance of retaining bus layover and stopping in this location. Two options are therefore put forward.

A review of utility plant indicates that this junction location has a significant amount of buried infrastructure. However, the roundel is generally formed within existing carriageway space to minimise impact. The bus layby (Option B) may require protection of telecoms apparatus.



## 4.6 Suggested Material Palette

### Footway Zone

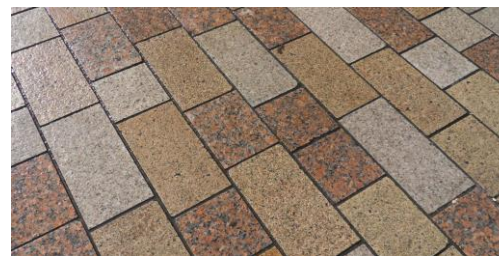
#### Standard Footway Material

Coloured asphalt – this is a Stone mastic Asphalt which is laid with a coloured binder.



#### Vehicle Accessways / Crossovers

Small element block sett (100 x 200mm). Either natural stone or man-made.



#### Rain Gardens

Form soft landscaping area within footway zone with open channels for surface water run-off irrigation.



### Carriageway Zone

#### General Carriageway Areas

Bituminous Macadam (Bitmac) with standard Thermoplastic Road Markings.



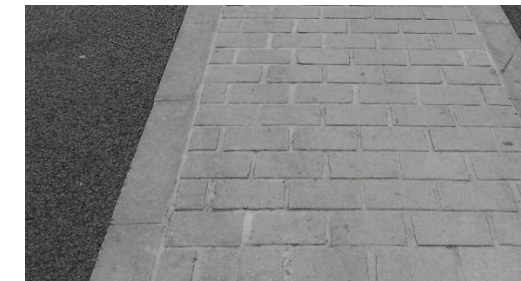
#### Textured Junctions / Tables

Textured Junction to be formed of Buff coloured antiskid surface dressing. If grade change is included, ramp to be constructed of Bituminous Macadam (Bitmac). [NB Use dark grey antiskid in other locations]



#### Central Median

Low profile kerb laid at 30mm from carriageway surface. Infill with 200 x 100mm setts, slightly crowned.



#### On-Street Parking Areas

Kerbs to edge, Bitmac with possible rolled chip to form colour (reference to footway colour). Rumble strip to carriageway edge formed in setts or buff antiskid strip to reference with central median.



#### Primary Courtesy Crossings

Form primary crossing areas using 'imprint' cast in situ prescribed concrete. Nb Not used on secondary courtesy crossing.







## 4.7 Scheme Appraisals

Project Element	Walkability	Traffic Behaviour	Air / Environment	Buses	Urban Realm / Placemaking	Overall
<b>A - Western Gateway</b>						
A1 – Pelican Crossing	Benefit	Neural	Neural	Neutral	Neutral	Benefit
A2 – Roundel Junction	Less pedestrian delay	Smoother slower traffic flow	Improved, less idling traffic	Neutral	Better place integration	Benefit
A3 – QE Bus Stop / urban realm enhancement	Improved	Neutral	Neutral	Better waiting environment	Improved	Benefit
A4 – Pelican Crossing	Less pedestrian delay	Delay minimised	Neutral	Neutral	Neutral	Benefit
A5 – Kiddicott Table (50mm kerb)	Improved	Slower traffic	Neutral	Neutral	Significant improvement	Benefit
A6 – Bus layover enforcement (Option A)	Neutral	Blocking reduced slightly	Some benefit	Neutral	Neutral	Benefit
<b>B - St Saviours Way / Searle St</b>						
B1 – Courtesy crossing / texture junction	Benefit at existing desire	Possible stop / start	Possible air impacts	Neutral	Improved	Neutral
B2 – Footway extension	Benefit	Slower speed	Small Benefit	Neutral	Improved	Benefit
B3 – On-street parking retained	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
B4 – Central Median	Benefit	Slower speed	Small Benefit	Neutral	Improved	Benefit
B5 – Loading Bays Retained	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
B6 – Bus Stop retained with 2-way traffic zone	Neutral	Less blocking	Improved air	Neutral	Neutral	Benefit
<b>C - Searle St / North Street</b>						
C1 – Courtesy crossing / texture junction	Benefit at existing desire	Possible stop / start	Possible air impacts	Neutral	Improved	Net benefit
C2 – Footway extension	Benefit	Slower speed	Neutral	Neutral	Improved	Benefit
C3 – Parking retained / trees and rain garden	Neutral	Neutral	Some enviro benefits	Neutral	Improved	Benefit
C4 – Bus Stops retained with 2-way traffic zone	Neutral	Less blocking	Improved	Neutral	Neutral	Benefit
C5 – Central median	Benefit	Slower speed	Small benefit	Neutral	Improved	Benefit
C6 – Boots Courtesy crossing	Benefit at major desire	Neutral	Neutral	Neutral	Improved	Benefit
<b>D - North Street / Market Street</b>						
D1 – Market St textured junction	Neutral	Slower speed	Small benefit	Neutral	Improved	Benefit
D2 – Footway extension opp Market St	Benefit	Slower speed	Small Benefit	Neutral	Improved	Benefit
D3 – Footway maintained on Market St	Neutral	Neutral	Neutral	n/a	Neutral	Neutral
D4 – Pelican crossing relocated / courtesy crossing	Neutral, low crossing	Neutral	Neutral	Neutral	Neutral	Neutral
D5 – North St entry treatment	Benefit	Neutral	Neutral	Neutral	Benefit	Benefit
D6 – Union Terrace f/w extension / tree planting	Neutral	Neutral	Some enviro benefits	Neutral	Benefit	Benefit



Project Element	Walkability	Traffic Behaviour	Air / Environment	Buses	Urban Realm / Placemaking	Overall
<b>E – Union Road Area</b>						
E1 – Speed reduction at Methodist Church	Benefit from slower speed	Slower speed	Small benefit	Neutral	Improved civility	Benefit
E2 – Retain bus stop near War Memorial	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
E3/4 – Place marker feature at War Memorial	Neutral	Slower speed	Small benefit	Neutral	Benefit	Benefit
<b>F - Church Lane / Holy Cross Area</b>						
F1 – Side Road Entry treatment	Benefit	Neutral	Neutral	Neutral	Benefit	Benefit
F2 – Large table roundel with informal crossing	Benefit	Slower speed	Neutral	Possible ride discomfort	Benefit	Net Benefit
F3 –Table junction at Bowden Hill / Dean Street	Benefit	Slower speed	Neutral	N/a	Benefit	Benefit
F4 – General public realm enhancement	Benefit	n/a	n/a	n/a	Benefit	Benefit
<b>G - East Street / Haywoods Area</b>						
G1 - Eastbound bus stop relocated	Neutral	Neutral	Benefit	Benefit	Benefit	Benefit
G2 – East Street carriageway reduction	Benefit	Slower speed	Benefit	Neutral	Benefit	Benefit
G3 - Footway extension / new parking and trees	Benefit	Slower speed	Small benefit	Neutral	Benefit	Benefit
G4 - Footway extension near Haywards	Benefit	Slower speed	Small benefit	Neutral	Benefit	Benefit
G5 - Roundel acting as gateway speed reduction and improve walkability.	Benefit	Less blocking, slower speed	Benefit	Benefit	Benefit	Benefit
G6 - SUDS features to roundel edge.	Benefit	Neutral	Enviro benefit	Neutral	Benefit	Benefit
G7 - Full access to Fire Station maintained	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral





## 5 Conclusions & Next Steps

END

5.1.1 This report has presented a compelling design proposal for Crediton Town Centre, which will help the town on many fronts. A proposal which seeks to minimise the impact of traffic on this market town community, whilst improving pedestrian conditions and delivering better urban realm.

5.1.2 The proposals have been developed with strong engagement from the local stakeholders and with technical input from the Planning, Environmental and Highway Authorities. The support and consensus of the proposals highlight the clear benefits the scheme will deliver, over a 'do nothing' situation. To progress the proposal to reality, there are a number of onward steps.

### *Public Consultation*

5.1.3 Although much of the concern about traffic issues arose from the Neighbourhood Plan consultation, the design scheme would benefit from a full public consultation exercise in order to gain the views of local people on the specific design concepts. This could take the form of a manned exhibition in the town centre with exhibition boards and methods to record feedback.

### *Further Technical Assessment*

5.1.4 In order to help inform funding initiatives, the scheme would benefit from a detailed cost estimate prepared by a QS with a specialism in highways and public realm works. Preparation of a package of delivery stages (ie identification of design parcels), would also be helpful at this stage.

5.1.5 There are several further technical questions about highway operation and safety which could usefully be established through further technical work, perhaps undertaken in conjunction with public consultation. **These include;**

- Volumetric Traffic Surveys
- Detailed traffic modelling (Mirco-simulation VISSIM)
- Road Safety Audit
- Accessibility Audit
- DCC Maintenance Audit
- Detailed Design & Delivery

5.1.6 Once the scheme has been subjected to public consultation and further technical assessment, it is anticipated that as opportunities for funding are identified then further, more detailed design work is undertaken on the various design projects, in whole or part. This would include the following steps

- Topographic Survey
- Detailed Design (either Town Council Consultant or DCC)
- DCC Section 278 Approval
- Contracts preparation / Tendering
- On-site Delivery



## Appendix A

### Stakeholder Identified Issues



- 1 – Speed of traffic approaching from west
- 2 – Slow signalised junction
- 3 – Poor crossings at Landscore/Western Road junction
- 4 – Poor Air quality at St Lawrence’s Green
- 5 – St Lawrence’s Green not well used
- 6 – Bus Stops - obstructive to traffic
- 7 – High traffic speeds along High Street
- 8 – St Saviours Way Junction – poor visibility
- 9 – U-turning vehicles at St Saviour’s Way
- 10 – Lack of clear gateway to High Street commercial area
- 11 – Narrow footways
- 12 – Limited crossing opportunities

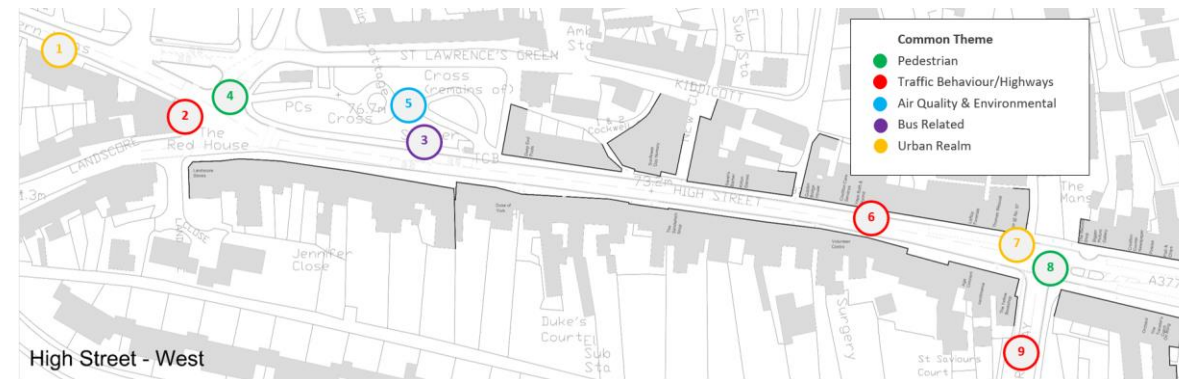


- 1 – Informal crossing at St Saviour’s Way – narrow refuge and visibility of turning traffic
- 2 – Narrow footway and poor visibility at Searle Street
- 3 – Excessive Carriageway width in this area
- 4 – Tesco Loading Access conflicting with pedestrian area
- 5 – Raised bus stop creates difficult access and takes up a lot of footway space
- 6 – Poor quality link to Long Stay Car Park
- 7 – Usage of long-stay car park is relatively low
- 8 – Informal crossing at Searle Street is wide and lacks refuge
- 9 – Clutter and inappropriate seating adjacent to bus stop
- 10 – Factory entrance – hazardous for pedestrians
- 11 – Narrow pedestrian refuge and difficult camber for informal crossing
- 12 – A-boards causing obstructions
- 13 – Camber of footway making some areas redundant
- 14 – Loading enforcement appears ineffective
- 15 – Limited or no cycle infrastructure
- 16 – Poor gateway to Market Square
- 17 – Limited disabled parking
- 18 – Conflict between vehicles accessing on-street parking, general traffic flow and pedestrians
- 19 – High levels of HGVs and farm vehicles through town at relative speed
- 20 – On-street parking heavily used as limited short-stay elsewhere
- 21 – Occasional double parking for loading rather than use of loading bays
- 22 – Signalised crossing in wrong place for desire line
- 23 – Signalised crossing is slow making it poorly used
- 24 – High traffic noise
- 25 – Extensive cellars on northern side of street affect drainage and capacity to adjust kerblines





### Stakeholder Identified Opportunities



- 1 – Creation of Gateway into town
- 2 – Junction improvements to reduce delay, potentially a roundel layout
- 3 – Relocate bus stops or introduce bus laybys to reduce congestion
- 4 – Improvements to pedestrian crossings and access to QE School
- 5 – Improvements to St Lawrence’s Green
- 6 – Speed reduction measures on approach to commercial zone
- 7 – Treatment of St Saviour’s Way Junction – Gateway with planting / raised table to enable crossing
- 8 – Crossing facilities at St. Saviour’s Way junction
- 9 – Realtime signage for Car Park



- 1 – Anti-skid treatment on approach to informal crossings
- 2 – Reorder parking to echelon arrangement in places
- 3 – Additional seating along length of high street
- 4 – Cycle infrastructure – parking, lanes and potential for e-bike
- 5 – Creation of central median through core section of High Street
- 6 – Additional disabled parking along street on level locations (southern side)
- 7 – Enhanced informal crossings with wider and deeper refuges
- 8 - Creation of ‘Events Quarter’ in Market Square
- 9 - Potential for one-way operation around Market Square to reduce traffic
- 10 - Planting along length, use to landscape parking areas
- 11 - Over-runnable build outs to narrow carriageway
- 12 - Removal of some parking on southern side to widen footway
- 13 - Stronger loading strategy with clear loading bays and/or delivery hubs for local businesses
- 14 - Reduce traffic speeds along high street, even if just informally through surface treatment
- 15 - Introduction of some short-stay spaces in main car park to offset loss of on-street
- 16 - Reduce gradient where possible to improve crossing for wheelchairs
- 17 - Relocate/manage factory entrance
- 18 – Build outs and planting to address level changes