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Europe Investing in Rural Areas

**Llywodraeth Cymru  
Welsh Government**

# LLANGOLLEN 2020 PROJECT

## Feasibility Study

FEBRUARY 2019



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## Feasibility Study

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This report dated 13 February 2019 has been prepared for Cadwyn Clwyd (the “Client”) in accordance with the terms and conditions of appointment dated 16 May 2018(the “Appointment”) between the Client and **Arcadis (UK) Limited** (“Arcadis”) for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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## Executive Summary

### Overview

Arcadis Consulting (UK) Limited was commissioned by Cadwyn Clwyd, Llangollen Town Council (LTC) and Denbighshire County Council (DCC) to prepare a feasibility study to inform the Llangollen 2020 Project. The Llangollen 2020 Project envisions 'a vibrant town centre that better meets the needs of residents, visitors and businesses so they are able to benefit from, engage with, and enjoy the beauty and heritage of the Dee Valley'. The project looks to create a more pedestrian friendly town centre, an improved network of parking options and improved signage on the approach to and within the town centre.

The aims of the study are to:

- Develop options for a safe and pedestrian-friendly town centre;
- Develop options to improve the operation of key junctions and the movement of traffic around and through the town;
- Rationalise signage to and within the study area;
- Develop town centre parking options, and
- Quantify, where possible, the extent to which these changes would enhance the town economically, environmentally and socially and thus contribute to county and national strategies.

### The Existing Situation

Llangollen is a town that experiences a number of competing demands, as it is a key town in the Dee Valley serving the local communities and it is also a popular tourist destination, both in its own right but also due to its close proximity to the Pontcysyllte Aqueduct and Canal World Heritage Site (WHS) and a number of other popular tourist destinations. The high number of tourists during the summer months place a high level of demand on the town.

Running through the centre of the town is Castle Street, which provides access to the local businesses and services. However, Castle Street forms a key regional crossing of the River Dee and is thus heavily used by both through and local traffic. This problem is exacerbated by vehicles reportedly using the river crossing for strategic east-west movements to avoid delays on the A5/ A483 interchange.

### Methodology

This feasibility study has been developed through an extensive data gathering exercise, drawing on a number of specific components:

- Traffic surveys – Traffic surveys of the A5/ Castle Street, Market Street/ A5/ Hall Street and A539/ Castle Street/ A542 junctions were undertaken between 16:00 – 19:00 on Friday 13th July and between 11:00 – 14:00 on Saturday 14th July. The Saturday survey at the A539/ Castle Street/ A542 junction was repeated on 21st July between 11:00 – 14:00 due to a technical error with the survey equipment.
- Junction modelling – Each of the three identified junctions were modelled using the appropriate software in both the base year 2018 (using observed traffic flows) and in the design year 2023, as agreed with DCC. The operational performance of the junctions was appraised and junction modification options identified and tested where appropriate.
- Parking and signage review – A review of the location of existing signage within the town centre and on strategic approaches to the town centre were identified. An appraisal of the available car parking provision across the town centre was undertaken, both within car parks and on-street where identified through on-site observations and data drawn from the Denbighshire Town Centre Parking and Traffic Management Study (DCC/ Mott McDonald, 2015).

### Consultation and Engagement

The study has been informed through a comprehensive programme of consultation with stakeholders, businesses and local residents, both to firstly identify issues and opportunities at the outset of the study (in July 2018) and secondly to comment on draft proposals (October 2018). A variety of consultation methods were used in order to identify issues and opportunities facing Llangollen and specifically in relation to

opportunities to improve the town centre. The consultation included online surveys, individual discussions with local businesses and organisations and public drop-ins.

During the first stage of consultation the following key issues and opportunities were identified:

- The perception that Castle Street is dangerous for vehicles and pedestrians, due to on-street parking, illegal stopping, proportion of HGVs, buses and coaches, illegally parked lorries/vans and a lack of crossing facilities. Coaches turning into Market Street from Castle Street causes congestion.
- Opportunities for Castle Street include public realm improvements, include the removal of on-street parking in this location (73% of respondents in support). There could be an opportunity to incorporate delivery areas along Castle Street. 61% of respondents to the online survey felt that improvements along Castle Street should include pedestrian crossing facilities.
- The lack of parking in Llangollen was considered to have a detrimental impact as it puts people off from visiting. There is not considered to be enough resident-only parking areas. Whilst a number of residents pay for parking permits for Market Street car park, there is still no guarantee they can secure a space. Better enforcement of parking infringements in car parks and on-street and increase the amount of dedicated parking for residents in Llangollen.
- Market Street Car Park is underutilised. Coaches are not considered to make the best use of the available space. A number of respondents felt that coaches should not park in the Market Street car park, as it would free up space for cars and need a designated drop off point and then park elsewhere, for example, the Pavilion.
- Measures should be put in place to prohibit / discourage HGVs from using Castle Street as a through route. Such measures could include putting weight restrictions on the bridge over the River Dee.

## Design Precedents

Details on the individual design components that have informed the identification and development of options was presented in Chapter 5, supported from examples where they have been implemented in case studies elsewhere in the United Kingdom.

## Preferred Option

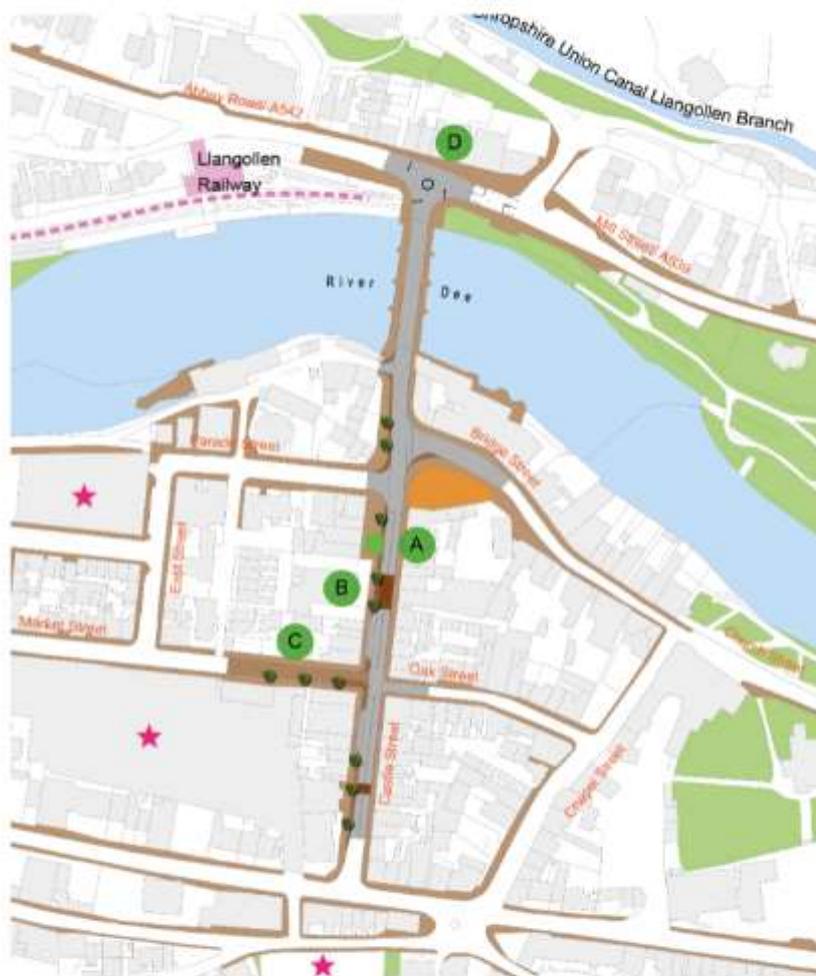
Following appraisal of the feedback received from the public in July 2018 and our desk-top analysis of existing data, a draft option was identified through consideration of each of the design elements (as set out in Chapter 5) and completion of a high-level appraisal of the technical feasibility of each element. A draft option was presented to the public in October 2018 and feedback sought. The feedback from the public included:

- General support for removing on-street car parking from Castle Street and the creation of goods only loading bays;
- Better use of existing car parks and exploring opportunities to utilise other assets, for example use of Ysgol Dinas Bran during August should be explored to provide extra capacity within the town, together with the reduction in the provision for coach parking within the Market Street car park, in order to free up capacity;
- There was widespread support for a mini roundabout to be introduced at the Abbey Road / Castle Street junction; and
- The opportunity to close Market Street between Castle Street and Greenfield to traffic received 53% in agreement and 24% in disagreement.

Following appraisal of the consultation feedback received during the consultation event held in October 2018. The preferred option for the enhancement of Llangollen Town Centre and the options are presented below.

# Astudiaeth Ddichonoldeb Llangollen 2020 Llangollen 2020 Feasibility Study

## Preferred Option Public Realm Enhancements



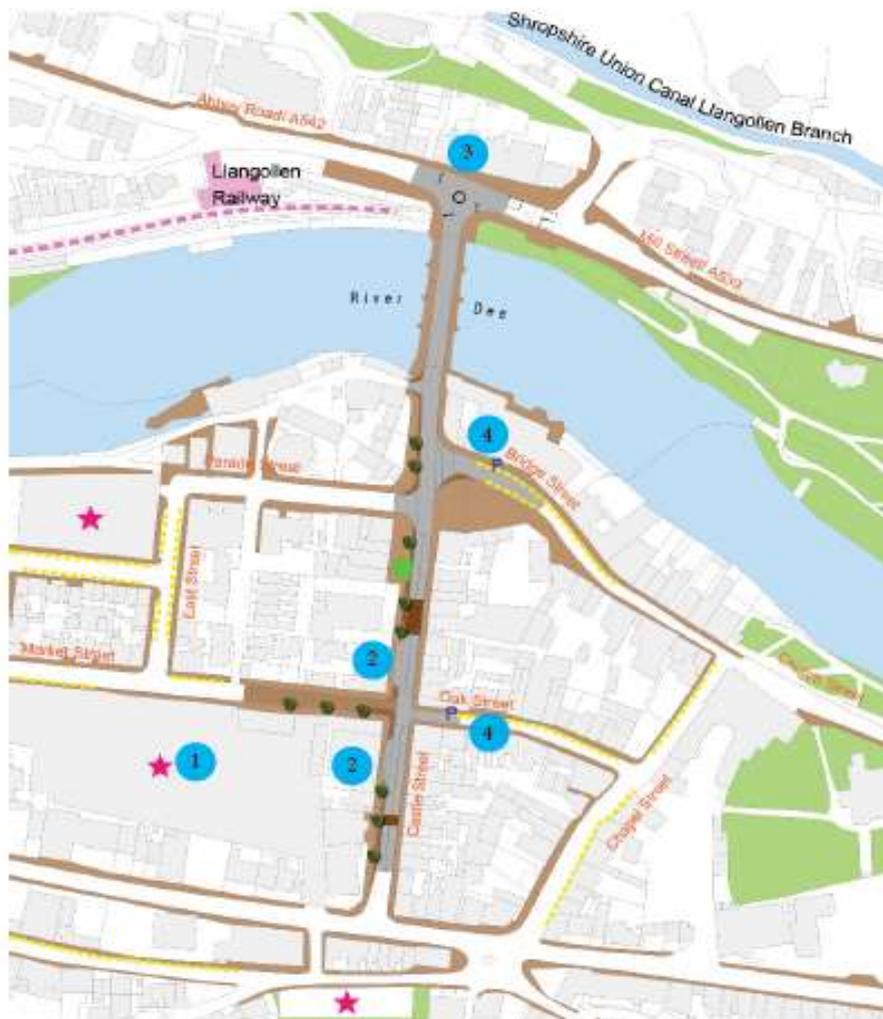
- A. Castle Street**
  1. Narrower carriageway to accommodate two vehicle lanes
  2. Improvements to road and pavement surfaces
  3. Remove road markings (double yellow lines, demarcation of on-street parking)
  4. Potential central median strip
  5. Potential for tree planting
  6. Reduce street clutter
  7. Pavement build-outs and widening in places
  8. New raised table/informal crossing points
- B. Cycle parking**
- C. Market Street** – Explore closing Market Street to traffic at the Castle Street junction
- D. Mini roundabout** – Including improving wayfinding to World Heritage Site and public realm improvements

<b>Key</b>		
Existing pavements	Key public space	
Pavement widened/built out	Key green area	
Improved road surface	Existing trees	
New raised tables/informal crossing	Proposed trees	
Existing Council owned car park		

# Astudiaeth Ddichonoldeb Llangollen 2020 Llangollen 2020 Feasibility Study

## Preferred Option

## Parking



- 1. Market Street Car Park**
  - a. Improve the turnover of spaces in the Market Street car park through exploring the removal of the long stay car parking permit and removal of the 'all-day' parking option
  - b. Relocate coach parking and replace with coach drop-off point, to release parking spaces
- 2. Castle Street**
  - a. Removal of on-street parking
  - b. Create goods only loading bays (Note: footway reduced to 1.5m in this area)
- 3. Mini-roundabout**  
Remove on-street parking at Abbey Road to enable creation of mini-roundabout
- 4. Disabled Parking**  
The creation of disabled parking on Bridge Street and Oak Street

Key			
	Existing pavements		Key green area
	Pavement widened/built out		Existing trees
	Improved road surface		Proposed trees
	New raised tables/informal crossing		New disabled parking bays
	Existing Council owned car park		Proposed loading bays
	Key public space		Existing on-street parking bays retained

## Economic Impact Assessment

Chapter 7 provides a summary of the potential economic impacts that may arise as a result of implementation of the preferred scheme. These include the potential effects of the scheme on businesses, residents and tourism, for example in terms of likely changes in footfall, expenditure, length of stay, as well as wider social and community impacts that may occur such as health and well-being benefits arising from an improved pedestrian environment, greater civic pride and better showcasing of Llangollen's distinctive character.

The delivery of public realm improvements has the potential benefit on the health and wellbeing of residents and visitors alike. In making Castle Street more walkable, through widened pavements, crossing opportunities and a more pleasant environment, residents may choose to be more active (for example walking to work for those employed in town centre businesses, or walking for recreation purposes). Positive health outcomes associated with walking include a reduction in all-cause mortality, potential reductions in the risk of other conditions such as high blood pressure and stroke and helping with weight loss and reducing obesity levels. Walking is also associated with social benefits, such as networking and social interaction.

## Next Steps

The next stage for the public realm improvements for Castle Street therefore relates to Stage 3 (Developed Design) of the RIBA Work Stages. At this stage, there is a general need for further detail (beyond feasibility stage) to inform the development of a more detailed technical design, from which more accurate specifications and costing information can be prepared. We envisage the next steps here to include the following:

- Undertake detailed traffic modelling to understand the impacts of proposed changes on the wider network. Although junction modelling has been undertaken as part of the feasibility study to understand capacity and flow requirements at the A5 and Abbey Street junctions with Castle Street, it is likely that the Welsh Government / North and Mid Wales Trunk Road Agency will require a more detailed understanding / quantified evidence base of the scheme on the wider network (particularly for example an understanding of how potential impacts relating to the closure / stopping up of Market Street);
- Preparation of outline specifications and update cost information for the scheme;
- Continue consultation with key stakeholders to inform design;
- Continue to explore funding opportunities and applications where appropriate and
- Undertake pre-application discussions with the planning department.

In terms of next steps it is therefore proposed that the Working Group and Llangollen Town Council continue on-going dialogue with the Welsh Government and North and Mid Wales Trunk Road Agency officials regarding emerging options for the A483 / Halton Roundabout and the A5 including estimated delivery timescales and the use of HGV advisory signage.

The feasibility study has presented several opportunities relating to parking that can be progressed in line with the ongoing programme of the Working Group. Next steps include:

- Liaison with the Highways Department at DCC in relation to the Market Street car park – exploring options to introduce a seasonal approach to the use of parking permits in the car park, as well as opportunities to relocate the coach parking to the Pavilion car park;
- Preparation of a concept design / layout for the Market Street car park taking the findings from the above discussions into account; and
- Liaison with Ysgol Dinas Bran over the potential use of parking areas within the school grounds during August, with a view to a trial / pilot operation taking place in 2019.

# 1 Introduction

## 1.1 Introduction

- 1.1.1 Arcadis Consulting (UK) Limited was commissioned by Cadwyn Clwyd, Llangollen Town Council (LTC) and Denbighshire County Council (DCC) to prepare a feasibility study to inform the Llangollen 2020 Project.
- 1.1.2 The Llangollen 2020 Project envisions 'a vibrant town centre that better meets the needs of residents, visitors and businesses so they are able to benefit from, engage with, and enjoy the beauty and heritage of the Dee Valley'.
- 1.1.3 The project looks to create a more pedestrian friendly town centre, an improved network of parking options and improved signage on the approach to and within the town centre.

## 1.2 What is the Reason for this Study?

- 1.2.1 Llangollen is a town that experiences a number of competing demands, as it is a key town in the Dee Valley serving the local communities and it is also a popular tourist destination, both in its own right but also due to its close proximity to the Pontcysyllte Aqueduct and Canal World Heritage Site(WHS) and a number of other popular tourist destinations. The high number of tourists during the summer months place a high level of demand on the town.
- 1.2.2 Running through the centre of the town is Castle Street, which provides access to the local businesses and services. However, Castle Street forms a key regional crossing of the River Dee and is thus heavily used by both through and local traffic. This problem is exacerbated by vehicles reportedly using the river crossing for strategic east-west movements to avoid delays on the A5/A483 interchange.
- 1.2.3 Llangollen is steeped in heritage and character and has a strong sense of community spirit. There is a desire to create a town which is accessible for all users, enabling both locals and tourists to enjoy the town to its full potential. It is acknowledged that a number of previous studies have been undertaken on various aspects such as parking and public realm, however the purpose of this study is to undertake a fresh look at the town centre and to undertake a comprehensive public realm design, incorporating parking, traffic movements and public realm considerations to inform the Llangollen 2020 project.

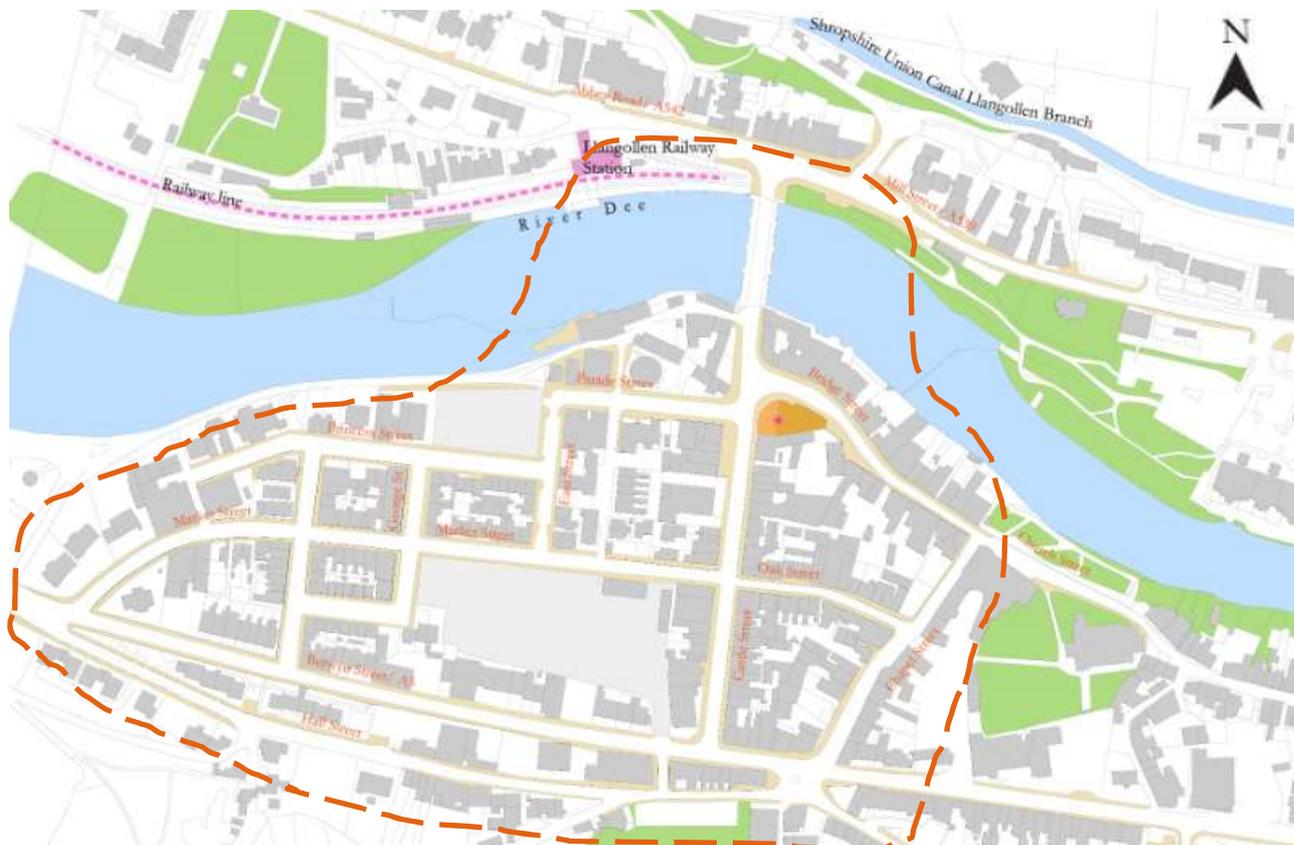
## 1.3 Study Aims

- 1.3.1 The aims of the study are to:
- Develop options for a safe and pedestrian-friendly town centre;
  - Develop options to improve the operation of key junctions and the movement of traffic around and through the town;
  - Rationalise signage to and within the study area;
  - Develop town centre parking options, and
  - Quantify, where possible, the extent to which these changes would enhance the town economically, environmentally and socially and thus contribute to county and national strategies.

## 1.4 Appraisal Area

- 1.4.1 The appraisal area of this feasibility study is shown on Figure 1.1 and covers Llangollen town centre from Victoria Square on the A5 to the east, to the A5/ Market Street/ Hall Street junction in the west, to the Castle Street/Abbey Road junction in the north.

Figure 1.1 Study Area



## 1.5 Local Context

- 1.5.1 Llangollen is a vibrant market town in north-east Wales, located on the banks of the River Dee. The town is within both the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty (AONB) and the Buffer Zone of the Pontcysyllte Aqueduct and Canal WHS. The town has been a magnet for travellers and visitors since the early 19<sup>th</sup> Century, with a number of internationally recognised attractions and events, including the Llangollen International Music Eisteddfod, the Llangollen Railway and the Llangollen Canal Corridor.
- 1.5.2 Llangollen is situated on an important and long-established crossing of the River Dee, and at the intersection of three A roads – the A5 (Queen Street / Berwyn Road), the A539 (Mill Street/ Wrexham Road) and the A452 (Abbey Road). The town is an important node on the A5, a key artery linking the port at Holyhead to the rest of the UK. The A5 has important heritage credentials and forms part of the strategically important communications route between London and Dublin designed by Thomas Telford. The bridge over the River Dee is an important hub – not only is this an important crossing point with heritage connections, but it is also where the Llangollen Railway begins and forms the key connection between the town and the Llangollen Canal Corridor (part of the Pontcysyllte Aqueduct and Canal WHS).

## 1.6 Methodology

- 1.6.1 This feasibility study has been developed through an extensive data gathering exercise, drawing on a number of specific components:

- Traffic surveys – Traffic surveys of the A5/ Castle Street, Market Street/ A5/ Hall Street and A539/ Castle Street/ A542 junctions were undertaken between 16:00 – 19:00 on Friday 13<sup>th</sup> July and between 11:00 – 14:00 on Saturday 14<sup>th</sup> July. The Saturday survey at the A539/ Castle Street/ A542 junction was repeated on 21<sup>st</sup> July between 11:00 – 14:00 due to a technical error with the survey equipment (a detailed appraisal of the traffic surveys undertaken is presented in Appendix A)
- Junction modelling – Each of the three identified junctions were modelled using the appropriate software in both the base year 2018 (using observed traffic flows) and in the design year 2023, as agreed with DCC. The operational performance of the junctions was appraised and junction modification options identified and tested where appropriate (a detailed appraisal of the traffic modelling undertaken is presented in Appendix A).
- Parking and signage review – A review of the location of existing signage within the town centre and on strategic approaches to the town centre were identified. An appraisal of the available car parking provision across the town centre was undertaken, both within car parks and on-street where identified. On-site observations were also undertaken during the various site visits throughout the year, which has informed our understanding of the operation of the town. A detailed analysis of parking data was not undertaken, but data has been drawn from the Denbighshire Town Centre Parking and Traffic Management Study (DCC/ Mott McDonald) in 2015 on parking duration and demand across the town centre.

## 1.7 Consultation and Engagement

- 1.7.1 The study has been informed through a comprehensive programme of consultation with stakeholders, businesses and local residents, both to identify issues and opportunities at the outset of the study (as set out in Chapter 4) and to comment on draft proposals (as presented in Chapter 6). A variety of consultation methods were used in order to identify issues and opportunities facing Llangollen and specifically in relation to opportunities to improve the town centre. The consultation has included online surveys, individual discussions and public drop-ins.

## 1.8 Structure of the Report

- 1.8.1 This report is structured as follows:

- Chapter 2 provides an appraisal of the relevant Welsh legislation, as well as policy at the national and local level;
- Chapter 3 provides an appraisal of the town centre, with a particular focus on the transport and economic context;
- Chapter 4 summarises the feedback received from the extensive consultation with key stakeholders and members of the public that informed the preparation and development of options;
- Chapter 5 sets out the design objectives and provides details on the individual design components that have informed the identification and development of options;
- Chapter 6 sets out the recommended and preferred option, following the identification, development and appraisal of the individual aspects of the option design;
- Chapter 7 provides a summary of the potential economic impacts that may arise as a result of implementation of the preferred scheme; and
- Chapter 8 provides the conclusions and recommended next steps.

## 2 Policy and Legislation

### 2.1 Introduction

2.1.1 This chapter provides a summary of legislation and policy of relevance to the study.

### 2.2 Legislation

#### **Active Travel (Wales) Act (2013)**

2.2.1 The Active Travel (Wales) Act came into force in 2013 and places a legal duty on local authorities to continuously improve infrastructure and routes for pedestrians and cyclists. The Act symbolises a landmark shift in policy direction to encourage and prioritise walking and cycling. The Act requires all local authorities to prepare maps of current access and identify potential future routes for use for active travel. The Act places a requirement upon all new road schemes and improvement schemes to consider the needs of pedestrians and cyclists at every stage, in particular during design. The Act aims to promote active travel by securing new and improved active travel routes and related facilities to enable people to partake in sustainable travel.

#### **Environment (Wales) Act (2016)**

2.2.2 The Environment (Wales) Act 2016 makes a requirement to manage natural resources in a more sustainable way. The Act highlights Welsh Government's priority to protect, maintain and enhance the environment and positions Wales as a low carbon, green economy and adaptive to climate change. The Act provides the foundation for further legislation to protect the environment.

#### **Well-being of Future Generations (Wales) Act (2015)**

2.2.3 The Well-being of Future Generations (Wales) Act (2015) aims to improve the social, economic, environmental and cultural well-being of Wales, with a vision of Wales in 2050 being 'the best place to live, learn, work and do business'. There are seven well-being goals:

- A globally responsible Wales;
- A more equal Wales;
- A prosperous Wales;
- A Wales of cohesive communities; and
- A resilient Wales;
- A Wales of vibrant culture and thriving Welsh Language.
- A healthier Wales;

2.2.4 The Act requires all public bodies to consider the long-term implications of decisions, ensuring engagement with local people to ensure a supported approach.

### 2.3 National Policy and Programmes

2.3.1 At the national level there is commitment to improve the quality of the public realm, with a key approach to design streets for all users. A summary of relevant policy and strategy documents is provided below.

#### **One Wales: Connecting the Nation – Wales Transport Strategy (2008)**

2.3.2 The Wales Transport Strategy (WTS) recognises the role of transport in the wider economy and in creating a sustainable future. The WTS aims to promote a national integrated sustainable transport system with the vision to 'promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life'. The priorities of the WTS include:

- Reducing greenhouse gas emissions and other environmental impacts;
- Improving public transport and better integration between modes;
- Improving links and access between key settlements and sites across Wales and strategically important all-Wales links;
- Enhancing international connectivity; and
- Increasing safety and security.

### **Partnership for Growth: Welsh Government Strategy for Tourism 2013-2020 (2013)**

- 2.3.3 The Partnership for Growth strategy drives the tourism industry across Wales. The strategy has a target of a 10% growth in real tourism earnings in Wales during the plan period under the goal of growing tourism in a sustainable way. The strategy is built round five pillars: promoting the brand; product development; people development; profitable performance; and place building.
- 2.3.4 The strategy has the following vision for tourism in Wales “Wales will provide the warmest of welcomes, outstanding quality, excellent value for money and memorable, authentic experiences to every visitor.” The strategy additionally, has the goal for “Tourism to grow in a sustainable way and to make an increasing contribution to the economic, social and environmental well-being of Wales” and the ambition to “Grow tourism earnings in Wales by 10% or more by 2020.”

### **Natural Resources Policy (2015)**

- 2.3.5 The Natural Resources Policy (NRP) (2015) is the second statutory product of the Environment (Wales) Act. The focus of the NRP document is the sustainable management of Wales’ natural resources, to maximise their contribution to achieving goals within the Well-being of Future Generations Act. The policy set out three priorities:
- Delivering nature-based solutions;
  - Increasing renewable energy and resource efficiency; and
  - Taking a place-based approach.
- 2.3.6 The Natural Resources Policy Statement states that motorised transport and industry are the main Welsh man-made sources of pollution. It is noted that levels of pollution can be lowered through measures employed in identified hotspots and through actions to drive improvements in technology and industrial practices.
- 2.3.7 Air and noise pollution are considered the two biggest environmental contributors to the burden of disease in the UK. There is an estimated cost of £9-19bn per year owing to fine particulate pollution<sup>2</sup>. It has also been estimated that in Wales in 2010, approximately 1,320 deaths could be attributed to long-term exposure to fine particles that can be inhaled deep into the lungs<sup>3</sup>. The estimated cost of noise pollution is at approximately £7-10bn per year<sup>4</sup>. The Natural Resources Policy Statement also indicates that the homes of more than 200,000 people in Wales are exposed to levels of road traffic noise exceeding World Health Organisation night noise guidelines.

### **Taking Wales Forward 2016 -2021 (2017)**

- 2.3.8 Taking Wales Forward sets out how this Government will deliver within this Assembly term. The four cross-cutting strategies are:
- Prosperous and Secure – aim is better jobs, closer to home. We want work and secure housing for all, supported by sustainable growth in our businesses.
  - Healthy and Active – commitment to helping improve health and well-being for all.
  - Ambitious and Learning – states that everyone deserves the opportunity to achieve their potential and that education changes lives and drives economic growth.
  - United and Connected – continue to build a united and connected society, where everyone is respected and valued. The transport actions are:

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<sup>2</sup> [www.gov.uk/air-quality-economic-analysis](http://www.gov.uk/air-quality-economic-analysis)

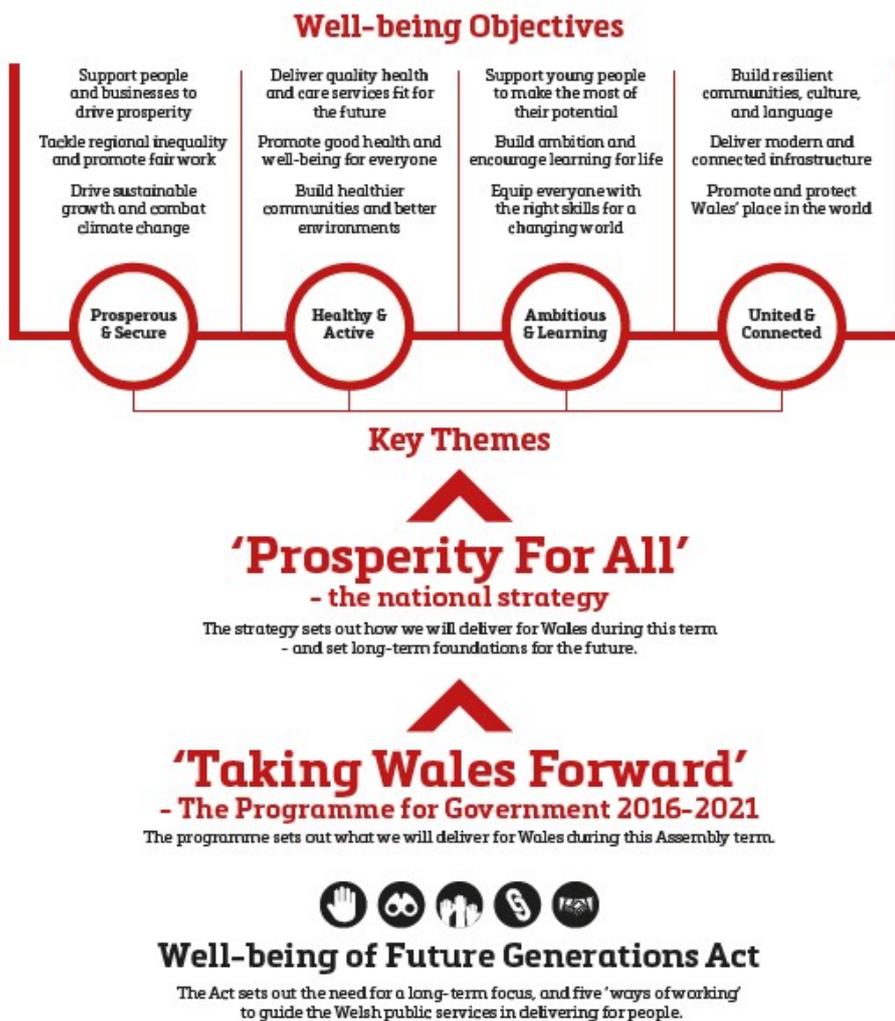
<sup>3</sup> [www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution](http://www.gov.uk/government/publications/estimating-local-mortality-burdens-associated-with-particulate-air-pollution)

<sup>4</sup> [www.gov.uk/noise-pollution-economic-analysis](http://www.gov.uk/noise-pollution-economic-analysis)

**Prosperity for All – The National Strategy (2017)**

2.3.9 The aim of Welsh Government’s Prosperity for All (19 September 2017) is for “every one of us having a good quality of life, and living in strong, safe communities”. The strategy takes the key commitments of Taking Wales Forward 2016 -2021 and sets out how these fit with the work of the wider Welsh public service. The relationship between the Propensity for all – The National Strategy (2017), Taking Wales Forward 2016-2021 (2017) and the Well-being and Future Generations Act is presented in Figure 2.1. The Strategy aims to deliver quality health and care services, promote good health and well-being, and build healthier communities and better environments.

Figure 2.1 Taking Wales Forward Relationship with Prosperity for All



**Prosperity for All: Economic Action Plan (2017)**

2.3.10 The Prosperity for All: Economic Action Plan (EAP) (Welsh Government, 11 December 2017) aims to grow an inclusive economy whereby spreading opportunity and promoting well-being are central to the Plan. The Plan aims to contribute towards the delivery of Prosperity for All – The National Strategy.

2.3.11 Within the EAP, there is a commitment to a Regionally Focused Model of Economic Development to develop the distinctive strengths of each region in pursuit of inclusive growth and to improve transport integration. The EAP includes a five-year programme of transport capital funding through Transport for Wales for both transport maintenance and new projects.

2.3.12 Welsh Government's approach will be collaborative in order to ensure that efficiency of the transport network is maximised by addressing bottlenecks and pinch points. Collaboration will occur amongst the following actors in particular:

- The new Joint Governance Committee;
- The Chief Regional Officers;
- Transport for Wales; and
- Local partners; including local authorities and regional transport authorities.

2.3.13 The Plan aims to deliver infrastructure capable of supporting a range of economic activities and creating attractive places to live, learn, work and invest. The National Transport Finance Plan details the transport infrastructure projects to be delivered.

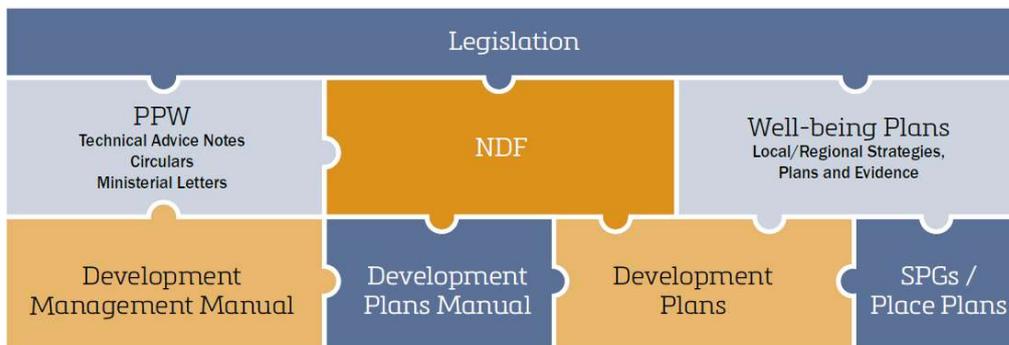
2.3.14 The EAP aims to decarbonise the transport network and improve air quality. In ten years' time, the aim is for all taxis and buses in Wales to have a zero-carbon footprint.

**Planning Policy Wales: Edition 10 (2018)**

2.3.15 Planning Policy Wales (PPW) aims to deliver the vision for Wales set out in the Well-being of Future Generations Act and provides the context for land use planning in Wales. The planning policies are supplemented with a series of Technical Advice Notes (TANs) and policy clarification letters, which together comprise national planning policy.

2.3.16 PPW additionally, sets out Welsh Government objectives, strategies and policies related to land use. PPW Edition 10 has been shaped around the policy themes of the well-being goals and updated to reflect the most recent Welsh Government strategies and priorities. PPW Edition 10 includes four key themes: Placemaking, Active and Social Places, Productive and Enterprising Places and lastly Distinctive and Natural Places. The Planning Framework for Wales, within which PPW Edition 10 sits is set out within Figure 2.2.

Figure 2.2 Planning Framework for Wales



**Emerging National Development Framework**

2.3.17 The National Development Framework (NDF) will be a 20-year national spatial plan for Wales (Welsh Government, 2020 – 2040), replacing the current Wales Spatial Plan. Consultation for the NDF: Issues, options and preferred option ended on 23rd July 2018 and responses are currently being reviewed. It is intended for a consultation on a draft NDF to take place in summer 2019 and for the NDF to be published in September 2020.

2.3.18 The draft vision is to “help deliver sustainable places across Wales by 2040, by supporting positive placemaking and ensuring that our spatial choices direct development to the right places, make the best use of resources, create and sustain accessible, healthy communities, protect our environment and support prosperity for all”. The key objectives related to the study are set out in Table 2.1.

Table 2.1 NDF Objectives

Theme	Objective
Climate change, decarbonisation and energy	<ul style="list-style-type: none"> <li>To enable the transition to a low-carbon economy.</li> <li>To enable management of and adaption to the consequences of climate change.</li> <li>To support decarbonisation in Wales and help deliver the Welsh Government's greenhouse gas emissions and renewable energy targets.</li> </ul>
Economic prosperity and regeneration	<ul style="list-style-type: none"> <li>To provide strategic direction for the delivery of infrastructure that supports economic prosperity for all and green growth.</li> <li>To support strong, regional economies.</li> <li>To tackle inequality and provide strategic direction for regeneration initiatives.</li> </ul>
Rural Wales	<ul style="list-style-type: none"> <li>To enable the delivery of jobs, services and infrastructure to strengthen rural communities and retain young people.</li> </ul>
Transport	<ul style="list-style-type: none"> <li>To support a reduction in travel by private vehicles and a growth in walking, cycling and public transport.</li> <li>To facilitate the delivery and improvement of key transport infrastructure to decarbonise travel.</li> </ul>
Cohesive Communities	<ul style="list-style-type: none"> <li>To support the delivery of cohesive communities.</li> </ul>

#### National Transport Finance Plan (2017 Update)

2.3.19 The Wales National Transport Plan, 2015 sets out the goals to enhance the development of a sustainable transport system across Wales. The National Transport Finance Plan: 2017 Update provides an overview on the delivery of the schemes and updated timetable of financing. The A5/A483 South of Wrexham Bypass to English Border Improvement is identified within the Welsh Government's National Transport Finance Plan (2017 Update) as a scheme within its pinch-point programme.

## 2.4 Local Policy

### Denbighshire County Council Corporate Plan 2017-2022

2.4.1 The overall ambition of this Corporate Plan is to ensure that Denbighshire is a place where residents and businesses are well connected and resilient; where young people have opportunities for affordable housing and acquire skills and jobs to lead successful and fulfilling lives and where we all enjoy an attractive and protected environment. The priorities of the plan are:

- **Housing** – Everyone is supported to live in homes that meet their needs;
- **Connected Communities** – Communities are connected and have access to goods and services locally, online or through good transport links;
- **Resilient Communities** – The Council works with people and communities to build independence and resilience;
- **Environment** – The environment is attractive and protected, supporting well-being and economic prosperity; and
- **Young People** – Younger people want to live and work here, and have the skills to do so.

2.4.2 To achieve connected communities DCC will:

- Better enable people to travel to work, education and services.
- Invest in roads and bridges to maintain a viable, sustainable infrastructure.

- Make superfast broadband and mobile networks available to everyone.
- Improve infrastructure to make it easier to stage events.

2.4.3 To deliver an attractive and protected environment DCC will:

- Reduce carbon emissions from Council assets by at least 15% by 2022.
- Increase renewable energy provision across the county.
- Reduce the number of properties at risk of flooding in Denbighshire.
- Increase the biodiversity quality of important habitats and species across the county.
- Raise the profile of the county as a location to visit, in order to capitalise on Denbighshire's economic potential.

2.4.4 Table 2.2 sets out the contribution the Llangollen 2020 project would make towards DCC Corporate Strategy 2017-2020.

#### **Denbighshire County Council Local Development Plan 2006-2021 (2013)**

2.4.5 The Denbighshire Local Development Plan (LDP) adopted in 2013 sets out the local planning policies to guide development across Denbighshire. The LDP sets out a vision for Denbighshire to the year 2021 *'that Denbighshire, through sustainable development, will have a vibrant urban coast, with thriving market towns and rural areas. The housing and employment needs of the County will be met, the high-quality environment protected and enhanced, and a high quality of life maintained for all communities with full recognition that we have a strong Welsh language and culture that should be maintained and protected throughout the County'*.

2.4.6 The LDP recognises the importance of retail in the local economy, to reduce the need to travel and the importance of maintaining cohesive communities. LDP policies are described under five key themes namely, Respecting Distinctiveness (RD), Building Sustainable Communities (BSC), Promoting a Sustainable Economy (PSE), Valuing Our Environment (VOE) and Achieving Sustainable Accessibility (ASA). Policy PSE 8 is relevant to this study as it permits development within town centres if they enhance the viability of the town centre.

#### **North Wales Joint Local Transport Plan (2015)**

2.4.7 The North Wales Joint Local Transport Plan (2015) combines the LTPs of six local authorities in North Wales to further enhance the vision for economic prosperity, growth and well-being in North Wales until 2020. The vision of the North Wales LTP is to 'remove barriers by delivering safe, sustainable, affordable and effective transport networks'. The plan aims to improve the strategic road and rail network in North Wales, improve the resilience of the network from unplanned events, improve accessibility across the region and extend provisions for alternative travel modes to the car.

2.4.8 The Transport Plan recognises the importance of the A5 as a key road crossing North Wales from Llangollen and Corwen in the east to Bangor and Anglesey in the west. This strategic connection provides the opportunity to maximise economic connections within neighboring regions and authorities.

Table 2.2 Llangollen 2020 Contribution to DCC Corporate Plan 2017-2022

<p><b>Corporate Plan 2017-2022 Priorities</b></p>	<p><b>If the Llangollen 2020 Project is implemented, we expect to see:</b></p>
<p><b>Environment: Attractive and protected, supporting well-being and economic prosperity. To achieve DCC will:</b></p> <p>Raise the profile of the county as a location to visit, in order to capitalise on Denbighshire’s economic potential.</p>	<p>An increase in the value of tourism spend in the town and surrounding area due to:</p> <p>Greater footfall and dwell time in Llangollen Town Centre</p> <p>More visits and return visits to the area</p>
<p><b>Connected Communities: Communities are connected and have access to goods and services locally, online and through good transport links. To achieve DCC will:</b></p> <p>Better enable people to travel to work, education and services.</p> <p>Invest in roads and bridges to maintain a viable, sustainable infrastructure.</p> <p>Improve infrastructure to make it easier to stage events.</p>	<p>Improved travel connectivity across the county due to:</p> <p>Less traffic congestion in Llangollen Town Centre and on the A5 for those commuting to/from education or work, and facilitating popular events at Llangollen Pavilion and the Llangollen Heritage Railway</p> <p>A safe and functional bridge (Grade 1 listed ancient monument)</p>
<p><b>Young People: A place where younger people will want to live and work and have the skills to do so. To achieve this we will:</b></p> <p>Develop greater employment opportunities for younger people.</p>	<p>Thriving local businesses offering attractive employment opportunities for young people, helping:</p> <p>Young people make the right choices to prepare them for the work that they want to do and feel confident and well-supported to enter employment; and</p> <p>Offering employment that appeals to young people and matches their skills.</p>
<p><b>Resilient Communities: The Council works with people and communities to build independence and resilience. To achieve DCC will:</b></p> <p>Support people to plan and shape their communities.</p>	<p>Llangollen residents own this project (as evidenced by the success of their crowdfunding for shared space consultant) and this project expects:</p> <p>People will be more resilient and independent (Llangollen residents will continue to drive forward initiatives to improve the area);</p> <p>Residents feeling informed and empowered to influence services; and</p> <p>Everyone feeling safe in their communities (reduced road traffic accidents, reduced air pollution)</p> <p>The shared space scheme and redesigned Centenary Square will support the resurgence of a resilient, vibrant and connected community.</p>

**Denbighshire County Council Economic and Community Ambition 2013-2023 (2013)**

2.4.9 This strategy sets out the long-term ambitions for Denbighshire’s local economy and the expected economic growth benefits with six corporate priorities: Infrastructure for growth; Supported and connected businesses; Opportunities for growth; High quality skilled workforce; Vibrant towns and communities; and Well promoted Denbighshire. ‘Theme 5: Vibrant towns and communities’ aims to make all towns across Denbighshire vibrant, prosperous and sustainable. One of the headline actions is to review parking and traffic management to promote economic sustainability and growth.

2.4.10 Table 2.3 sets out the contribution the Llangollen 2020 Project would make towards DCC’s Economic and Community Ambition Strategy 2013-2023.

Table 2.3 Llangollen 2020 Contribution to DCC Economic and Community Ambition Strategy 2013-2023

Economic & Community Ambition Strategy 2013 – 2023 Themes and Workstream Priorities	If the Llangollen 2020 Project is implemented, we expect to see:
<p><b>Theme 1: Infrastructure for growth</b></p> <p>Workstream 1.1: Transport a) identify the elements of the local transport infrastructure and network that risk limiting local economic development and ensure these are reflected in appropriate investment plans</p>	<ul style="list-style-type: none"> <li>• Fewer reports of travel difficulties presenting a barrier to employment</li> <li>• Key strategic employment sites either in use or ready to be developed</li> <li>• Better range and availability of business premises across Denbighshire</li> </ul>
<p><b>Theme 3: Opportunities for growth</b></p> <p>Workstream 3.1A: Tourism a) Explore and promote opportunities for growth/diversification, with a particular focus on: i. Outdoor and activity tourism ii. Food and drink tourism iii. Welsh language, culture and heritage c) Work with tourism businesses generally, with a particular focus on tourism skills development</p>	<ul style="list-style-type: none"> <li>• More revenue generated from Tourism</li> <li>• More businesses and more jobs in the tourism sectors</li> </ul>
<p><b>Theme 5: Vibrant towns and communities</b></p> <p>Workstream 5.1: Review parking/traffic management in all towns and consider changes that will promote economic sustainability or growth<sup>5</sup></p>	<ul style="list-style-type: none"> <li>• Fewer vacant units and increased footfall in our town centres</li> <li>• More residents happier with their town centre</li> <li>• More town centre &amp; rural businesses feeling confident about the future</li> <li>• Reduced deprivation, lower unemployment rates and higher levels of average income across Denbighshire</li> </ul>
<p><b>Theme 6: Well promoted Denbighshire</b></p>	<ul style="list-style-type: none"> <li>• More people moving into the area</li> </ul>

<sup>5</sup> Which will reinvigorate the Town Centre, leading to reductions in empty shops, investment in existing businesses etc

Workstream 6.1: Effective Marketing c) Develop effective promotion of Denbighshire, incorporating both traditional and newer modes of communication, in particular social media and PR

e) Encourage local residents to see Denbighshire as a place to 'visit' as well as live in.

Workstream 6.2: Destination Management c) Continue to develop and embed Town & Area Plans, across Council Services and priorities, with partners and within communities themselves.

to live and work

- Increased visitor numbers and spend
- More businesses seeking to locate in Denbighshire

### **Denbighshire County Council Destination Management Plan 2017-20 (2017)**

- 2.4.11 The vision for the Destination Management Plan is to *'develop a thriving visitor economy in Denbighshire which celebrates the unique strengths of the county, supports jobs, generates business opportunities and improves the range and qualities of amenities available for visitors and residents whilst safeguarding the local environment'*. An expected outcome of the Destination Management Plan is that tourism businesses in Denbighshire maximise their potential and that visitors have a consistent and high-quality experience.

### **Sustainable Tourism Strategy and Action Plan 2015-2020 (2015)**

- 2.4.12 The Sustainable Tourism Strategy and Action Plan for the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty (AONB) covers a five-year period up to 2020. The strategy seeks to pursue forms of tourism that are appropriate to the AONB and which *'take full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities'*. The strategy aims to raise awareness of the Clwydian Range and Dee Valley and all that it has to offer to visitors, as well as encouraging more and longer stays year round, to develop and enhance year round visitor experiences and to improve, manage and monitor visitor flows and environments for tourism, together with spreading benefits and addressing local impacts.

## 3 Existing Situation

### 3.1 Introduction

- 3.1.1 This chapter summarises the existing situation in Llangollen in terms of the existing town centre environment (such as the composition of buildings and public realm), the local economy and transport context. There is a wide range of previous works that have been undertaken in relation to Llangollen that provide extensive background knowledge, which has been drawn upon where relevant.

### 3.2 Llangollen Town Centre

#### Building Form

- 3.2.1 Llangollen is a small town with a population in the region of 4,100 according to mid-2017 year population estimates (ONS, 2017). The town has a distinct character, with attractive buildings in various styles and proportions, with a mixed urban form focused on Castle Street, from which branch a number of streets such as Oak Street, Bridge Street, Parade Street and Market Street.
- 3.2.2 Castle Street is made up of attractive and substantial red-brick buildings, with the majority of properties comprising retail uses on the ground floor, with a mixture of commercial and residential uses on the first and second floors. The roads branching off Castle Street are characterised by a plethora of property types, in various styles and proportions. These side streets are home primarily to commercial, residential and community uses.
- 3.2.3 Street patterns and buildings found throughout Llangollen provide a snapshot of the areas' rich history, which help to tell the story of Llangollen's transition from a small rural town, to a Georgian tourist destination and its rise and fall as a Victorian boom town. Llangollen's 20<sup>th</sup> Century reinvention as a tourist destination centred around its historic character creates a unique visitor experience, which attracts people from all over the world.

#### Conservation

- 3.2.4 In order to protect Llangollen's unique character and historic setting, the central core of Llangollen town is part of a Conservation Area, moreover the public realm context is set by the location of Llangollen within the Buffer Zone of the Pontcysyllte Aqueduct and Canal WHS and within the Clwydian Range and Dee Valley AONB. The town's urban character is protected through **four pieces of Supplementary Planning Guidance (SPG)**: as part of the **WHS Buffer Zone**, being within the **AONB**; being **a conservation area** and **in its own right**.

#### Public Realm

- 3.2.5 The town centre has benefited from recent public realm enhancements at the Centenary Square, which was officially opened in the Summer of 2018. The enhancement scheme has provided a higher quality public space in the town which can be seen as a benchmark for future enhancement proposals. The scheme includes repaving, new street furniture and tree planting. The remainder of the town centre has no co-ordinated public realm, with a wide range of materials in use throughout the streetscape.

#### Pedestrian Environment

- 3.2.6 Along Castle Street the pavements are of standard width (approximately 1.8m) along the majority of the length of the street. However, the large volumes of pedestrians using the pavements, especially during the summer months and the dominance of vehicular traffic using the street, especially when Heavy Goods Vehicles (HGVs) wingmirrors can overhang the pavement and vehicles are observed to park illegally on the pavements, results in a narrow pedestrian environment.
- 3.2.7 There are no pedestrian crossing facilities along Castle Street, which is exacerbated by the high volumes of vehicular traffic using the street. There are two signal controlled crossings across the A5, however neither is within the vicinity of the Castle Street junction, hence the desire line for pedestrian movements. There is also a signal controlled pedestrian crossing on the A539 Mill Street,

which was installed to assist school children walking to and from school. However, it should be noted at the end of the school day not all children were observed to cross the road using the crossing

- 3.2.8 There is a significant opportunity to improve the public realm and the environment for pedestrians within Llangollen, through making the town centre and in particular Castle Street more pedestrian friendly and taking steps to reduce the dominance of vehicular traffic.

### 3.3 Local Economy

#### Economic Activity

- 3.3.1 Llangollen has similar levels of economically active / inactive and unemployed residents when compared to Denbighshire and Wales as a whole. However, in keeping with the fact that Llangollen has an older population, as shown in Table 3.1.

Table 3.1: Economic Activity<sup>6</sup>

	Llangollen	Denbighshire	Wales
Economically active	67%	66%	66%
- In employment: Employee	71%	77%	79%
- Self-employed	23%	16%	14%
- Unemployed	6%	7%	7%
Economically inactive	33%	34%	34%
- Retired	62%	56%	50%
- Student	13%	15%	19%
- Looking after home or family	11%	10%	12%
- Long-term sick or disabled	14%	18%	19%

- 3.3.2 Table 3.2 below shows that a higher proportion of residents living in Llangollen work in higher managerial and lower managerial professions when compared to Denbighshire and Wales as a whole. The data also shows that a lower proportion of residents living in Llangollen work in routine and semi-routine occupations, when compared to Denbighshire and Wales as a whole.

Table 3.2: Socio-economic classification<sup>7</sup>

	Llangollen	Denbighshire	Wales
Higher managerial, administrative and professional occupations	9%	7%	8%
Lower managerial, administrative and professional occupations	24%	21%	20%
Intermediate occupations	9%	11%	12%
Small employers and own account workers	15%	12%	9%
Lower supervisory and technical occupations	10%	8%	8%
Semi-routine occupations	15%	17%	16%
Routine occupations	9%	12%	13%
Never worked and long-term unemployed	4%	5%	5%
Not classified	6%	7%	9%

<sup>6</sup> Source: 2011 Census data

<sup>7</sup> Source: 2011 Census data

## **Retail**

- 3.3.3 The Denbighshire Retail Study (2018)<sup>8</sup> states that Llangollen town centre contains around sixty retail units according to Experian Shop Point data, with few national chains and a high proportion of independent retailers. The Dee Valley retail area covers the settlements of Llangollen, Llandrillo and Corwen and comprises a total population of approximately 7,600 (with population projections estimating this is likely to increase to around 8,500 people over the next ten years). The retail catchment area for the Aldi store in Llangollen extends to cover a residential population of approximately 16,000 people.

## **Footfall**

- 3.3.4 DCC has provided mean footfall data for Castle Street for two consecutive years (2015/16 and 2016/17), with data by hour of day, day of the week and month of the year. The data shows little difference between the two years in terms of overall averages.
- 3.3.5 Footfall along Castle Street is relatively high, particularly during peak summer periods. Footfall data provided by DCC for 2016/17 shows an average monthly footfall in Castle Street of 92,000, with significant seasonal variation between peak and off-peak times of the year (an average footfall of nearly 140,000 in August compared to approximately 50,000 in January).
- 3.3.6 As part of this study, pedestrian counts were undertaken along Castle Street during July 2018; counts during an hour within the afternoon identified 275 pedestrians, similar to the hourly mean of 262 provided by DCC.

## **Visitor Economy**

- 3.3.7 Visitor data for 2016 has been produced for both Denbighshire and rural Denbighshire using the STEAM model<sup>9</sup>. Analysis of the STEAM data identifies the following for rural Denbighshire:
- The economic impact of tourism to rural Denbighshire in 2016 was some £208.4m, divided between sectors as follows: accommodation (14.4%), food and drink (16%), recreation (5%), shopping (19.9%), transport (7.8%) and indirect expenditure (36.9%). The value of shopping to the tourism economy was estimated at £41.44m;
  - In terms of employment, tourism was responsible for 2,918 FTE (Full Time Equivalent) jobs. Again, looking at specific sectors, this was divided as follows: accommodation (24.8%), food and drink (24.5%), recreation (6.4%), shopping (21.3%), transport (4.1%) and indirect employment (19%);
  - In 2016 the number of staying visitors was 619,800 (a 6% increase on 2015), with the number of day visitors reaching 2.19m; and
  - Within rural Denbighshire, there are 2,377 hotel bed spaces and 10,713 non-serviced bed spaces.
- 3.3.8 The Pontcysyllte Aqueduct and Canal WHS: A Strategy for Llangollen undertaken on behalf of DCC in 2011 undertook a visitor survey in order to identify visitor characteristics such as length of stay and average expenditure. Key points to note from this survey include that:
- The average length of stay for staying visitors is two nights;
  - Older people form the most common age group amongst visitors;
  - 62% of visitors are repeat visitors; and
  - Average visitor spend per day in Llangollen has been estimated at £18.16 for a day visitor and just over £30 per day for a staying visitor (these figures include eating and drinking, spend on attractions and general shopping).

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<sup>8</sup> Denbighshire Retail Study, 2018, Corporate Research and Information Unit, Conwy County Borough Council

<sup>9</sup> STEAM Final Trend Report for 2005-2016 Denbighshire County Council (2016)

<https://www.discoverdenbighshire.wales/wp-content/uploads/2017/02/STEAM-Report-2016-Denbighshire.pdf>

- 3.3.9 Llangollen attracts a large number of tourists due to the significance and attractiveness of the town and the heritage of the town and surrounding area. The key visitor attractions include:
- Llangollen Pavilion – Llangollen is most widely known for the world-famous International Musical Eisteddfod, which takes place every year during the second week of July in the Llangollen Pavilion. Over five thousand singers, dancers and instrumentalists from around 50 countries perform to audiences of between 40-50,000 people over the six day event.
  - Pontcysyllte Aqueduct and Canal WHS – Llangollen is within the Buffer Zone of the Pontcysyllte Aqueduct and Canal WHS, which was designated World Heritage status in 2009 by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). The World Heritage Site incorporates the Pontcysyllte Aqueduct (near Trevor), the Chirk Aqueduct (near Oswestry) and the Horseshoe Falls (at Llantysilio). The Pontcysyllte Aqueduct attracted over 333,000 visitors in 2017<sup>10</sup>.
  - Llangollen Railway – The only standard gauge heritage railway in North Wales, which is run by volunteers and operates on part of the former Ruabon – Barmouth Great Western Railway (GWR) route that closed in 1965. Today the Llangollen Railway is a significant tourist attraction, with 100,000 visitors in 2017<sup>11</sup>. In addition the station hosts a number of events throughout the year, which also attracts a number of visitors.
  - Castell Dinas Bran – The castle overlooks Llangollen and attracted some 40,300<sup>12</sup> visitors in 2017.
  - Plas Newydd – This Regency home is located on Hill Street and presents an exhibition of Lady Eleanor Butler and Miss Sarah Ponsonby's possessions and an audio tour of their story. It is open daily from April to September.
  - Landscape attractions within the vicinity of Llangollen include the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty, the Horseshoe Pass and the Panorama leisure route. Between them these attractions account for many thousands of visitors each year.

## 3.4 Transport Context

- 3.4.1 Llangollen provides both an important local and strategic role within the region. Its location on the A5 and the presence of one of a limited number of crossing points across the River Dee within Llangollen, means a high volume of through traffic passes through the town, including HGVs.
- 3.4.2 Moreover, Llangollen serves as a local centre providing access to services and facilities, both for residents of Llangollen and those from nearby communities and many residents live within or close to the town centre. The influx of a high volume of residents during the summer months adds additional strain on the transport demands on the town centre. This section sets out the transport context of the study.

### Method of Travel

- 3.4.3 Analysis of Census data has shown that for those who are employed a higher proportion (9%) of residents of Llangollen work mainly at or from home, when compared to Denbighshire and Wales as a whole, as shown in Table 3.3 and a lower proportion (60%) of Llangollen residents drive a car or van to work. A higher proportion (19%) of residents of Llangollen travel to work by foot indicating that many residents both reside and work within the town.

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<sup>10</sup> Welsh Government, *Visits to Tourist Attractions in Wales 2017, 2018*

<sup>11</sup> Welsh Government, *Visits to Tourist Attractions in Wales 2017, 2018*

<sup>12</sup> Denbighshire County Council

Table 3.3: Method of Travel<sup>13</sup>

	Llangollen	Denbighshire	Wales
Work mainly at or from home	9%	6%	5%
Train	1%	1%	2%
Bus, minibus or coach	3%	3%	5%
Taxi	1%	1%	0%
Motorcycle, scooter or moped	0%	0%	1%
Driving a car or van	60%	67%	67%
Passenger in a car or van	5%	7%	7%
Bicycle	1%	2%	1%
On foot	19%	12%	11%
Other method of travel to work	1%	1%	1%

### Distance Travelled to Work

- 3.4.4 Analysis of distance travelled to work has shown that 21% of Llangollen residents travel less than 2km to work and a higher proportion travel between 10-20km (23%) compared to Denbighshire and Wales as a whole, as shown in Table 3.4. A greater proportion of work journeys undertaken by Llangollen residents (6%) are between 40-60km, compared to 3% for Denbighshire and 2% for Wales as a whole.

Table 3.4: Distance Travelled to Work<sup>14</sup>

	Llangollen	Denbighshire	Wales
Less than 2km	21%	20%	17%
2km to less than 5km	4%	11%	16%
5km to less than 10km	7%	15%	17%
10km to less than 20km	23%	13%	16%
20km to less than 30km	4%	10%	7%
30km to less than 40km	5%	5%	3%
40km to less than 60km	6%	3%	2%
60km and over	3%	3%	4%
Work mainly at or from home	16%	12%	10%
Other	10%	8%	8%

### Strategic Transport Location

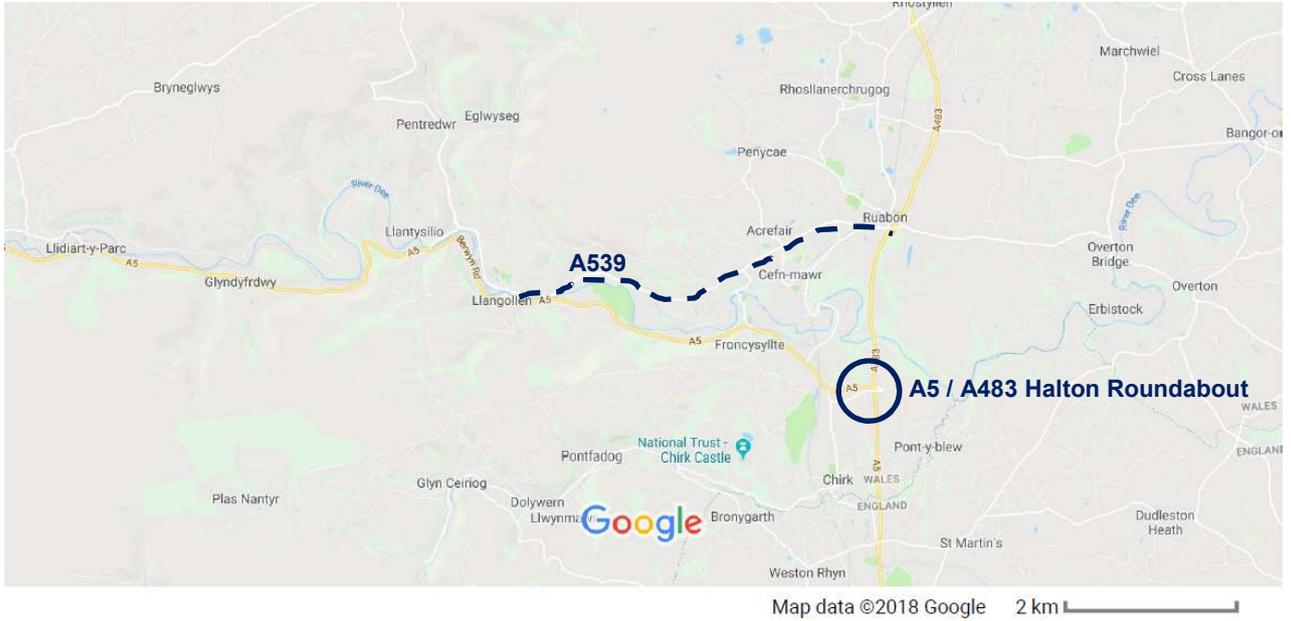
- 3.4.5 Llangollen is located on a strategic transport route into and out of Wales. The A5 runs in an east-west direction to the south of Llangollen and is a heavily-used trunk road, which connects the port at Holyhead to north-east Wales, Chester and the wider transport network.
- 3.4.6 Moreover, Llangollen forms a strategic position within the region with its location adjacent to the River Dee, together with the bridge crossing of the river, which is one of a handful within the sub-region. This in turn results in additional traffic using Castle Street and the junctions serving it at either end.

<sup>13</sup> Source: Census, 2011

<sup>14</sup> Source: Census, 2011

This is exacerbated by the capacity issues and subsequent delays at the Halton Roundabout (A5/A483 roundabout junction), which is worse during the summer months, as traffic travelling between the A5 (Llangollen) and A483 (Ruabon) is reported to use the route through Llangollen (via Castle Street) to avoid the Halton Roundabout (as shown in Figure 3.1).

Figure 3.1: Strategic Traffic Movements Around Llangollen<sup>15</sup>



### Highway Network

3.4.7 The town centre within Llangollen serves as a service centre for the nearby communities, a residential area and some routes provide a strategic role, including the A5 with forms part of the national trunk road across Wales. This section describes each of the core highway links within the appraisal area (the A5, Castle Street and Market Street), including the character of the road and any existing concerns now and in the future.

#### A5

3.4.8 The A5 trunk road is located in the southern section of the town centre. HGVs frequently use the A5, due to the nature of the route, which have a greater impact on the community. The A5 is heavily used and suffers from congestion throughout the year particularly at peak times, but not limited to these periods of the day. This is an issue that is particularly evident during the summer months, when there is a significant increase in the number of visitors to Llangollen and / or driving through the town along the A5. Traffic flows along the A5 are discussed below.



3.4.9 The observations and the base modelling results for the A5/ Castle Street junction show junction is operating above practical capacity in all of the peak hours modelled. In 2023 the forecast traffic growth results in the predicted degree of saturation on all lanes at the junction increasing. A detailed appraisal of the traffic modelling undertaken is presented in Appendix A.

3.4.10 Vehicle delays and queuing at the junction has an adverse impact on the town, resulting in long queues both east and westbound, as well as along Castle Street. The absence of a right turning lane

<sup>15</sup> Google Maps google.com

into Castle Street has an adverse impact on the operation of the junction. Eastbound traffic of the A5 turning right onto Hill Street can also cause traffic to queue through Victoria Square.



3.4.11 The footways along the A5 are narrow particularly within the vicinity of the A5/ Castle Street junction and there are no pedestrian crossings close to Castle Street. The nearest pedestrian crossings are located approximately 135m east of the A5/ Castle Street junction and approximately 120m to the west, which are signal controlled. The lack of crossing infrastructure within the vicinity of Castle Street was identified by members of the community as a key barrier to ease of movement within the town, especially for the elderly and mobility impaired.

### Castle Street

3.4.12 Castle Street runs in a north-south direction and is the main road running through Llangollen, linking with the A5 in the south and the A542/ A539 in the north. Castle Street is used to access the town centre itself, it is also used to provide access to either the Horseshoe Pass via the A452 to the west or Ruabon/ Wrexham along the A539 to the north east.

3.4.13 Castle Street serves both as a local street providing access to the shops, cafes and services but also provides a strategic and limited opportunity to cross the River Dee. From consultation with DCC the bridge over the River Dee has no known structural concerns or weight restrictions. Castle Street forms the heart of the town centre and hence experiences the largest pedestrian movements. The footways are narrow and can become congested. Despite the high pedestrian movements along Castle Street<sup>16</sup> there are no pedestrian crossing facilities.



3.4.14 Castle Street is approximately 7m wide, although with space for 12 vehicles for on-street parking along its western side in the form of two parking bays, this reduces the effective road width to 5m in these locations. Castle Street is used by many HGVs and larger vehicles such as buses, coaches and tractors passing in both directions, these narrow sections can be a cause of congestion. Delays at the A5/ Castle Street and Castle Street/ A539 Mill Street/ A542 Abbey Road can cause traffic to queue along Castle Street and it can reportedly take a time to clear, which has been observed to impact on the surrounding streets.

3.4.15 The results of the baseline (2018) junction modelling indicate that the A539/ Castle Street/ A542 junction is approaching practical capacity in the observed Friday peak hour and is operating just above practical capacity in the Saturday peak hour. In 2023 the forecast junction modelling results show that there will be an increase in delay at the junction on both Friday and Saturday peak hours. Castle Street is predicted to operate above practical capacity in the forecast 2023 Friday and Saturday peak hours respectively, as described in more detail in Appendix A.

3.4.16 In addition, a number of private and public buses / coaches use Castle Street and surrounding roads throughout the year to access Llangollen. A number of tourist operators bring visitors to Llangollen, using the Market Street Car Park which has a large coach parking area. Coaches and buses have been observed to turn into and out of Market Street from Market Street, which can cause traffic congestion and delay, especially when coaches are turning into and out of Market Street at the same time.

<sup>16</sup> Pedestrian count survey on 18<sup>th</sup> July 2018 along Castle Street between 14:30 and 15:30 – 275 pedestrians identified travelling north and 371 south.

- 3.4.17 At present there are no dedicated parking areas for vans and lorries collecting and delivering goods to the business within the town centre to use, hence these vehicles they are at times observed to park on the double yellow lines on Castle Street. This has an adverse impact on the movement of traffic along Castle Street and adjacent streets, as well impinging on the existing footways and pedestrian safety.

### **Market Street**

- 3.4.18 Market Street runs in an east-west direction from the A5, linking with Castle Street in the east. Market Street is made up of a number of small commercial units at its eastern end with the remainder of the road comprising red-brick terraced houses and a number of industrial units found towards its junction with the A5. Market Street is home to the Llangollen Market, which is found within the car park every Tuesday, with the exception of January and February and comprises between 5-10 stalls.

- 3.4.19 Market Street Car Park is accessed from Market Street. The car park is the largest within Llangollen and is the only car park which has designated provision for coach parking. Additionally, the car park is the closest to the town centre and is thus popular with shoppers, tourists and workers and is frequently full, which results in drivers having to drive around the town to find an alternative space to park. Given the high levels of usage at Market Street Car Park, Market Street itself is subject to a number of traffic movements. A one-way link along East Street and Parade Street connects Market Street to Castle Street. Traffic is also able to access and egress Market Street at its junction with the A5 and Castle Street.



- 3.4.20 There are a number of parking restrictions found along Market Street in the form of double yellow lines. For example, at its eastern end there are double yellow lines along a significant proportion of the road, with several dedicated short stay parking bays for cars and a taxi waiting bay.
- 3.4.21 The Market Street/ A5/ Hall Street junction was also modelled and was shown to operate within capacity in both 2018 and the design year 2023.

### **Parking**

- 3.4.22 Whilst Llangollen is known as an attractive town with a unique identity, parking is deemed as one of the most pressing and long-standing challenges Llangollen faces, which impacts on residents, workers, shoppers and visitors alike. Llangollen has a number of public and private car parks and on-street parking available, which are described in more detail below.

#### **On-street parking**

- 3.4.23 On-street parking is found on a number of roads throughout Llangollen, with various restrictions in place at each. This parking has been provided to encourage a quick turnover, to enable free parking for people wishing to undertake quick tasks, such as buying a newspaper. From site observations and previous research undertaken, this parking provision is well used (throughout both the day and in the evenings) and is consistently at capacity during peak seasons:

- **Castle Street** – On-street parking for 14 vehicles along its western side. Vehicles are permitted to park in these spaces for a maximum of 30 minutes, with no return within 30 minutes, between 08:00 and 21:00. Double yellow lines are found along the remainder of the street on the western side and along the entirety of the eastern side.
- **Market Street** – Towards the eastern end of Market Street there is very limited parking, with double yellow lines found on both sides of the road along the majority of this section. In this section, limited parking is available for two waiting taxis, in addition to three vehicles, for a maximum of one hour, with no return within two hours. Towards the western end of Market

Street, there are a number of unrestricted parking spaces available for vehicles outside of residential and industrial properties.

- **Oak Street** – There is capacity for on-street parking for up to ten vehicles along its northern side. Vehicles are permitted to park in these spaces for a maximum of one hour, with no return within two hours, between 08:00 and 18:00. Double yellow lines are found along the rest of the northern side of the road and along the entirety of its southern side.
- **Parade Street** – Parade Street has very limited parking availability. The eastern section which joins with Castle Street comprises double yellow lines on both the northern and southern sections. Space for one vehicle is available adjacent to Dee Lane for a maximum of one hour, with no return within two hours, between 08:00 and 18:00.
- **Bridge Street** – Approximately 15 parking spaces are available on the northern section of Bridge Street. Permit holders are allowed to park here with no restrictions or vehicles without a permit are able to park for a maximum of one hour, with no return within two hours, between 08:00 and 18:00. Double yellow lines are found along the rest of this section. On the southern side of Bridge Street, parking is available for approximately six vehicles, for a maximum of one hour, with no return within two hours, between 08:00 and 18:00. Double yellow lines are found along the remainder of this side of the street.
- **Dee Lane** – There is no parking available on Dee Lane, with both sides of this narrow lane made up of double yellow lines.
- **East Street** – There is a large parking bay on the eastern side of the street (with space for approximately eleven vehicles), for a maximum of one hour, with no return within two hours, between 08:00 and 18:00, together with two smaller parking bays on the western side of the street which have no parking restrictions (space for approximately five cars).

3.4.24 It should be noted that many residents that attended the consultation events stated that they often find it difficult to find a space to park on-street within the vicinity of their homes, especially during the summer months. Some residents frequently park in the Market Street Car Park with the use of their long stay permits, they similarly frequently find it difficult to find a space in this car park, especially during the summer. Consequently, some residents stated that they choose not to leave Llangollen by car during the summer months, of fear of not being able to park on their return.

#### **Car Parks**

3.4.25 There are currently five car parks within the town centre that are operated and maintained by DCC, offering a combined total of 317 spaces, as shown in Table 3.6. Additional parking is also available with restrictions at Llangollen Pavilion, Llangollen Heath Centre and Aldi/ Home Bargains and St Collen's Church.

3.4.26 The Denbighshire Town Centre Parking and Traffic Management Study (DCC / Mott McDonald, 2015) found that all car parks are used at or near capacity on a Saturday, with only the Pavilion not being so on a weekday. A high proportion of medium to long stay parking was observed across all car parks and given the limited availability of parking, traffic searching for a space takes place and can have adverse impact on visitor experience.

3.4.27 The Market Street Car Park is the closest car park to the town centre and is the largest car park in the town centre (with 147 spaces and 8 disabled spaces). This car park is operated by DCC and designated a short stay car park. Although this is a short stay car park, users are able to park in the car park all day (or a cost of £7), compared to the Mill Street long stay car park on the edge of the town centre where users can park all day for £3.50. The Denbighshire Town Centre Parking and Traffic Management Study (DCC / Mott McDonald, 2015) found that the shortest stay parking in Llangollen was recorded at the Market Street, reflecting its use by shoppers. The car park is unique in that Denbighshire residents in possession of a long stay permit issued by the local authority can use the permit in this car park (which can be purchased on a 3, 6, 12 or 24 monthly basis from the

DCC<sup>17</sup>). As long as drivers display the permit clearly in the vehicle, drivers do not need to buy pay and display tickets to park at these car parks.

Table 3.6: Parking Provision in Llangollen<sup>18</sup>

	Short or long term	Car Spaces	Coach Spaces	Able to use DCC long stay permit?
Market Street	Short Stay	147	15 (when double parking takes place)	Yes
East Street	Long Stay	59	None	Yes
Mill Street / Ponsonby Arms	Long Stay	75	None	Yes
Hall Street	Long Stay	20	None	Yes
Brook Street	Long Stay	16	None	Yes

### Aldi / Home Bargains

3.4.28 Aldi and Home Bargains are located approximately 0.5 kilometres west of Castle Street and have provision for up to 200 parking spaces. A planning condition imposed as part of the development states that 'There shall be no restrictions placed on the use of the food store car park (including length of stay and charging) other than with the prior written approval of the Local Planning Authority'<sup>19</sup>. The reason for this condition was to 'ensure the development allows the possibility of visitors carrying out linked trips to the town centre, in the interest of the vitality and viability of the town centre'. Hence, the car park can be used by people who are not shopping in either Aldi or Home Bargains.

### St Collen's Church (private)

3.4.29 St Collen's Church car park is found to the east of Castle Street along Berwyn Street. This is a privately-run car park and has provision for up to 20 vehicles. There is no formal charging regime for this car park and users are encouraged to contribute to an honesty box upon departure.

### Parking Analysis

3.4.30 The Denbighshire Town Centre Parking and Traffic Management Study (DCC / Mott McDonald, 2015) appraised a number of town centres including Llangollen. This included site and user surveys.

3.4.31 The study undertook parking surveys within Llangollen which showed, as confirmed by the Arcadis on-site observations that:

- All parking supply is well used, with signs of parking congestion occurring at certain times. This likely results in greater parking search traffic;
- The on-street supply is well used and sometimes over-subscribed. However, quite a significant proportion of the supply is occupied by overstay parking;
- All car parks are used at or near capacity on a Saturday, with only the Pavilion not being so on a weekday;
- A high proportion of medium to long stay parking was observed across all car parks;
- The shortest stay parking is seen in the Market Street and Pavilion car parks, reflecting their functions as a shopper and overflow car park respectively; and

<sup>17</sup> <https://www.denbighshire.gov.uk/en/resident/parking-roads-and-travel/parking-and-permits/parking-permits/long-stay-car-park-permits.aspx>

<sup>18</sup> Source: [www.denbighshire.gov.uk](http://www.denbighshire.gov.uk)

<sup>19</sup> Planning Application 03/2012/0030

- Given the limited availability of parking, parking search traffic in the town centre can increase considerably and so further reduce the visitor experience for pedestrians and shoppers.

3.4.32 The user surveys undertaken identified Llangollen as a popular destination within Denbighshire but highlighted that satisfaction with the availability of car parking is significantly below the average for all other locations throughout Denbighshire. This point is re-affirmed by the fact that improvements to parking facilities within Llangollen was identified as the most important issue within Llangollen; as highlighted by visitors and Llangollen businesses alike.

3.4.33 The 2015 Mott MacDonald study recommended the following measures to improve parking within Llangollen:

- Change all on-street parking to 1 hour limited waiting and improve enforcement;
- Consider introducing Pay & Display control for all on-street parking;
- Redesignate Market Street Car Park as short-stay;
- Make Pavilion car park half price or free; and
- Consider introducing car park Variable Message Signs (VMS) signing on main approaches.

#### Traffic Flow

3.4.34 Department of Transport Count Point annual average daily flow (AADF) traffic data has been observed for routes within and surrounding Llangollen, as presented in Figure 3.2. The variation in traffic flows over the last 15 years show a differing trend across the appraised links, as shown in Table 3.7.

3.4.35 Traffic flows on the A542 have increased the most, whilst traffic flows on the A5 west of Llangollen have decreased by 14%. It is important to note that traffic flows on Castle Street have increased, whilst traffic flows on the A539 have remained static. In 2017 HGVs represented 1% of total vehicles recorded using Castle Street.

Figure 3.2: Count Point Traffic Data Locations<sup>20</sup>



<sup>20</sup> Department for Transport, <https://www.dft.gov.uk/traffic-counts/>

Table 3.7: Department of Transport Count Point AADF Traffic Data for Llangollen

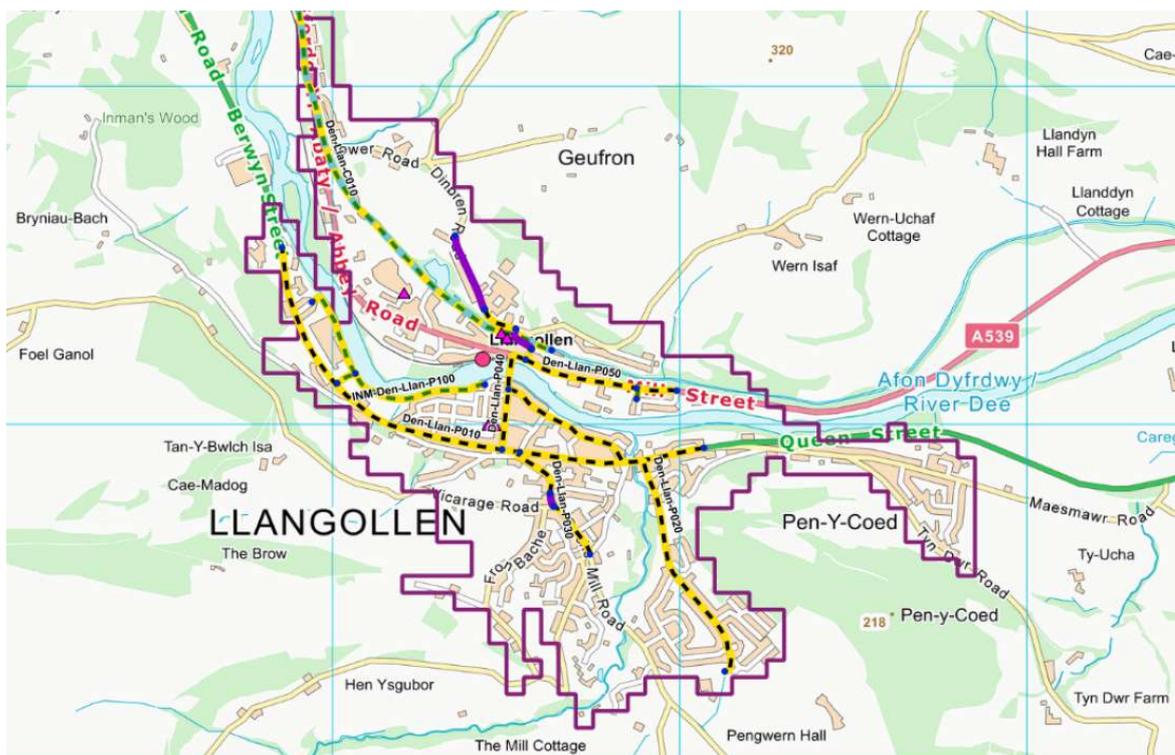
Count point ID	Road	Description	AAFD 2002	AAFD 2017	% Change (2002-2017)
10612	A539	Castle Street	5637	7191	28%
30617	A542	Horseshoe Pass	1092	2089	91%
20510	A5	West of Llangollen	5858	5043	-14%
508	A5	East of Llangollen	4891	5717	17%
30613	A539	Road to Wrexham	5657	5675	0%

3.4.36 A detailed appraisal of observed 2018 traffic flows at the A5/ Castle Street, A539/ Castle Street/ A429 junction and the Market Street/ A5/ Hall Street junction is presented in Appendix A.

**Active Travel Routes**

3.4.37 Figure 3.3 shows the existing walking and cycling routes within and around Llangollen.

Figure 3.3: Active Travel Routes within Llangollen<sup>21</sup>



<sup>21</sup> www.denbighshire.gov.uk

## Bus Travel

3.4.38 A number of bus services operate within and throughout Llangollen, including the following services 5, 55, X5 and T3; which operate from Llangollen to Wrexham and from Llangollen to Corwen and Ruthin. Services operate throughout the day to and from Llangollen, with services approximately every 30 minutes to and from Wrexham during the day and with a reduced time during the evening. Services to the west towards Corwen run approximately every hour throughout the day.

3.4.39 There are two bus stops located along Parade Street, these stops benefit from a shelter and seating, together with a marked bus bay. A further two stops are located in the north of the town on both sides of the A539.



## Signage

3.4.40 Llangollen town centre and its approaches from both the east and west along the A5 and A539 / A542 have a number of signs for general route finding, directions to car parking and directions to tourist attractions.

3.4.41 Within the town centre, there has however been a gradual build-up of signage, which has left an abundance of signs which clutter the historic streetscape of Llangollen and obscure buildings. Whilst not all signs are contentious; traffic signage, shops signs and advertisement hoardings dominate the environment and detract from the historic setting of Llangollen.

3.4.42 Figure 3.4 indicates the extent of signage found throughout Llangollen (limited waiting signs, directional signs to car parks, strategic signage and WHS Signage) and Figure 3.5 shows the signs on-street along Castle Street. Clusters of signage are found at both the northern and southern ends of Castle Street and on the corner of Market Street / Castle Street.

Figure 3.4: Signage Within Llangollen

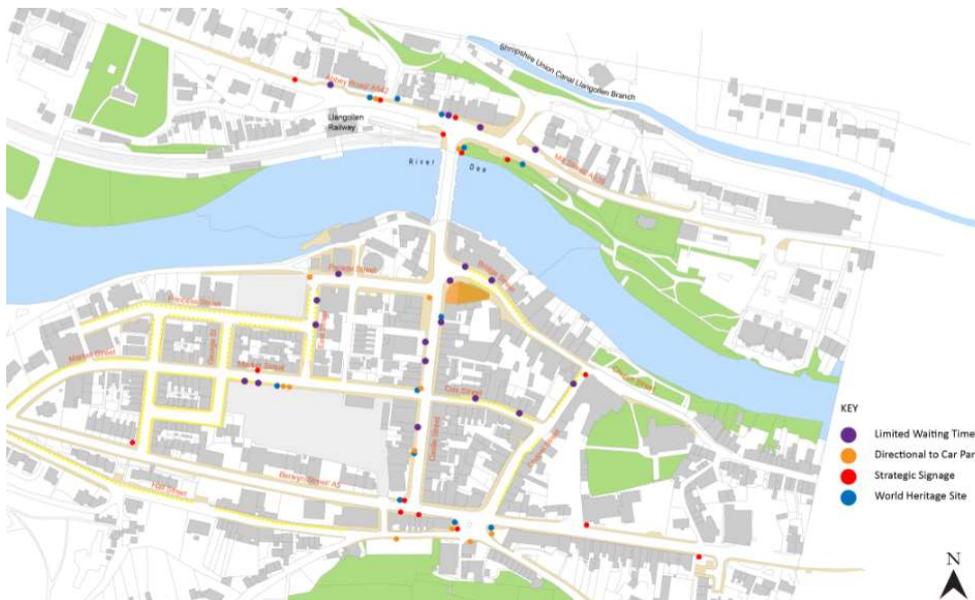
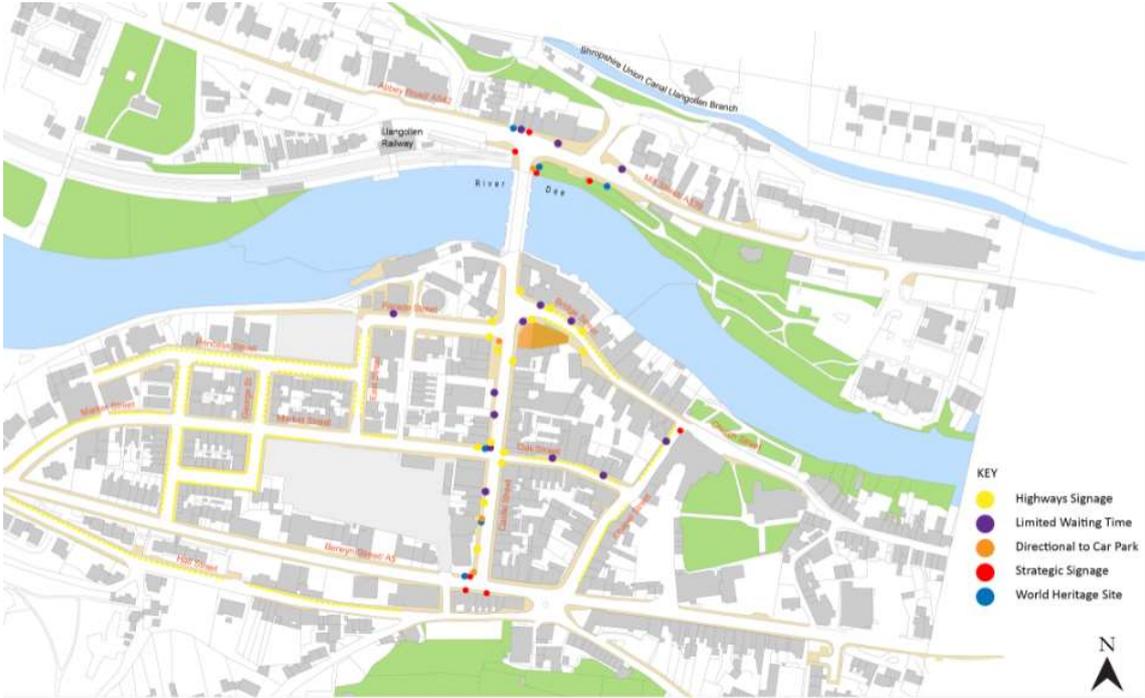


Figure 3.5: Signage Along Castle Street



## 4 Findings from Consultation

### 4.1 Introduction

4.1.1 Extensive consultation with key stakeholders and members of the public has been a key element of this study and instrumental in the preparation and development of options. A variety of consultation methods were used in order to identify issues and opportunities facing Llangollen and specifically in relation to the public realm and pedestrian environment within Castle Street. Consultation methods included:

- An on-street consultation event outside the Town Hall in Llangollen which ran from 15:00 to 19:00. A large map of the study area was displayed and passers-by were encouraged to use post-it notes to identify issues and opportunities;
- A bilingual online survey was developed to enable local people to give their thoughts on the current condition of the environment along Castle Street, potential issues and solutions. The survey was publicised through social media, flyers and information slips. A total of 336 surveys were completed;
- A Twitter account was launched in order to advertise consultation events and to publicise the online survey; and
- Meetings were held with a range of stakeholder organisations including the Llangollen Railway, Llangollen Civic Society, Llangollen Leisure Centre, Llangollen Pavilion, Llangollen Chamber of Trade & Tourism, Canal & River Trust, Ysgol Dinas Bran, DCC Vision Impairment Team, DCC Bridge Engineer, CADW, Rural Futures and various Llangollen businesses



### 4.2 Issues

#### Parking

4.2.1 Parking is an ongoing issue in Llangollen and especially problematic during the summer months. Particular issues to arise in relation to parking included that:

- The lack of parking in Llangollen was considered to have a detrimental impact to the area as it puts people off from visiting;
- A lack of parking for staff can result in instances of shops not opening on time;
- Findings from the online survey showed that the most regularly used car park was the Aldi / Home Bargains car park (29% of survey respondents reported that they use it several times a week), with Brook Street car park being the least well used (73% of respondents stated they never use it);
- There is not considered to be enough resident-only parking areas. Whilst a number of residents pay for parking permits for Market Street car park, there is still no guarantee they can secure a space; and
- A number of respondents felt that coaches should not park in the Market Street car park, as it would free up space for cars. Coaches need a designated drop off point and then park elsewhere, for example, the Pavilion.

*'During the summer months, I am unable to leave Llangollen during the day as I won't be able to get a parking space upon my return, meaning I am trapped'*

*'I would like to go home during my lunch break – it's only a 10-minute drive away - but I can't because I won't be able to park when I come back'*

### **Congestion and Traffic**

4.2.2 The online survey and wider consultation highlighted a number of issues relating to congestion and the type of traffic using Castle Street (notably HGVs) using Castle Street, including:

- HGVs are damaging to the environment and spoil the tranquillity of Llangollen;
- Safety issues, exacerbated by a lack of crossing facilities along Castle Street and narrow pavements;
- Noise and environmental pollution caused by traffic and HGVs in particular;
- HGVs passing through Llangollen significantly contribute to traffic problems, as there are locations where it is too narrow for them to pass taking into account parked vehicles along Castle Street;
- Whilst it is acknowledged that a proportion of HGVs are delivering to businesses in Llangollen, a significant proportion are using Castle Street to access the wider strategic road network;
- Satellite navigation systems are directing drivers through Llangollen when accessing Wrexham from the west along the A5 (the reality is that remaining on the A5 is significantly easier especially as there are speed restrictions along alternative routes); and
- Congestion caused by buses and coaches turning into Market Street from Castle Street.

### **Castle Street**

4.2.3 Specific issues highlighted along Castle Street include:

- The perception that Castle Street is dangerous for vehicles and pedestrians, due to on-street parking, illegal stopping, proportion of HGVs, buses and coaches, and a lack of crossing facilities;
- Whilst parked cars along Castle Street act as barriers against speeding, they also cause problems by narrowing the road, making it impossible for larger vehicles to pass one another, which can lead to significant congestion;
- Issues along Castle Street are compounded by deliveries throughout the working day, with a number of HGVs parking illegally along Castle Street; and
- Consultation with DCC Visual Impairment Team highlighted that people can be put off visiting Castle Street during peak season, as they feel extremely vulnerable because of a lack of pedestrian crossing facilities.

### **Market Street Car Park**

4.2.4 Issues highlighted with regard to Market Street car park include that:

- The space available is underutilised. Currently the car park has 147 spaces for vehicles and 15 spaces for coaches. Coaches are not considered to make the best use of the available space, parking so that they can remain close to the exit and not run the risk of being blocked in by other coaches;
- The car park is very popular for visitors to Llangollen; and
- Coaches cause congestion when they are trying to access the car park.

## **4.3 Opportunities**

### **Parking**

4.3.1 A range of potential opportunities were highlighted with regard to parking (both on-street and off-street), including:

- Better enforcement of parking infringements in car parks and on-street;
- Increase the amount of dedicated parking for residents in Llangollen. Strong support for an increase in dedicated parking for residents in Llangollen (70% of respondents);
- Creation of designated business permit parking areas; and
- Consideration of a Park & Ride facility, especially during the peak summer period. This could have the twin benefit of reducing pressure on parking within Llangollen for residents and businesses, but also create a more attractive environment as there would be less cars using the area, which in turn could encourage further tourists;

### **Congestion and Traffic**

4.3.2 Opportunities relating to reducing congestion and improving traffic flow within the study area included that:

- 73% of respondents to the online survey felt that on-street parking should be removed from Castle Street in order to improve congestion;
- Measures should be put in place to prohibit / discourage HGVs from using Castle Street as a through route. Such measures could include putting weight restrictions on the bridge over the River Dee and putting signs up to discourage drivers from following their satellite navigation systems in order to avoid Llangollen centre;
- Consideration should be given to the promotion of Market Street as the main access into Llangollen, rather than Castle Street; and
- Coaches should drop passengers off on Market Street and then park on the outskirts of Llangollen. In addition, a number of consultees suggested that buses should not be allowed to turn from Market Street onto Castle Street and that all should use Parade Street to turn onto Castle Street as the road is wider there.

4.3.3 Discussions were held with the DCC Bridge Engineer to explore the possibility of weight restrictions being put in place on Llangollen Bridge. However, the difficulties of ensuring access for deliveries was highlighted, plus that it may result in an increased use of more unsuitable routes.

### **Market Street Car Park**

4.3.4 Opportunities for the Market Street Car Park include that:

- The space in the car park currently used for coach parking should be used for additional car parking capacity;
- There should be monitoring of this car park in order to ensure that it is fully utilised during the peak summer season. Coach parking should be removed and Market Street used as a drop off point;
- The weekly market should not be held in the Market Street car park in order to release capacity; and
- There was mixed support for a multi-level car park on Market Street.

### **Castle Street**

4.3.5 Opportunities for Castle Street aside from public realm improvements, include the removal of on-street parking in this location. This idea was explored with local businesses who raised concerns as a result of numerous deliveries from various suppliers received throughout the day. In addition, a number of businesses in Llangollen make deliveries throughout Denbighshire and beyond, and any restrictions would curtail their ability to do this. There could be an opportunity to incorporate delivery areas along Castle Street.

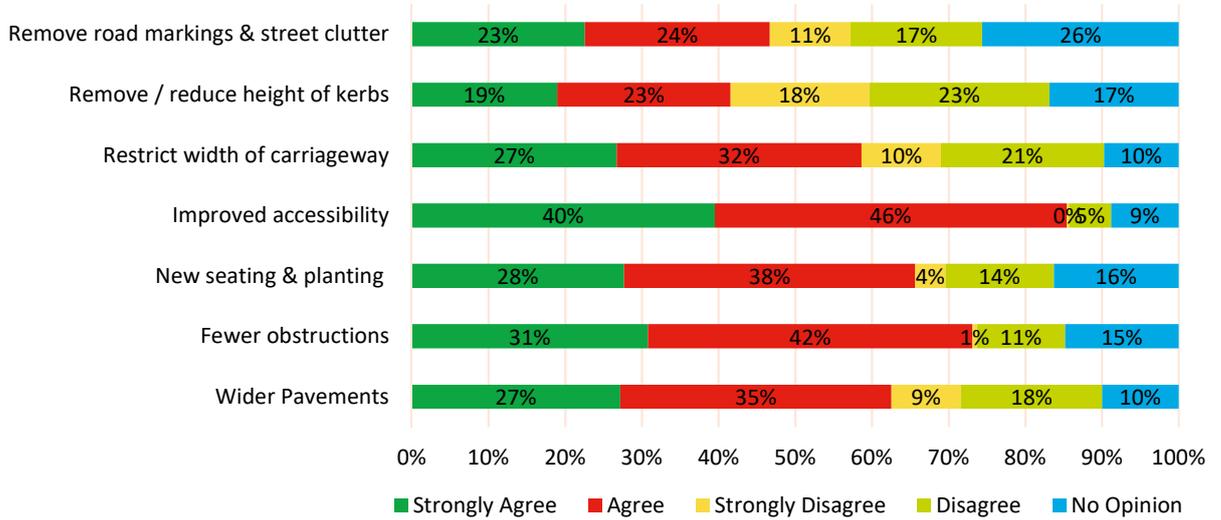
4.3.6 Key findings from the online survey in relation to Castle Street include that:

- Parking spaces along Castle Street should be used solely for deliveries;
- There should either be restrictions in place on delivery times (for example all deliveries made before 10:00am) or designated delivery parking areas;
- 61% of respondents to the online survey felt that improvements along Castle Street should include pedestrian crossing facilities; and
- Consultees who were supportive of removing parking from Castle Street stressed the importance of putting traffic calming measures in and reducing the speed limit to 20mph.

**Public Realm Improvements**

4.3.7 The online survey identified potential components of a scheme to improve the public realm and pedestrian environment along Castle Street. Figure 4.1 shows the level of support for each of these components (ranging from strongly agree to strongly disagree).

Figure 4.1: Improvements to the Pedestrian Environment in Castle Street



4.3.8 There were mixed responses on a number of these components (in particular the removal of kerbs along Castle Street) due to concerns for vulnerable groups such as the elderly and blind. Liaison with DCC’s Visual Impairment Team has been ongoing throughout this project.

## 5 Option Development

### 5.1 Introduction

5.1.1 This section sets out the design objectives, which set out what the project wishes to achieve and provides details on the individual design components that have informed the identification and development of options.

### 5.2 Design Objectives

5.2.1 The design objectives of the study have been identified to guide the identification and development of options:

- Improve the image and identity of the town centre area and support town centre regeneration;
- Improve pedestrian and cycle movement through the town centre area;
- Improve existing crossing points to encourage increase cycle and pedestrian use;
- Create a high quality streetscape which builds upon the recent Centenary Square environmental enhancements;
- Create a distinctive identity, brand and style for the town centre capitalising on the town's heritage;
- Provide a co-ordinated approach to street furniture, paving and street planting to provide a seamless public realm integrating the areas of differing character in the town centre;
- Create a series of linked high quality public spaces catering for different users and activities<sup>22</sup>;
- Design the streetscape to improve pedestrian and vehicular safety and to address issues of community safety and anti-social behaviour; and
- Design the streetscape to consider maintenance and management issues and long term sustainability.

### 5.3 Movement and Access

5.3.1 The movement strategy seeks to improve pedestrian, cycle and vehicular movement through and within the town centre. Castle Street is the key movement route within the town centre, and so any reductions in road capacity are not appropriate as this route forms a strategic crossing of the River Dee. Castle Street is a key route for vehicles, including HGVs, but opportunities exist to enhance the quality of the street environment for pedestrians and cyclists by introducing physical changes to the character of the street, which aim to slow traffic and improve pedestrian movements. Detailed design proposals should be based upon current thinking developed in government guidance, such as 'Manual for Streets', with the aim of making streets easily accessible for all, regardless of people's age or their physical ability.

5.3.2 There are opportunities to improve the flow of traffic within the town centre, through improving the efficiency of the key junctions within the town namely the A5/ Castle Street, the A539/ Castle Street/ A542 and the Market Street/ A5/ Hall Street junction. As well as improving the flow of traffic along Castle Street, which is impeded by the current configuration of the street, as larger vehicles and buses wait behind the parked cars if traffic is coming in the opposite direction. Also delays at either of the junctions at the opposite ends of Castle Street have an adverse impact on the operation of Castle Street, with lengthy queues observed which are reported to take considerable amount of time to clear on occasions. This has an adverse impact on traffic travelling within and to Llangollen, the movements of pedestrians, the streetscape and consequently a negative impact on the local environment (noise and air quality).

5.3.3 The creation of safe and attractive routes for pedestrians and cyclists is key to the success of any town centre. A key objective of the study is to enhance pedestrian and cycle movements in the town centre area. The environment for pedestrians can be enhanced by the widening of footways and introduction of crossing points at key locations and desire lines and reduction in street clutter.

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<sup>22</sup> Including but not limited to residents, visitors interested in heritage, visitors interested in the landscape.

- 5.3.4 There would need to be a balanced and appropriate use of signage, both to and within the town centre. A signage strategy would need to consider the rationalisation of street signage in order to declutter the streetscape to create a high quality and distinctive town. The implementation of strategic signage in the right places is however critical to ensure traffic uses the most appropriate route for its journey.

## **5.4 Pedestrian and Cycle User Experience**

- 5.4.1 A key design objective is to improve the pedestrian and cycle user experience for Llangollen. The quality of the public realm plays a key role in this in order to increase walkability in an area that is heavily trafficked. The aim is to create high quality, safe and walkable streets which balance the needs of all users, and which supports town centre regeneration. There is also scope to reduce street clutter to improve pedestrian movement and to create more pedestrian friendly streets.

## **5.5 Parking**

- 5.5.1 It is critical that the parking needs of all users are considered, including users of the town centre (typically in private cars, such as visitors and tourists), deliveries and collections, coaches and cyclists. It is important that the right quantity of parking is provided for the needs of each user. It needs to include short stay parking close to the centre of activity for people who are staying for a short amount of time to undertake quick tasks or shopping, as well as dedicated space for lorries to access shops and business within a minimum walking distance and parking for people who need/wish to stay in the town centre for a full day (such as workers).
- 5.5.2 Llangollen serves as a key town within the region and is hence used by both residents of Llangollen and people from nearby towns/ villages to access employment, shops and services. The influx of tourists, which peaks in the summer months places a high demand on the capacity of car parking spaces, at these periods it is critical to both provide for local residents but also to provide additional capacity for tourists, to ensure they visit, spend time and spend money within Llangollen. A large number of coaches bring visitors to Llangollen and the majority park within the Market Street car park, which is the closest car park to the town centre, hence providing visitors with the shortest possible walking distance into the town centre.
- 5.5.3 Cycle parking is an important element in any streetscape design. It is critical that any selected cycle parking is co-ordinated with the overall approach to street furniture. Cycle parking should be located in suitable locations that are over-looked and close to the centre of activity. Cycle parking should be located on key public open spaces and wider pavement areas.

## **5.6 High Quality Public Realm**

- 5.6.1 The public realm contributes greatly to the quality of the town centre environment. There is potential to create a high-quality streetscape which builds upon the recent Centenary Square environmental enhancements. The aim for Llangollen is to extend the quality of this area to the wider town centre area.
- 5.6.2 Public spaces should be designed to be purposeful, locally distinctive and well-integrated with the surrounding context. To achieve this a simple and unified palette of materials and street furniture is recommended, to provide a co-ordinated approach to street furniture, lighting and signage. In this way a seamless public realm can be created which integrates the areas of differing character within the town centre.
- 5.6.3 The choice of paving materials plays a key role in defining the quality of the streetscape and public realm, and also in defining areas for specific uses and activities. The selection of materials will vary according to the type of space proposed and the proposed activity. The design should consider both safety and attractiveness. The aim is to provide a consistent treatment of public realm surfaces that relate to the different functions. Materials can indicate, for example, vehicular or parking areas within the street, the boundaries between different spaces and pedestrian crossing points.
- 5.6.4 It is important to create strong visual unity within the street space, and surfacing materials should be selected from a range of similar colours and/or textures, using relatively subtle but clear changes to

demarcate the varying functions. The proposed materials should reflect the character of the town and the conservation area status, and relate to other recent enhancements/developments, so that the public realm treatment is co-ordinated between spaces.

- 5.6.5 Another landscaping technique that is gaining prominence in a number of towns and cities throughout the United Kingdom is Rainscaping. As towns and cities continue to experience population growth and subsequent pressure on ever dwindling space for development, an increasing number of areas are being developed, including greenfield land. Developing these greenfield areas reduces the availability of permeable areas available for surface water run-off to naturally make its way to rivers. As a consequence, surface water is being diverted into sewers, putting pressure on over-burdened sewer systems and mixing surface water with sewerage, which is very costly to remedy.
- 5.6.6 Rainscaping addresses this by creating landscaped areas and directing storm water run-off to be absorbed by plants and soils in a localised and desired area. Not only does rainscaping reduce surface water running into sewer systems and reduce the risk of flooding, it also:
- Makes local environments more attractive;
  - Offers a more sustainable and cheaper solution than traditional methods, and
  - Helps communities become more resilient to climate change.
- 5.6.7 Rainscaping solutions can be incorporated into new developments or installed into the existing sewer systems, such systems include:
- Basins and Planters: Shallow landscaped basins that capture the surface water runoff and treat the surface water. Water filters through the plants, removing contaminants before being released into the soil or sewer network;
  - Swales: These are long, shallow, landscaped channels which reduce the speed of surface water – cleaning it and where possible allowing it to gradually infiltrate the soil;
  - Porous Paving: This is paving that is designed to allow surface water to pass through it, rather than over it into nearby drains;
  - Filter strip: Filter strips are strips of ground where water running off a site can pass through it, allowing some or all of it to soak away. The rest often then enters a swale of another sustainable urban drainage system;
  - Grass channels: These are strips of grass that can be installed in side streets and alleys to provide a permeable surface for water to soak through, and
  - Geocellular storage: These systems can be used to control and manage surface water runoff either as soakaway or as a storage tank.
- 5.6.8 The advantages of porous paving are:
- Environmentally friendly – the lack of run-off from the pavement means that possibly polluted water cannot make its way into the stormwater system. Water is also filtered as it passes through the pavement and the soil, making it cleaner. In the UK, there is real risk of urban flooding and ensuring that water makes its way into the soil is a priority;
  - Lower costs – additional drainage channels are not required to move water from the surface;
  - Less standing water – the reduced standing water reduces frozen surface water, which is a slip hazard and reduces damage by freeze thaw weathering;
  - Sub-base protection – water that seeps under the pavement can cause damage to the sub-base. This erosion can cause cracks in the areas above, but also issues with subsidence that can affect surrounding buildings. It is better to have water penetration spread across a larger area than focused on smaller areas; and
  - Cooler – it is a little known fact that permeable pavements are cooler to stand on than non-porous materials.
- 5.6.9 The disadvantages of porous paving:
- Fewer products available – smaller pallet of materials to choose from, less variety of finishes and paving sizes;
  - More expensive – in many cases a porous pavement may be more expensive to install, as it needs a specialist team using specialised equipment. The raw materials may also be more

expensive – in particular, the binders. The preparation of the sub-base can also be a large part of the expense;

- Maintenance – spaces between the stones can become clogged over time. A jet wash can be used to ensure the permeability is maintained;
- Weaker – porous material may be weaker than non-porous options, however, most last upwards of 15 years;
- Soil issues – if the soil is already saturated, or is made up of clay that does not drain well, the use of a porous material may have limited impact and still require drainage; and
- Inexperienced contractors – while these materials have been used for a long time, many contractors are still unfamiliar with the technical detail.

5.6.10 Consultations have been undertaken with ecology officers from DCC who have outlined DCC's support for such schemes, as there is a real benefit to biodiversity which is in keeping with DCC's Corporate Plan (2017 – 2022)<sup>23</sup>. The choice of plant species would need consideration as the River Dee is a Special Area of Conservation (SAC)

## 5.7 Heritage, Image and Identity

5.7.1 Local character has a key influence on any enhancement proposal and it is essential that designers understand what contributes to local distinctiveness. The 'Llangollen: Understanding Urban Character' (2016)<sup>24</sup> report sets out the key characteristics of the town and should be a starting point for design proposals.

5.7.2 The design approach is to develop a distinctive streetscape style which enhances the image and identity of the town centre and creates a strong identity that respects the local and historical character. The design approach also seeks to create a distinctive brand and style which supports the regeneration of the town centre. The design should protect and enhance the special qualities that make Llangollen distinctive, using construction materials and techniques which reflect and contribute to local distinctiveness. In terms of the streetscape this is particularly important in terms of the choice of paving materials and street furniture, which needs to be sensitively introduced to respect local character. The style of shop fronts and shop signs is also important in creating a more visually coherent and unified streetscape, and to enhance the environment.

## 5.8 Design Precedents

5.8.1 This section includes a number of design precedents from across the UK. The precedents chosen reflect a range of design approaches to streetscape and public realm enhancement, which could be used to inspire the enhancement of Llangollen town centre.

5.8.2 Some of these precedents include elements of shared space. It should be noted that the Department for Transport (DfT) have recently republished the *Inclusive Transport Strategy*<sup>25</sup> which has requested that local authorities pause any shared space schemes incorporating a level surface they are considering, and which are at the design stage. The DfT are also temporarily suspending *Local Transport Note 1/11*<sup>26</sup> on Shared Space to carry out research and produce updated guidance. The precedents in this report are not intended to promote shared space but to promote particular features such as crossing points and median strips.

5.8.3 Centenary Square – The recent war memorial enhancement scheme has provided a higher quality public space in the town which can be seen as a benchmark for future enhancement proposals. The scheme includes repaving, new street furniture and tree planting.

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<sup>23</sup> <https://www.denbighshire.gov.uk/en/your-council/strategies-plans-and-policies/corporate-plan/corporate-plan-2017-2022.pdf>

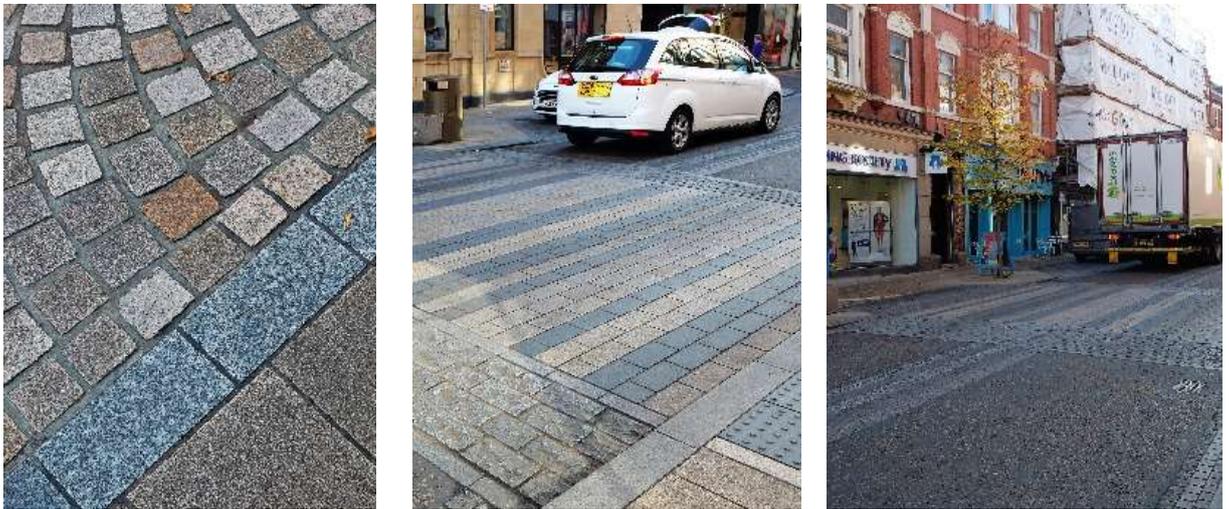
<sup>24</sup> <https://cadw.gov.wales/docs/cadw/publications/historicenvironment/20163003LlangollenUnderstandingUrbanCharacter2016EN.pdf>

<sup>25</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/728547/inclusive-transport-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728547/inclusive-transport-strategy.pdf)

<sup>26</sup> [https://nacto.org/docs/usdg/shared\\_space\\_department\\_transport.pdf](https://nacto.org/docs/usdg/shared_space_department_transport.pdf)

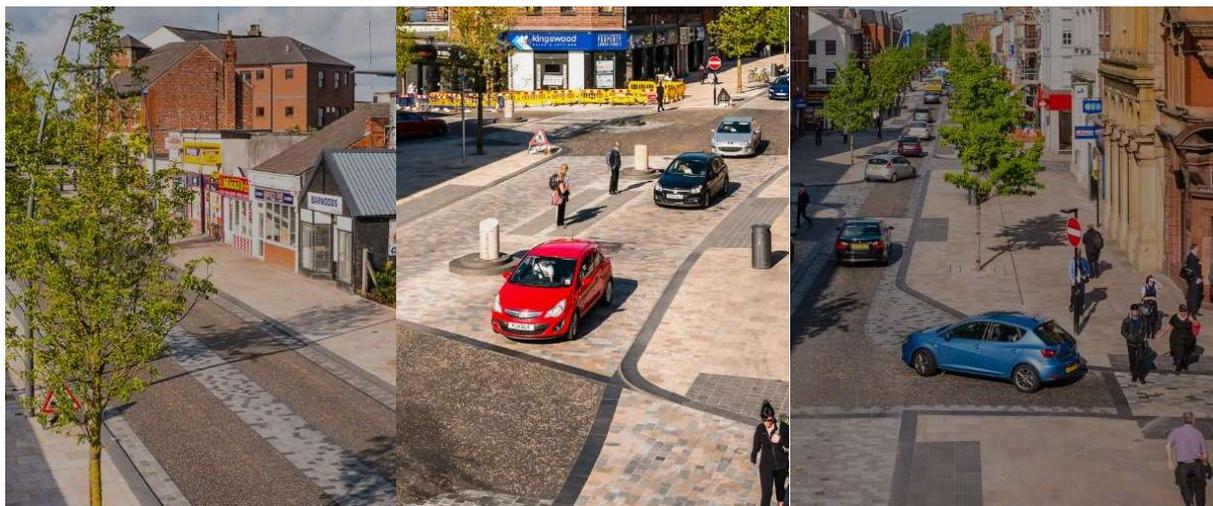


**Altrincham** – A street enhancement scheme including new paving materials, street tree planting, street furniture, pedestrian crossing points and median strips.



**Fishergate Central Gateway Project, Preston**<sup>27</sup> – A street enhancement scheme that includes new footway and carriageway materials, median strips and edge treatments, street tree planting, pedestrian crossing points and new street furniture.

<sup>27</sup> Images have been sourced from: <https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/major-transport-schemes/fishergate-central-gateway-project/>



**Poynton** – A redesign of a key movement route to create a more pedestrian friendly street environment comprising new paving materials, median strips and edge treatments, tree planting, lighting and street furniture.



## 5.9 Gateways and Landmarks

5.9.1 The way that Llangollen is perceived to new visitors is very important. The current gateways lack distinction and there is a distinct opportunity to improve the sense of arrival to the town. Entrances and gateways play an important role in creating attractive and inviting arrival spaces to the town. The aim is to create visible and welcoming entrances which encourage visitors to enter the area. Gateways are an opportunity for the inclusion of public art and community involvement. In addition, local landmarks can aid orientation and contribute to legibility in an area. Landmarks can be further defined and highlighted through sensitive and creative lighting. Signage, public art and tree planting can be used to create new landmarks.

## 5.10 Design Details

### Street Furniture

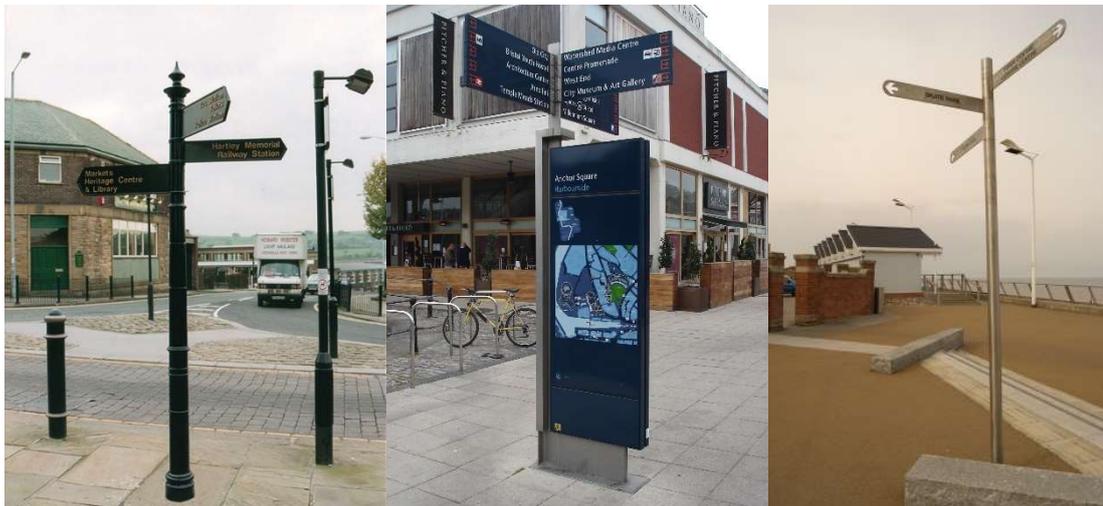
5.10.1 Street furniture plays an important role in contributing to the character of places and is an important element in creating quality streetscapes. The aim is to provide a co-ordinated range of bollards, seating, litter bins, finger post signage, cycle parking and lighting columns. The following images provide a potential approach to a range of street furniture types. There is also an image of the street

furniture recently implemented in the Centenary Square area and hence any replacement/enhancement of street furniture would need to be in keeping with this design.



### Signage and Branding

- 5.10.2 Signage and waymarking have an important role to play not only in contributing to the design objectives, but to improve pedestrian and cycle movements throughout the town, the definition of principal gateways to the town centre and delivery of a co-ordinated approach to street furniture.
- 5.10.3 Signage and waymarking should enhance the legibility of the area by providing clear directional information and highlighting the status of key destination points and places of interest. The aim for any waymarking strategy should be to create a coherent system of signage linking local facilities and wider destinations, that builds on recent public realm enhancements within the town centre and the character of the town and surrounding area. The adjacent photographs show a range of different types of sign including finger posts and information boards, illustrating both traditional and contemporary styles to signage and a co-ordinated approach to directional signage/finger posts and information signage.



### Public Art

- 5.10.4 Public art can play an important role in the public realm by contributing to local distinctiveness and identity as well as providing a focus to public spaces. It has a role to play to contributing to the design objective to create a distinctive identity, brand and style for the town centre. Public art can provide a link to the history of the area or can reflect a particular theme, such as the World Heritage Site, AONB or the River Dee. Public art installations should be sited in highly visible locations such

as main access roads, open spaces and squares. The wider town centre area would benefit from new pieces of public art, particularly along key desire lines, pedestrian links and spaces.



### Street Lighting

- 5.10.5 Street lighting plays an important role in place-making in terms of community safety and aesthetics. The style of street lighting is an important aspect and should be used consistently throughout the town centre to provide uniformity and contribute to local character.
- 5.10.6 Lighting can make a powerful place-making contribution to public art and heritage. Historic listed buildings can be sensitively highlighted and public spaces and route hierarchies strengthened. Creative lighting can also support live events and transform the area by night, promoting more activity and positive uses after dark.
- 5.10.7 With larger street lighting columns there may be potential for the integration of banners to create a particular brand for the area. Lighting should be considered alongside other types of street furniture to provide a co-ordinated approach.

### Planting

- 5.10.8 Street trees and other elements of green infrastructure can have a positive impact on high streets including addressing a number of potential health issues, such as the removal of air pollutants, removal of carbon dioxide, improve mental health and provide shade, as well as contributing to a sense of place.
- 5.10.9 Tree planting is an important element in the urban landscape. Trees can define routes and spaces, provide landmarks and focal points as well as defining views and vistas. The careful location of street trees can contribute to slowing traffic speeds by limiting forward views and reducing the perceived width of the carriageway. Tree planting should, therefore, be considered as an integral part of the street design in creating a holistic pedestrian-friendly environment. The inclusion of planting has the potential to contribute positively to the design objectives relating to creation of a high quality streetscape/ public realm and distinctive identify for the town centre.
- 5.10.10 The proposed planting design should create a strong landscape structure for the area linking green spaces, the river corridor, and pedestrian and cycle routes. Proposed planting should provide definition to public and private spaces, and also add colour and seasonal interest to the environment. The photos below show an example of urban planting, together with two photographs of the existing trees along Castle Street, which could inspire future planting.



## 5.11 Community Safety

5.11.1 Design can play a key role in contributing to a safer and more secure environment, through the introduction of measures to improve pedestrian and vehicular safety and to address issues of community safety. The design of public realm can act to deter certain aspects of criminal behaviour by creating more active streets. Busy and interesting streets are more pleasant to walk in, and increased activity can encourage safety and security by providing more natural surveillance. Lighting can also play a key role in terms of safety and perceptions of safety, for all street users.

## 5.12 Maintenance and Management

5.12.1 Good maintenance is an essential part of creating a 'cared-for' image for local environment. The proposed management regime should provide a quality of maintenance and management which is consistent across all ownerships and management systems. The aim is to design the streetscape to consider maintenance and management issues, as well as long term sustainability. By creating a high quality public realm which is well used and well maintained, there is an opportunity to encourage a greater sense of community ownership and civic pride. The approach to maintenance should be considered from the outset, to make sure that the quality of public realm provision can be sustained in the long term.

## 6 Preferred Option

### 6.1 Introduction

- 6.1.1 This chapter sets out the recommended and preferred option, following the identification, development and appraisal of the individual aspects of the option design set out in Chapter 5.

### 6.2 Draft Option

- 6.2.1 Following appraisal of the feedback received from the public in July 2018 and our desk-top analysis of existing data, a draft option was identified through consideration of each of the design elements (as set out in Chapter 5) and completion of a high-level appraisal of the technical feasibility of each element. This section provides a discussion on each of the elements of the design. This option was presented to the public in October 2018 and feedback sought. The option as presented to the public is shown in Figures 6.1 and 6.7.

#### **Castle Street Public Realm Enhancements**

- 6.2.2 Castle Street would remain as the primary route for vehicles within the town centre (the routing of traffic within the town centre is discussed in further detail later in the chapter), including HGVs and this study reflects the status of the Castle Street as a key strategic route, as Castle Street is one of a limited number of crossing points across the River Dee in the region. Consultation was undertaken with DCC's Bridge Engineer, who confirmed there are no structural concerns with the bridge, hence there is no desire to put a weight restriction on the bridge at the present time.
- 6.2.3 Despite this, an opportunity exists to enhance the environment along Castle Street, as well as improve vehicular flow and to provide an improved walking environment. It is proposed that the on-street short stay parking bays are removed from Castle Street, this provides the opportunity to have two narrow vehicle lanes of uniform width along the entire street. DCC have confirmed they are happy in principle with narrowing the width of Castle Street to 5.5m. The provision of narrow lanes and a median strip has the potential to reduce vehicle speeds, this would further be enhanced by the implementation of two raised informal pedestrian crossing points. A wider crossing point would be provided in front of the Town Hall, as from our on-site observations is considered to be a desire line for pedestrians to cross Castle Street in this location. Additionally, a second crossing point on Castle Street is proposed part way between the Market Street and the A5.
- 6.2.4 The narrowing of the carriageway and the removal of the on-street parking bays provides the opportunity to widen the pavements where possible and provide built-outs at junctions. It is proposed that two Goods Only Loading Bays would be provided on Castle Street (of 2.5m width and 12m in length). These would be adjacent to the carriageway, however the pavements would need to be narrowed to 1.5m in places to accommodate the bays. This has been discussed with DCC, who have confirmed they are happy in principle with this approach. Vehicle tracking of Castle Street and adjacent streets is included in Appendix B, which shows an articulated vehicle is able to access/ egress the loading bays on Castle Street.
- 6.2.5 It is proposed that the public realm along the full length of Castle Street would be improved and improvements delivered to both the road and pavement surfaces, together with decluttering of the streetscape. This would be through application of the design principles set out in Chapter 5 and building on the recent Centenary Square enhancements, which provides a high quality design and template for further enhancements. The public realm enhancements would be complemented by tree planting, removal of street clutter and delivery of co-ordinated street furniture, again taking inspiration from the furniture installed in the Centenary Square environment enhancement scheme. The aim is to extend the quality of this to the wider town centre area. The proposed design has maintained the existing mature tree on Castle Street within the vicinity of the Town Hall and any future planting would consider this existing tree and the recent planting within the Centenary Square.

Figure 6.1: Draft Option – Public Realm Enhancements

# Astudiaeth Ddichonoldeb Llangollen 2020 Llangollen 2020 Feasibility Study

## Public Realm Enhancements



- 6.2.6 It is proposed that a Restricted Parking Zone is implemented along Castle Street. This would create a zone along the full length of Castle Street within which defined waiting restrictions would apply, there would be signage at the entry to the zone at either end. Within the zone no yellow lines or kerb 'blips' would be required, thus reducing street clutter and improving the quality of the streetscape. We have been informed by DCC that implementation of a scheme of this nature would require a public inquiry.

### **Walking and Cycling**

- 6.2.7 An objective of the study is to improve pedestrian and cycle movement along and across Castle Street. This is to be achieved by enhancing the quality of the street environment, widening the footways, where this is possible and enhancing crossing points at key locations including pedestrian desire lines. The design includes two informal crossing points on Castle Street, in the form of raised tables.
- 6.2.8 The proposed option incorporates new cycle parking on Castle Street (potentially within the vicinity of the Town Hall), thus providing opportunities for more journeys, particularly those locally to be made by bicycle. The new infrastructure would need to be co-ordinated with other street furniture.

### **A539/ Castle Street/ A542 Junction**

- 6.2.9 The A539/ Castle Street/ A542 junction is expected to operate over capacity in the Design Year 2023 (see Appendix A for more details). In response, a mini-roundabout is proposed at the A539/ Castle Street/ A542 junction. This has the potential to improve the junction capacity, reduce vehicle delay and queuing. It is envisaged that this would be a paved mini-roundabout, designed and delivered to be in keeping with public realm improvements delivered across the town centre. This has drawn inspiration from the Poynton Street enhancement project, as presented in Chapter 5. This option would, however, result in the loss of the short-term parking bays (which has capacity for approximately five vehicles). Junction modelling undertaken is presented in Appendix A, which shows improved junction performance with a mini-roundabout compared to the existing priority junction layout.
- 6.2.10 It is also proposed that the public realm in the area surrounding the A539/ Castle Street/ A542 junction is improved. The area would be designed in keeping with the public realm scheme elsewhere in the town centre and could include new seating, interpretation and signage, enhancing the landscape and historical assets of the area. This provides connectivity between the town and the WHS. The development of this area would require linkage with the AONB's Our Picturesque Landscape interpretation project.

### **Strategic Vehicular Movements**

- 6.2.11 Llangollen forms a strategic position within the region with its location adjacent to the River Dee, together with the bridge crossing of the river, which is one of only a handful within the sub-region. This in turn results in additional traffic using Castle Street and the junctions serving it at either end. This is exacerbated by the capacity issues and subsequent delays at the Halton Roundabout (A5/ A483 roundabout junction), as traffic travelling between the A5 (Llangollen) and A483 (Ruabon) is reported to use the route through Llangollen (via Castle Street) to avoid the Halton Roundabout.
- 6.2.12 As part of this study discussions have taken place with Welsh Government regarding their plans to improve the A5/ A483 roundabout. The junction has been identified by the Welsh Government within its pinch-point programme (Project name - A5/A483 South of Wrexham Bypass to English Border Improvement), as set out in the Welsh Government's National Transport Finance Plan (2017 Update). Hence the Welsh Government are currently undertaking an option development study using the Welsh Government's Transport and Appraisal Guidance (WelTAG, 2017) to identify potential improvements at the junction.
- 6.2.13 The Welsh Government are aware of the local concerns over rerouting traffic and hence the recommendation is for the Working Group and Llangollen Town Council to continue on-going dialogue with the Welsh Government and North and Mid Wales Trunk Road Agency officials regarding emerging options and estimated delivery timescales. It is critical that dialogue is

maintained to ensure the emerging options include enhancements to the existing signage on the trunk road to encourage motorists (particularly HGVs) to continue on the trunk road (A5 or A483) rather than using the A539 to avoid the Halton Roundabout. It is recommended that the use of HGV advisory signage (an example is shown adjacent) is discussed with the Welsh Government and Trunk Road Agency.



#### **A5/ Castle Street Signal-Controlled Junction**

- 6.2.14 In 2023 the junction is predicted to operate above practical capacity (over 90% Degrees of Saturation) on all approaches. Hence a detailed exercise to identify and test options to improve the operation of the junction has been undertaken, which included altering traffic routes within the town centre, which would be discussed in greater detail in the section below.
- 6.2.15 The junction is physically constrained, an option to modify the layout was identified and consulted on with DCC, Welsh Government and the North and Mid Wales Trunk Road Agency. The option proposed installation of pedestrian crossing points on the A5 – one to the east and one to the west of Castle Street, which would control the movement of traffic on the A5. A mini-roundabout at the centre of the A5/ Castle Street junction would enable A5 eastbound traffic to give way to the westbound traffic turning right. Castle Street would remain signalised, as it currently is. Following consultation with DCC, Welsh Government and the North and Mid Wales Trunk Road Agency, it was decided that this option would not be considered in greater detail due to road safety concerns.
- 6.2.16 Given the existing physical constraints of the junction, no modifications are proposed at the junction at this stage. We are aware the Welsh Government and the North and Mid Wales Trunk Road Agency are considering upgrading the signal equipment at the junction (such as introduction of MOVA), if this is implemented it has the potential to improve junction performance by 10-15%.
- 6.2.17 We are also aware the Welsh Government and the North and Mid Wales Trunk Road Agency are considering a scheme on the A5 that would relocate the signal head and traffic sign on the westbound approach at the armoury, as well as extend the footway and realign the junction with Hill Street.

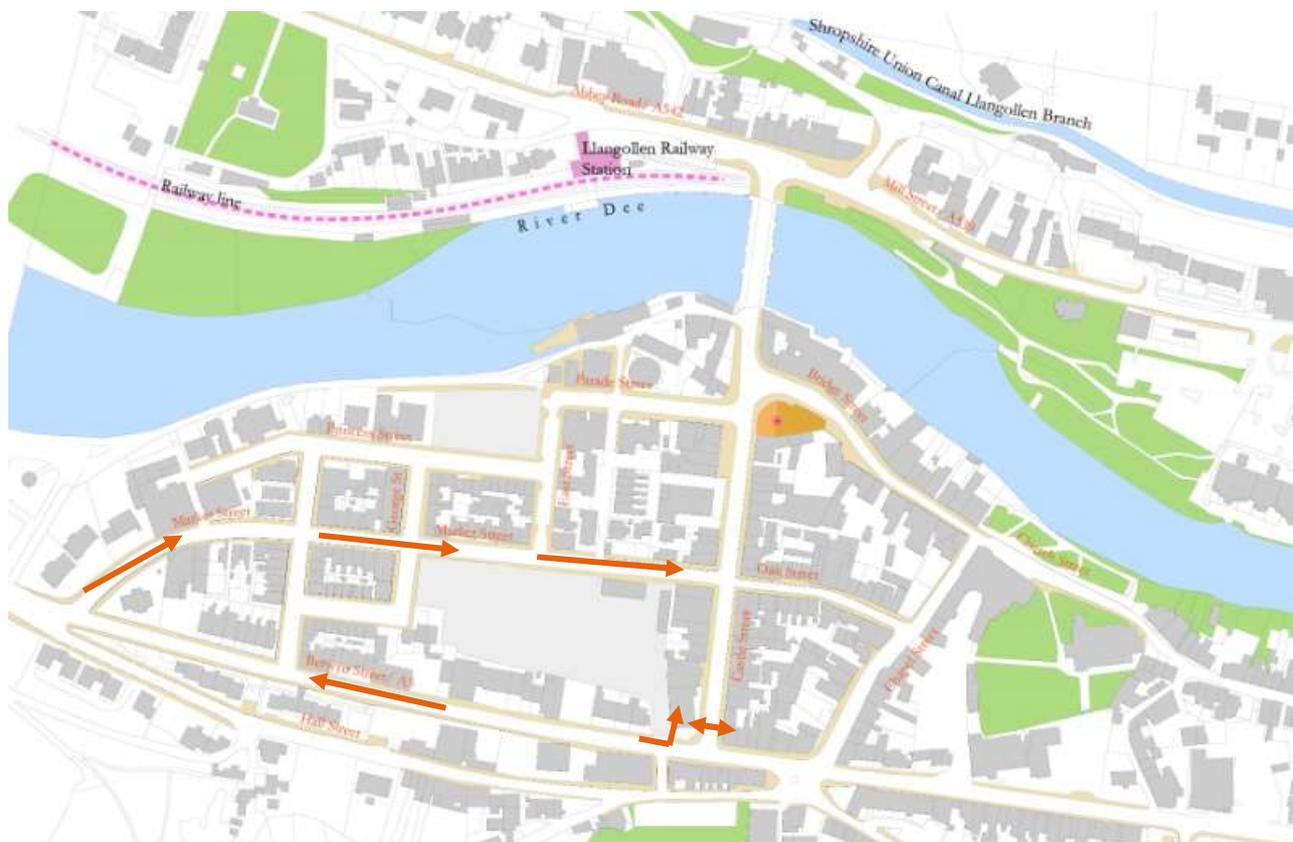
### Market Street

6.2.18 The routing of traffic through the town has been a focal point of discussions with the public, business and the project team, as a means to improve the operation of junctions and reduce the dominance of traffic through the heart of the town centre along Castle Street. A range of options were considered and are presented below. Followed by Table 6.1 which provides a summary of the options that have been considered, together with a commentary of the advantages and disadvantages of each.

#### Option 1 – Banning of the Right Turn onto Castle Street from A5 Westbound

6.2.19 Option 1 would ban the right turn for westbound traffic travelling along the A5 onto Castle Street, therefore requiring any traffic travelling towards Castle Street to turn right onto Market Street. Market Street would be one-way to accommodate the increase in traffic flow (as shown in Figure 6.2).

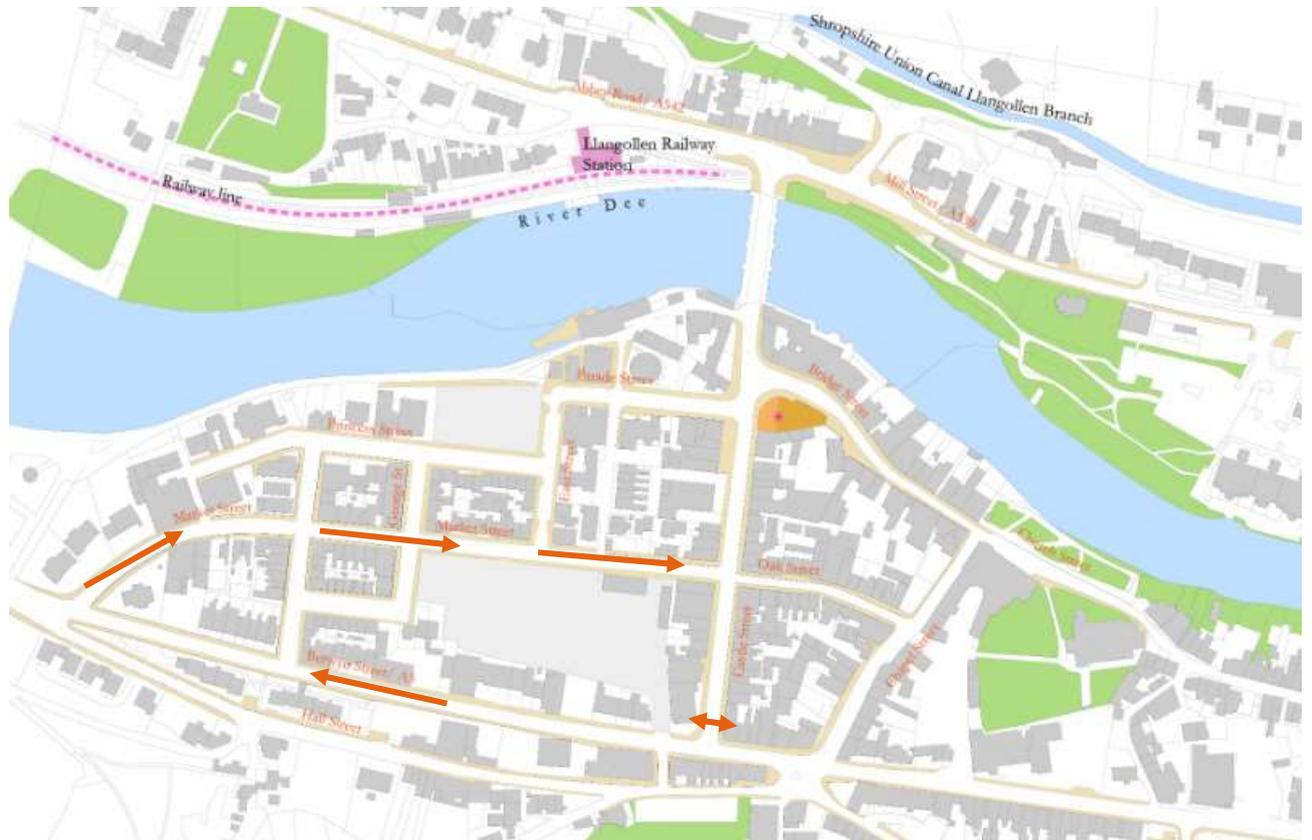
Figure 6.2: Option 1 – Banning of the Right Turn onto Castle Street from A5 Westbound



**Option 2 – No access onto Castle Street from the A5**

6.2.20 Option 2 would ban all traffic from the A5 both eastbound and westbound from turning onto Castle Street. Therefore, traffic on the A5 would only be able to drive straight ahead at this junction. Traffic from Castle Street would still be able to turn right and left onto the A5. Market Street would be one-way to accommodate the increase in traffic flow (as shown in Figure 6.3).

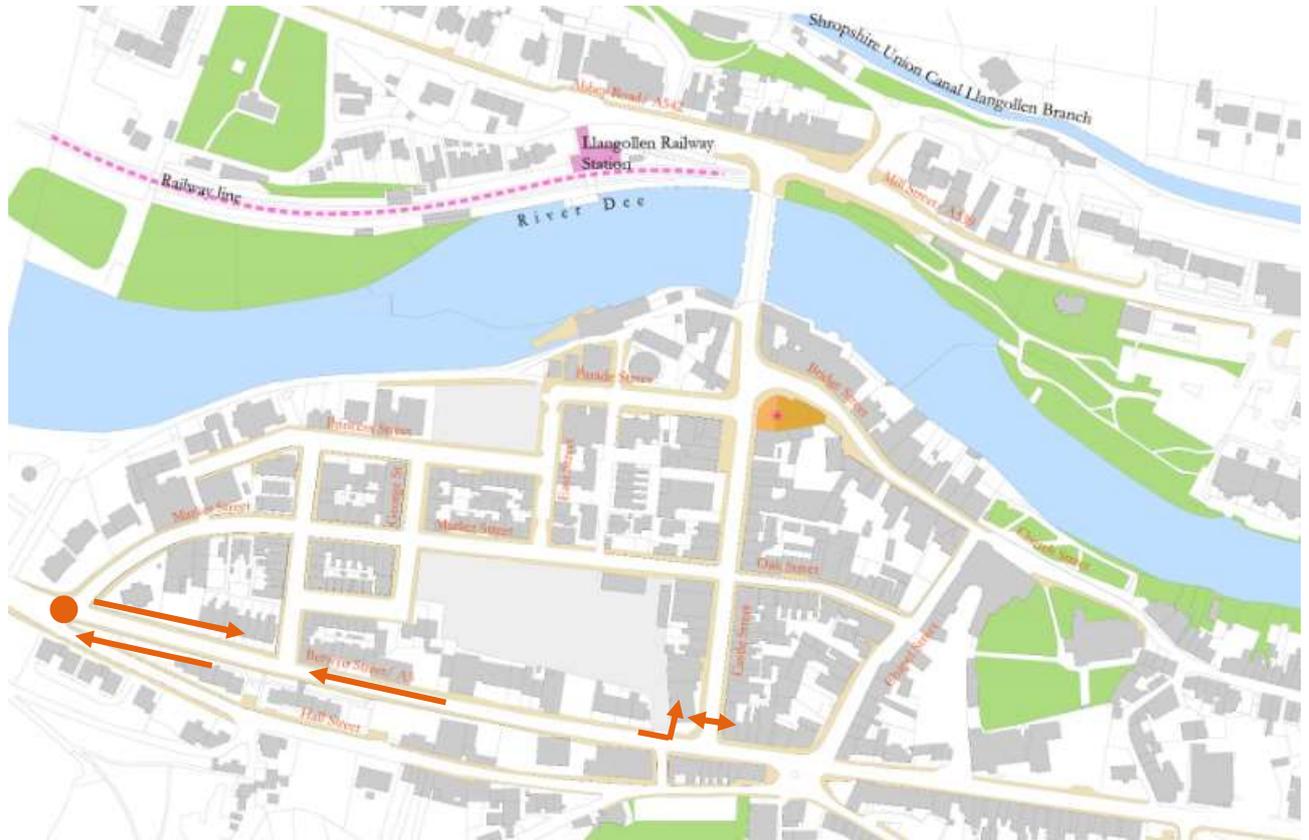
Figure 6.3: Option 2 – No access onto Castle Street from the A5



### Option 3 – Roundabout at the Market Street/ A5/ Hall Street Junction

6.2.21 Option 3 would ban the right turn onto Castle Street westbound on the A5. Therefore, any traffic travelling to Castle Street would have to do so via Market Street. Alternatively, a roundabout could be implemented at the Market Street/ A5/ Hall Street junction, enabling Castle Street bound traffic to turnaround and head eastbound along the A5 and turn left onto Castle Street (as shown in Figure 6.4).

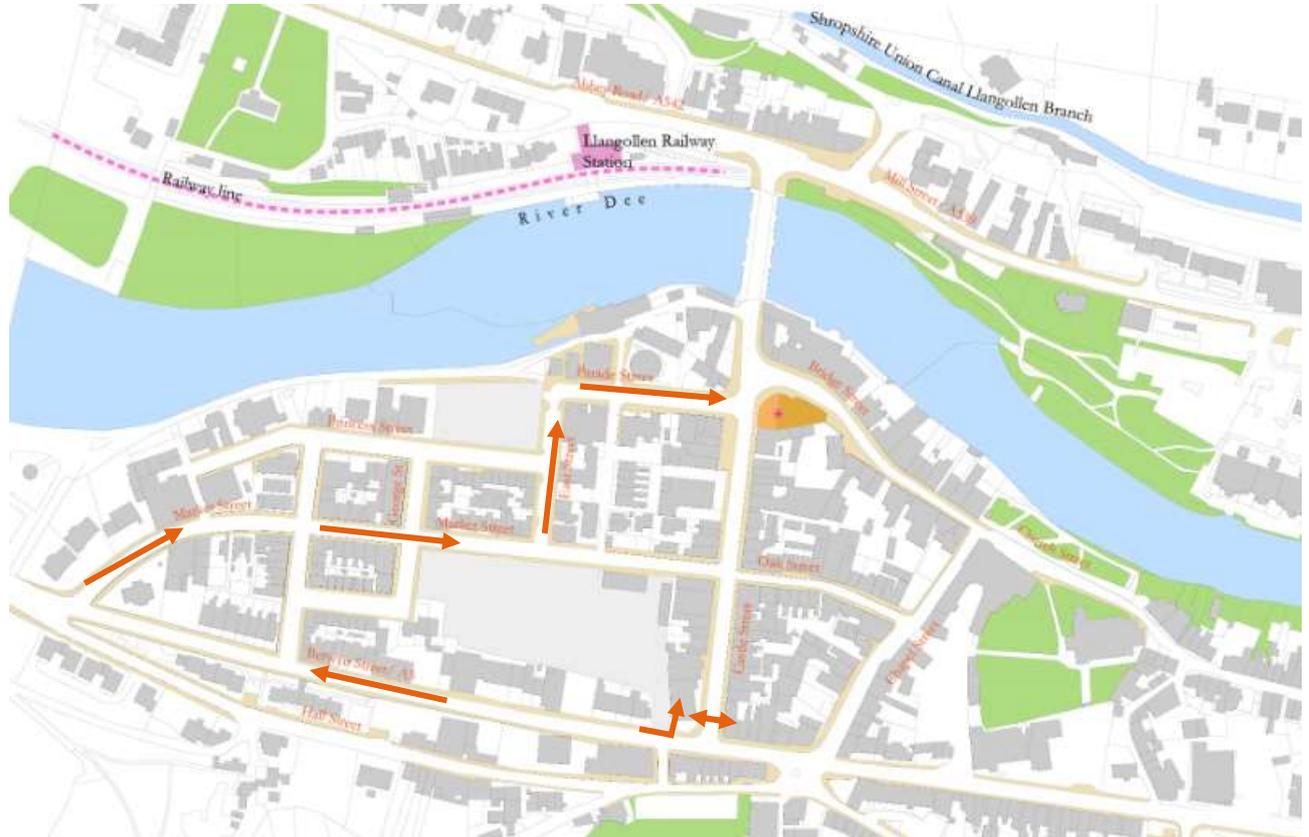
Figure 6.4: Option 3 – Roundabout at the Market Street/ A5/ Hall Street Junction



**Option 4 – Rerouting of traffic from A5 onto Castle Street via East Street/ Parade Street**

6.2.22 Option 4 would ban westbound traffic on the A5 from turning right onto Castle Street, but traffic would instead access the town centre via Market Street, East Street and Parade Street (as shown in Figure 6.5).

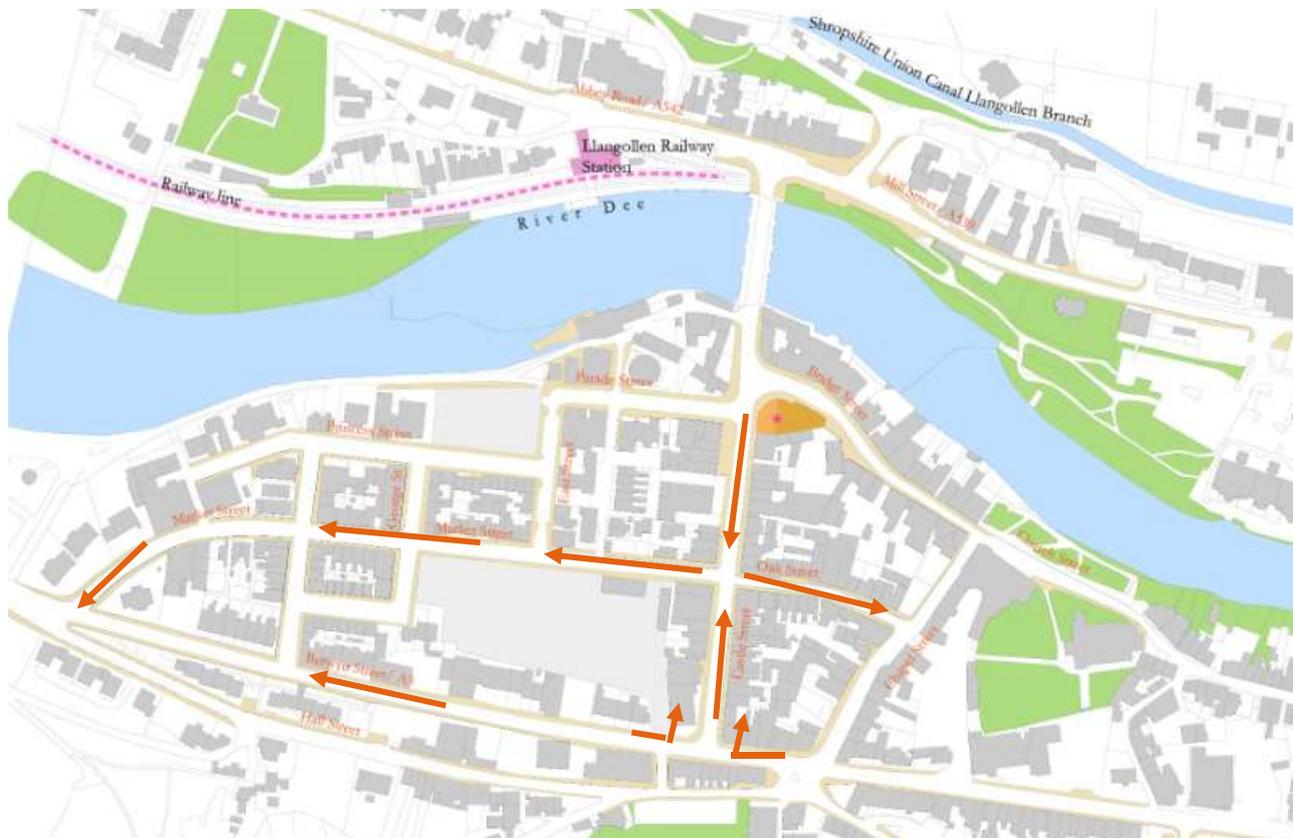
Figure 6.5: Option 4 – Rerouting of traffic from A5 onto Castle Street via East Street/ Parade Street



**Option 5 – Castle Street One-way Northbound from A5 to Market Street/ Oak Street**

6.2.23 Option 5 would ban all vehicles from exiting Castle Street onto the A5 and would instead divert traffic onto Market Street and Oak Street. This would require the one-way system on Oak Street to be reversed and Market Street turned into a one-way street westbound (as shown in Figure 6.6)

Figure 6.6: Option 5 – Castle Street One-way Northbound from A5 to Market Street/ Oak Street



**Option 6 – A5/ Castle Street Mini-roundabout Junction**

6.2.24 This option proposes installation of pedestrian crossing points on the A5 – one to the east and one to the west of Castle Street, which would control the movement of traffic on the A5. A mini-roundabout at the centre of the A5/ Castle Street junction would enable A5 eastbound traffic to give way to the westbound traffic turning right. Consequently, resolving the issue of right turning traffic blocking the westbound movement. Castle Street would remain signalised, as it currently is.

**Option 7- Market Street Closed to Traffic at the Castle Street Junction**

6.2.25 Option 7 proposes that Market Street would be closed to vehicular traffic entering and exiting onto/ from Castle Street. At present the movement of vehicles into and out of Market Street causes conflict, which in turn impacts on the movement of traffic on Castle Street in both directions. This is particularly the case when coaches are entering and exiting Castle Street at the same time.

**Option 8 – New River Dee Crossing to the East of Llangollen**

6.2.26 A new crossing of the River Dee to the east of Llangollen to remove through traffic from within the town.

**Summary**

6.2.27 Table 6.1 below provides a summary of the options that have been considered, together with a commentary of the advantages and disadvantages of each. Following the appraisal of options, it is considered that Option 7, closure of Market Street at the junction with Castle Street is explored in greater detail. The other options have been discounted at this stage.

Table 6.1: Options to reroute traffic within Llangollen

Option	Advantages	Disadvantages
<p>Option 1 – Banning of the Right Turn onto Castle Street from A5 Westbound</p>	<ul style="list-style-type: none"> <li>• Modelling has demonstrated that this option would improve the performance of the A5/ Castle Street junction (see Appendix A)</li> <li>• Reduce the volume of traffic using the southern half of Castle Street</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic may re-route within the town centre via Chapel Street, which is a narrow street and unsuitable for large volumes of traffic and larger vehicles.</li> <li>• Increase traffic volumes of Market Street.</li> <li>• HGVs use Castle Street and rerouting of traffic onto Market Street extends the adverse impact these vehicles have the town centre and local community, Market Street is a residential street.</li> <li>• Larger vehicles are known to have difficulty turning into and out of Market Street and require the whole width of both roads to make the manoeuvre. Increasing the number of larger vehicles accessing Castle Street from Market Street would have an adverse impact on the movement of traffic and pedestrians along Castle Street.</li> <li>• There is a known conflict at the Market Street/ Castle Street junction when two larger vehicles are simultaneously accessing and egressing Market Street, which is observed to take place at present when coaches are accessing and egressing Market Street. This causes vehicles to be delayed on Castle Street as the manoeuvre takes place.</li> <li>• There is concern the longest of vehicles. i.e. the timber carrying lorries would not be able to make the move from Market Street to Castle Street.</li> <li>• Increased traffic egressing from the Market Street Car Park onto Castle Street (all car and coaches), as Market Street would be one-way</li> </ul>
<p>Option 2 – No access onto Castle Street from the A5</p>	<ul style="list-style-type: none"> <li>• Modelling has demonstrated that this option would improve the performance of the A5/ Castle Street junction (see Appendix A)</li> <li>• Reduce the volume of traffic using the southern half of Castle Street</li> </ul>	<ul style="list-style-type: none"> <li>• Same as Option 1</li> </ul>
<p>Option 3 – Roundabout at the Market Street/ A5/ Hall Street Junction</p>	<ul style="list-style-type: none"> <li>• Modelling has demonstrated that this option would improve the performance of the A5/ Castle Street junction (see Appendix A)</li> <li>• Reduce the volume of traffic using the southern half of Castle Street</li> </ul>	<ul style="list-style-type: none"> <li>• Same as Option 1, plus</li> <li>• It is not considered that orthodox roundabouts would be viable in this location due to cross-section constraints.</li> <li>• Concerns that larger vehicles would not be able to undertake a U-turn at the roundabout junction.</li> <li>• U-turning vehicles at the roundabout would have an adverse impact on the</li> </ul>

		eastbound flow of traffic on the A5 and causes eastbound traffic to be delayed.
Option 4 – Rerouting of traffic from the A5 onto Castle Street via East Street/ Parade Street	<ul style="list-style-type: none"> <li>It is expected that this option would improve the performance of the A5/ Castle Street junction (no modelling has been undertaken)</li> <li>Reduce the volume of traffic using the southern half of Castle Street</li> </ul>	<ul style="list-style-type: none"> <li>Increase traffic volumes of Market Street, East Street and Parade Street.</li> <li>HGVs use Castle Street and rerouting of traffic onto Market Street, East Street and Parade Street extends the adverse impact these vehicles have the town centre and local community.</li> <li>Increasing the number of larger vehicles accessing Castle Street from Parade Street would have an adverse impact on the movement of traffic and pedestrians along Castle Street.</li> <li>There is concern the longest of vehicles. i.e. the timber carrying lorries would not be able to make the move from Market Street to Castle Street.</li> <li>Increased traffic egressing from the Market Street Car Park onto Castle Street (all car and coaches), as Market Street would be one-way.</li> <li>Traffic may re-route within the town centre via Chapel Street, which is a narrow street and unsuitable for large volumes of traffic and larger vehicles.</li> </ul>
Option 5 – Castle Street One-way Northbound from A5 to Market Street/ Oak Street	<ul style="list-style-type: none"> <li>It is expected that this option would improve the performance of the A5/ Castle Street junction (no modelling has been undertaken)</li> <li>Reduce the volume of traffic using the southern half of Castle Street</li> <li>Remove conflict of vehicles accessing and egressing Market Street onto Castle Street, and thus removing the adverse impact on traffic and pedestrians' movements along Castle Street</li> </ul>	<ul style="list-style-type: none"> <li>Increase traffic volumes on Market Street and Oak Street, which are residential streets also.</li> <li>All traffic travelling to the Market Street Car Park from the south would have to do so via Castle Street</li> <li>The one-way system on East Street and Parade Street would need to be reversed</li> <li>Potential loss of parking on Oak Street.</li> <li>Oak Street in particular is narrow and unsuitable for increased volumes of HGVs.</li> <li>HGVs use Castle Street and rerouting of traffic onto Market Street and Oak Street extends the adverse impact these vehicles have the town centre and local community.</li> <li>There is concern the longest of vehicles. i.e. the timber carrying lorries would not be able to make the move from Castle Street onto Market Street and Oak Street</li> </ul>
Option 6 – A5/ Castle Street Mini-roundabout Junction	<ul style="list-style-type: none"> <li>It is expected that this option would improve the performance of the A5/ Castle Street junction (no modelling has been undertaken)</li> <li>Improved pedestrian crossing facilities across the A5</li> </ul>	<ul style="list-style-type: none"> <li>Unconventional junction design and thus road safety concerns</li> </ul>

Llangollen 2020 Project: Feasibility Study

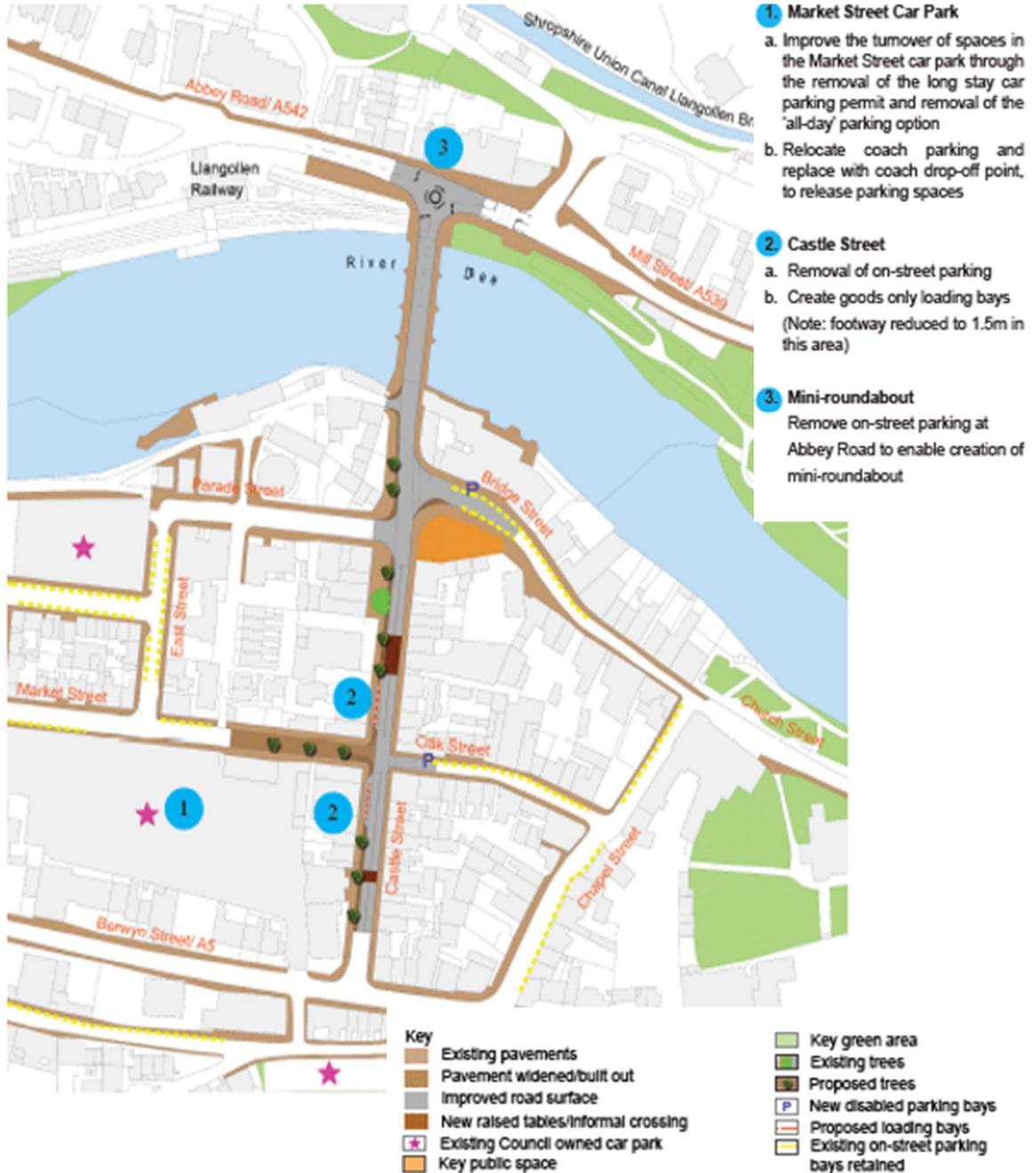
<p>Option 7- Market Street Closed to Traffic at the Castle Street Junction</p>	<ul style="list-style-type: none"> <li>Remove conflict of vehicles accessing and egressing Market Street onto Castle Street, and thus removing the adverse impact on traffic and pedestrians' movements along Castle Street</li> <li>Potential for the section of Market Street between Castle Street and Greenfield to be used for events, such as the market, at selected time, subject to traffic orders and discussion with the Town Council and DCC.</li> </ul>	<ul style="list-style-type: none"> <li>Potential loss of on-street parking on East Street</li> <li>Exact means of closure would require more detailed investigations and discussion with DCC. it is possible that a rising bollard could be used, which would enable emergency access if/when required.</li> <li>HGVs use of Oak Street would need to be banned, as they would not have sufficient space with the narrower carriageway and pavement buildouts on Castle Street to make the turn onto Castle Street.</li> <li>Increased volume of traffic on East Street and Parade Street, as vehicles would no longer be able to egress onto Castle Street via Market Street, including coaches. This one-way route is narrow in sections however the route is currently a route for buses.</li> <li>Increased volume of traffic at the Parade Street/ Castle Street and Market Street/ A5/ Hall Street junctions, which would require further analysis of potential impacts.</li> <li>Traffic accessing the Market Street Car Park would need to access it via the A5, hence increasing the number of traffic using the southern half of Castle Street and the A5/ Castle Street junction, which would require further analysis.</li> <li>This option would require improved car park signage to ensure visitors are fully aware of the location of the Market Street Car Park and to avoid unnecessary longer journeys of visitors searching for a car parking space.</li> <li>Vehicle tracking within Appendix B shows that an articulated vehicle overhangs the pavement on Parade Street and on Castle Street when turning left onto Castle Street.</li> </ul>
<p>Option 8 – New River Dee Crossing to the East of Llangollen</p>	<ul style="list-style-type: none"> <li>Reduce traffic flow on Castle Street, through the removal of through trips, which would in turn improve the performance of the A5/ Castle Street junction.</li> </ul>	<ul style="list-style-type: none"> <li>Expensive option</li> <li>Topographical, cultural and environmental constraints and considerations</li> </ul>

Figure 6.7: Draft Option – Parking

# Astudiaeth Ddichonoldeb Llangollen 2020

## Llangollen 2020 Feasibility Study

### Parking



### **Market Street/ A5/ Hall Street**

A modification to the Market Street/ A5/ Hall Street junction layout has been considered however, as the junction is observed to operate within capacity in both the base year 2018 and the design year 2023 and it is not considered that orthodox roundabouts would be viable due to cross-section constraints, hence no junctions modifications are proposed at this location at this stage.

### **Castle Street**

- 6.2.28 It is proposed as part of the public realm enhancement scheme along Castle Street that the existing short stay (30 minute waiting time with no return within 30 minutes) spaces would be removed with the loss of approximately 13 spaces. These car parking spaces are in prime location adjacent to the majority of shops and services. However, from our engagement days with members of public during the first round of consultation, these car parking spaces were seen by some to offer an excellent facility whilst others said they had difficulty finding a free space and cars accessing and egressing the spaces had a negative impact on the flow of traffic along Castle Street. It is acknowledged that the loss of these spaces has an adverse impact on some users, however a range of complementary measures are proposed to minimise the impact on the local community and business, which are discussed in the sections below.
- 6.2.29 It is proposed that the on-street parking bays would be replaced with Goods Only Loading Bays. Goods Only bays would enable only goods vehicles collecting and delivering materials to be able to use the bays, which could then be enforced by DCC's Enforcement Officers. It is proposed that two bays measuring 2.5m wide by 12m long would be implemented in similar locations to the existing parking bays. The purpose of providing the dedicated bays is to minimise the disruption deliveries have on the town centre and improve deliveries/ collections to/from shops and businesses.

### **Disabled Parking Enhancements**

- 6.2.30 As the on-street short-stay car parking spaces along Castle Street are proposed to be removed, several existing on-street parking spaces on Oak Street and Bridge Street are proposed to be designated disabled parking bays, in order to ensure there is availability of parking for those that need it within close proximity of Castle Street.

### **Additional Summer Capacity**

- 6.2.31 It is widely accepted that demand for car parking spaces in Llangollen can outstrip the supply, this is particularly evident during the summer months when the number of visitors to the town peaks. This study has investigated a range of possible options whereby temporary solutions can be sought during this time to ensure additional capacity is provided. This would be supported by improved parking enforcement within Llangollen.
- 6.2.32 During the first round of consultations we consulted Ysgol Dinas Bran and the possibility of using the school car park during the month of August was discussed. In principle the school is content for the school car park to be used during the month the school is closed (August). It is proposed that this car park could provide additional spaces for local business and their staff to use, thus freeing up the council operated and maintained car parks within the town centre for visitors. However, the use of this car park would need to be explored in more detail with the school.
- 6.2.33 The option to develop a Park and Ride scheme during the summer months has been considered as part of this study, however at this stage it is considered that such an option would not be financially viable, but this does not mean that at another point in the future this option should not be considered again.

### **A539 Loss of On-street Parking**

- 6.2.34 The implementation of the mini-roundabout at the A539/ Castle Street/ A542 junction would result in the loss of approximately five short stay parking spaces.

### Market Street Car Park

6.2.35 The availability of car parking has an important role to play in making a town centre attractive and thus successful. The consideration of the quantity of both long and short stay car parking spaces has to form part of the wider transport strategy for the town. It is essential that all transport modes are considered, particularly given the hierarchy of modes considered within Manual for Streets (DfT, 2007). Whereby pedestrians should be considered first in any given design. The private car is thus just one of the transport modes to consider.



6.2.36 However, given the rural nature of the surrounding area the private car is the dominant mode of transport for most users and for some is the only option to travel. Thus there is a high demand for car parking within the town, due to Llangollen’s important role regionally as a provider of goods and services and it being a tourism magnet, given its heritage and its proximity to the WHS and other key tourist destinations/ attractions which bring a high increase in demand for spaces. The private car is the main mode of transport for tourists visiting the area, however coaches bring a significant proportion of tourists to Llangollen also (coach parking is discussed separately below).

6.2.37 Therefore, getting the right balance of short and long stay spaces, as well as considering the variation seasonally across the year is critical in ensuring the needs of local people (shoppers and workers), as well as ensuring those visiting the town have a high chance of finding a car parking space, so they can visit the town and support the local economy and leave with a positive experience of the town.

6.2.38 This study has sought way to achieve the optimum efficiency of the Market Street car park, it proposes the conclusion of the Denbighshire Town Centre Parking and Traffic Management Study (DCC / Mott McDonald, 2015) which recommended redesignation of the Market Street car park as short-stay. This would enable a higher turnover of car parking spaces through the removal of vehicles that are parked for long periods of time, thus enabling a greater number of vehicles to use and benefit from the centrally based car park. This would however mean that the use of the long stay permits would no longer be able to be used in this car park and workers who wish to use this car park, would have to park in the other long stay car parks in the town.

6.2.39 It is recommended that detailed discussions are had with DCC officers to consider whether it would be possible for the designation of Market Street to be seasonal, i.e. it is considered a long stay car park during the winter months when visitors numbers are lower and demand for spaces is lower and a short stay car park in the summer months when there is greater demand for car parking spaces. It is considered that this option could reduce the adverse impact on Denbighshire residents. It would be critical that if this was taken forward careful consideration would need to be given to the information provided to avoid confusion. This would also require education of businesses and their staff also.

6.2.40 As the short stay car parking spaces are proposed to be removed from Castle Street, further consideration could be given to provide users of the Market Street car park with 30 minutes free parking, as not to discourage those shoppers who would have otherwise used the spaces on Castle Street from visiting the town.

### Cycle Parking

6.2.41 The proposed option incorporates cycle parking on Castle Street (potentially within the vicinity of the Town Hall), to encourage more local journeys to be made by bicycle.

### Coach Parking

6.2.42 A large proportion of the Market Street car park is designated as coach parking. Coaches are an important means by which tourists visit and access Llangollen. It is critical that these visitors, particularly as some of the visitors are elderly, are dropped off as close to the town centre, as possible and the Market Street car park is the perfect location for coaches to drop off.

- 6.2.43 It is proposed within this study that the number of coach spaces within the Market Street car park is reduced, in order to provide more spaces for both tourists and local people travelling by car to access the shops and services within the town centre. It is estimated that approximately 30 additional car parking spaces could be provided, however a concept design of the car park would provide greater certainty on the number of spaces.
- 6.2.44 It is suggested that the Pavilion car park could be used for coaches to wait between dropping and picking up passengers at the Market Street car park. It is acknowledged that this would increase the number of coach movements within the town centre, as coaches have to travel to and from the Pavilion. However, it is hoped the provision of extra car parking spaces in the Market Street car park and the other measures proposed to increase the turnover of spaces would reduce the number of cars searching for spaces within the town centre. This option would require consideration as to where coaches that cannot be accommodated within the Market Street car park would need to park on the day's events are being held/ set up and set down within the Pavilion. However, it is considered that the benefits of this option are strong and warrant further consideration with DCC and Llangollen Pavilion.

## 6.3 Consultation

### Approach

- 6.3.1 The public were consulted on the draft option. This second round of community engagement provided an opportunity for Arcadis to consult on the draft option that had been identified to address the issues and concerns raised by members of the public in the first round of consultation.
- 6.3.2 A consultation event took place on 17<sup>th</sup> October 2018. This comprised the preferred option being put on display on Castle Street outside the Town Hall between 14:00 – 18:00, during which time members of the public had the opportunity to review the proposed option, ask questions and provide the project team with their views. The consultation event was publicised in advance through leaflets in local businesses, a letter drop and via social media. The decision was taken to hold the event outdoors, in order to maximise exposure of the project and ensure as many people as possible had the opportunity to have their say.
- 6.3.3 This was followed by a formal presentation of the proposals to members of the public at a public meeting in Llangollen Town Hall in the evening of 17<sup>th</sup> October 2018. At both events members of the public had the opportunity to complete a short survey form, in order to express their views on the proposals to create a more pedestrian friendly environment along Castle Street, options for car parking and public realm improvements. The survey also left space for general comments, to allow residents an opportunity to expand on their views and suggest further ideas. A copy of the survey is included in Appendix C.

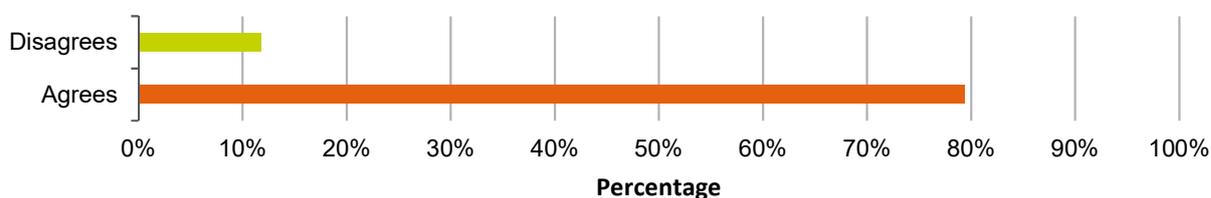
### Feedback Survey

- 6.3.4 A total of 34 feedback surveys were completed by consultees during the consultation event. This section provides an appraisal of the feedback received.

#### Castle Street

- 6.3.5 The first section of the survey considered opportunities to improve Castle Street (as shown in Figure 6.8):
  - 72% of consultees agreed with the removal of parking along Castle Street;
  - 62% expressed interest to widen pavements and narrow roads; and
  - The suggestion to narrow the road carriageway along Castle Street was largely agreed with (79%).

Figure 6.8: Castle Street Road Carriageway Narrowing



**Public Realm**

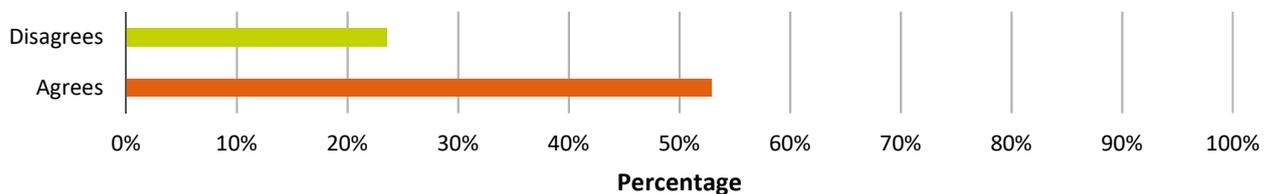
6.3.6 The opportunities to improve the public realm for pedestrians were positively supported with positive agreement for:

- Improving the road and pavement surfacing (88%);
- Widening the footways (91%)
- Crossing points for pedestrians at two locations in the style of a ‘raised table’ (91%); and
- Tree planting along Castle Street (68%).

**Market Street**

6.3.7 The opportunity to pedestrianise Market Street between Castle Street and Greenfield received 53% in agreement and 24% in disagreement. The remaining 23% of respondents had no opinion or did not answer the question (as shown in Figure 6.9).

Figure 6.9: Pedestrianise Market Street Between Castle Street and Greenfield

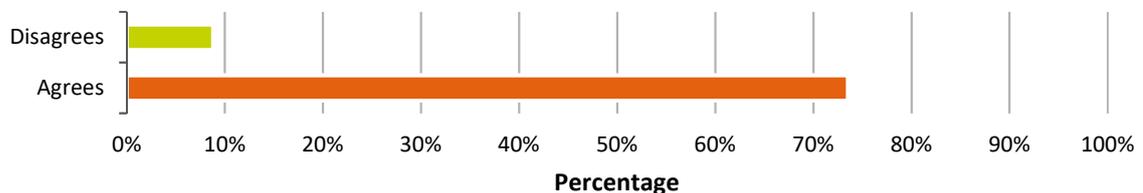


**Parking Opportunities**

6.3.8 During both rounds of consultation parking was one of the most frequently discussed topics (as shown in Figure 6.10):

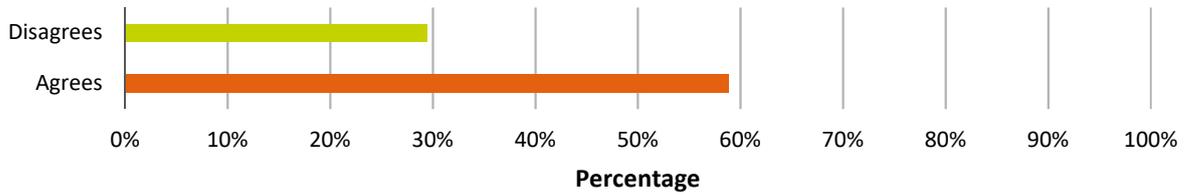
- The opportunities to introduce a restricted parking zone across the town centre was supported (74% in agreement);
- Potential to provide parking for local businesses at Ysgol Dinas Bran during August was supported by consultees (76% in agreement);
- The provision for two goods only loading bays along Castle Street and provision for disabled parking bays on Bridge Street and Oak street was also agreed with, with 71% in agreement for both;
- The suggestion to remove all on-street parking from Castle Street was highly agreed with (74% in agreement);

Figure 6.10: Remove All On-Street Parking from Castle Street



- Almost 60% of residents agreed that the removal of the long stay car parking permit in line with DCC car parks should be undertaken to increase turnover, with almost 30% of residents in disagreement (as shown in Figure 6.11). 10% of respondents either had no opinion or did not answer the question; and
- The opportunity to relocate coach parking from Market Street car park and replace with coach drop off / collection point was supported by 85% of consultees, alongside 6% who disagreed. 9% of respondents either had no opinion or did not answer the question.

Figure 6.11: Removal of Long Stay / All Day Car Parking Permit

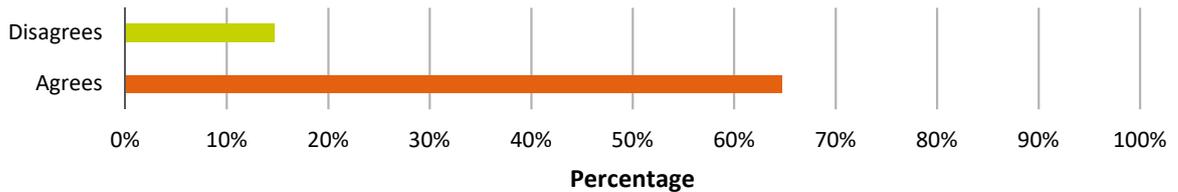


**Junction Improvements**

6.3.9 The proposed highways interventions were consulted on (as shown in Figure 6.12):

- Introduction of yellow lines on Hall street to remove parking close to the junction with the A5 received overall agreement of 65% and disagreement of 6%. Almost one third of respondents did not have an opinion on this proposal;
- 82% agreed with improving the A5 Berwyn Street / Castle Street junction and 3% disagreed. The remaining respondents did not answer or had no opinion; and
- 65% of consultees agreed with the suggestion to implement a mini-roundabout at the Abbey Road / Castle Street junction.

Figure 6.12: A Mini-Roundabout at the Abbey Road / Castle Street Junction



**Strategic Opportunities**

- The statements improve gateway approaches to the town centre and improve way finding to the WHS received 88% and 85% agreement respectively and zero disagreement. The remaining residents had no opinion over the propositions;
- The opportunity to discourage unnecessary HGV drivers through Llangollen was highly agreed with (88%), with 79% of those strongly agreeing with the suggestion, the mostly strongly agreed upon idea.

**General Comments**

6.3.10 The final section of the survey provided a general comments box, to allow respondents the opportunity to express their views. A summary of the main feedback themes is presented below:

*Main themes of feedback survey comments*

<p><b>Parking</b></p> <ul style="list-style-type: none"> <li>• Progressive parking costs / Smart meters</li> <li>• Advertise Aldi/ Home Bargains car park</li> <li>• Free short term parking</li> </ul>	<p><b>Resident Only Parking</b></p> <ul style="list-style-type: none"> <li>• Differentiate resident parking from all day worker's parking</li> <li>• Provide resident only parking bays in every car park</li> </ul>	<p><b>Bus</b></p> <ul style="list-style-type: none"> <li>• Improve public transport links</li> <li>• One tickets offering unlimited day travel</li> </ul>
<p><b>Pedestrian Priority</b></p> <ul style="list-style-type: none"> <li>• Create a pedestrian crossing at traffic lights</li> <li>• Better infrastructure for active travel</li> <li>• Repave pavements</li> </ul>	<p><b>Traffic Calming</b></p> <ul style="list-style-type: none"> <li>• Speed bumps down Castle Street</li> <li>• 20 mph speed limit across Llangollen</li> </ul>	<p><b>Park and Ride</b></p> <ul style="list-style-type: none"> <li>• Explore potential for Park and Ride</li> </ul>
<p><b>HGV's</b></p> <ul style="list-style-type: none"> <li>• Reduce HGV's travelling down Castle Street</li> <li>• Narrower roads create difficult environment for HGV's</li> </ul>	<p><b>Local Businesses</b></p> <ul style="list-style-type: none"> <li>• Loss of trade for local businesses with reduced parking</li> <li>• Difficulty renting out retail units due to parking problems</li> <li>• Cut-off time for goods delivery</li> </ul>	<p><b>Market Street</b></p> <ul style="list-style-type: none"> <li>• Construct a roundabout at junction of A5/ Market Street</li> <li>• Increased traffic along Castle Street and Bridge Street if Market Street pedestrianised</li> </ul>
<p><b>Strategic Opportunities</b></p> <ul style="list-style-type: none"> <li>• The AONB needs recognition in the town</li> </ul>	<p><b>Hall Street</b></p> <ul style="list-style-type: none"> <li>• Direct traffic along Hall Street over-turning right into Castle Street</li> </ul>	<p><b>Pavilion</b></p> <ul style="list-style-type: none"> <li>• Coach parking at Abbey Road Pavilion</li> <li>• Llangollen Pavilion should have a multi-story car park</li> </ul>

**Summary**

6.3.11 In general, from the feedback received on-street and from the results received from the 34 completed forms there is support for each of the key elements of the preferred option. The key conclusions from the feedback indicates that:

- There is general support for removing on-street car parking from Castle Street and the creation of goods only loading bays;
- Better use of existing car parks and exploring opportunities to utilise other assets, for example use of Ysgol Dinas Bran during August should be explored to provide extra capacity within the town, together with the reduction in the provision for coach parking within the Market Street car park, in order to free up capacity;
- There was widespread support for a mini roundabout to be introduced at the Abbey Road / Castle Street junction; and
- The opportunity to pedestrianise Market Street between Castle Street and Greenfield received 53% in agreement and 24% in disagreement.

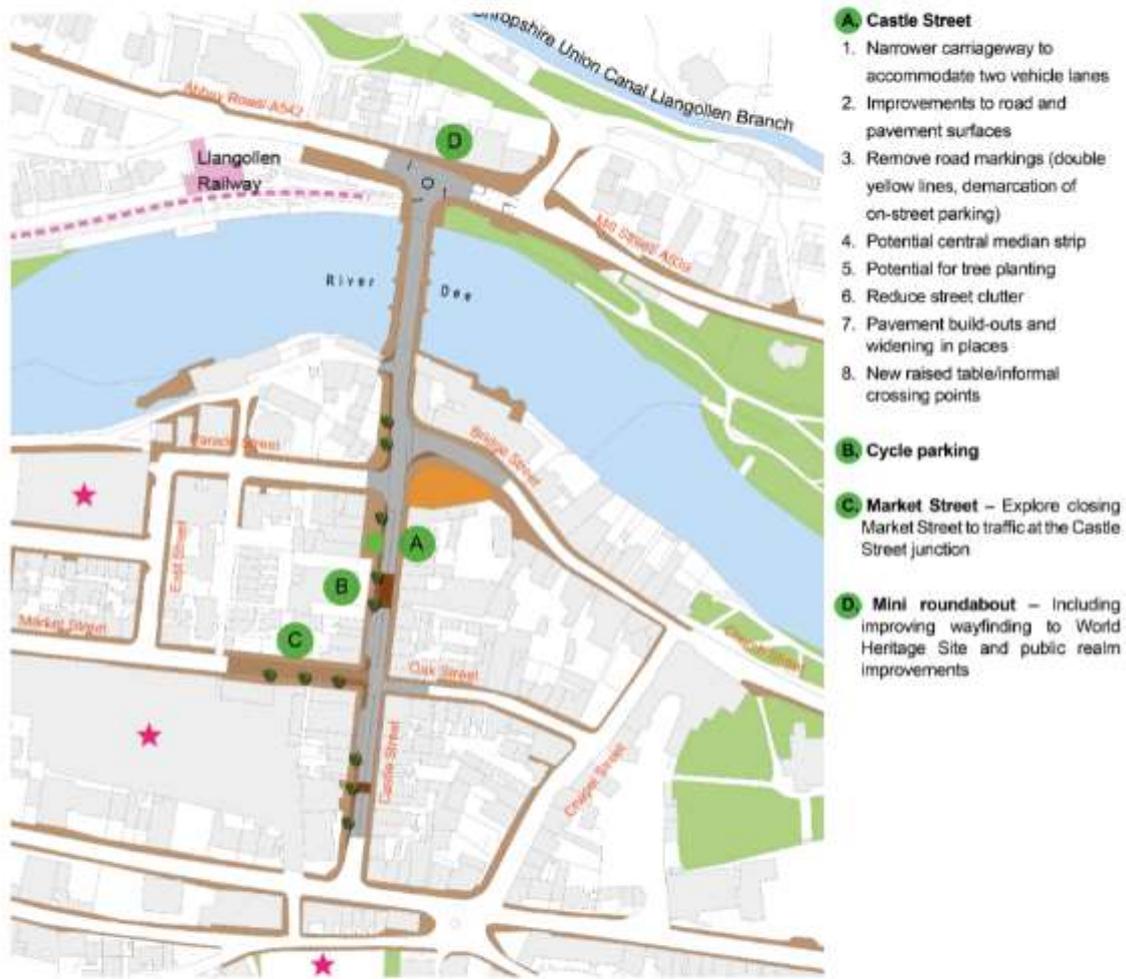
## **6.4 Preferred Option**

- 6.4.1 Following appraisal of the consultation feedback received during the consultation event held in October 2018. The preferred option for the enhancement of Llangollen Town Centre and the options are presented in Figures 6.13 and 6.14.

Figure 6.13 – Preferred Option – Public Realm Enhancements

# Astudiaeth Ddichonoldeb Llangollen 2020 Llangollen 2020 Feasibility Study

## Preferred Option Public Realm Enhancements



- A. Castle Street**
  1. Narrower carriageway to accommodate two vehicle lanes
  2. Improvements to road and pavement surfaces
  3. Remove road markings (double yellow lines, demarcation of on-street parking)
  4. Potential central median strip
  5. Potential for tree planting
  6. Reduce street clutter
  7. Pavement build-outs and widening in places
  8. New raised table/informal crossing points
- B. Cycle parking**
- C. Market Street** – Explore closing Market Street to traffic at the Castle Street junction
- D. Mini roundabout** – Including improving wayfinding to World Heritage Site and public realm improvements

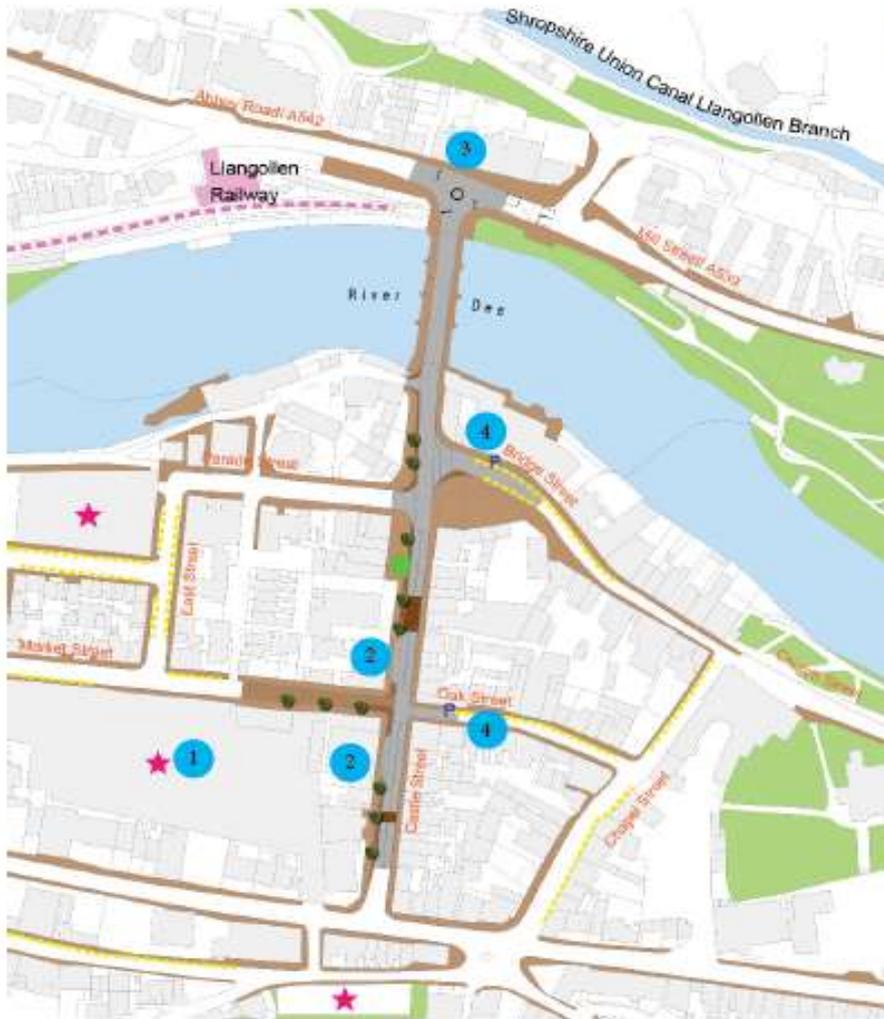
Existing pavements	Key public space
Pavement widened/built out	Key green area
Improved road surface	Existing trees
New raised tables/informal crossing	Proposed trees
Existing Council owned car park	

Figure 6.14: Preferred Option – Parking

# Astudiaeth Ddichonoldeb Llangollen 2020 Llangollen 2020 Feasibility Study

## Preferred Option

## Parking



- 1. Market Street Car Park**
  - a. Improve the turnover of spaces in the Market Street car park through exploring the removal of the long stay car parking permit and removal of the 'all-day' parking option
  - b. Relocate coach parking and replace with coach drop-off point, to release parking spaces
- 2. Castle Street**
  - a. Removal of on-street parking
  - b. Create goods only loading bays (Note: footway reduced to 1.5m in this area)
- 3. Mini-roundabout**  
Remove on-street parking at Abbey Road to enable creation of mini-roundabout
- 4. Disabled Parking**  
The creation of disabled parking on Bridge Street and Oak Street

<b>Key</b>		
Existing pavements	Key green area	Existing trees
Pavement widened/built out	Proposed trees	New disabled parking bays
Improved road surface	Proposed loading bays	Existing on-street parking bays retained
New raised tables/informal crossing		
Existing Council owned car park		
Key public space		

## 7 Economic Impact Assessment

### 7.1 Introduction

- 7.1.1 This chapter provides a summary of the potential economic impacts that may arise as a result of implementation of the preferred scheme. These include the potential effects of the scheme on businesses, residents and tourism, for example in terms of likely changes in footfall, expenditure, length of stay, as well as wider social and community impacts that may occur such as health and well-being benefits arising from an improved pedestrian environment, greater civic pride and better showcasing of Llangollen's distinctive character.
- 7.1.2 A combination of both quantitative and qualitative assessments have been used, taking into account relevant recent research associated with the economic benefits of public realm and town centre improvements, including findings from recent town centre improvement projects elsewhere in the UK. A high level appraisal has also been undertaken to consider wider impacts and benefits of the preferred option.

### 7.2 Methodology

- 7.2.1 Our methodology for undertaking the economic impact assessment has followed a number of key stages, notably:
- A review of the existing evidence base of literature associated with the economic benefits of public realm improvements. Examples include former CABE's (Commission for Architecture and the Built Environment) Value of Public Space (2004), which showed that improvements to public spaces in town centres could boost commercial trading by up to 40% and Living Street's The Pedestrian Pound (2014) which describes evidence relating to the creation of additional benefits from public realm improvement schemes. The review includes a selection of case studies from within the UK where economic impact assessment work in relation to the public realm has been undertaken, providing a framework from which reasonable judgements can be made;
  - The current economic context for Llangollen has been set out in Chapter 3 of this report, describing information relating to the local business environment, local demographics, and the current trends in Llangollen in terms of visitor numbers, dwell times, repeat visits and visitor expenditure;
  - Identification of an appropriate spatial area of impact for the appraisal. This includes a core study area defined around the Llangollen town centre, in addition to a wider area of impact relating to the local authority which enables the wider tourist role of the town to be reflected;
  - Identification of the main sources of benefit to arise from the scheme. Where possible, benefits have been quantified; however, there are areas where this level of detail is not appropriate within a high level feasibility and scoping report (for example land value uplift) and instead a narrative has been provided to outline likely qualitative benefits / impacts; and
  - Relevant guidance that has been used to undertake the assessment including the Homes and Communities Agency's Additionality Guide (Fourth Edition, 2015), which provides guidance relating particularly to the assessment of factors such as leakage, displacement and composite multipliers.

### 7.3 Review of Existing Evidence Base

- 7.3.1 A number of research documents and case studies have been produced to look at the economic benefits and impacts arising from public realm improvements. The importance of a healthy and vibrant town centre has a significant influence on the quality of life of local residents and serves as a key driver for attracting tourism. Across the UK, high streets are facing a period of ongoing uncertainty from complex pressures and changing economic conditions. The visible success of a town centre can be highlighted by high footfall figures and a diverse range of retail and leisure units.
- 7.3.2 The quality of the public realm has the potential to significantly impact the local economy, with a wealth of evidence from across the UK indicating clear economic benefits from public realm

investment. Research carried out by the former CABI recognised that a high-quality public realm supports economic growth, encourages private investment and improves the quality of life of residents<sup>28</sup>. CABI's study incorporated a range of research at a national level considering the value of public realm investment and highlighted the commonality of public perception on the impact of high-quality buildings and public space on the way people feel.

- 7.3.3 An improved public realm can enhance the physical appearance of an area, improving pedestrian access and perceived safety, thereby increasing the number and length of visits made by local residents and visitors. An improved pedestrian environment, together with enhanced traffic management improves the amenity of the area for all users, generating increased investment and income generation.
- 7.3.4 The precise economic benefit from public realm investment is difficult to calculate, although using footfall, consumer and business satisfaction and economic activity data some benefits can be quantified. An increase in footfall numbers from residents and visitors indicate the positive amenity benefit they experience in the environment.
- 7.3.5 In town centres, a pleasant and well-maintained environment increases the number of people visiting the area, otherwise known as 'footfall'. Generating and retaining footfall is key to keeping the local economy healthy and thriving. Considering the footfall or number of people walking up and down a given route is a quantitative method of measuring the attractiveness of the location and its ability to provide the goods and services customers and visitors want. Footfall data typically includes people who have travelled to the town centre from various modes of transport, walking, public transport or car travel, providing a dynamic picture of activity levels. Footfall data does not necessarily consider the reason for the number of people walking down a specified route. Well-planned investment in the public realm has been found to potentially boost footfall by up to 40%<sup>29</sup>.
- 7.3.6 High street footfall across the UK generally has fallen over the past decade, for various reasons and drivers of change that may encourage footfall within town centres in the future include not only regulatory and management factors, but also physical / spatial factors and the importance of features such as access and parking.
- 7.3.7 Other economic benefits for the local economy include job creation, increases in property prices and rental rates as well as improved business performance. These changes are often seen on a long-term basis rather than directly after public realm investment.
- 7.3.8 Enhanced traffic management has the potential to improve air quality through reduced congestion and a decrease in road related injuries through improvements in pedestrian safety. Investment in the public realm and pedestrian environment in particular has shown to provide a greater return on investment (30%) in comparison to investment in other transport modes.
- 7.3.9 The social benefits from public realm improvements include increases in residents' sense of place and civic pride, which in turn can lead to reduced rates of crime and anti-social behaviour, further improving the local area in the long-term. There is significant evidence that the perception of an area directly affects the number of visitors to it.
- 7.3.10 Commonly retailers report that they would prefer for their customers to be able to park close to their shop to increase the convenience, accessibility and awareness of their business to all residents and visitors. Reductions in on-street parking, car parks and increases in pricing are viewed negatively by business owners. Studies show how retailers often over-estimate the number of customers who travel via private car over other modes, highlighting the over importance of parking to businesses. Research has shown that there is a lack of evidence linking parking strategies and town centre footfall and that the impacts of alteration to parking arrangements vary from location to location.

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<sup>28</sup> CABI, 2002. The Value of Good Design: How Buildings and Spaces Create Economic and Social Value.

<sup>29</sup> The Pedestrian Pound, Living Streets (2014)

- 7.3.11 Evidence suggests that pedestrians and cyclists are better customers in terms of overall spend, time spent in the area and frequency of visits. Consumers who travel by car typically spend less time and therefore money due to time pressures from car parking.
- 7.3.12 A number of case studies have considered the benefits of public realm improvements and information on these are provided in the following boxes.

#### **Case Study 1 – Kidderminster**

The town of Kidderminster has a population of some 55,000 and is located 17 miles south-west of Birmingham city centre. A recent £2million town centre improvement scheme in Kidderminster is reported to have delivered multiple economic benefits for local residents, visitors and workers. The public realm improvement scheme aimed to transform the town centre by improving the shopping and visitor experience, creating an attractive town centre and accessible shopping.

A year after implementation, the scheme has created 63 new permanent jobs and enhanced the land value by up to £5.52 million over the next 5 years. The works have estimated a 10 year cost benefit ratio of 1:7.6, with £7.60 in economic benefit is generated from a £1 investment. The project has provided wider benefits to the town and local area, with enhanced town vibrancy across the centre through improved public space for street markets, festivals and events throughout the year. The scheme celebrates the town's heritage and enhances the attractiveness of existing historic buildings, maintaining the town's role as a primary retail centre and stimulating investment in leisure and cultural offer of the town.

#### **Case Study 2 – Altrincham**

Public realm improvements in Altrincham, Greater Manchester, have included new spaces and streetscapes, including streetscene improvements, narrowed carriageways, courtesy crossings, trees and street furniture. The town once had the highest proportion of vacant shop units in Britain (with vacancy rates of 30%); since the scheme was implemented vacancy rates have reduced to 7.9% as of December 2017. Footfall has been estimated to have increased by 25% between 2010 and 2017 and crime and anti-social behaviour in the town have dropped. An additional investment of £3 million is currently planned Trafford Council is exploring other locations where similar schemes can be developed in order to revitalise high streets.

#### **Case Study 3 – Preston**

Preston City Centre undertook a major regeneration scheme across its city centre, with a vision to realise its potential as a major centre within North West England for high quality retail, culture, entertainment, business and higher education. To achieve the delivery of this vision, Preston's public realm received a crucial investment boost to enhance the urban character and form. The objectives of the schemes were to create attractive, vibrant and safe streets and public spaces while retaining large parts of its historic character, with enhancement of its network of streets, squares and parks. The key projects included strengthening pedestrian linkages across the city centre to increase accessibility, environmental improvements including the instalment of trees and works to redevelop underused sites. In addition, all streets were tidied up to remove unnecessary road markings, street clutter and damaged items.

#### **Case Study 4 – Poynton**

A shared space scheme in the centre of the small town of Poynton, Cheshire, was completed in March 2012. The scheme was commissioned by Cheshire East Council with Poynton Town Council, with funding support from the SEMMS Programme, Sustrans, development funding and others and cost in the region of £3mn. The scheme involved the regeneration of the main shopping street (Park Lane) and the reinstatement of Fountain Place as the town's core. This was achieved through the removal of the traffic lights at the heavily congested junction, narrowing of some roads and the creation of two connected 'roundabouts'.

Benefits of the scheme have been observed to include a reduction in average speeds (which have fallen to around 20 mph, despite the lack of any change in local speed limit), reduction in journey times through the centre of Poynton and a reduction in pedestrian delays. There is also evidence that the scheme has led to a reduction in the number of vacant properties within the town centre (after the scheme had been operational for one year there was only one void trading premise in Park Lane) and 80% of retailers have reported both increased footfall and turnover.

## **7.4 Limitations**

7.4.1 It remains difficult to fully attribute a link between investment in the public realm and marketable returns. A key issue is to establish whether the public realm investment created additional benefits over what would have happened without the investment. Other difficulties in measuring outcomes from public realm investment include:

- Difficulty isolating factors within the environment (the public realm is influenced by many interrelated processes);
- Investment into the public realm is set with long term intentions, studies conducted to measure benefits cannot easily account for the relevant timescale; and
- Public realm investment provides many social and environmental benefits which themselves are difficult to quantify as well as direct economic benefits.

## **7.5 Review of Existing Baseline**

7.5.1 Chapter 3 of this report sets out baseline data as it relates to the local economy, including visitor numbers and expenditure, the retail catchment area for Llangollen, local demographic characteristics, and the local business environment. Key features to note from this baseline include that:

- Whilst the population of Llangollen ward in 2017 is 4,100, the geographical catchment of the town centre is greater than for other towns of a similar size due to the regional significance of events held, the town's role as an attractive visitor destination and World Heritage Site significance;
- The retail catchment area for Llangollen covers a residential population of some 16,000 people. There are around sixty retail units in Llangollen town centre, with few national chains and a high proportion of independent retailers, meaning there is more potential for expenditure to be retained in the local economy;
- There is a population of nearly one million people within a 60-minute drivetime of Llangollen;
- STEAM data (2016) shows that visitor numbers (i.e. the number of tourism visits) to rural Denbighshire increased from 2.03 million in 2005 to 2.81 million in 2016 (a 38% increase). Over the same period of time the number of visitor days (i.e. the number of days/nights spent by visitors) increased from 2.9 million in 2005 to 4.63 million in 2016.
- Visitor numbers to Llangollen town specifically can be demonstrated by numbers of visitors to specific attractions within and nearby – for example Llangollen Railway sees in the region of

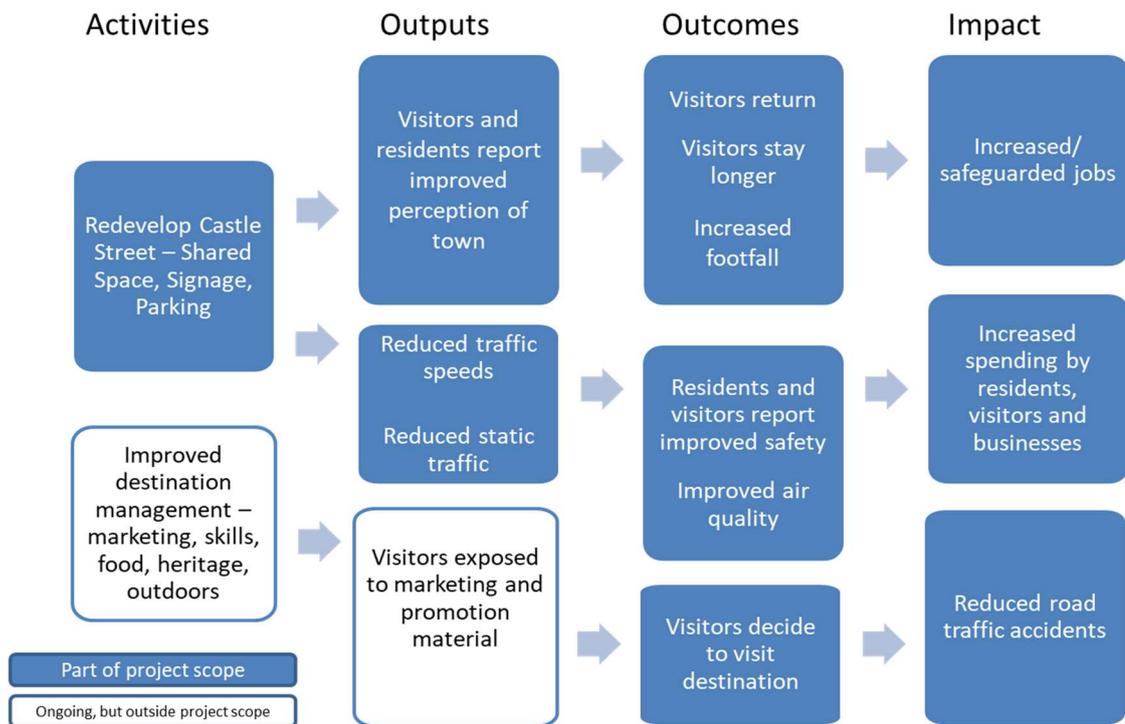
100,000 visitors per annum, the International Eisteddfod attracts between 40-50,000 visitors over a six day period, and Castell Dinas Bran attracted just over 40,000 visitors in 2017;

- The economic impact of tourism to rural Denbighshire in 2016 was £208.4m, with nearly 20% of this figure attributed to shopping (£41.44m). The tourism sector accounts for nearly 3,000 FTEs.;
- Findings from tourism surveys undertaken in Llangollen in 2011 highlighted that the majority of visitors to the town tended to be older and from the AB socio-economic group. A large proportion of visits are repeat visits. Average length of stay for staying visitors is two nights.
- Visitor spend per day in Llangollen has been estimated at £18.16 for a day visitor and just over £30 per day for a staying visitor (these figures include eating and drinking, spend on attractions and general shopping);
- Footfall along Castle Street is high, particularly during peak summer periods. Footfall data provided by DCC for 2016/17 shows an average monthly footfall in Castle Street of 92,000, with significant variation between peak and off-peak times of the year (average footfall of nearly 140,000 in August compared to approximately 50,000 in January); and
- Vacancy rates for commercial and retail units in Llangollen are much lower than elsewhere in Denbighshire (approximately 7% in Llangollen in 2016 compared to more than 25% in Corwen and 18% in Denbigh). Vacancy rates for Llangollen have remained relatively stable since 2010.

## 7.6 Potential Sources of Benefit and Opportunity

7.6.1 The potential sources of benefit and opportunity to arise from improvements to the public realm as described in Chapter 6 are summarised in the logic chain model shown in Figure 7.1.

Figure 7.1: Logic Chain Model



Account for deadweight, substitution, leakage & displacement as appropriate

Source: Cllr Robyn Lovelock, Llangollen Town Council, 2018

## 7.7 Assessment

- 7.7.1 The principal outputs of the public realm improvements are for a more attractive town centre for both residents and visitors alike, with reduced traffic speeds along Castle Street, a reduction in congestion both along Castle Street itself and at the Castle Street/ Abbey Road junction, and potential improvements to parking in the Market Street car park in terms of both turnover of spaces and capacity. A further output would be improvements to destination management, resulting in more people being exposed to marketing and promotion material. These outputs translate into a series of outcomes, described in more detail in the following sections. Economic impacts are likely to arise both from the construction and operational phases of the works and these are presented in the sections below.

### Construction

- 7.7.2 Construction impacts relate primarily to the generation of construction employment. Direct construction employment has been calculated utilising initial capital cost estimates for the project provided by DCC in 2018. It should be noted that more detailed costs will be made available by DCC in April 2019 as an additional document.
- 7.7.3 Construction employment has been calculated using regional data for employment and turnover within the construction sector published by StatsWales (2018) based on Standard Industrial Classification 2007 subclasses, giving a turnover per employee within the construction sector for North Wales of £101,461. Applying the turnover per employee to the initial capital cost estimates results in an estimate of 7FTE direct construction jobs.
- 7.7.4 Indirect and induced employment arising from investment in the supply chain and from employment supported by spend attributable to construction workers respectively, have been calculated using guidance from the Homes and Communities Agency's (HCA) Additionality Guide. The sets out 'ready reckoners' for the estimation of multiplier effects as a result of a project and advises that for instances where there are 'average' linkages in the local supply chain, as can be expected in the Llangollen area, a composite multiplier of 1.1 is applicable for the local area and 1.5 for the wider region. This results in estimates of an additional 0.7FTE supported at the local level as a result of the scheme, increasing to 3.5FTE at regional level.

### Operation

- 7.7.5 The principal economic impacts to arise from the improvement scheme relate to changes in business turnover and Gross Value Added (GVA) and the additional employment that this could support.

#### Business Turnover and Gross Value Added

- 7.7.6 The earlier review of evidence suggests that public realm improvements can lead to an increase in footfall, which is an indicator of potential spend for a town centre, with suggestions that well-planned improvements to public space can lead to an increase in footfall of between 15-45%. In a visitor destination such as Llangollen, the increase in footfall predicted as a result of townscape improvements is likely to be higher than for other towns as a result of increased visitor numbers, visitors potentially staying longer, and a potential increase in repeat visits. With town centre footfall typically declining in many UK towns with cited reasons including the impacts of online retail, there is increasing emphasis being placed upon town centres as 'experiential', where the primary reasons for visiting is likely to be leisure and culture-focused.
- 7.7.7 Taking these factors into account, a conservative estimate of a 20% increase in business turnover has been assumed following scheme implementation. Reasons behind the need for a conservative estimate include that, although the number of visitors to Denbighshire, and specifically to rural Denbighshire, have increased steadily over the last ten years, it is difficult to predict whether this trend would continue due to the reliance of tourism on external factors. These include the weather, exchange rates and even the potential impact of Brexit given the relatively high levels of international visitors to Llangollen. Furthermore, the Denbighshire Retail Study prepared in 2018 suggests that it is unclear how much capacity the tourism sector has for sustaining continued growth.

- 7.7.8 Much discussion has taken place with regard to proposals for the Market Street car park in terms of their effect on capacity and potential footfall. Relocating the coach waiting area from the car park to an alternative location such as the Pavilion is not considered to have a detrimental effect on visitor footfall within the town, as the coach drop off and collection point would remain at Market Street. The quality of Llangollen as a destination and demand for coach tours to include it within destination schedules is such that relocation of the coach drop off point is unlikely to affect numbers of coach tours overall.
- 7.7.9 Estimating the potential increase in business turnover within Llangollen town centre that this change in footfall might generate requires an understanding of existing employment numbers, the turnover per employee and the GVA per employee. GVA is the measure of the value of goods and services produced in an area, industry or sector of an economy. These have been taken from a number of different sources. Firstly, we have estimated the number of employees across town centre uses (shops, restaurants / pubs, accommodation providers, visitor attractions) using a combination of data provided from business surveys and data provided for Llangollen ward from the Business Register and Employment Survey (BRES) for 2017. The turnover per employee and GVA per employee have been calculated using data available from the Office for National Statistics (ONS) and again the BRES.
- 7.7.10 The total number of FTE employees within Llangollen town centre (covering businesses along Castle Street, the A5 / Berwyn Street from Victoria Square to the junction with Market Street, Oak Street, Parade Street and businesses at the Abbey Road / Castle Street junction (between the Bridge End Hotel and the ice cream shop) has been estimated at 525 FTE. Whilst many of the businesses within this area are relatively small-scale in terms of employees (for example there is a high proportion of small, independent shops), larger employers include hotels (notably the Royal Hotel, Gales, the Bridge End Hotel and The Three Eagles, formerly the Wynnstay Arms), larger retail chains such as the Spar and Nisa, and individual employers such as the Llangollen Railway (which employs in the region of 34 full and part-time members of staff. BRES data for Llangollen ward identifies 170 employees working in the retail trade and a further 175 employees working in the hotel and accommodation sector, a significant proportion of which are likely to be employed locally given available statistics from the ONS relating to the distance people travel to work and method of travel (i.e. a significant number of people in Llangollen walking to work).
- 7.7.11 An estimate of the increase in business turnover and GVA as a result of the scheme is presented in Table 7.1.

Table 7.1: Increase in Business Turnover and GVA

Factor	£
Turnover per employee (Wales)	£101,173
GVA per employee	£30,999
Estimated total turnover – businesses within study area	£53,115,825
Estimated total GVA – businesses within study area	£16,274,475
<b>Change in business turnover (20% increase)</b>	<b>£10,623,165</b>
<b>Change in GVA (20% increase)</b>	<b>£3,254,895</b>

- 7.7.12 The HCA's Additionality Guide identifies persistence of benefits over time (i.e. the number of years over which benefits are anticipated to continue), taken from the BIS Impact Evaluation Framework Plus guidance (BIS 2009b). This suggests a persistence timescale of ten years for public realm improvements.

## Employment

- 7.7.13 The £3.25m potential increase in GVA resulting from the scheme translates into 105 FTE jobs, using the GVA per employee for Wales figure of £30,999. This figure relates to the gross employment impact. The HCA's Additionality Guide has been utilised to consider factors such as leakage and displacement in order to identify the net impact.
- 7.7.14 Leakage is defined as the proportion of outputs that benefit those outside of the geographical area or sector. Given the relatively high proportion of independent businesses in Llangollen (including a number of the larger hotel employers and the Llangollen Railway for example), it is likely that the level of leakage would be relatively low, i.e. that the majority of benefits are likely to go to people living within the area. The Additionality Guide 'ready reckoner' for a low level of leakage is 10%.
- 7.7.15 Displacement relates to where the scheme may draw benefits away from other geographical areas or market sectors. Whilst some displacement effects may be anticipated as a result of the scheme (for example visitors may focus primarily on the Castle Street area rather than other parts of the town centre), the scheme may also be considered to have a 'balancing' effect (drawing people back to the town centre from the Aldi / Home Bargains area). A very low displacement effect has therefore been identified at the local level (10%), meaning that up to 90% of the outputs from the scheme would be expected to be retained locally. Displacement effects may be more pronounced at the local authority / regional level where people may choose to visit Llangollen over other destinations such as Corwen, for example, or other towns along the Dee Valley and further afield. This would be a matter that needs to be addressed through marketing and other mechanisms.
- 7.7.16 Finally, the indirect / induced effect of the scheme is calculated using a composite multiplier. The Additionality Guide advises that for instances where there are 'average' linkages in the local supply chain, as can be expected in the Llangollen area, a composite multiplier of 1.1 is applicable for the local area and 1.5 for the wider region.
- 7.7.17 A summary of the potential employment impact of the scheme, taking the above factors into account, is shown in Table 7.2.

Table 7.2: Potential Employment Impact

	FTE
Direct gross jobs created / sustained	105
Indirect / induced (local level – 1.1)	11
Indirect / induced (wider region – 1.5)	55
<b>Direct net jobs created / sustained</b>	<b>85</b>
<b>Indirect / induced (local level – 1.1)</b>	<b>9</b>
<b>Indirect / induced (wider region – 1.5)</b>	<b>43</b>

## Uplift in Property Values

- 7.7.18 A range of other potential economic impacts may arise as a result of public realm improvements in Llangollen. There is a substantial body of evidence to suggest a positive relationship between amenity improvements and property prices (for example public realm improvement schemes with an emphasis on pedestrian priority have been associated with a 12% growth in the sale price of

properties, those with an emphasis on decluttering or materials and fixtures, a growth of 7% and 3% respectively)<sup>30</sup>.

- 7.7.19 The public realm improvements proposed are likely to improve the 'liveability' of the town as well as its attractiveness which may result in a potential uplift in property values. Any direct increase is likely to be relatively small, however an indirect impact may be an increase in investment in residential and commercial properties engendered through an increase in civic pride / improved perceptions of the town by property owners (for example may lead to shop front enhancements and improvements to general building condition).
- 7.7.20 Making the townscape more attractive in Llangollen has the potential to attract investment into commercial and business opportunities. Key investment opportunities within Llangollen town centre relate to The Royal Hotel and the Three Eagles restaurant, both properties located along Bridge Street. The former property has been acquired by a local developer with plans to upgrade the hotel to a four / five star facility; the latter is being developed as a high-end restaurant. Developers may be more likely to make significant investments in property in Llangollen of this nature if thoughtful and appropriate public realm improvements, of the kind undertaken to date in Centenary Square, are undertaken. An upgrade of the Royal Hotel of this nature would have significant impacts on the local economy and indeed on the wider region in terms of employment and destination appeal.
- 7.7.21 A final note relates to the potential increase in property values that may occur over time if air quality improvements can be made, as a result of reductions in congestion. There is some evidence to support this case (Chay, K. & Greenstone, M. (2005). Does Air Quality Matter? Evidence from the Housing Market. *Journal of Political Economy*, 376-42).

#### **Health and well-being**

- 7.7.22 A further potential benefit that would arise from public realm improvements relates to the health and wellbeing of residents and visitors alike. In 'Future Health', CABI note that good health is determined by a range of factors, many of which are linked to the quality, accessibility and sustainability of our physical environment, with good design having the potential to reduce stress, encourage exercise and promote good health<sup>31</sup>.
- 7.7.23 A briefing document recently prepared for Wales by the Town and Country Planning Association, Wales Health Impact Assessment Support Unit and Public Health Wales<sup>32</sup> further articulates the link between good design and health. The document states there is strong evidence linking health and well-being outcomes with the quality of the built and natural environment, highlighting recent evaluations of cost-benefit impacts of walking-friendly schemes showing positive ratios of value for money and the particular role that can be played by schemes that include active travel, open space and accessible public realm elements in making a difference to the health of the population. The relationship between the Llangollen 2020 Project and the spheres in the health map of the Planning for Better Health and Well-being in Wales<sup>33</sup> is presented in Table 7.3.

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<sup>30</sup> Making the Case for Investment in the Walking Environment: A Review of the Evidence (UWE, Cavill Associates)

<sup>31</sup> Future Health: Sustainable Places for Health and Well-being (CABI, 2009)

<sup>32</sup> Planning for Better Health and Well-being in Wales (TCPA, WHIASU, Public Health Wales, November 2016)

<sup>33</sup> Planning for Better Health and Well-being in Wales (TCPA, WHIASU, Public Health Wales, November 2016)

Table 7.3 Relationship Between the Planning for Better Health and Well-being in Wales and the Llangollen 2020 Project

Spheres from the health map	Objectives	Llangollen 2020 project is Expected to Deliver
People	Providing for the needs of all groups in the population	Improve road crossing facilities for all groups, particularly the elderly and those with young children Address residents and visitors concerns regarding congestion and parking
	Reducing health inequalities	Provide designated on-street town centre parking for those with disabilities
Lifestyle	Promoting active travel	Make cycling safer by reducing traffic speeds through the town centre Reduce frequency of illegal parking on the pavement (one of the greatest obstacles to active travel) by providing delivery bays for lorries
		Add crossing points to improve ease of passing through the town centre to key well-being sites including Riverside Park, Canal, Health Centre
	Promoting physically active recreation	Provide a safer, more attractive link between bike rides, walks, runs on the north and south sides of the river
Community	Facilitating social networks and social cohesion	Add attractive spaces outside Wingetts and on Market Street for gathering and passing time, complementing Centenary Square
	Supporting a sense of local pride and cultural identity	Build on the local pride generated by construction of Centenary Square
	Promoting a safe environment	Reduce traffic speeds, reduce pavement parking, provide crossing points, widen pavements
Local economy	Promoting accessible job opportunities for all sections of the population	Increase the likelihood of investment in town centre businesses and property, for example the Royal Hotel possibly due for conversion into a 4* or 5* hotel with accompanying high-quality employment
	Encouraging a resilient, vibrant and diverse local economy	Provide overdue investment in a town feeling the effects of nearly 750,000 tourists a year Update Castle Street, which will encourage property / business owners to invest in their properties Deliver a more attractive town centre, which will encourage a wider range of tourists to visit and stay in the town
Activities	Ensuring the provision of retail, educational,	Reduce traffic speeds, reduce illegal parking on the pavement, provide crossing points to increase access

	leisure, cultural and health facilities that are accessible to all	to all these amenities
	Promoting a green urban environment that supports mental well-being	Include tree planting, possibly including rain gardens; increase space for gathering
	Planning an aesthetically stimulating environment, with acceptable noise levels	Provide a more attractive, relaxed, pedestrian-friendly, and tree-lined space Slow traffic down and reduce congestion to improve noise and air pollution
	Promoting good air quality	Reduce traffic speeds / congestion and increase tree cover to improve air quality
Natural environment	Ensuring security and quality of water supply and sanitation Reducing the risk of environmental disaster	Use pervious surfacing to improve drainage and reduce runoff rates, reducing risks from high water / flooding

- 7.7.24 In making Castle Street more walkable, through widened pavements, crossing opportunities and a more pleasant environment, residents may choose to be more active (for example walking to work for those employed in town centre businesses or walking for recreation purposes). Positive health outcomes associated with walking include a reduction in all-cause mortality, potential reductions in the risk of other conditions such as high blood pressure and stroke and helping with weight loss and reducing obesity levels. Walking is also associated with social benefits, such as networking and social interaction.
- 7.7.24 A further impact is likely to be an improvement in safety of the pedestrian environment as a result of both pavement improvements, reduced traffic speeds and the provision of crossing facilities. This is particularly important along Castle Street given the use of this route by secondary school children travelling to / leaving Ysgol Dinas Bran.

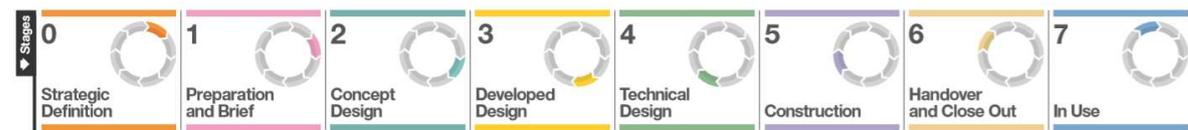
## 8 Next Steps

### 8.1 Overview

- 8.1.1 This feasibility study has taken a fresh look at Llangollen town centre, focusing on improvements to the public realm, movement and parking issues, together with identifying a range of potential solutions. Both the community and stakeholders have been closely involved in the development of proposals, through a range of consultation and engagement activities. Key stakeholders such as Welsh Government, the North and Mid Wales Trunk Road Agency and DCC have been included in our consultation activities in order to gain strategic local advice and buy-in. The concept designs have been developed in response to the consultation and engagement process. The views of the local community have also played a vital role in the identification and development of the concept designs.
- 8.1.2 Next steps to move the project on comprise both activities related to scheme design for the Castle Street area itself, as well as activities related to the topics of strategic vehicular movements and parking.

### 8.2 Castle Street Public Realm Improvements

- 8.2.1 The next steps for taking the Castle Street scheme forward to construction can be best thought about in relation to the Royal Institute of British Architects (RIBA) work stages, which organise construction projects into a number of key stages including tasks and outputs required at each stage, as shown below.



(Source: RIBA Plan of Work 2013)

- 8.2.2 The work that has been undertaken to date encompasses RIBA stages 0 to 2 (Strategic Definition, Preparation and Brief, Concept Design), which has incorporated the development of project objectives, preparation of this feasibility study and the development of a concept design for Castle Street and associated areas.
- 8.2.3 The next stage for the public realm improvements for Castle Street therefore relates to Stage 3 (Developed Design). At this stage, there is a general need for further detail (beyond feasibility stage) to inform the development of a more detailed technical design, from which more accurate specifications and costing information can be prepared. We envisage the next steps here to include the following:
- Undertake detailed traffic modelling to understand the impacts of proposed changes on the wider network. Although junction modelling has been undertaken as part of the feasibility study to understand capacity and flow requirements at the A5 and Abbey Street junctions with Castle Street, it is likely that the Welsh Government / North and Mid Wales Trunk Road Agency will require a more detailed understanding / quantified evidence base of the scheme on the wider network (particularly for example an understanding of how potential impacts relating to the closure / stopping up of Market Street);
  - Preparation of outline specifications;
  - Update cost information for the scheme;
  - Continue consultation with key stakeholders to inform design;
  - Continue to explore funding opportunities and applications where appropriate and
  - Undertake pre-application discussions with the planning department.

## 8.3 Strategic Vehicular Movements

8.3.1 The feasibility study has highlighted a number of recommendations with regard to managing future strategic vehicular movements, particularly in the light of potential opportunities to improve traffic flow along the A483 / Halton Roundabout. In terms of next steps it is therefore proposed that the Working Group and Llangollen Town Council continue on-going dialogue with the Welsh Government and North and Mid Wales Trunk Road Agency officials regarding:

- Emerging options for the A483 / Halton Roundabout and the A5 including estimated delivery timescales; and
- The use of HGV advisory signage.

## 8.4 Parking

8.4.1 The feasibility study has presented several opportunities relating to parking that can be progressed in line with the ongoing programme of the Working Group. Next steps include:

- Liaison with the Highways Department at DCC in relation to the Market Street car park – exploring options to introduce a seasonal approach to the use of parking permits in the car park, as well as opportunities to relocate the coach parking to the Pavilion car park;
- Preparation of a concept design / layout for the Market Street car park taking the findings from the above discussions into account; and
- Liaison with Ysgol Dinas Bran over the potential use of parking areas within the school grounds during August, with a view to a trial / pilot operation taking place in 2019.

## **APPENDIX A**

### **Traffic and Modelling Report**

# LLANGOLLEN 2020 PROJECT

## Traffic Modelling Technical Note

NOVEMBER 2018





# Llangollen 2020 Project

## Traffic Modelling Technical Note

Author JS/MG

Checker JG

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# 1 Introduction

## 1.1 Overview

- 1.1.1 Arcadis Consulting (UK) Ltd ('Arcadis') has prepared this Transport Modelling Technical Note to accompany and inform the Llangollen 2020 Project Feasibility Study.
- 1.1.2 Llangollen is located in North Wales and is situated either side of the River Dee. The A5 is the main trunk road in the area and passes through the town to the south. Castle Street is the main high street and runs north-south through the centre of the town and provides a key connection over the River Dee between the A5 and A542.
- 1.1.3 This Traffic Modelling Technical Note sets out the baseline and forecast conditions for transport for three key junctions within Llangollen:
- Site 1 is a non-signalised T-junction north of the River, connecting Mill Street, Castle Road and Abbey Road;
  - Site 2 is a signalised T-junction south of Llangollen, connecting A5 Regent Street, Castle Street and A5 Berwyn Street; and
  - Site 3 is a non-signalised intersection, west of Site 2. The junction connects Market Street, A5 Berwyn Street, Hall Street and A5 Berwyn Road.
- 1.1.4 Arcadis commissioned a two-day traffic survey at each of the sites to obtain traffic data for developing local junction models.

## 2 Traffic Conditions

### 2.1 Traffic Surveys

2.1.1 The video traffic surveys were undertaken by Intelligent Data on Friday 13th July between 11:00- 14:00 and 16:00- 19:00, as well on Saturday 14th July between 11:00- 14:00. The time period assessed was agreed with the client as it represented the busiest period in the town, which is a tourist destination. Site 1 had to be resurveyed on the Saturday 21st July between 11:00 – 14:00 due to a camera failure.

2.1.2 The following traffic data was recorded during the surveys:

- Fully classified traffic counts on all approaches; and
- Origin – destination traffic movements.

2.1.3 Based on the Traffic flow profiles the peak hours were identified as follows:

- Friday 16:45-17:45; and
- Saturday 11:30-12:30.

2.1.4 Traffic Flows from Figure 1 and Figure 2 presents the rolling hour traffic flow profile for the total network traffic recorded passing through each junction during the two-day traffic survey. Note that the horizontal axis shows the hour starting, for example the flow shown on the graph at 11:00 is the network flow for the full hour between 11:00- 12:00.

2.1.5 These peak hours were used as the basis for assessing each of the three sites.

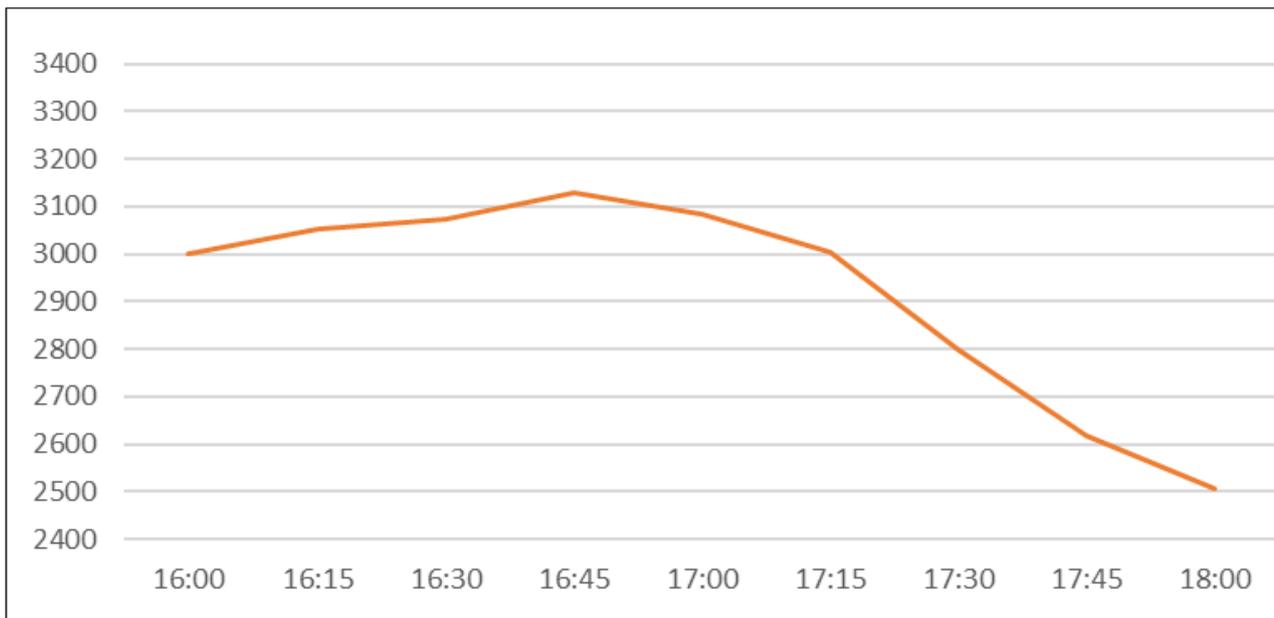


Figure 1 Friday PM Network Traffic Flow Profile (Vehicles)

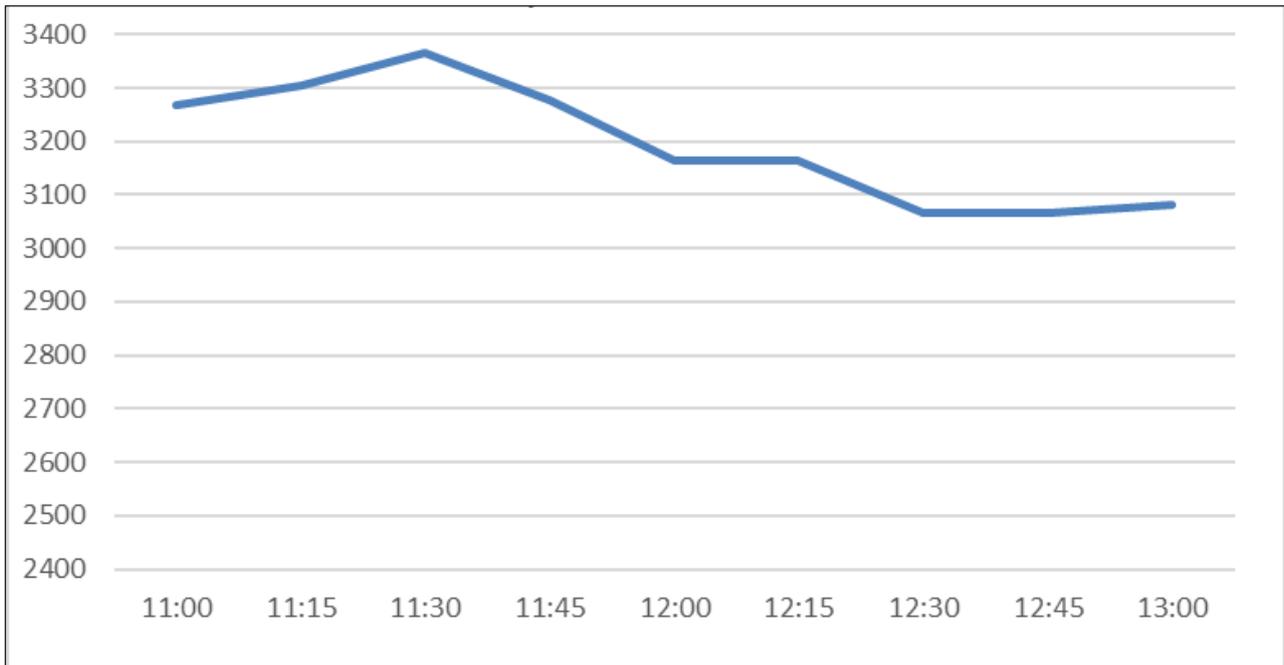


Figure 2 Saturday Network Traffic Flow Profile (Vehicles)

2.1.6 The network traffic flow profiles indicate that the Saturday had a higher total network traffic demand compared with the Friday survey data.

## 2.2 OD Matrices

2.2.1 Origin-Destination Table 1-Table 6 show the total vehicle turning movements recorded at each of the junctions during the peak hours.

### Site 1: A539 Mill Street / A542 Abbey Road / Castle Street:

Site 1 - Friday	A- Mill St	B-Castle St	C- Abbey Rd	TOTAL
A-Mill St	0	391	43	434
B-Castle St	242	0	128	370
C- Abbey Rd	67	100	0	167
<b>TOTAL</b>	<b>309</b>	<b>491</b>	<b>171</b>	<b>971</b>

Table 1 Origin-Destination Matrices for Site 1 Friday 13/07/2018

Site 1- Sat	A-Mill St	B- Castle St	C- Abbey Rd	TOTAL
A-Mill St	0	331	104	435
B-Castle St	225	0	146	371
C- Abbey Rd	85	135	0	220
<b>TOTAL</b>	<b>310</b>	<b>466</b>	<b>250</b>	<b>1026</b>

Table 2 Origin-Destination Matrices for Site 1 Saturday 14/07/2018

**Site 2: Castle Street / A5 Berwyn Street / A5 Regent Street**

Site 2 - Friday	A- A5 Regent St	B-A5 Berwyn St	C- Castle St	TOTAL
A- A5 Regent St	0	146	234	380
B-A5 Berwyn St	168	0	327	495
C- Castle St	84	205	0	289
<b>TOTAL</b>	<b>252</b>	<b>351</b>	<b>561</b>	<b>1164</b>

Table 3 Origin-Destination Matrices for Site 2 Friday 13/07/2018

Site 2- Sat	A- A5 Regent St	B-A5 Berwyn St	C- Castle St	TOTAL
A- A5 Regent St	0	127	222	349
B-A5 Berwyn St	164	0	339	503
C- Castle St	118	271	0	389
<b>TOTAL</b>	<b>282</b>	<b>398</b>	<b>561</b>	<b>1241</b>

Table 4 Origin-Destination Matrices for Site 2 Saturday 14/07/2018

**Site 3: A5 Berwyn / Market Street / Hall Street**

Site 3- Friday	A-A5 Berwyn St	B- Hall St	C- A5 Berwyn Rd	D- Market St	TOTAL
A-A5 Berwyn St	0	10	0	60	70
B- Hall St	6	0	3	538	547
C- A5 Berwyn Rd	4	5	0	15	24
D- Market St	86	259	8	0	353
<b>TOTAL</b>	<b>96</b>	<b>274</b>	<b>11</b>	<b>613</b>	<b>994</b>

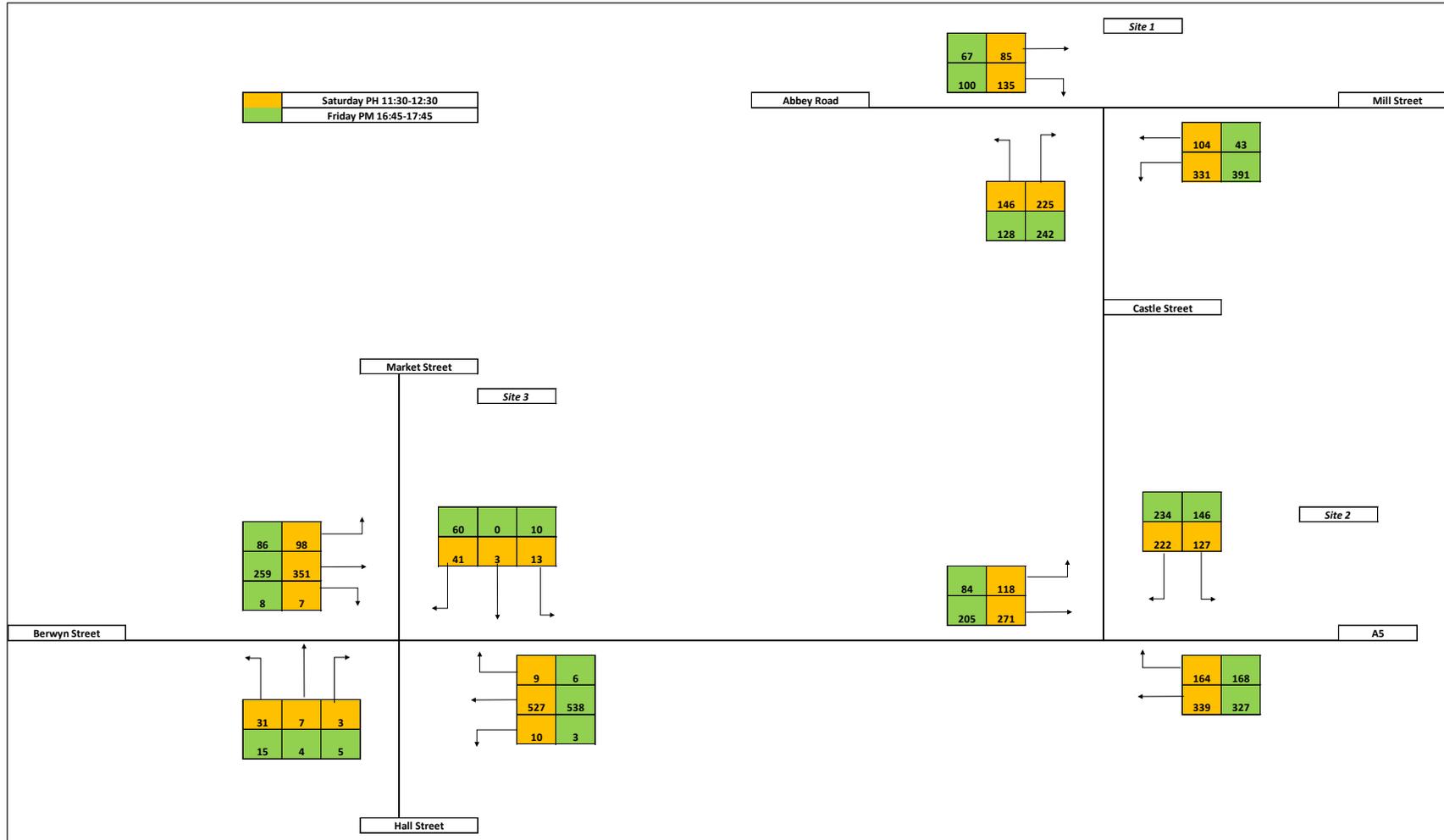
Table 5 Origin-Destination Matrices for Site 3 Friday 13/07/2018

Site 3- Sat	A-A5 Berwyn St	B- Hall St	C- A5 Berwyn Rd	D- Market St	TOTAL
A-A5 Berwyn St	0	13	3	41	57
B- Hall St	9	0	10	527	546
C- A5 Berwyn Rd	7	3	0	31	41
D- Market St	98	351	7	0	456
<b>TOTAL</b>	<b>114</b>	<b>367</b>	<b>20</b>	<b>599</b>	<b>1100</b>

Table 6 Origin-Destination Matrices for Site 3 Saturday 14/07/2018

- 2.2.2 The Castle Street / A5 Berwyn Street / A5 Regent Street junction (Site 2) had the highest total junction counts on both the Friday and the Saturday surveys. This is likely because all of the A5 traffic passes through this junction as well as through traffic crossing the River Dee via Castle Street.
- 2.2.3 A network traffic flow diagram depicting the Friday and Saturday peak hour turning movements for each of the sites is shown in Figure 3.

Llangollen 2020 Project  
Traffic Modelling Technical Note  
Figure 3 Network Traffic Flow Diagram for Friday and Saturday Peak Hours



### 3 Baseline Capacity Assessment

#### 3.1 Site 1: A539 Mill Street / A542 Abbey Road / Castle Street:

- 3.1.1 The geometries for non-signalised junctions were measured using CAD and modelled using one-hour flow profiles in Junctions 9 for the peak hour. The A539 Mill Street / A542 Abbey Road / Castle Street junction is a non-signalised T-junction. Castle Street is the minor arm at the junction and yields to the east-west traffic along the A542 Abbey Road and A539 Mill Street.
- 3.1.2 The results from the baseline junction modelling are presented in Table 7. The results indicate that the A539 Mill Street / A542 Abbey Road / Castle Street junction is approaching practical capacity in the observed Friday peak hour, with a maximum RFC value of 0.82.
- 3.1.3 The results for the Saturday peak hour indicate that the junction is operating just above practical capacity, with an RFC value of 0.86 on the Castle Street approach. Although Castle Street is the minor arm at the junction, the demand flows on the approach are higher than those on the A542 Abbey Road. The approach is also constrained by the width of the bridge structure over the River Dee.

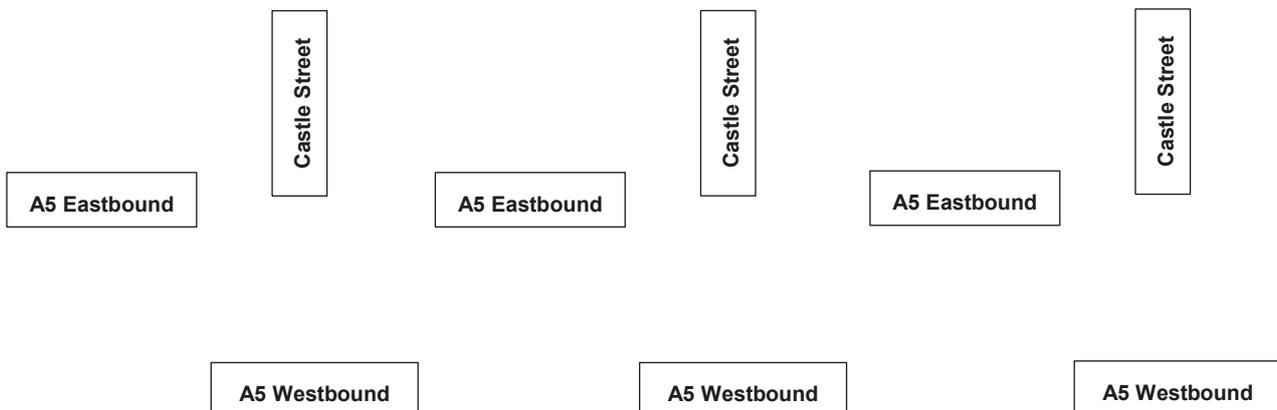
Approach	Friday 16:45 – 17:45			Saturday 11:30 – 12:30		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Castle Street (South)	4.2	39.15	0.82	5.2	48.74	0.86
A542 Abbey Road (West)	0.3	8.13	0.22	0.5	8.86	0.3

Table 7 Summary Table for Base Year 2018. A539 Mill St/ A542 Abbey Rd/ Castle St Results

#### 3.2 Site 2: Castle Street / A5 Berwyn Street / A5 Regent Street

- 3.2.1 The Castle Street / A5 Berwyn Street / A5 Regent Street junction is a signalised T-junction south of Llangollen. The junction is constrained with limited space for turning movements. It operates a three-stage plan which is shown in Figure 4. In Stage 1, the A5 eastbound and westbound run together with the right turn into Castle Street having to give way to the eastbound movement. In Stage 2 the A5 eastbound is held and the A5 westbound runs with the indicative right turn arrow. In Stage 3 the Castle Street runs on its own with the A5 approaches held.

Figure 4 Site 2 Staging Plan



- 3.2.2 A calibrated and validated base LinSig model was developed to establish a realistic representation of the existing junction performance. A range of data inputs were reviewed and used as input data to

develop the model to ensure that the base model, as best as practically possible, represented the existing on-site conditions.

3.2.3 The range of data used to inform the calibration process was as follows:

- Origin - Destination classified turning counts
- Average Green time surveys;
- Cycle time surveys; and
- Underutilised green time surveys.

3.2.4 Video survey footage for the junction was provided for the whole of Friday 13th July between 11:00-14:00 and 16:00 - 19:00. The Degree of Saturation (DoS) was used as the primary validation parameter. As video footage was only provided for the single day, DoS validation was undertaken for all approaches for 12:30 – 13:30 and 16:45 – 17:45 which represented the two peak hours for each time period. A comparison of the observed and modelled DoS results is provided in Table 8.

Approach	Friday 12:30 – 13:30		Friday 16:45 – 17:45	
	Observed DoS	Modelled DoS	Observed DoS	Modelled DoS
A5 Westbound	80.8%	84.3%	90.5%	88.0%
A5 Eastbound	95.1%	96.2%	73.9%	69.1%
Castle Street	97.5%	93.2%	96.7%	92.4%

Table 8 Modelled and Observed DoS (%) Comparison for Friday 13/07/2018

3.2.5 The comparison of the observed and modelled DoS provided in Table 8 shows that the model provides a good representation of the existing operation of the junction. All of the approaches validated within 5% of the observed DoS and it is therefore considered an appropriate tool to assess traffic conditions for Saturday 14<sup>th</sup> July and for the forecast scenarios.

3.2.6 The junction modelling results for the Friday 13<sup>th</sup> July and Saturday 14<sup>th</sup> July are provided in Table 9 and Table 10 respectively, links operating above practical capacity are highlighted in red. The modelling results indicate that the Saturday peak hour was the worst performing with all approaches operating above practical capacity.

Traffic Movement	Friday 12:30 – 13:30			Friday 16:45 – 17:45		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay/PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay/PCU
A5 Westbound	84.3%	8.7	42.8	88.0%	10.7	41.5
A5 Eastbound	96.2%	12.5	88.2	69.1%	5.3	32.4
Castle Street	93.2%	9.6	81	92.4%	10.7	63.8

Table 9 Friday 13/07/2018 Site 2 Junction Modelling Results

Traffic Movement	Saturday 11:30 – 12:30		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay/PCU
A5 Westbound	98.8%	19.7	94.3
A5 Eastbound	96.2%	14.4	89.2
Castle Street	97.9%	14.5	106.9

Table 10 Saturday 14/07/2018 Site 2 Junction Modelling Results

3.2.7 Based on the local junction modelling results the junction was operating above practical capacity in all of the peak hours modelled. The key issues were as follows:

- A5 Westbound right turn into Castle Street frequently blocked the westbound through movement during Stage 1;
- A5 Westbound was approaching practical capacity in the Friday PM peak hour with a modelled DoS of 88%. The modelled mean max queue lengths were also above 10PCUs. In the Saturday peak hour, the approach was operating above practical capacity with a DoS of 98.8% and a mean max queue length of nearly 20PCUs;
- The A5 Eastbound operated above practical capacity in the Friday 12:30 – 13:30 and Saturday peak hour 11:30-12:30 with a modelled DoS of 96.2% in both. There was insufficient green time for the demand on the approach. This was likely due to more green time being given to Stage 2 to clear the queues on the A5 westbound that built up due to blocking in Stage 1; and
- Castle Street operated above practical capacity in all peak hours modelled. There was high demand comparative to the amount of green time the lane received.

3.2.8 As part of the video observations, underutilised green time (UGT) surveys were carried out and it was noted that the junction experienced a severe amount of wasted green time. The observed UGT for each approach is shown in Table 11.

Approach	Underutilised Green time (UGT)	
	Friday 12:30 – 13:30	Friday 16:45 – 17:45
A5 Westbound	16 seconds	11 seconds
A5 Eastbound	6 seconds	2 seconds
Castle Street	1 seconds	-

Table 11 Observed Underutilised Green Time (Seconds) for Friday 13/07/2018

- 3.2.9 The A5 westbound experienced substantial amounts of UGT, with the highest being an average of 16 seconds being wasted each cycle due to blocking. The main reason for the blocking is that there is no non-blocking storage for right turners to wait to turn into Castle Street.
- 3.2.10 The A5 westbound runs with the A5 eastbound in Stage 1 (see Figure 4). Based on the junction modelling results the A5 eastbound typically operated with a high DoS, this resulted in very few gaps for right turners during Stage 1. Approximately a third of the demand on the A5 westbound is for the right turn into Castle Street. The A5 westbound was frequently blocked until right turning vehicles were able to find a gap, or the Stage 2 indicative arrow came on.
- 3.2.11 The issues on the A5 westbound were further exacerbated by the Hill Street give-way and keep clear section on the approach to the junction. As free flow conditions broke down, the keep clear section was observed more frequently, this provided gaps for left turning traffic out of Hill Street. This further reduced the saturation flow of the A5 due to the tight radius of the left turn out of Hill Street.
- 3.2.12 In addition to the issues on the A5 westbound, pedestrians were also observed to cross the A5 when there were gaps in traffic. This could also slow down traffic attempting exit the junction if it had to wait allow the pedestrians to complete the crossing.

### 3.3 Site 3: A5 Berwyn / Market Street / Hall Street

3.3.1 The geometries for the junction were measured using CAD and modelled using one-hour flow profiles in Junctions 9 for the peak hour. Based on video observations and local junction modelling the A5 Berwyn / Market Street / Hall Street junction is operating within capacity in the base year 2018 for both the Friday and Saturday peak hours. The results for the local junction modelling are shown in Table 12. The maximum RFC for this junction equates to 0.19, on both days which indicates that there is plenty of spare capacity at the junction.

Approach	Friday 16:45 – 17:45			Saturday 11:30 – 12:30		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Hall Street (South)	0.1	8.96	0.06	0.1	9.23	0.012
A5 Berwyn Road (East)	0	4.28	0.02	0	4.37	0.02
Market Street (North)	0.2	10.66	0.19	0.2	10.88	0.14
A5 Berwyn Road (West)	0	4.82	0.02	0.0	4.48	0.01

Table 12 Summary Table for Base year 2018 A5 Berwyn/ Market St/ Hall St Results

## 4 Forecast Capacity Assessment

### 4.1 TEMPro Growth Factor

4.1.1 For the forecast junction capacity junction assessments, a TEMPro growth factor obtained for the future year 2023 (which was agreed with Denbighshire County Council). Three TEMPro growth factors used in order to forecast Weekday AM peak hour, Weekday PM peak hour and a Saturday peak hour (all adjusted for the new 99 home development at the Old Vicarage development, Vicarage Road to the south of Llangollen). The growth takes into account the Denbighshire area and the surrounding road network:

- Weekday AM = 1.06795
- Weekday PM = 1.05927
- Saturday Peak Hour = 1.06262

### 4.2 Alternative assumptions

4.2.1 Alternative assumptions were used to account to take into account the proposed new development of 99 homes at the Vicarage Road site. Figure 5 shows the proposed trip assignment for the AM and PM residential development flows for the site, taken from the Vicarage Road Transport Statement. The figure shows the assumed trip generation and distribution for the Vicarage Road development. This trip distribution has been applied to the forecast traffic flows on the network and the TEMPro Growth factors were adjusted accordingly.

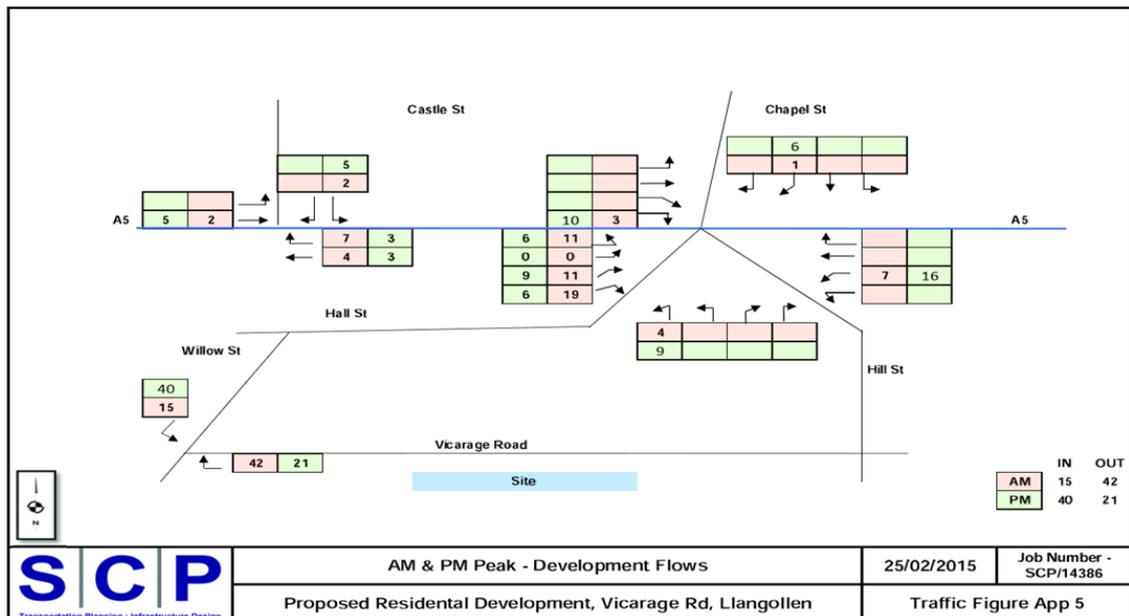


Figure 5 Proposed AM & PM Residential Development Flows for the Vicarage Road Site

### 4.3 Site 1: A539 Mill Street / A542 Abbey Road / Castle Street:

4.3.1 Site 1 has been modelled using the forecasted 2023 peak hour traffic flows for Friday 16:45 – 17:45 and Saturday 11:30 – 12:30. The results for the forecasted traffic modelling are presented in Table 13.

4.3.2 The forecasted junction modelling results show that there will be an increase in delay on Castle Street on both Friday and Saturday peak hours. Castle Street is predicted to operate above practical capacity with RFC values of 0.89 and 0.93 in the forecast 2023 Friday and Saturday peak hours respectively.

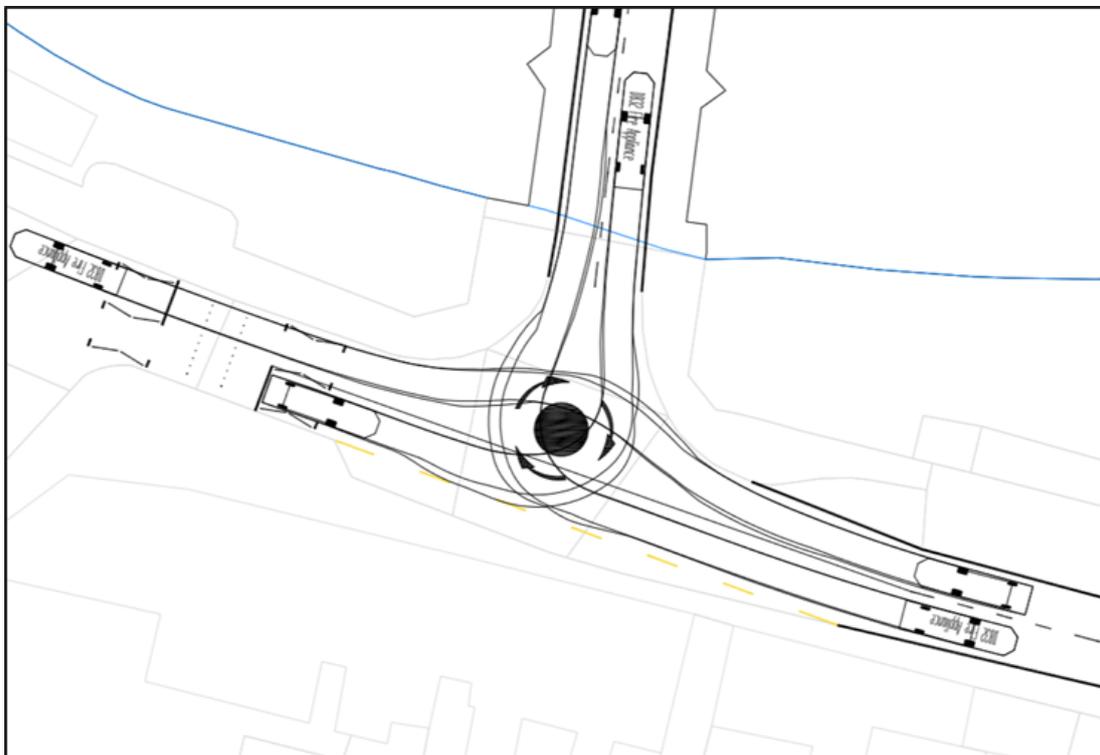
Approach	Friday 16:45 – 17:45			Saturday 11:30 – 12:30		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Castle Street (South)	6.4	57.09	0.89	8.7	76.57	0.93
A542 Abbey Road (West)	0.4	8.41	0.24	0.6	9.25	0.33

Table 13: Do Nothing 2023

4.3.3 It is clear from the junction modelling results that Castle Street is predicted to operate over practical capacity in 2023, this would result in increased congestion along Castle Street.

4.3.4 It is therefore recommended that an intervention at this location be considered. A potential intervention could be to convert the priority T-junction into a mini-roundabout. An indicative layout including swept paths is shown in Figure 6.

Figure 6 Indicative Mini-Roundabout Layout for Site 1



4.3.5 Based on the results the predicted delays on Castle Street and Abbey Road are expected to decrease for the forecasted 2023 Friday and Saturday peak hours. The junction modelling results indicate that the forecasted maximum RFC on Castle Street would reduce from 0.93 with the existing layout to 0.58 with a mini-roundabout layout. The delays on Castle street are predicted to reduce on both Friday and Saturday peak hours from 23 seconds to 10 seconds and from 77 seconds to 11 seconds respectively.

Approach	Friday 16:45 – 17:45			Saturday 11:30 – 12:30		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
A539 Mill Street (East)	3.2	23.58	0.77	3.6	26.61	0.79
Castle Street (South)	1.2	10.05	0.55	1.4	11.44	0.58
A542 Abbey Road (West)	0.4	6.96	0.27	0.6	7.74	0.36

Table 14: Do Something 2023 (Mini-roundabout)

## 4.4 Site 2: Castle Street / A5 Berwyn Street / A5 Regent Street

- 4.4.1 Site 2 has been modelled using the forecasted peak hour traffic flows for Friday 16:45 – 17:45 and Saturday 11:30 – 12:30. The results for the forecasted traffic modelling are presented in Table 15.
- 4.4.2 The application of the forecasted traffic growth results in the predicted DoS on all lanes at the junction increasing. The modelling results indicate that the A5 Westbound and Castle Street approaches are predicted to operate over theoretical capacity during Saturday's peak hour. The maximum predicted Saturday DoS is 109.9%. The maximum MMQ on both Friday and Saturday occurs on A5 Westbound with 19.7 and 19.8 respectively.

Traffic Movement	Friday 16:45-17:45			Saturday 11:30-12:30		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay/PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay/PCU
A5 Westbound	98.4%	19.7	94.3	109.9%	19.8	127
A5 Eastbound	74.3%	14.4	89.2	103.4%	6.9	29.5
Castle Street	99.0%	14.5	106.9	105.5%	9.7	73.6

Table 15 Do Nothing 2023 Junction Modelling Results

- 4.4.3 Congestion along Castle Street which runs through the centre of Llangollen has been a core focus of discussions with the public, business and the project team. A key concern is to improve the operation of the junctions at either end and reduce the dominance of traffic through the centre of the town centre along Castle Street. A range of improvement options were considered of which three were modelled using LinSig and are presented below
- 4.4.4 The proposed options modelled using LinSig for Site 2 were as follows:
- Option 1: Ban right turn onto Castle Street from Regent Street;
  - Option 2: No access onto Castle Street from the A5; and
  - Option 3: Roundabout at the Market Street/ A5/ Hall Street Junction
- 4.4.5 The proposed options have been modelled using the 2023 forecasted peak hour traffic flows for Friday 16:45 – 17:45 and Saturday 11:30 – 12:30. The results for the forecasted traffic modelling are presented in Table 16 and Table 17.
- 4.4.6 The three options all show improvements in the Degree of Saturation (DoS), Mean Max Queue (MMQ) and Average Delay in PCU/Hr (Av Delay/PCU) comparative to the Do-Nothing Scenario. The most significant decrease in DoS is on Castle Street which is predicted to reduce by 28.3% from 99% to 70.7% in all scenarios. Castle Street also sees a reduction in the Average Delay by 81.3 PCU/Hr in all tested options during the Friday Peak Hour. Based on the modelling results, Option 2 shows the most efficient results with the lowest DoS, MMQ and Av Delay on the A5 Eastbound.
- 4.4.7 The Saturday Peak options also show improvements with the DoS of all three approaches reducing from above theoretical capacity in the Do-Nothing scenario to below practical capacity. Option 2 shows the best improvements on A5 Berwyn Street.
- 4.4.8 It is recommended at the preferred option is modelled in greater detail, in order to understand the wider impacts on other junctions in the town centre.

Llangollen 2020 Project  
Traffic Modelling Technical Note

Traffic Movement	Option 1			Option 2			Option 3		
	DoS	MMQ (PCU)	Av Delay/ PCU	DoS	MMQ (PCU)	Av Delay/ PCU	DoS	MMQ (PCU)	Av Delay/ PCU
A5 Westbound	70.4%	7.9	20.3	70.4%	7.9	20.3	70.4%	7.9	20.3
A5 Eastbound	46.4%	4	16.8	30.8%	2.5	13.3	73.4%	7.9	23.6
Castle Street	70.7%	6.8	25.6	70.7%	6.8	25.6	70.7%	6.8	25.6

Table 16 Do Nothing 2023 Friday Peak Hour Site 2 Junction Modelling Results

Traffic Movement	Option 1			Option 2			Option 3		
	DoS	MMQ (PCU)	Av Delay/ PCU	DoS	MMQ (PCU)	Av Delay/ PCU	DoS	MMQ (PCU)	Av Delay/ PCU
A5 Westbound	64.6%	8.9	19.3	64.6%	8.9	19.3	61.2%	8.3	17.1
A5 Eastbound	62.0%	7.3	23.5	36.2%	3.8	14.5	82.9%	12.8	31.7
Castle Street	64.9%	7.2	28	64.9%	7.2	28	70.3%	7.6	32.1

Table 17 Do Nothing 2023 Saturday Peak Hour Site 2 Junction Modelling Results

## 4.5 Site 3: A5 Berwyn / Market Street / Hall Street

- 4.5.1 Site 3 has been modelled using the forecasted 2023 peak hour traffic flows for Friday 16:45 – 17:45 and Saturday 11:30 – 12:30. The results for the forecasted traffic modelling are presented in Table 18.
- 4.5.2 For Site 3, Market Street shows the largest delay at 10.17 seconds for the 2023 Friday peak hour and 11.41 seconds for the Saturday peak hour. Furthermore, there are little queue lengths on all arms for both peak hours as they show little change from the 2018 results.

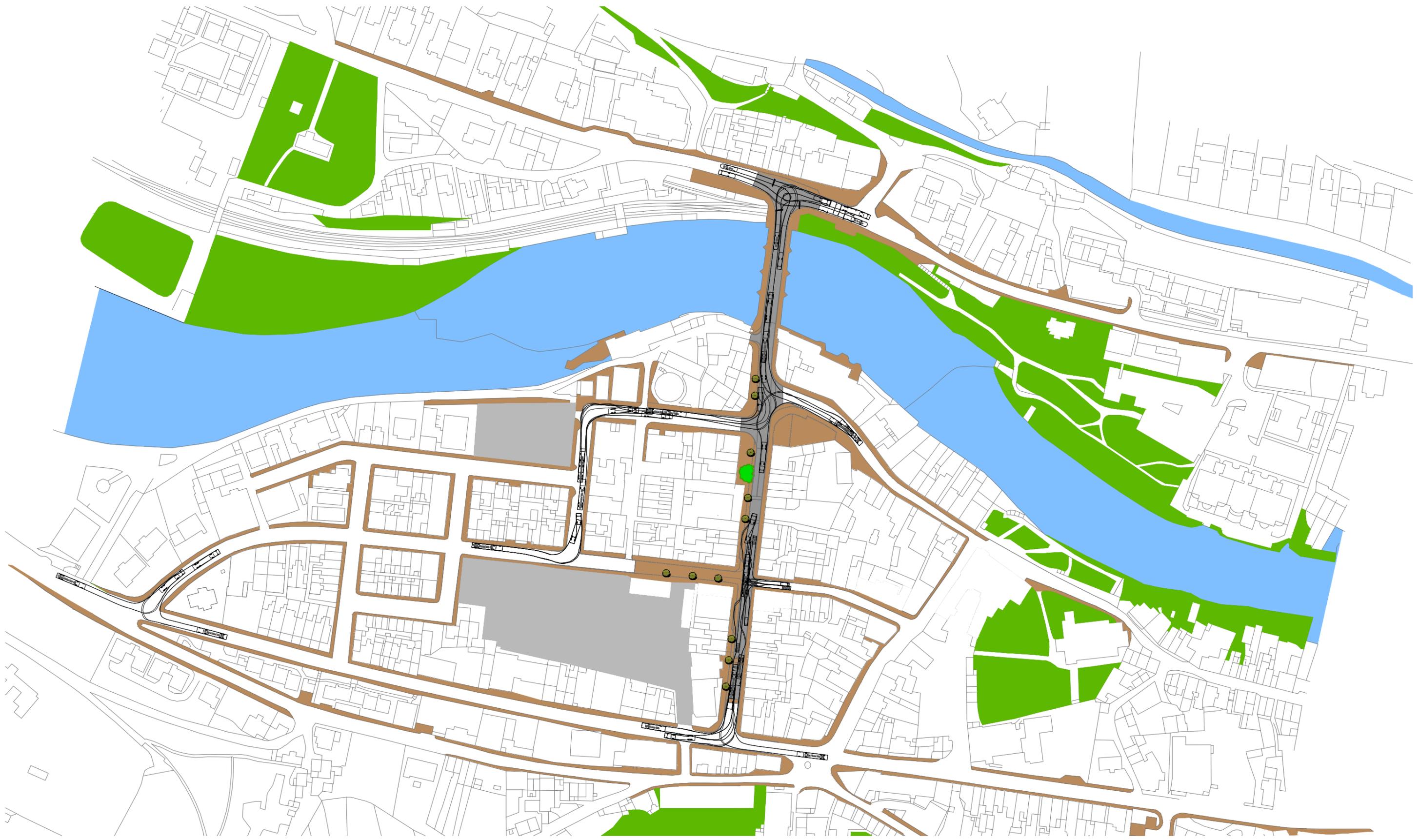
Approach	Friday Peak Hour			Saturday Peak Hour		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
Hall Street (South)	0.1	9.16	0.07	0.1	9.57	0.13
A5 Berwyn Road (East)	0	4.21	0.02	0	4.3	0.02
Market Street (North)	0.3	11.17	0.2	0.2	11.41	0.15
A5 Berwyn Road (West)	0	4.78	0.02	0	4.43	0.01

Table 18: 2023 Do Nothing Site 3 Junction Modelling Results

- 4.5.3 The junction is predicted to operate within practical capacity and therefore no intervention is recommended at this location unless part of a larger scheme to alleviate issues at the A5/Castle Street junction.

## **APPENDIX B**

### **Vehicle Tracking**



## **APPENDIX C**

### **Consultation Survey**

## Llangollen 2020 Public Consultation – July 2018

The Llangollen 2020 Project is about creating a vibrant town centre that better meets the needs of residents, visitors and businesses. Ideas we are looking at including creating a more pedestrian-friendly town centre, an improved network of parking options, and improved signage on the approach to and within the town centre.

We would like you to tell us more about how you use the town centre, particularly the Castle Street area, as well as your thoughts about parking and signage. We will be using this input to develop draft ideas that will be consulted on later in the year.

### 1. Are you a local resident or a visitor to Llangollen?

Resident

Visitor

### 2. How often do you use each of these car parks?

Every day / Several times a week / Once a week / Occasionally

Market Street

Princess Street

Ponsonby Arms

Hall Street

Brook Street

Aldi / Home Bargains

Llangollen Pavilion

Llangollen Health Centre

### 3. How often do you park on-street in any of the following locations?

Every day / Several times a week / Once a week / Occasionally

Castle Street

Market Street

Bridge Street

Oak Street

Parade Street

Other (please state below)

### 4. For each of the statements below, please indicate your opinion:

- a) There should be an increase in the amount of dedicated parking for residents in Llangollen (for example residents parking permits)
- b) There should be an increase in dedicated parking for business staff in Llangollen (for example business parking permits)
- c) On-street parking along Castle Street should be removed
- d) More out-of-town parking should be provided
- e) The possibility of building a multi-level car park in Market Street should be explored

Strongly agree / agree / strongly disagree / disagree / no opinion

### 5. Do you think any of these areas need improvements to the pedestrian environment?

Yes / No / Uncertain

The area between the A5 and Hill Street

Along Castle Street

The Castle Street / Abbey Road area

**6. If you have answered yes to any of the above, why are these areas in need of improvement (tick all that apply)?**

- |  |  |
|--|--|
| Poor condition of pavements            | Improved accessibility e.g. for mobility scooters, buggies |
| Lack of pedestrian crossing facilities | Obstructions from parked cars                              |
| Volume of traffic                      | Obstructions along the pavement e.g. signs                 |
| Width of pavement                      | Other (please specify)                                     |
| Speed of traffic                       |  |

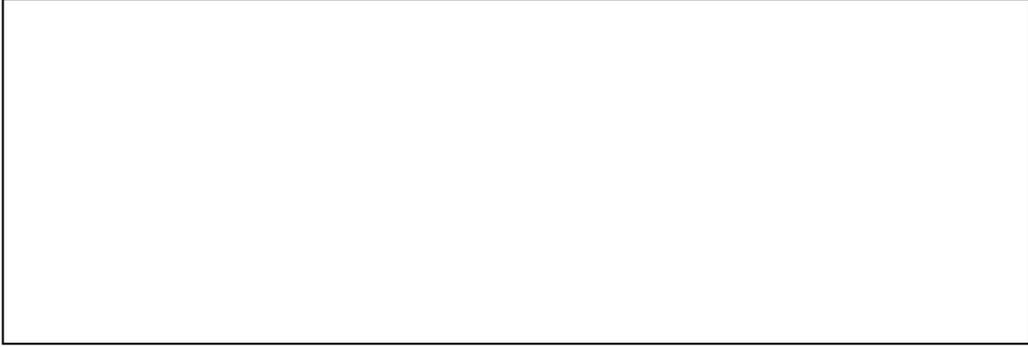
**7. We are exploring a range of ideas that might improve the pedestrian environment in Castle Street. These include 'shared space' ideas, which involve reducing the dominance of vehicles, slowing traffic, and balancing the need for traffic movement with other users such as pedestrians, cyclists and others.**

**Please indicate your level of support for each of the following ideas in relation to Castle Street only:**

- a) Wider pavements along both sides of the street
- b) Fewer obstructions along the pavement, for example signs
- c) Introduce new seating and planting areas
- d) Improve accessibility for all pavement users, including parents with buggies, people with mobility aids and visual impairments
- e) Restrict the carriageway width in places in order to create crossing points for pedestrians
- f) Remove or reduce the height of kerbs and instead use changes in surface to highlight pavement and road carriageway areas (i.e. a 'shared space')
- g) Remove road markings and street 'clutter', as a way of reducing vehicle speeds

Strongly agree / agree / strongly disagree / disagree / no opinion

**8. Please use the space below to make any further points.**



**Thank you for your time.**

# Llangollen 2020 Feasibility Study - Feedback

The Llangollen 2020 Project is about creating a vibrant town centre that better meets the needs of residents, visitors and businesses. We have explored a number of options with a view to creating a more pedestrian-friendly environment along Castle Street, options for car parking and public realm improvements.

**We would like your views on these opportunities (please tick relevant box).**

## Opportunities to Improve Castle Street

	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
Narrow the road carriageway along Castle Street, maintaining two vehicle lanes					
Improve road and pavement surfacing to create a distinctive town 'feel'					
Pavement widening where possible along Castle Street					
Crossing points for pedestrians at two locations in the style of a 'raised table'					
Pedestrianise Market Street between Castle St and Greenfield					
Tree planting at locations along Castle Street					

## Parking Opportunities

	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
Remove all on-street parking from Castle Street					
Provide two goods only loading bays along Castle Street					
Provide disabled parking bays on Bridge Street and Oak Street					
Improve the turnover of spaces in the Market Street car park through the removal of the long stay car parking permit and removal of the all day parking option, in line with other Denbighshire County Council car parks					
Relocate coach parking from the Market Street car park and replace with a coach drop off / collection point					
Parking for local businesses at Ysgol Dinas Brân during August					
Introduce a restricted parking zone across the town centre (i.e. parking is only permitted within designated bays)					

## Junction Improvements

	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
A mini-roundabout at the Abbey Road / Castle Street junction					
Improvements to the A5 Berwyn Street / Castle Street junction					
Introduce yellow lines on Hall Street to remove parking close to the junction with the A5					

## Strategic Opportunities

	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
Improve gateway approaches to the town centre					
Improve way finding to the World Heritage Site					
Signage to discourage unnecessary HGV drivers through Llangollen					

## General Comments

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