

# A Cardiff Capital Region Metro:

## Impact Study: Station Design Guidelines (Ebbw Vale)

October 2013





# The Works: Ebbw Vale

Design concept for proposed new railway station

September 2013



Collaboration by design

This document has been prepared by:



on behalf of:

Welsh Government & Network Rail

Prepared by:

James Brown and Huw Friar

The Urbanists

Charterhouse

Links Business Park

St Mellons

Cardiff

CF3 0LT

[james.brown@powelldobson.com](mailto:james.brown@powelldobson.com)

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## 1.1 Introduction



This document highlights the key considerations that should inform the development of a 'Metro compliant' railway station at The Works in Ebbw Vale.

The ideas and proposals outlined in this document suggest how the design language that has been employed on other stations on the successful Ebbw Vale line could be adapted to be aligned with the aspirations of the South Wales Metro.

This design concepts included in this report are based on a brief for a very functional station that will not incorporate any additional uses or commercial opportunities. As a result of this, the design concepts for this station are potentially transferable to other small railway stations in the region. The document explains how the context to the site might influence the design of the station and how this might then become the benchmark for future Metro stations elsewhere on the network.

However, there needs to be a recognition that this work has been prepared by urban designers, landscape architects, planners and architects, when in reality it should also include engineering and transport professionals.

This design concept has not be subjected to further scrutiny or costing and is only an indicative representaiton of the kind of station that should be delivered at The Works.



Photograph of Rogerstone station which is consistent with the kind of station currently being proposed for The Works.

## 1.2 Existing station design concept

The existing station design for The Works Ebbw Vale is consistent with other stations on the Ebbw Vale line. The image opposite illustrates that the current approach is for stations that are:

- Highly functional and limited to transportation
- Have a limited revenue requirement for the operator
- Have a limited capital requirement for the owner
- Easy to replicate

However, the cost of an approach governed by the above points is that stations of this kind:

- Lack regional identity
- Lack a sense of place
- Create a sense of arrival that is limited to modal transfer
- Support no other complimentary land uses

The approach in this document is attempt to satisfy all of the above points.

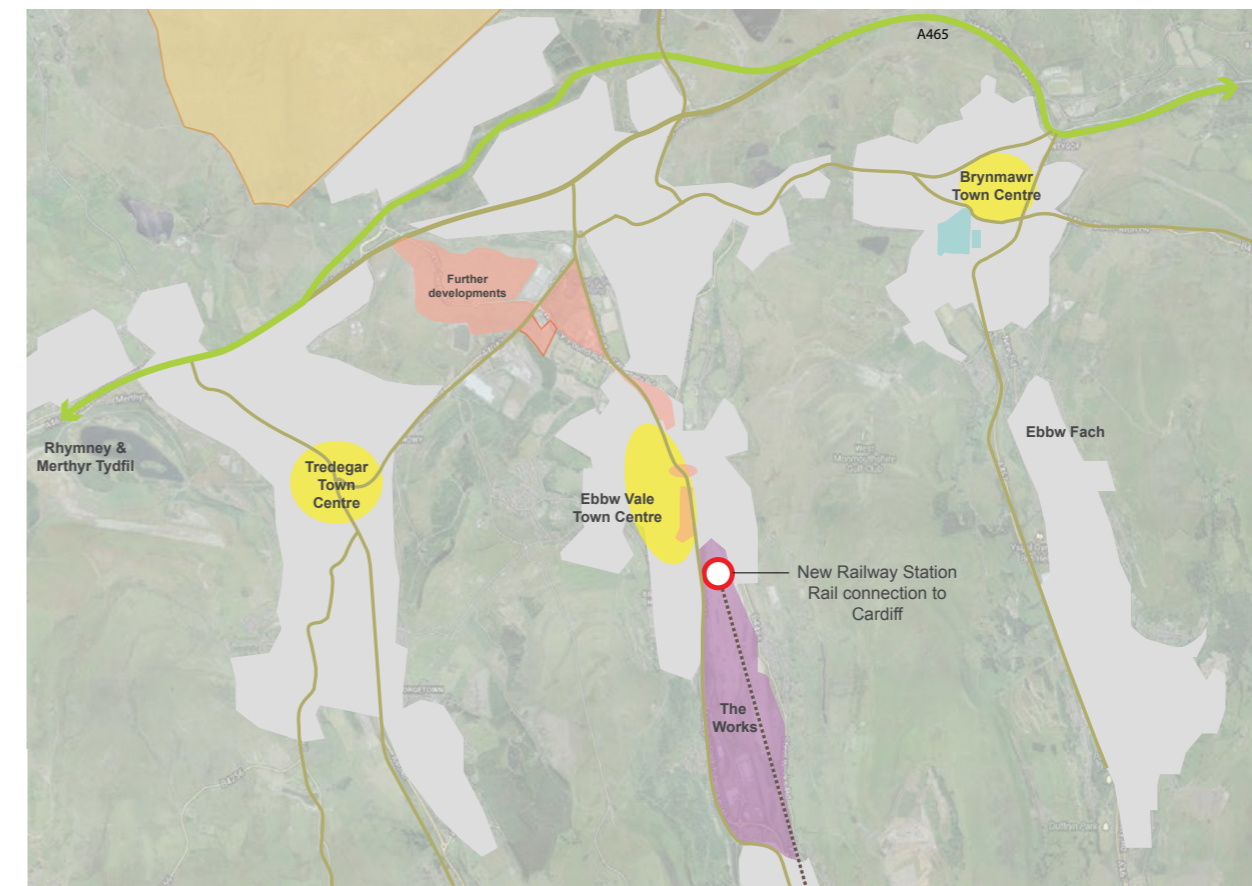
## 1.3 Strategic Context

The proposed railway station is located in the base of the valley just to the south of the Town Centre on the development site which formerly accommodated the Ebbw Vale steelworks.

The service will run on the existing railway line which used to service the former steelworks.

As well as access to the existing Town Centre, the new station will service the developments at The Works, which include:

- The Learning Zone (a post 16 education facility)
- Low Carbon Housing
- Basement Park
- Leisure Centre
- The Environmental Resource Centre
- The General Offices and Visitor Attraction
- Ysbyty Aneurin Bevan
- Central Valley Wetland Park



Strategic Location Plan

### 1.4 Local Context

The station will be within a five minute walk of Ebbw Vale Town Centre to the northeast, and will also be serviced by a car park located immediately to the east.

It will become the terminating station of a line beginning in Cardiff.

New developments including a school, learning campus and public archive will surround the station, so ensuring that the railway terminus is clearly visible and legible is vital. Several of these facilities are expected to offer refreshment facilities and toilets.

Pedestrian links to the north and vehicular parking to the east suggest that the building should have two clear access points to serve both user groups. Works are also on site for a new pedestrian plaza to the north of the proposed railway station that will link the station, the Archive/Works site office and Learning Campus. This new plaza will create a positive and welcoming space for users of the railway station.

A robust and memorable architectural context has been created as a result of The Works masterplan and the proposed railway station building will need to contribute to this positive design language.



View of Network Rail land looking south from the Gwent Archive centre. Image shows relationship with Gwent Archive centre and the proposed public space.



View north from close to the proposed railway station which shows the high quality refurbishment and new public space in front of the Gwent Archive. The proposed railway station will need to take account of this in terms of use of materials and pedestrian movement.



View west from adjacent to Network Rail land towards Learning Campus and future link (via a funicular) to Ebbw Vale town centre. Note works on site to create new public plaza. Proposed station will need to link into this plaza.



Local Context Plan





View south towards Network Rail land from Gwent Archive.  
Highlights the relationship between car parking, cycle parking  
and architectural context.

### 1.5 Local materials palette

In order to create a distinctive and instantly recognisable South Wales 'brand', it is vital that the materials used are locally relevant and appropriate.

The adjacent montage of photographs illustrates the existing palette of materials that have been deployed at The Works site in Ebbw Vale.

These were selected as part of The Works masterplan to represent contemporary Welsh design. A substantial part of this overall investment has been funded by Welsh Government.

These materials create a strong context for any future development at The Works, including the railway station. Not only do they set the tone for the development of a new station at The Works, but they also create a useful benchmark for contemporary Welsh/ South Walian design that might be deployed throughout the entire Metro network.

In essence the materials are a blend of natural (soft) and industrial (hard). The galvanised steel and Staffordshire blue brick have a particularly industrial feel which is appropriate both for the 'Works' location and for use in a Welsh Valleys railway station.

The considered use of timber can help soften the hard appearance of the steel and brick, but should be used sparingly to ensure a low maintenance design.



Timber cladding and Staffordshire blue brick



Corten steel feature cladding



Louvres for shading and shelter



Low maintenance wild flowers



Precast concrete paving



Galvanised steel structure



Incorporated low carbon technologies



## 2.1 Application of design principles

Research into station design has summarised ten station design principles. Application of these principles is intended to ensure that new railway stations are carefully integrated into their surroundings and create new places as well as new transport infrastructure. The ten principles are as follows:

1. The spaces around the station are as important as the station itself
2. The needs of different transport modes need to be carefully managed
3. Creating a strong sense of arrival is important
4. Station security needs to be integrated
5. Stations can be anchors of mixed use developments
6. Stations need to address changes in level carefully
7. Cross line connectivity is an important consideration
8. Station design needs to convey character of the region
9. The station has the potential to be a hub of other activities
10. Multi-disciplinary collaboration in the design process is essential

In order to apply the principles sensitively and intelligently the following considerations are relevant:

- There are a variety of other uses (such as cafes) within the immediate context which *suggest* that these uses are not viable as part of the railway station
- The existing budget and brief for the station is for a simple structure composed of a single use
- There are new spaces being created adjacent to the station which the design needs to take into account and integrate (rather than create a competing space)
- In order to create a strong sense of arrival the station building needs to consider the setting of the new station building in relation to the listed Gwent Archive building
- There are numerous cues as to the selection and deployment of materials in the immediate context which creates a strong rationale for station design

## 2.2 Design Concept



The functions that a small railway station must perform are to provide:

- information and welcome to visitors
- comfort and shelter from the elements
- safe and easy access on and off the platform, incorporating the requirements of the Equality Act 2010
- transfer to other modes of transport

Additional functions such as toilets, retail, customer services, housing, employment etc can vary from station to station depending on size and local context.

### Freestanding Grid Structure

A simple structural grid supporting a canopy will create a shelter from the elements and the flexibility to customise the services provided.

The grid will consist of vertical posts or columns which support the flat roof structure. The flat roof also provides the opportunity to incorporate environmentally sustainable technologies such as solar panels, rainwater harvesting or a sedem roof covering. See Section 3.1 for details.

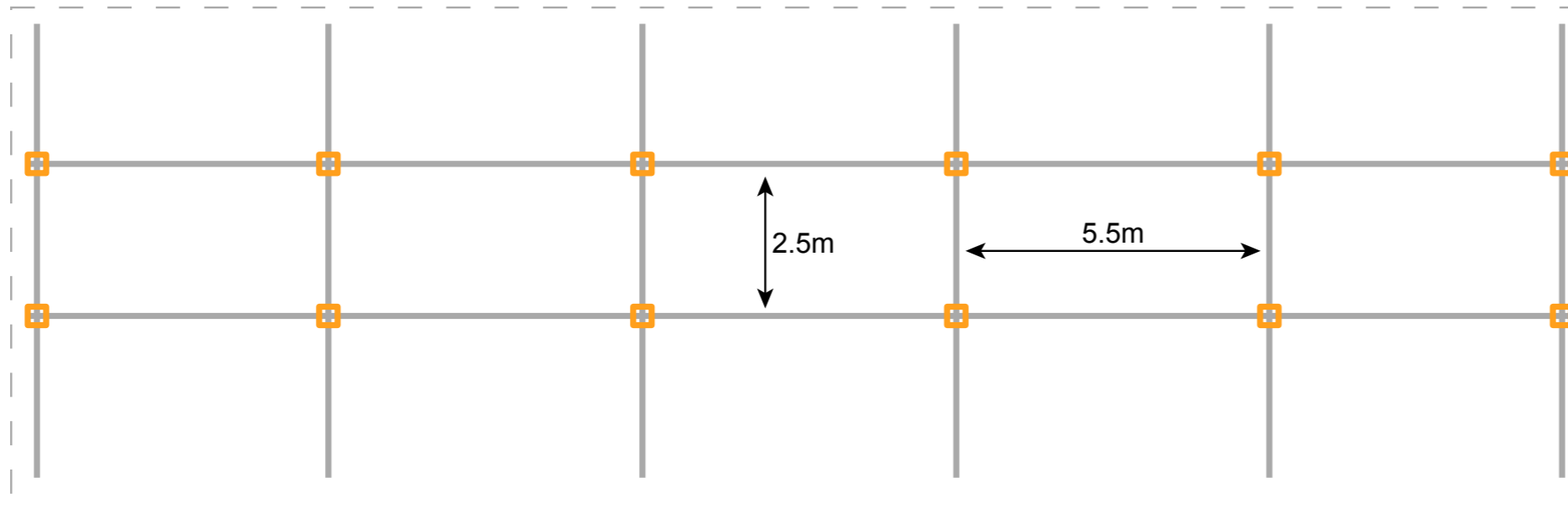
### Modular System

The spacing of the posts will partially be determined by the specific requirements of the station. The adjacent diagram illustrates how an approximate 5.5m x 2.5m grid will create adequate space for the majority of the potential facilities required by a small station. These can then be interchangeable depending on the specific station requirements as they do not form part of the structure.

The length of 5 adjacent modules also corresponds with the length of one railway carriage enabling the format to be easily replicated .

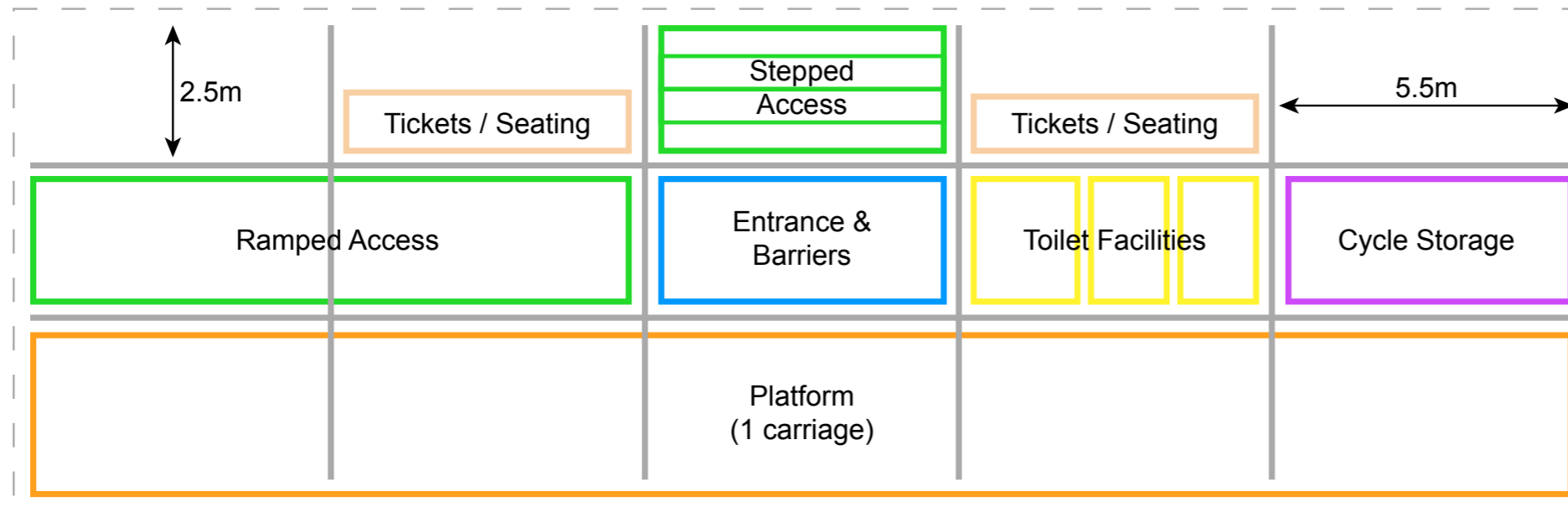
This concept can then inform the design of future stations regardless of their size, location or function.

### Structural Grid

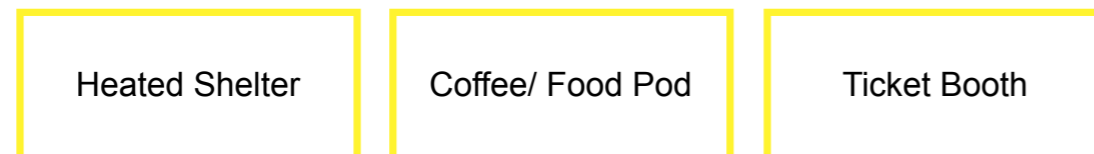




Incorporated Modules



Interchangable Modules



## 2.3 Potential station layout

The layout of the proposed station building is based upon the grid concept illustrated in section 2.2.

Due to the station's approach from both the Town Centre to the north and from the car park immediately to the east, two access points have been provided which both lead to the platform barriers.

This also ensures that either the required Equality Act compliant ramped access or stepped access is integrated sensitively into the design.

Ticket machines are located under the canopy but outside the barrier zone to reduce potential congestion or bottlenecks, whereas public toilet facilities are situated within the barrier zone to reduce the potential for vandalism and misuse.

There is also provision for covered cycle storage and seating along the eastern elevation of the structure.

If further facilities are required, the grid structure can be amended to suit, creating space for extra modules. See Section 2.2.



The Works Ebbw Vale - potential station layout



## 2.4 Visualisation



Artist's impression of how the new Ebbw Vale station at The Works could look



## 2.5 Potential for low carbon design

Modern environmental technologies can be incorporated within the station design in order to reduce the building's running costs and carbon footprint.

Options include;

- green roof coverings,
- solar power; and
- rainwater harvesting

### Green Roof Coverings

A flat or low pitched roof allows for the opportunity in incorporate a green or sedum roof covering. This is a low tech finish which is low maintenance, a good insulator and can improve the BREEAM rating of a building due to the increase in biodiversity.



### Solar Power

Solar power is an increasingly efficient technology which is becoming more affordable.

A building such as a train station which potentially has a large roof area compared with the amount of facilities requiring electricity.

Solar generated electricity would be able to power the majority of the station's requirements.



### Rainwater Harvesting

Due to Ebbw Vale's high levels of annual rainfall, it would be economically sustainable to utilise this asset.

Collected rainwater can be stored in an underground tank and used to flush toilets, irrigate planting etc.







### 3.1 Summary

The design concepts and ideas put forward in this document demonstrate that it is possible to develop a simple design language that can be replicated around the South East Wales region as part of the proposed Metro.

This kind of station will probably be more expensive to build and maintain than the current approach to station design that has been deployed on the Ebbw Vale/Cardiff line. However, it will also be more valuable to the region as a whole. Alongside more frequent service patterns well designed stations, even modest stations like at The Works, can help to promote sustainable transport and also have wider beneficial impacts upon regeneration and tourism.

Whilst this work has been prepared to explore what else might be possible above the existing design, it is recommended that this approach is investigated in more detail, with a multi-disciplinary team, to determine how it might translate into detailed design.







## Supporting documents:

- Appendices to Main Report
- Metro Interventions Appraisal Report
- Metro Modal Study
- Metro Spatial Map
- Regeneration and The Metro
- Metro Funding and Financing Independent Advice
- Metro Economic Impacts

Study led by Mark Barry of M&G Barry Consulting and included Capita, Powell Dobson Urbanists, Jones Lang LaSalle and Steer Davies Gleave

