



Caerphilly town has an integrated bus and rail station that lies on the southern edge of the town centre on the Rhymney railway line and surrounded by residential properties. It has undergone several transformations since it was built in 1871, leading to an incoherent assemblage of buildings and spaces that lack a clear identity and are not intuitive or fully accessible.

The visual appearance of the buildings has been deemed as poor, with limited facilities for users and an overall poor customer experience for people arriving and departing from the station.

Caerphilly is an important commuter town and major tourism destination within the Cardiff Capital Region (CCR). It is renowned for its medieval castle, being the largest in Wales and second largest in the UK.

Throughout 2023, Cadw will be investing £5m into the castle, to strengthen it as a world-class heritage attraction. The town centre is also at the heart of a bold and ambitious regeneration masterplan through Caerphilly Town 2035 that sets a strong vision to overcome the town's current economic challenges by transforming Caerphilly into a diverse and thriving town centre. Welsh Government, Transport for Wales and the CCR are also working together to bring forward the once in a generation plans for the South Wales Metro.

The Core Valley Lines (CVL) transformation scheme will provide new low carbon and more frequent high-quality rail services to the Rhymney line.

PROJECT DETAILS

Client: Caerphilly County Borough Council

Agent: Transport for Wales

Architect: Grimshaw

Duration of this phase: March 2022-July 2023



As evidenced through the Welsh Transport Appraisal Guidance (WelTAG) process, all of the above planned improvements could be further enhanced by a new Caerphilly interchange that is forecast to serve in excess of 1 million passengers annually.



GRIMSHAW



CONTACT

info@cewales.org.uk

What is an Exemplar project?

An 'Exemplar' is defined as 'something worthy of being imitated or copied' and this is exactly what we continue to seek to achieve with this programme.

Exemplars are intended to offer good practical examples of how to achieve Best Value Sustainable Construction solutions. An Exemplar considers all aspects of sustainability, including economic, social and environmental, demonstrating that the scheme is well rounded and has incorporated best practice and collaboration.

Our approach to Exemplar has been updated to reflect the Wellbeing of Future Generations Act

and to provide greater value as well as inviting a programme approach to the process. It is anticipated that embarking on the Exemplar process will, in itself, lead to higher value being obtained from a project.

Case studies are normally prepared at 3 Key Stages; Design stage, Construction phase and Post-occupation, but we have recently added a Pre-design phase to our programme.

Addressing these phases ensures that lessons learnt can be demonstrated throughout the development of a project.

Through RIBA Stages 2 and 3, the design team developed 5 key option studies which were critical for achieving the project brief; these were:

- 1 Existing bridges and building
- 2 Bus concourse and layover
- 3 Active travel
- 4 Interchange customer experience
5. Sustainability and net zero carbon

1 Existing bridges and building study

As part of the assemblage of buildings that formed part of the original station, a 120yr old red-brick former ticket office building and overbridge exists over the railway line, which now operates as two retail units for local independent businesses.

The design team considered the balance of benefits and disbenefits for retaining this ageing building against the long-term opportunities that removal would bring. Whilst the building does not meet Cadw's standards needed for formal 'listing', it is deemed as a local heritage asset that has been evidenced through the public consultation as a building that people admire and value.

The building also sits at a key vantage point on the interchange site, where the station is visible from the town centre and the castle views are visible from the station. Its location is therefore a key consideration for unlocking the potential that a replacement modern building can bring, by responding to the town in a more holistic and exciting way.

Both of the architectural and engineering case for replacing the building and bridge offers a rare opportunity to address both their fading condition and prominent location. The design team concluded (with public feedback agreement through the consultation) that replacement of the structures will offer the chance to provide something new, which can meet the needs of the town now and in the future.

2 Bus Concourse and layover

The design team had to work within the existing site constraints caused by a fixed space between the railway station's platform 2 and the residential properties on Station Terrace, plus a level difference within the station.

These have resulted in a pinch point through the bus concourse, causing the current passenger congestion and a poor customer experience.

To allow future passenger growth, the brief required an increase in the formal bus stands from 11 to 12, plus two additional bus layover bays and a widening of the bus concourse area to improve passenger flow.

To achieve this, the design team proposed to remove the existing internal platform buildings to create a new, fully permeable and accessible circulation space.

The result will allow an approximate doubling in the concourse width, with clear views to the relocated 12 bus stands and a reprofiling of the bus apron to gently equalise the level differences between the bus stands and platform level.

3 Active Travel (walking, cycling and wheeling)

The project brief required the interchange to provide attractive connections between all different modes of journeys to help contribute to the Wales Transport Strategy target of 45% of journeys being made by sustainable modes by 2040.

The design team's approach was to develop active travel as two parts of a whole: routes and hubs. The challenge was to identify the best location for an active travel hub (or hubs) in relation to the transport modes within the interchange and the wider connections to the active travel routes within the town, in a way that is intuitive, safe, accessible and connected.

From historical survey results, only 1% of passengers used a bicycle as part of their interchange journey. Since cycling was already at such a low level, the design team moved away from a 'predict and provide' approach to a 'vision and validate' method.

Unlike the established travelling modes at the station of walking, taxi, rail and bus transport, cycle parking provision is limited, unattractive and unsecure.

The resulting design proposal will provide a high quality and attractive secure cycle storage hub, to encourage uptake at the best location within the interchange and with the ability to provide expansion in future, to match demand.

4 Interchange customer experience

The design team developed the RIBA Stage 1 feasibility concept which placed all station facilities around a centralised upper-level plaza, with the option to retain or remove the existing ticket office building and bridges.

Through the RIBA Stage 2 option studies listed above, the design team determined that a lower-level concourse will provide the best interchange customer experience.

This decision was supported by the evidence that most station passengers use the transport facilities on the northern, town centre side of the railway line which includes platforms 1 & 2, the bus station, taxi rank, park and ride, short stay parking, cycle parking and walking and wheeling from the town centre.

This lower-level interchange concourse will now become the new 'heart' of the interchange, activated by customer and retail amenities with public conveniences and comfortable waiting areas.

The project brief also required the interchange to go beyond its remit as a transport interchange, by providing spaces and amenities which can directly and indirectly benefit the local community.

By providing the right community amenity which offers something new for the town, additional footfall of non-passengers can help activate the area at quieter times of the day and support local businesses that are attracted to the retail units.

5 Sustainability and Net Zero Carbon (NZN) study

The project brief set out the objective for the interchange to achieve NZC status in both construction and operation.

Through RIBA Stages 2 and 3, the study established a sustainability charter that set out the project's aspirational targets for carbon, energy, climate and biodiversity, social and economic sustainability.

The NZC approach has also explored ways to deliver against the objectives by:

- 'Exploring the feasibility of reusing existing materials on site through a pre-demolition audit
- 'Sourcing locally available materials and natural materials where possible
- 'Generating energy (solar and air source heat pump) on-site to supplement operational demand and support Electrical Vehicle (EV) charging
- 'Harvesting rainwater to reduce demand and providing sustainable urban drainage systems



Design Vision and Outcome

A new Caerphilly interchange must be a joy to experience inside and out. It must respond to the town and surrounding landscape, reflecting their character while adding something exciting and new to it.

The design vision is centred around 5 key guiding principles which have been established throughout RIBA Stages 2 and 3. These are:

- Efficient and effortless journeys
- A place for the community
- A new relationship with the Castle
- A canvas for culture
- A piece of the landscape

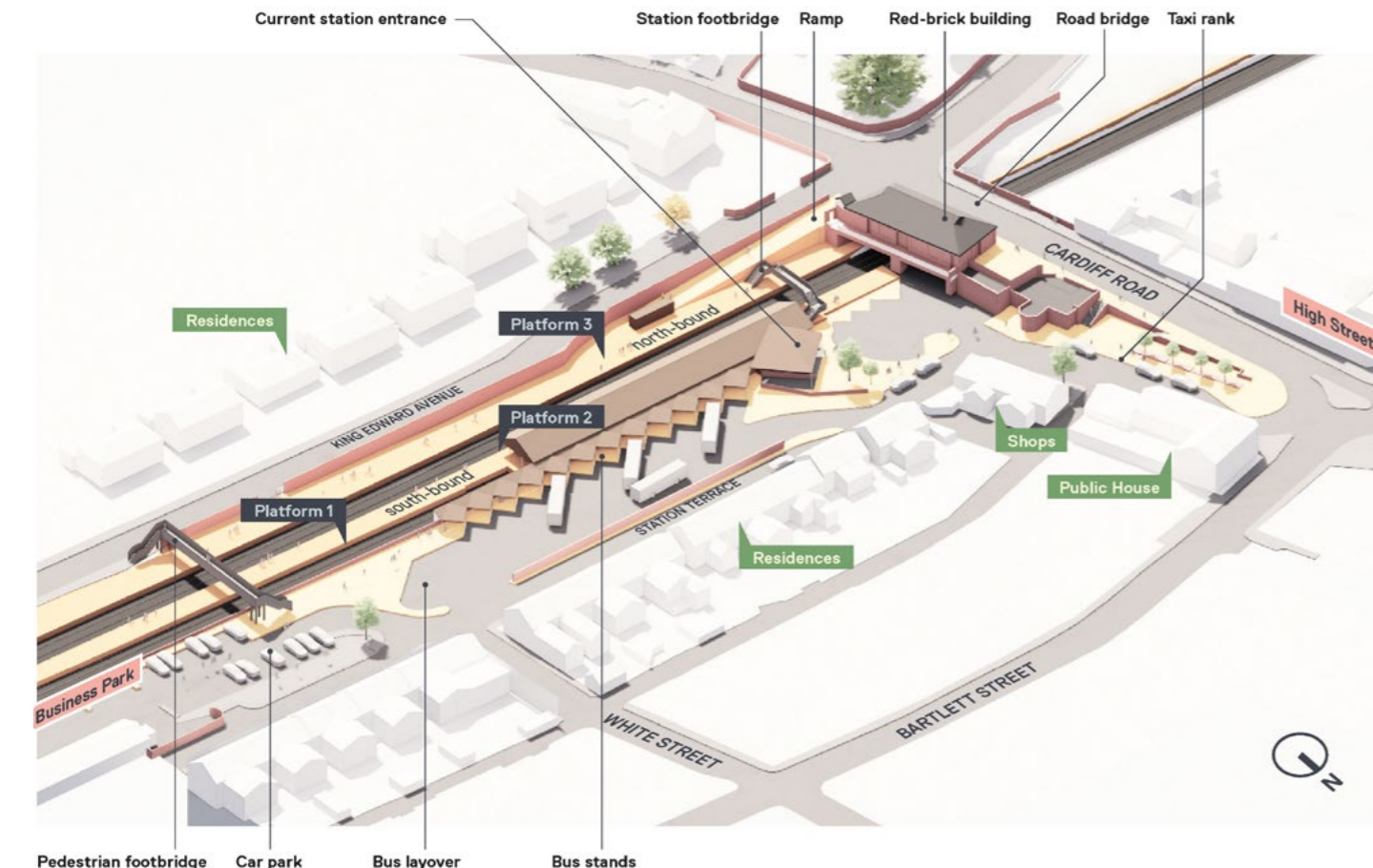
By moving the interchange concourse and circulation spaces to the lower level along Station Terrace, all transport modes served at the interchange are placed at people's fingertips. This becomes the heart of the interchange which is activated by retail and customer facilities, with public conveniences and comfortable waiting areas. It is accessed from multiple points from the north, east and southwest entrances, supported by clear placemaking and wayfinding provisions.

Level changes on a gradient are made gradual and accessible, with two lifts placed next to the stairs and in the same direction so that journeys between transport modes is just as quick and legible for everybody. For cheek-to-cheek connections between bus and rail, a new entrance is created between the bus concourse and platform 1 and 2 with glass transparency along the full bus-rail concourse length, so passengers can see

arriving and departing trains and buses together, with minimal visual obstruction.

The design has then taken inspiration from the tiered concentric defences that Caerphilly Castle is famous for, with terracing reflected in the arrangement of station buildings and public spaces as they rise from the junction up to the bridge level of the interchange. A simple but bold pennant sandstone building cascades from the upper level to frame the station entrances, reflecting the Castle's materiality. Visitors arriving from Cardiff will emerge at the bridge level where as they exit the station to the north they will be greeted with views of the Castle's Eastern Gatehouse.

The interchange is then capped by a planar green and solar roof structure that floats above the bus and rail interchange spaces, then rises up over the bridge into a striking, folded butterfly canopy that provides a landmark visible from the high street and beyond.



Stakeholder and Community Engagement

The design team implemented a simple and methodical approach to stakeholder engagement, based on a same approach for projects of similar typologies and complexity. Steps 1 (Muster), 2 (Engage) and 3 (Explore) were the focussed steps used to ensure what was learned through the engagement process was fed into the design and communicated back to the stakeholders and the community in Step 4 (Playback).



Early design engagement began with the transport stakeholders first, to understand the operational requirements for buses, taxis and cycles. These modes have the highest demand on space and thus would influence the site configuration most.

Townscape stakeholders including TfW's Accessibility and Inclusion panel were then engaged to develop the approach routes, public realm and interchange customer experience. Throughout all stakeholder engagement sessions, the design team maintained a close relationship with the Design Commission for Wales (DCFW), who provided a key role as guiding mind to champion high standards for design and architecture.

Community engagement activities then formed a significant part of RIBA Stages 2 and 3, to understand the views of local residents and station users throughout the design process. The design team developed the community engagement strategy from RIBA Stage 1 into a 3-step timetable of engagement activities. Step 1; Community Mapping was done using the Commonplace site heatmap to understand the geographical

issues and opportunities for the site, then to gain a broader insight into how the designs might respond to the needs of the local community and passengers. Using the feedback captured in Step 1, the design team then delivered Step 2 (Sharing Ideas) and Step 3 (Public exhibition) to iterate the design studies and measure public support for the final concept design.

The Step 1 findings confirmed that the issues surrounding the existing station identified in the project brief is a poor customer experience for people arriving and departing from the station.

The most commonly selected key words included congestion, pollution and road safety which reflects the view that the existing vehicle network around the station is also a key issue for people. Other responses then included cycle parking, toilets, amenities and security as being issues that people frequently experience.

The Step 1 questionnaire responses were then used to understand the trends and usage patterns of the station better, which helped the design team identify where the design could enhance existing sustainable behaviours and encourage new ones.



Key Challenges

The transition from RIBA Stages 1 to 2 presented the greatest challenges for the client team to give the right instructions and attract the right design team through the brief, to deliver the scale and ambition of the project.

If the RIBA 2 brief was not well prepared, then this could have threatened the success of what has been delivered.

The RIBA Stage 1 study explored several concept options to ensure that opportunities were not being lost, which included an option for 5 storeys of residential, office and leisure Over Site Development (OSD) that could provide flexibility for the site developer / tenants.

With the client team and DCFW working together, it was acknowledged that OSD would bring more life to the site at different times of day, however providing OSD in a positive way within the site constraints would be too difficult and that more viable places within the town could provide more attractive living and working accommodation.

Through extensive collaboration between the client team and DCFW on the project brief and the subsequent interest it generated throughout the architecture community, a 2-stage competitive tender process resulted in the successful outcome to appoint Grimshaw Architects, from an initial list of 16 prestigious architect practices.

Sustainability Charter and Wellbeing of Future Generations Act

The interchange project is undergoing certification with the Building Research Establishment Environmental Assessment Method (BREEAM) to target an 'Excellent' rating as minimum.

To help manage this process, a project sustainability charter has been developed which aims to provide a holistic approach for embedding sustainability into the project during its design, delivery and operation.

At the design stage, the charter has been based around the two core pillars of 1) sustainability (ensuring the project is environmentally and financially sustainable) and 2) placemaking (enhancing the area as a destination for all).

Beneath this, the charter then sets out the sustainable objectives for the interchange into a framework within the five defined capitals of:

- 1 **Physical** - being Net Zero Carbon (whole life) and fit for the future
- 2 **Social** - being community centred whilst reflecting culture and heritage
- 3 **Economic** - being able to capitalise on opportunities that enhances the town centre
- 4 **Human** - meeting the Well-being of Future Generations Act Goals and Ways of Working to promote healthy lifestyles in a safe and inviting environmental for all needs
- 5 **Natural** - amplifying nature with an inclusive public realm and efficient resource management

The charter will continue to be developed through RIBA Stages 4 and 5 as a clear and defined pathway to bring together the project aims under a structure approach against the five capitals, ensuring that all current and future project team members who continue to develop the project, are aligned.

TfW Exemplar Programme

CEWales has set up an Exemplar programme with TfW. Three projects, at varying stages of development, are identified for inclusion in the programme each year.

In this second year the three projects are:

- **Deeside Parkway** - Single option development
- **St Clears Station** - Option selection stage
- **Caerphilly Interchange** - RIBA stages 2 & 3

