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“Successful projects are driven by a clear design vision which is aligned with the technical engineering requirements and financial considerations.”

From Placemaking Issues - Transport Infrastructure: Process: Embedding design quality at early stages

Text: Placemaking Issues - Transport Infrastructure

This page compiles the Placemaking issues text which appears on the main site, as one downloadable piece. The issues identified have been drawn from project reviews carried out by A+DS, and which we hope can provide positive direction to future projects.

The following text includes points specific to **Transport Infrastructure**, while Key Placemaking Issues, which refer to all project types, can be downloaded separately.

The intention is that the piece below develops over time, and becomes populated with examples of good practice as these emerge in order to form a live and expanding resource. If you are aware of examples of where things referred to have been done well we would be pleased to hear from you at design.forum@ads.org.uk

INTRODUCTION

This section of the website covers a range of transport infrastructure projects including: networks (road, rail and canals), structures (bridges and tunnels) parking (at grade and multi storey), stations, stops and hubs.

A+DS has over the last few years provided advice on a number of transport infrastructure projects of varying scales, considering not only the integration with landscape and infrastructure and the detailing of the structures themselves but also, at times, the wider picture around achieving the project intent, as can be seen from previous advice given on the Queensferry Crossing where partial redistribution of the traffic flow utilising existing infrastructure created a more efficient model going forward.

The Scottish Government’s **National Planning Framework 2** (NPF 2) aims to strengthen Scotland’s connections with the rest of the world and promote more sustainable patterns of travel. It designates a number of strategic transport routes and key nodes, and international gateways as national developments – many of which A+DS has engaged with in the past.

Scottish Government policy, including the NPF 2 and the Strategic Projects Review (STPR), have informed the basis for a national Infrastructure Investment Plan that outlines plans for future infrastructure investment in Scotland. Going forward Scottish Planning Policy is highlighting the need for a significant shift towards more sustainable forms of transport and opportunities for promoting connected places and active travel can form an important part of this overall strategy. NPF 3 is currently under consultation.

PROCESS

Involve design skills early to add value to engineering led projects

Infrastructure projects are by their very nature engineer led and potentially complex. Major pieces of transport infrastructure can impact on and determine the quality of the urban and rural environment and will have profound and long lasting consequences on cities and our countryside.

Involvement of design consultants including architects, landscape designers, even artists at an early stage can assist with the difficult job of integrating a large piece of infrastructure into a sensitive rural or urban setting and might help mitigate its potential impact from the perspective of the wider landscape or cityscape. A strong overall design idea, integrating a landscape and architectural vision with engineering requirements, can create a positive impact and a memorable project for locals and visitors.

Coordinate between design teams to achieve a coherent result

Given the scale and complexity of some infrastructure projects it is likely that different parts may require to be designed by different teams which may present challenges in terms of creating an elegant and coherent solution and one with a distinct, albeit responsive to context, identity. An integrated approach that considers the detailed resolution of proposals, right down to signage and detailing of materials, can afford a balance across the wider experience when different design elements are procured by different parties.

Embedding design quality at early stages

Successful projects are driven by a clear design vision which is aligned with the technical engineering requirements and financial considerations. A commitment to high quality design which is maintained through the delivery of the project, from the selection of consultants onwards through the procurement process, will guard against a process that sees cost-analysis as the only driver.

A high level of specification can define and mandate design quality

Procurement processes have the potential to militate against the retention of design quality through to the finished project. There is a need to maintain flexibility in order that construction skills are best utilised, whilst at the same time putting sufficiently prescriptive measures in place to ensure that the design intent within the brief is maintained through the construction process. Project teams can be pro-active in identifying conceptual approaches against which more detailed aspects of design may be reviewed.

STRATEGIC DECISIONS

Coordinate and integrate with wider initiatives

The development of a new transport route such as a new tram line or regeneration of an existing infrastructure corridor such as a historic canal route, brings with it positive development potential. Local authorities have an important role to play in exploring potential opportunities for strategic interventions to lead development, create focus, generate activity and vitality and help define the character of development distinctive to the surrounding areas.

Form a strategic overview across boundaries

A strategic overview will allow an integrated approach to placemaking in adjacent areas / sites and with other key stakeholders, potentially across different local authority areas. In that way, a spatial vision for future growth, form, and the

appropriate density of development along new routes can benefit from joint approaches to funding, integration with retail, streetscape, car parking or other initiatives.

SUSTAINABLE DEVELOPMENT

Build in long-term adaptability and flexibility

Consideration of future transport demands will influence the design of new roads, structures and infrastructure masterplans, and adaptability to cope with changes in these demands is challenging.

Impacts on sensitive environments

Sensitive environments such as those which include wildlife habitat, historic buildings, or sensitive landscapes will all be considered when routes are established. Where these environments cannot be avoided, bespoke designs should respond sensitively to special locations, and the impact on any such environment carefully weighed and adequately demonstrated against long term, wider, public benefit.

Connectivity between places is fundamental for sustainable development

New infrastructure links such as new pedestrian bridges form a critical part in creating sustainable development – for example in connecting one settlement to another across an existing rail way line, river or busy motorway. Such provision should be considered early on in the design process and delivery mechanisms put in place to ensure they are realised.

CONTEXT + LAYOUT

Assess and mitigate the impact on the wider context

New transport infrastructure will impact on neighbouring communities, landscape, existing transport networks and the user experience over the broader area. The extent to which it works with existing landform / levels will affect, and potentially define, the quality of a new urban edge, the peripheral land uses and potential gateway entry into towns. In addition, it is likely that the completion of a road will in itself promote change and lead to additional development along its edges.

The role of design in integration

The impact of a significant infrastructure project will extend out with the immediate boundaries of the works. Design initiatives and funding for public realm works over a wider area can augment and attract appropriate uses and set the context for enterprise.

Transport hubs, balancing transport and urban issues

In creating significant projects such as transport hubs, a co-ordinated strategy encompassing new and existing buildings and structures, adjacent spaces, subways, paths, access roads, landscape and public realm is important in helping to address the quality of spaces and connections within the site and the wider area, and in encouraging a compact solution. A balance will achieve transportation and urban resolution which sees civic placemaking stitch together the component elements and will avoid residual spaces.

Consider the experience of all users

The needs of pedestrians and cyclists can be recognised in parallel with those of the road / rail traveller. Opportunities for providing pedestrian and cycle crossings at significant routes and bridges will ensure new infrastructure is safe and inclusive, and views maintained to the landscape beyond as part of the experience will reduce disruption to the local network and fabric.

Ecology and biodiversity

Working with an ecologist who understands biodiversity can help develop a more minimal approach towards detailing in the landscape – in particular in those areas where there is little or no human activity. Instances may exist where, perhaps small, but meaningful ecological interventions might be integrated.

BUILT FORM

Well-designed infrastructure can add to the quality of a place

Unique or iconic structures and buildings can contribute to the character and personality of a place and enhance the experience for tourists and visitors while creating a sense of pride for local residents.

Architectural and landscape design resolution of significant proposals such as a railway station or airport, at both large and small scales, can create a project with integrity and clarity as appropriate for a highly used public building, while opportunities for individual design of repetitive elements, such as tram stops or the introduction of art works can help to define a new piece of infrastructure and add to the quality of the surrounding area.

Considering the visual impact of large structures

Large-scale structures such as bridges will form prominent features in the landscape in their own right, and these will be planned for via the appropriate environmental analysis, including by consciously defining particular views and providing appropriate public consultation opportunities. Consideration given to; acknowledging the arrival point by defining where the bridge starts and stops, how landings are recognised in addition to how they might be perceived in relation to other adjacent structures, the potential impact on environment created below suspended structures, will all benefit the users experience.

Coordinating design elements to minimise visual clutter

New transport infrastructure projects often necessitate an assemblage of components such as street fixtures, lighting, furniture, signage, and maintenance equipment, which can have a major visual impact. Managing and co-ordinating these will minimise visual clutter, and their integration into an overall design concept for the engineering and construction details. Modelling of the visual impact of layered elements, such as balustrades, cable stays and wind screening can be helpful in demonstrating the users' experience and in understanding what the traveller will see, in such aspects as transparency of structures, texture, surface colour and materials.

Use lighting and colour to create emphasis

A commitment to high quality architectural treatment and lighting helps to ensure there are pleasant places for people to use in and around transport interchanges, and that there are safe, legible and attractive connections to the surrounding area. Opportunities for using light and colour to emphasise structure and to highlight significant design elements can create a strong sense of place.

Creative use of lighting and colour to emphasise structural elements and important routes

Image credits

1. The Falkirk Wheel - **Falkirk Council**
2. The Kelpies - **Falkirk Council**
3. **Tradeston Bridge - Steve Tiesdell Legacy Collection**
4. King's Cross/St Pancras - Steve Malone
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6. **Gateshead Millenium Bridge - John Richardson**

Image credits

Image 1: Falkirk Council

Image 3: Falkirk Council

Image 5: Steve Malone

Image 7: John Richardson, www.flickr.com/photos/jr55/

Image 2: A+DS

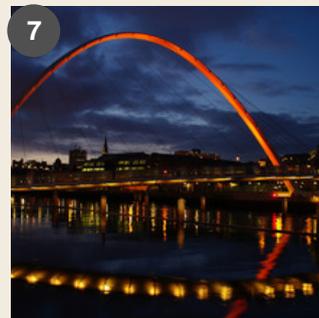
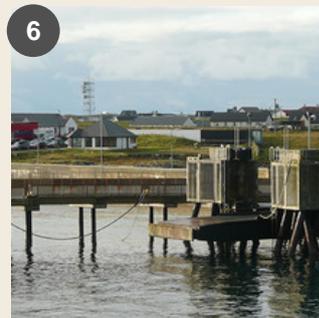
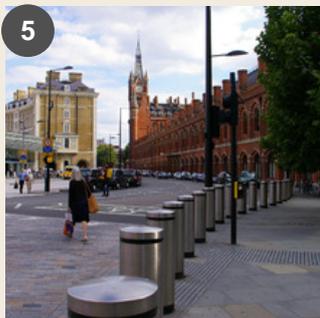
Image 4: Steve Tiesdell Legacy Collection

Image 6: Fiona Dix



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The above is extracted from the Architecture and Design Scotland website Àite. Content should be read in the context described within the main website: www.ads.org.uk/designforum/aite

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