



Cardiff Bus Interchange: Fit-out Stage

The public transport interchange project will serve as a state-of-the-art facility, enabling seamless and efficient transfers between bus and train services.

The project will feature a fully integrated customer information system, providing commuters with a seamless and user-friendly experience. The bus station element consists of a 14-stand facility located at ground floor level within No. 4 Central Square.

The new transport interchange is envisioned to serve as a world-class gateway into the city, seamlessly integrating travel by train and bus, while also providing easy access for cyclists and pedestrians.

This project aligns with the Welsh Government's sustainability goals, as outlined in the Wellbeing of Future Generations Act, by promoting equality, resilience, and improving connectivity between communities.



PROJECT DETAILS

Client: Welsh Government

Delivery Agent: Transport for Wales

Contractor: ISG

Designers: BDP/Mott MacDonald

Project Cost: c£11million

Contract: NEC4 Option A

The design of the integrated transport network is set to establish a global benchmark for sustainable and efficient public transportation systems.

The bus station was granted planning approval by Cardiff Council in December 2018 with the shell and core buildings of the new bus station being constructed as part of the major mixed-use development project.



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

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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.

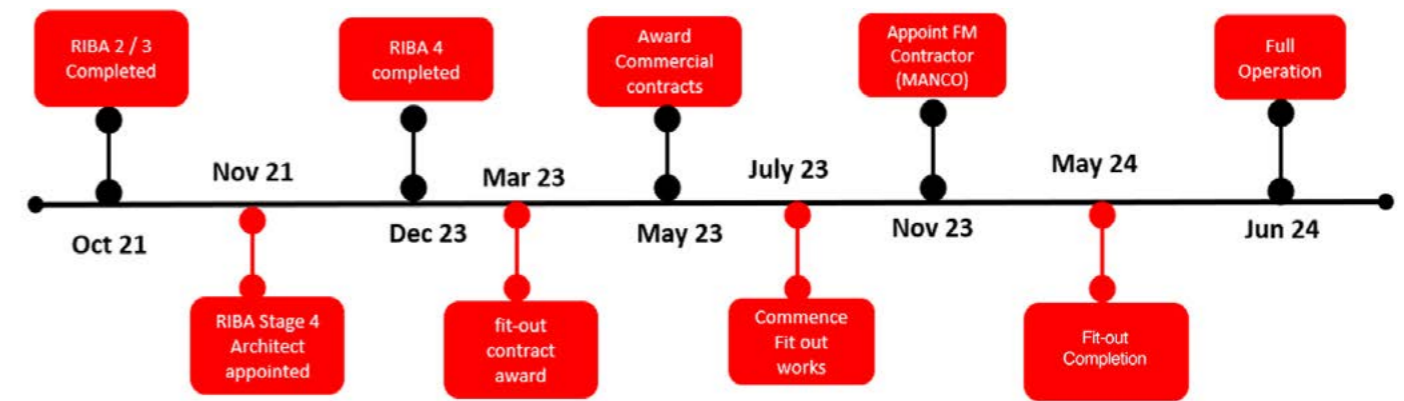
Our approach to Exemplar has been updated to reflect the Wellbeing of Future Generations Act

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.

Design Development/Construction Stages Schedule



General description of Fit-out stage

The site was formerly occupied by Marland House and the Wood Street NCP Car Park, as well as a surface car park.

The shell and core buildings of the new bus station, once completed, were formally handed over to TfW for the internal fit out in March 2023; the construction contract to deliver the internal fit-out and apron works were tendered through the SEWSCAP framework that resulted with ISG being appointed as the Principal Contractor, with the Building Design Partnership (BDP) and Mott MacDonald as the key design drivers for these fit-out works. It is this fit-out stage that is the subject of this Exemplar case study.

The Cardiff Bus Interchange assets under the ownership of TfW will consist of the following elements as illustrated in the layout plan below:

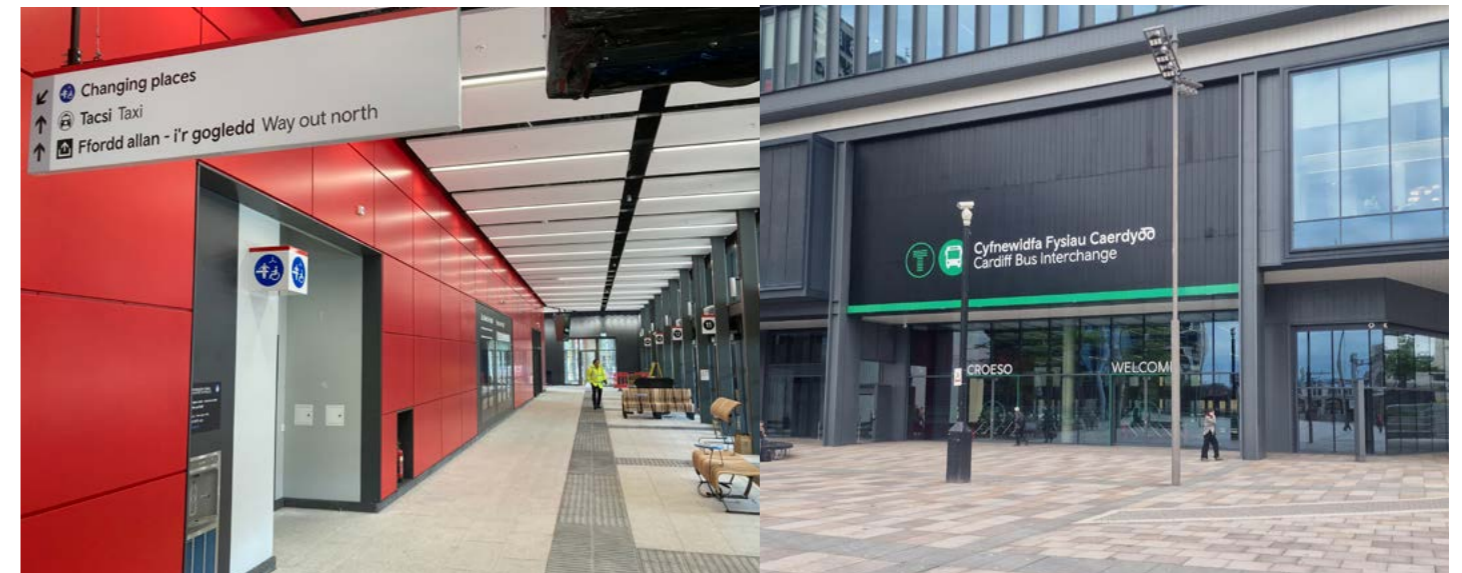
- Bus Apron (external Apron including 14 bus stands)
- Interchange (internal ground floor and mezzanine office, plus five retail units)
- Fit-out of the existing base build structure. This includes the ground floor area allocated to the Bus Interchange and some of the external Apron areas.

The fit-out includes:

- 14 accessible departure bays, accessed by automatic doors
- Electronic passenger departure information with real-time updates and clocks
- Help Point
- Bilingual audio messaging system
- Retail and hospitality outlets
- Toilet and baby care facilities including separate Changing Places toilet
- TfW Interchange Operating offices and security offices
- Bus crew facilities
- Bilingual and accessible signage and wayfinding
- Design interventions to prevent/discourage anti-social behaviour
- Design interventions to prevent/discourage bird nuisance



- Bus area external works (bus bay barriers, pedestrian barriers, guard rails, security barriers and road markings)
- External lighting
- Bus bay curtain walling and automatic doors with bus bay external floor detectors for door activation to bus bays
- CCTV installation coverage both external and internal
- Seated waiting areas
- Mobile phone charger points



Environmental Issues

While the internal fit-out nature of this project meant that there were limited environmental issues identified during the design and delivery phases, TfW placed a strong emphasis on ensuring that all stakeholders upheld their responsibilities under the Environment (Wales) Act 2016.

Specifically, TfW required that the project team:

- **Maintain and Enhance Biodiversity** - Seek to maintain and enhance biodiversity, as far as consistent with the proper exercise of their functions, and in doing so, promote the resilience of ecosystems.
- **Embed Environmental Considerations** - Embed the consideration of biodiversity and ecosystems into the early stages of thinking and business planning, including any policies, plans, programs, and projects, as well as the day-to-day activities.

By placing this emphasis on stakeholders, TfW demonstrated its commitment to sustainable practices and its desire to minimise the project's environmental impact, even in the context of a relatively contained, internal fit-out stage. Initiatives within the fit-out stage included the installation of hydrocarbon interceptors within the bus apron and the provision of movement-activated lighting.

This approach reflects TfW's broader organisational focus on environmental stewardship and its recognition that even less complex, high-value projects can have a pivotal role in supporting the resilience of ecosystems and promoting biodiversity within the local community.





Researching lessons from elsewhere

In order to help consolidate the fit-out brief, the following bus stations were visited in order to view and ascertain 'lessons learnt'; i.e. what is working well within recent bus station buildings:

- Gloucester
- Newport
- Swansea
- Bath
- Portsmouth

These bus stations were selected because of their proximity to other transport modes; their 'sawtooth' drive-in, reverse-out format; and their size (similar to that of the proposed Cardiff bus station). As well as the bus stations visited, other bus station facilities were reviewed, Chester Bus Station being recommended by Cardiff Council's 'Equality & Accessibility Officer' as being excellent for its 'equality provision'.



This research led to the provision of many features so that the Cardiff Bus Interchange satisfies the Equality Act with respect to persons of reduced mobility.

It provides the following:-

- Fully trained staff to offer assistance to customers
- Hearing induction loops throughout
- Closed Circuit TV for personal security
- Directional signage throughout the facility
- Colour contrasting seating, bins and timetable displays
- LCD screens displaying real time or scheduled information located above each stand door
- Timetable display boards showing timetables and general information such as lost property, health and safety, tourist map
- Specialist engagement to provide 'Map for All' (tactile maps)
- Toilets/baby changing
- Accessibility toilets/baby changing
- Changing Places facility
- Tactile paving for blind and visually impaired passengers
- Rest room for staff and drivers
- Air Quality/Noise attenuation features

Community and Stakeholder Engagement

One of the most important stakeholder groups for the fit-out of the bus station area was the base build design team including the developer (Rightacres), principal contractor (ISG), project manager (Gleeds) and architect (Holder Mathias).

During the development of the design through RIBA Stage 3 the team met with the base build team at regular intervals to discuss progress and information requirements.

The purpose of these meetings was to support the flow of information between the base-build and fit-out teams to ensure a consistent approach between the base build and fit-out and to help minimise the risk of delays to the construction programme.

During the RIBA Stage 3 process the team also undertook a review of the base build access and maintenance strategy and reviewed the 'significant hazard and risk' register with the base build team.

Stakeholders engaged throughout the design and construction phases were:-

- TfW Rail Limited
- Welsh Government and Ministers
- South Wales Police and emergency services
- Cardiff Council
- General public
- Residential and commercial neighbours
- Utility Providers, including BT Open Reach and Western Power Distribution
- Adjacent Businesses (e.g. Prince of Wales PH)
- Bus Operators (Cardiff Bus, Stagecoach, National Express etc.)
- RNIB
- Accessibility and Inclusion Groups
- Base build tenants (Legal and General, residential neighbours)

Key Challenges

This is the first project of its kind, a major bus station, to be delivered by TfW, so it was very challenging for them despite drawing on previous lessons of similar projects.

However, through collaborating with experienced design consultants (Mott MacDonald and BDP), the team proved capable of designing and delivering a state of the art, modern facility.

A key challenge involved TfW receiving a shell and core structure, which was designed and constructed by other parties, over which TfW potentially had very little input or influence.

However, through close collaboration throughout the shell and core works with Holder Mathias (architects), Arup (structural engineers), and McCann & Partners (building services engineers), the challenges associated with this risk were significantly reduced.

Lessons Learned

Throughout the project there have been a number of lessons learned that can be transferred into future projects, including;

- Early definition of Client and Customer requirements
- Design freeze and assurance check prior to entering into a delivery phase
- Selection of efficient procurement and contract options that simplify the project management process and reduce overall risks to the project
- Early engagement with specialist stakeholders to achieve early design freeze prior to entering into a delivery contract
- Developing a comprehensive Entry into Service plan with defined roles and responsibilities

Sustainability and Innovation

Llwybr Newydd – a new path – sets out Welsh Government’s “new way of thinking that places people and climate change at the front and centre of our transport system.”

The strategy focuses on the importance of encouraging people to make the change to more sustainable transport, listening to users and designing a transport system that works for everyone. The Welsh Government’s vision is to “create an accessible, sustainable and efficient transport system.”

Three priorities are identified:

Priority 1 Bring services to people in order to reduce the need to travel.

Priority 2 All people and goods to move easily from door to door by accessible, sustainable transport.

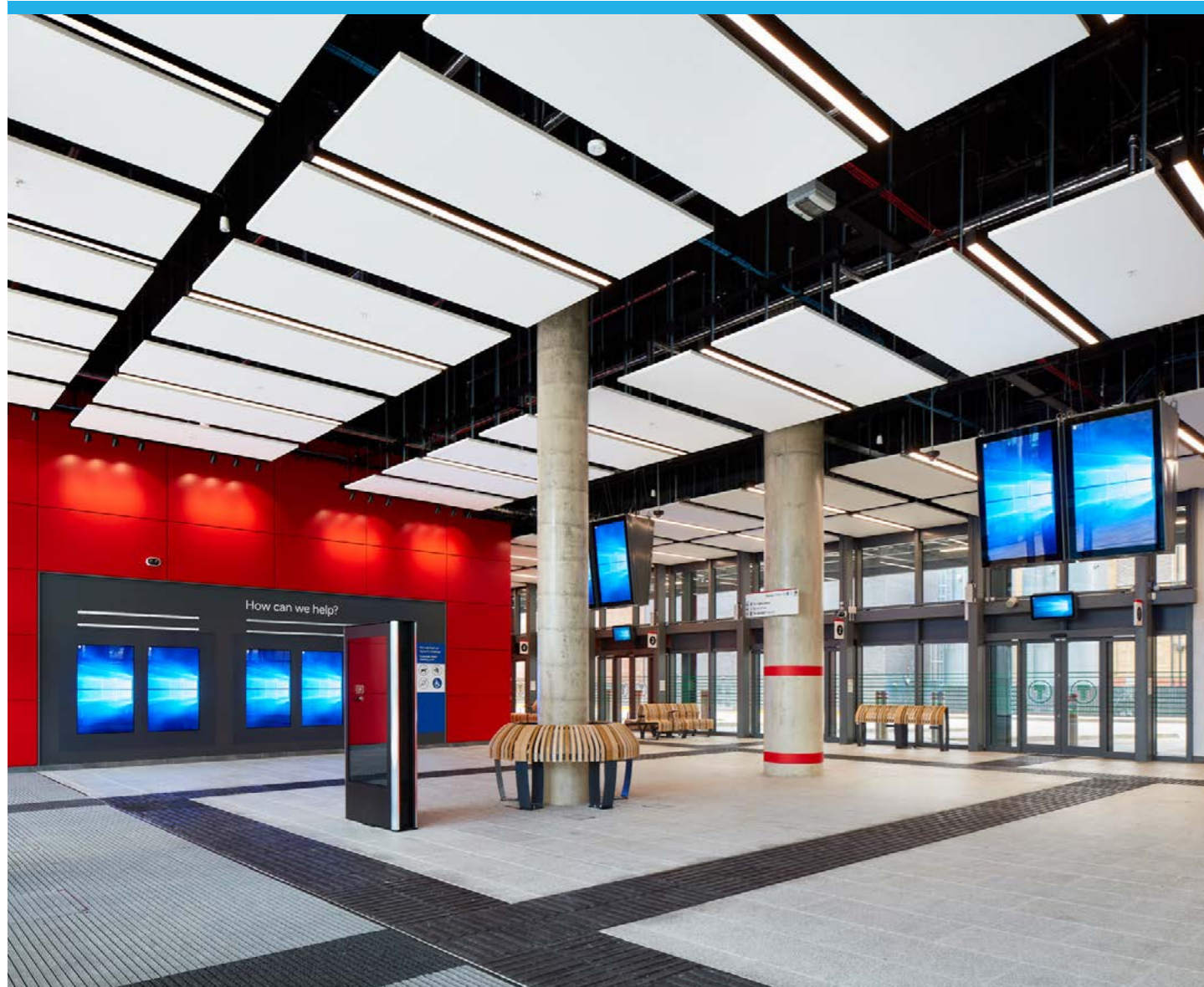
Priority 3 Encouraging people to make the change to more sustainable transport.

The Cardiff Bus Interchange will support the delivery of the Wales transport strategy by providing an accessible, safe and efficient transport hub allowing people to travel across Cardiff and the region.

The Wellbeing of Future Generations (Wales) Act 2015 aims to improve the social, economic, environmental and cultural well-being of Wales, making the public bodies listed in the Act: think more about the long-term; work better with people, communities and each other; look to prevent problems; and take a more joined-up approach.

The Act underpins TfW’s approach to delivering projects. To ensure that all public bodies are working towards the same vision in Wales, the Act puts in place seven well-being goals.

The Cardiff Bus Interchange project is designed to support the achievement of these seven key well-being goals and in order to ensure the successful delivery of these goals, the project team developed a series of targeted actions to be undertaken throughout the various stages of the project.



Collaborative working/accessibility

Ensuring equality of access to the bus station and transport services was a key aspiration for the project and, in order to ensure that the consultation with accessibility groups was inclusive, TfW initially consulted with the Accessibility and Equality Officer from Cardiff Council to identify the key service users who would have specific requirements for the bus station.

Throughout the project, TfW’s own Accessibility and Inclusion Panel were consulted on a regular basis, and this ensured the features designed satisfied the requirements of potential users with a range of accessibility needs.

The consultations, involving representatives from the visually impaired community, deaf groups and elderly service users, identified a number of key issues:

- Ensuring the appropriate toilet provision for all service users
- Concerns about the use of dynamic stand allocation
- The use of station ambassadors to support navigation within the bus-station
- The use of various forms of technology to support wayfinding and accessibility
- The importance of the design of the public realm around the station
- The need to allow access for users with restricted mobility

Hazards, Health and Safety

BDP were appointed by TfW under CDM 2015 for the fit-out design element of the project and led the coordination with the Base Build design team.

An initial meeting was held during the concept design stage to review the content of the shell and core construction phase risk register and the bus station fit-out concept design risk register.

Further discussions relating to risk management were undertaken during the detailed design phase including a workshop review of the Significant Hazard and Risk Register.

During the design process several risk items were identified and were transferred through to the construction phase.

The risk review with the designer allowed the team to review several critical issues which required close collaboration with various stakeholder groups and Cardiff Council, including:-

- The risk of pedestrians walking through the bus apron
- The risk associated with reversing vehicles on the apron
- The risk and associated management of civil unrest within the area

Following review, risks were either significantly reduced, eliminated or controlled via operational procedures.

In order to better understand the safety and security risks to the bus station the team arranged consultation meetings with the local 'Designing Out Crime Officer' (DOCO) from South Wales Police and the local south Wales Counter terrorism adviser, both of whom were involved in supporting the development of the base build proposal.

Various meetings were held during the design stages and the officers were generally supportive of the willingness to engage with them during early project stages, which highlighted a number of pressure points for consideration.

Some of the issues identified such as external materials were more relevant to the shell and core construction and were therefore raised during consultation meetings with the Base Build team.

Issues relating to the design of the internal spaces such as the CCTV layout and door security continued to be developed in close consultation with the DOCO during the technical design stage.



TfW Exemplar Programme

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

In this third year there are five projects, the first three being delivered by AIW:

- **Gelynis Farm Bridge** - Construction
- **Vegetation management** - Implementation
- **Taffs Well depot rail access** - Construction
- **Cardiff Bus Interchange (fit-out)** - Construction
- **Holyhead Wheel Lathe Facility** - Design