

NEW RAILWAY STATIONS, AND THEIR ROLES AS CATALYST FOR URBAN REGENERATION

In this issue we focus on the very topical and much talked about issue of transport interchange. We look at their role in the revitalisation of specific areas and of cities as a whole, as well as their more immediate effects upon the urban realm on which they sit.

Fundamental to any discussion about transport interchanges today, especially when considering them in the context of a High Speed Rail network, is what do we want them to achieve? Are we looking for urban revitalisation, easy access for local businesses to other cities, or urban realm advances for the surrounding area? It is important to see that the arguments are not necessarily environmental, but for a driver of economic and social growth.

We start with Brian Edwards examining ways in which to design Transport Interchanges today, and how to focus their regenerative properties on social improvements, using transport investment to achieve better conditions for all - not just for those who travel or manage the transport network.

John Dales raises the importance of the urban realm around interchanges for those arriving and leaving stations on foot. A mode often overlooked in terms of the

effort and other resources assigned to the environment around stations.

Anton Valk investigates the model Dutch interchange, through the case study of Amsterdam Bijlmer ArenA, exploring how they support the regeneration of whole areas. He raises the interesting argument that interchange is a great inconvenience however this transfer barrier is an integral part of most, if not all train journeys. Moreover, he says, interchange does not contribute to the passenger requirements in a positive way and is generally an unwanted interruption in the journey.

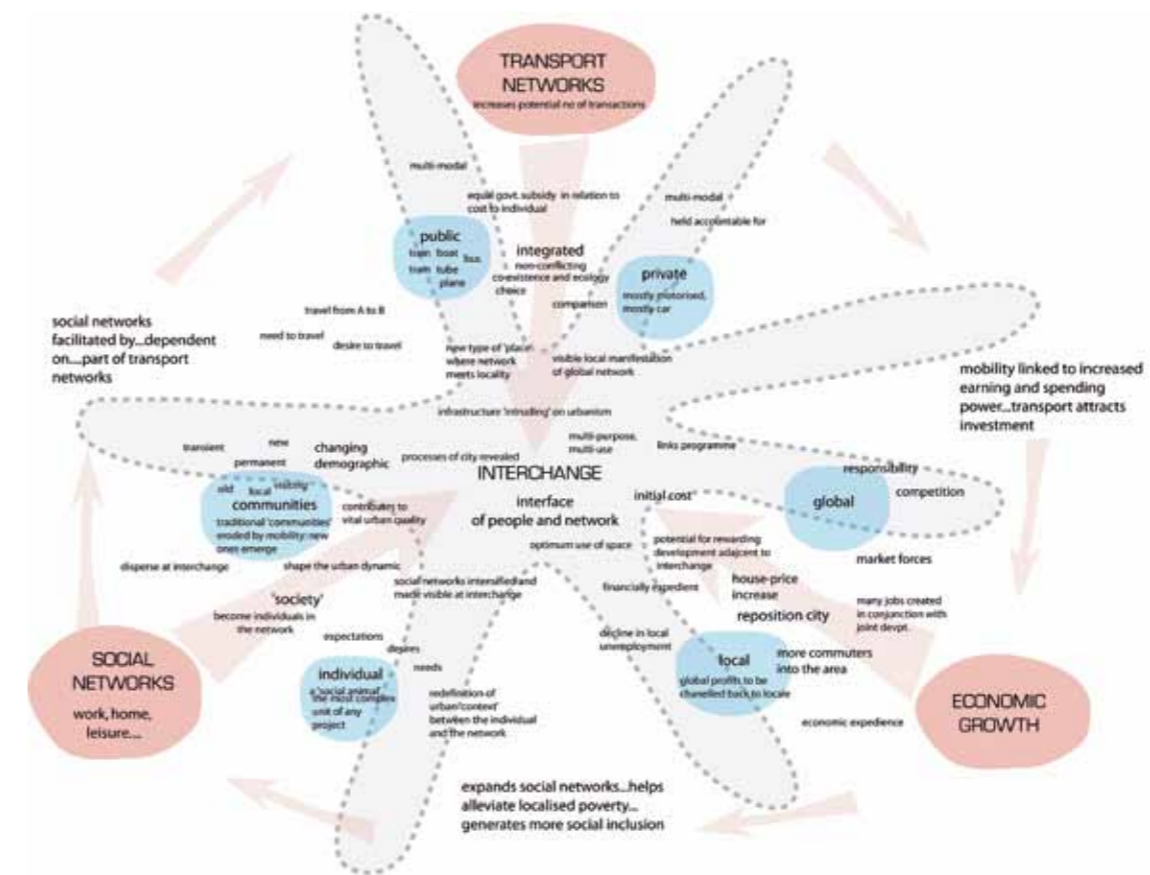
June Taylor looks at case study interchanges throughout Europe and their benefits have been filtered down to a regional and local level, to create efficient transport with effective and balanced regeneration.

Lastly John McNulty and Kate Pasquale look at the very topical case study of Stratford, and the importance that interchange has in underpinning development, at that scale. They go on to describe the decisions and processes that were taken, which eventually helped to catalyse regeneration and aided substantial benefit to the area.

● Sir Peter Hall and Christopher Martin

TRANSPORT INTERCHANGES: A CHALLENGE FOR URBAN DESIGN

Brian Edwards sets out how interchanges must perform



From an urban design perspective the transport interchange offers many opportunities to enrich the public realm, to support social sustainability, and to create conditions for the economic recovery of inner city areas. As such any local plan action needs to address a wide range of issues beyond that of infrastructure planning. Unfortunately, too often the agenda for transport interchanges is established by engineering considerations rather than the creation of sustainable communities.

The transport interchange is a social, economic and spatial point of exchange, not merely a transport hub. It is important that policy makers and urban designers use transport investment to achieve better conditions for all, not just those who travel or manage the transport network. This means considering the needs of people and businesses affected by interchanges, both directly and indirectly. Urban design is the key arena for bringing together the wide range of disciplines involved in transport planning. The current growth in investment in public transport and talk of new

high speed rail investment raises opportunities for urban designers. However, it is necessary to address urban design from four perspectives: social, economic, transport and the spatial. Designers in the past have seen interchanges as primarily exercises in space manipulation: it is much more than that.

SOCIAL FACTORS

Social sustainability is an essential starting point in any discussion of transport interchanges. The transport hub is a social hub where many people gather for different purposes. There are those embarking or returning from a journey and those who are not; there are interchange passengers and single journey ones; there are those who are familiar with the routes and those who not; those who arrive on foot, bike and bus; those who are able bodied and those disabled; and those who are wealthy and those poor. Hence transport interchanges are complex places socially. With an ageing population another characteristic is the

↑ Fiona Scott's model of the connections needed at Interchanges (Image by Fiona Scott)



number of elderly people who now travel aided by pensioner passes. Their needs are often overlooked in the milieu of social interaction.

Socially the interchange is a new form of community hub. Here many buy their groceries, use internet cafes, take shelter and gather information. The generous concourses of transport interchanges provide magnets to draw in both rich and poor, old and young, local and immigrant. They are the new urban magnets, distinct in character from high streets and shopping malls. However, to perform their social potential, the interchange needs to connect smoothly with existing street and squares, and to provide some of the services associated with urban centres such as police stations, libraries and welfare offices. These could be branch facilities, acting as stepping stones to wider provision.

Social connectivity is crucial. Ideally, there will be ribbons of development extending outwards from interchanges into the communities served (Scott, 2005). These will help to reinforce wider social networks, making the routes part of the civic realm thereby countering the divisive nature of much transport provision (pedestrian tunnels, bridges, railway cuttings). Since transport planning entails long time frames, urban designers should think more in terms of cultivating physical and social change over generations rather than imposing arbitrary short term urban patterns (Allies, 2010).

ECONOMIC FACTORS

The transport interchange has big economic impacts which can run counter to social gain. Just as the railways brought wealth and expansion to the Victorian cities of the UK, the modern interchange is a powerful commercial driver. Its power extends beyond the boundaries of the interchange and can be diverted by good planning and urban design to areas where regeneration is required. In terms of sustainable development, the transport interchange provides opportunities to develop new business districts and to establish cultural, administrative and educational hubs within walking distance. These can be grouped around the transport network to provide a rich and vibrant civic realm. As scale and complexity grows, the cross section becomes more important than the plan in shaping the character of places. Mixed use neighbourhoods (within 500 metres) and multi-functional buildings (within 100 metres) served by integrated transport is the ideal pattern around interchanges. In time the

transport interchange should become an economic interchange where services and knowledge are created, exchanged and flow to enrich the cultural and social realms.

At the interchange the flow of economic forces is reflected in the flows of people in and around key buildings. The use of air rights and planning policies should encourage growth upwards as well as outwards. The location of the interchange will then be reflected in the urban scene by the height, mass and architectural diversity of supporting structures. Liverpool Street Station in London is a good example. However, in achieving this intensification of uses and commercial functions, it is vital that the interchange remains visible and is imageable. Protecting its rights to daylight is important since natural light is one of the most cherished qualities of interchanges.

One common problem encountered is that of placing retail functions above or below the interchange. Such a location undermines the ability of shops to define key routes between transport facilities and urban areas. It also creates cul de sacs which tend to reduce spatial permeability. Another problem is the loss of daylight which is frequently encountered in such locations – either in shopping areas or within travel concourses.

TRANSPORT FACTORS

The interchange is defined as a multi-modal transport facility. Its primary role is that of accessing varying forms of transport (both public and private) whilst providing a gateway to cities. A key quality is that of connectivity in space and time (with coordinated timetabling). Connection is made through the medium of space – both urban and transport. Hence, space is the most important element in transport connection, reinforced by light and directional guides and is usually a mixture of interior and exterior space. However, different types of interchange have their own physical characteristics and associated urban design patterns. In most interchanges space exists three-dimensionally. This is why plans alone are not enough to describe the weaving and flowing of movement.

Generally speaking there are four types of transport interchange – train, bus, ferry and airport. Since the interchange is a place where two or more types or modes of public transport interconnect, there is also much hybridisation. As interchanges mature they tend to add new transport connections which add stress to existing facilities and the city round about. Hence, loose development frameworks are better than fixed geometries. Frequently the demands of transport infrastructure take priority over human movements which in turn compromise social flows. One answer is to provide enough space at the outset for people as well as transport systems and to ensure that this is not sacrificed to commercial pressure. Maintaining the visual and physical links between transport concourses, streets, malls, squares and landmarks is vital.

Transport space is about gathering people, moving them in organized flows and delivering them to platforms or gates. Engineers are largely responsible for carving out the volumes needed for transport infrastructure working with architects who design the people interfaces. Urban designers

are too rarely employed at the outset since the transport geometries are seen as primary drivers. There should be rebalancing of professional inputs with urban designers choosing the paths of rails, roads and pedestrian links simultaneously. Crossrail in London will be judged on its contribution to civic life as well as that of transport logistics.

Increasingly we are seeing the design of transport interchanges as against single railway station, bus, ferry or airport provision. Early modernist functional singularity is giving way to pluralism. Sadly, Britain is behind much of Europe in its appreciation of the interchange as a smoothly running machine for inter-connecting people with a variety of mass transit systems. Although the Kings Cross-St Pancras Interchange has brought many benefits, it still lacks the elegance and efficiency of many European counterparts. Discussion of the high speed rail link to Birmingham has also focused insufficiently upon questions of interchange both in central Birmingham and London Euston.

The hierarchy of transport systems at typical urban interchanges extends from foot to bike, taxi, bus, tram and rail. Similar patterns exist at bus, ferry and airport hubs. Too often feet are ignored in favour of wheels and heavy wheels dominate light ones. ‘Feet before wheels’ may make a catchy slogan, but it is hard to implement given current organisational structures.

Urban design is an indispensable tool in the reconciliation of the many conflicting forces surrounding transport design

Different patterns have emerged in Europe with regard to the impact high speed rail investment has had upon city design. In France the pattern initially was one of locating new interchanges outside city centres (eg Lille and Avignon) thereby reducing the capacity for effective inter modal exchange. Such a policy also reduced the scale of benefits to inner city regeneration and hence social sustainability. In Germany, on the other hand, high speed rail has been taken into the centres of regional cities, providing a chance to upgrade 19th century terminals and their hinterland (eg Dresden and Leipzig). Here the interchange is a vibrant mix of old and new with high speed rail investment used to rebuild or re-structure worn out parts of the city. This is particularly true of the former East German cities. Hence, one could argue that Germany provides a better model than France for Britain to emulate as it shifts investment from road to rail over coming decades.

SPATIAL DESIGN

Urban design is an indispensable tool in the reconciliation of the many conflicting forces surrounding transport design. Existing large urban stations such as London Waterloo, Edinburgh Waverley and Liverpool Lime Street require drastic remodeling to serve the transport needs of the twenty-first century. Even without high speed rail investment much needs to be done to provide



better facilities for the growing number of inter-connecting passengers. The bus–train interface is often the most critical and ignored (often in favour of taxis). The metro bike interface is also overlooked even in bike friendly Copenhagen where the author is based. Too often major roads form pedestrian barriers around interchanges with passengers taken into tunnels or left on isolated traffic islands. Road space for cars and taxis should be much reduced and converted to paved areas for feet and narrow wheels (bikes). This is the pattern in Sweden and Holland where public transport and cycling provide the bulk of journeys to work in the larger cities. As a statement of democracy road space for cars is unduly distributed in favour of motorists around interchanges.

Urban design should move beyond land-use and spatial (figure ground) planning into flow analysis and cross sectional design. The geometric rigidity of many plans fails to recognize the flows and spatial syntax of movement. Sectional diagrams help as does the use of CAD or parametric modeling. Too rarely are sections employed in the three dimensional world of interchange design. However, the section unlocks understanding of the potential of daylight, sunlight and views to orientate passengers as they navigate between the interchange and the city.

The spatial needs of people and transport are quite distinct. Public transport is normally linear

↑ North Hamburg Bus Rail interchange to designs by Blunck and Morgen in association with Martin Tamke (Image by Martin Tamke)
 ↑ Kings Cross and St Pancras Interchange with its wider urban improvements, to designs by John McAslan + Partners (Image by John McAslan + Partners)

↑ Remodeling of Aberystwyth Station to improve interchange facilities to designs by BDP (Image by BDP)

in configuration and with predictable flows. People on the other hand move unpredictably and have varying degrees of personal mobility. Different types of transport have different space and engineering needs. Hence at the interchange the space demands of different providers are in a state of flux and often competition. People navigate this world impeded often by invading commerce and poor travel information. This is true of both the interior volumes of the interchange and the exterior concourses, routes and public spaces.

At interchanges it is important that space is understood typologically and physically. There is transport space (platforms, gates), movement space (escalators, concourses), waiting space (seating areas, booking halls), economic space (shops, malls), social space (greeting areas, entrances) and information space (ticketing and timetabling). These spatial zones flow into one another and extend outwards to impact upon the life of the city. One challenge for urban design is to understand the spatial patterns and to forge them into a machine for movement between urban areas and the transport web.

Over time space is stressed by new demands. This may occur as a result of the insinuation of a new transport mode into existing provision, a change in culture (such as London's adoption of the bike), commercial pressure or new environmental imperatives. Hence flexibility is required. Generally space stress occurs as result of growth rather than decline with passenger space eroded by commercial pressures. People are crammed into ever smaller areas with seating removed to aid passenger flows. The result for elderly travelers is often distressing.

Since space is the medium of connection it needs to be addressed at four distinct scales. Below is a list of rules which should be followed to ensure that transport interchanges function effectively, whilst also acting as gateways to cities and to sustainable development:

CITY LEVEL

- Link transport interchanges to urban areas using a network of streets, pedestrian malls and cycle ways
- Ensure these are lined by shops and public facilities
- Place civic, commercial and educational buildings within 500m of transport hubs
- Open up views from interchanges to city landmarks

URBAN DESIGN LEVEL

- Form squares and gathering spaces at interchange entrances
- Remove barriers to movement around interchanges such as busy roads, pedestrian fences.
- Ensure visual connections to all forms of transport
- Provide level traffic free flows around interchange
- Reduce taxi areas to minimum and maximize bike storage areas

INTERCHANGE DESIGN LEVEL

- Create passenger flow space three-dimensionally
- Connect interior routes with exterior ones
- Maximize daylight especially in underground areas
- Provide views to interior and exterior landmarks
- Create memorable concourse spaces

INTERCHANGE MANAGEMENT POLICY

- Single ticketing
- Multi-modal information boards
- Complementary, not competing services
- Limit advertising so that travel information is dominant
- Provide clocks with faces
- Establish clear zones to limit commercial encroachment

CONCLUSION

Transport interchanges are one of the urban design challenges of our age. Just as the nineteenth century grappled with bringing railways and canals into cities, today we face the challenge of high speed rail and integrated transport. Rather than see transport planning primarily as infrastructure provision, it is necessary today to view this within the wider embrace of sustainable development. Then social, economic and environmental considerations can help direct transport investment towards the most beneficial ends. Social regeneration can act as a partner to economic renewal if the right plans and policies are put in place. Government has a key role to play in directing investment and in ensuring its own space needs (government office etc) are met near to interchanges.

Urban design as a discipline between architecture and urban planning has a key role to play. It acts as a bridge between different interests; engineering, real estate, public policy, landscape and sustainability. However, plans are not enough, especially the traditional land-use and figure ground drawings employed by many urbanists. New tools are needed and this may entail greater use of three-dimensional CAD-based graphic analysis. The urban cross section in particular may need to be revived in order to understand the complexities of movement, function, aesthetic and environmental requirements at interchanges.

Plans which steer change are preferable to those which dictate formal patterns. Interchanges are lessons in incremental inter-generational change. The aim should be to cultivate social, economic and environmental improvement over time, employing different agencies and many sources of funding. Stresses will occur such as the expansion of high speed rail or simply growth in public transport usage. Here the UK could learn more from Germany and Holland than France and Spain. ●

URBAN REALM AROUND THE STATION

John Dales describes how to add value to places for people



TWO FEET GOOD

All too often the consideration of 'interchange' at railway stations is confined to providing links between trains and one or more specific feeder modes. These latter typically include other public transport modes (i.e. other trains, bus, tram, taxi) and possibly also 'kiss-and-ride' cars and even bicycles. The Cinderella mode of interchange is walking. Despite the huge number and large proportion of trips to and from railway stations that are made on foot, these are often almost taken for granted, in terms of the effort, and other resources assigned to dealing with the walking environment at and around stations.

There are several reasons for this: but none that is very convincing from the traveller's point of view: one is that interchange between mechanical modes often takes place in a realm that, while effectively public, is actually private. When it is their asset that is involved, station operators recognise their duties, are keen to enhance value, and are comfortable with managing any risks arising. However, once the realm is truly public, beyond the notional red line of what constitutes the station interchange, these agencies tend to lose interest. It is not their land, and hence not their job.

Another reason is simply that transport planning professionals, from all backgrounds, seem to be rather mode blind when it comes to walking (and often also to cycling). As it is an activity that is so

commonplace, it is taken for granted despite its importance – a bit like breathing perhaps? Whereas the infrastructure related to transport is typically the focus of interchange design – from where the different vehicles go relative to one another, to the signs and other paraphernalia to help people switch between them – the best that the world beyond usually gets is one or two signs saying 'Way Out'.

THE POWERS TO IMPROVE

Those local authorities with direct responsibility for the public realm can often struggle to get properly involved with interchange design. Although, as planning authority, they have a necessary measure of engagement with and control over any major projects. As highway authority, they may be unable to get a real seat at the decision-making table, powerless to get more than a few specific pieces of infrastructure (e.g. a new signalised crossing) by way of Section 106 agreements, and short of resources to implement change to the public realm that complements the new private realm. When no substantial change to the station itself is planned, local authority officers have a very hard time trying to convince council members and budget-holders that improving the public realm around a station is a high priority for constrained public funding.

One other issue worthy of note is the old-fashioned problem that those with the

↑ Liverpool Street Crossrail Station proposals

● Professor Brian Edwards, author of *Sustainability and the Design of Transport Interchanges* (2011), and lecturer at the Royal Danish Academy of Architecture and Design in Copenhagen

References

Allies, Bob (2010), *Cultivating the City* Sun Publishers, Delft p18-19
 Richards, Brian (2001) *Future Transport in Cities*, Spon Press, p20
 Scott, Fiona (2003) *InterchangeABLE*, PhD thesis RCA, London. See also www.hhc.rca.ac.uk/resources/publications/casestudies/id4218.pdf



responsibility to make decisions still grapple with the issue of how to factor public realm quality and even pedestrian benefits into conventional cost-benefit analyses. As people, they know that they themselves prefer a convivial, legible and convenient external walking environment. Yet, as professionals, they find themselves trying to weigh these more qualitative apples against the quantitative pears in established transport cost-benefit appraisal; they cannot find a way to make the case. Numbers masquerade as facts, and decisions get made in the same old way, while the urban realm around the station loses out again.

Whatever the reasons, the pedestrian environment and broader issues of urban realm quality around stations are usually, in practice if not in policy terms, too far down decision-makers' agendas; but it should not and does not have to be this way. The following three case studies, each set in completely different contexts, demonstrate why we must and how we can do much better:

CASE STUDY 1 – WEST HAMPSTEAD STREET INTERCHANGE

Let us begin with West Hampstead because it is representative of a type of interchange that is all-too-easily overlooked, and improvements have recently been implemented. The interchange here takes place entirely within the public realm and therefore is of a kind that does not usually register as an interchange at all: the interchange is the street. To be more precise, it is a section of a street – West End Lane – that was featured in *Traffic in Towns* ('The Buchanan Report' 1963).

The reason that this 200m section of this street qualifies as an interchange is that it provides direct

access to three quite distinct West Hampstead stations serving three different rail lines. The stations are listed from south to north: the Underground Station (Jubilee Line); the overground station (North London Line); and the mainline station (serving what used to be called Thameslink). There are no sub-surface links between these stations, and so connections are made at street level. While the walking distances involved are probably no greater than those encountered at several of London's larger interchanges, the subterranean passages are not local high streets and traffic distributors, carrying significant flows of general traffic, buses, cyclists and pedestrians going about everyday business.

The array of transport demands placed on West End Lane caused *Traffic in Towns* to conclude that, 'West End Lane is used for two incompatible purposes – the passage of traffic and shopping... Either it must be adapted as a distributor road and the shopping centre removed, or the through traffic must be taken right out'. This either/or solution was thankfully never pursued; although its cheaper proxy – the attempted segregation of pedestrian and vehicle flows using street furniture – was. As in myriad other similar streets, however, it did not work.

At peak times, West End Lane becomes flooded with people interchanging between the stations, and they simply do not fit onto the existing footways. The guard-railing that had been deployed to keep pedestrians on the footways simply took up valuable walking space and meant that those who inevitably still walked in the gutters were prevented from squeezing back up onto the footway if traffic conditions suddenly got too hairy. It being the truly public realm, the reworking of the street was commissioned and implemented by Camden Council. They recognised that the challenge was one of 'fitting a quart into a pint pot' but also that this street section was a true station interchange. This meant that its design needed actively to encourage and enable passengers to move from station to station, not merely spit them out into a hostile environment and hope for the best.

Our design response to the challenge was essentially to recognise that it would be both impossible and undesirable to constrain pedestrians to the footways at peak times. With ongoing major development at the Thameslink station, the challenge will indeed only get greater. So the scheme that is now being implemented is very simple: footways have been widened where possible; they have been thoroughly de-cluttered; new pedestrian crossings have been introduced in specific locations; better wayfinding information is planned; and the street has been made into one where its different users can more clearly understand that they are sharing it with many others and need to be more circumspect. No user group gets favoured: but that's street life for you!

CASE STUDY 2 – LIVERPOOL STREET CROSSRAIL STATION

Liverpool Street will be the busiest Crossrail station, and the scale of the urban realm design challenge we were set was compounded by the fact that one of its two entrances will be within what is currently a completely different station: Moorgate. The urban realm about the station is particularly

complex, partly in view of the number of movement demands placed upon it (heavy commuter pedestrian flows; busy bus services feeding the Liverpool Street Bus Station; taxis; and access to the many local offices and business premises). The complexity was also partly the result of the fact that the realm we were designing in was not all truly public. Broadgate Estates (British Land), Network Rail and Transport for London all have land interests, in addition to the City of London as local highway authority.

Amongst the many issues that we encountered, and perhaps the most difficult one to resolve, was that of improving conditions for pedestrian movement while also improving the urban realm to make it a more attractive place to linger, and not just pass through. We undertook a range of observation surveys at different times and found that during large parts of most days, almost every conceivable space that could be sat or perched on (walls, steps, bollards and any other street furniture) was used by people having a break, a snack, chatting with others, waiting for onward transit, or waiting to meet someone. Adding to the challenge was the design objective of turning a hard-working urban realm in a fittingly impressive gateway to the City of London.

Numerous signs proclaim 'No Pedestrians on Bridge', as though it was a matter of pride

So, we were tasked with delivering an urban realm that would be great for walking to and from the various public transport access points, great to stay in and look at, and also of course fit for purpose in terms of handling bus, cycle and other essential vehicle movements.

Bearing in mind the general complexity of such a task, and the challenges of dealing with stakeholders whose interest in the public realm is marginal, it is worth reporting that an additional obstacle we encountered was, paradoxically, that of other stakeholders having a genuine but too narrow interest in public realm quality. Namely, that how it looks must trump how it works.

This view stems from applying to the public realm ground plane the same principles that are typically applied to vertical elements, like buildings. Buildings that are attractive to look at are great: but no one will be trying to walk or drive on them. Streets and spaces are quite different; if their design is successful, the vast majority of people will not care and often won't be able to see the finer details, such as the specific materials used and the pattern in which they are deployed. While aesthetics are important, especially in such a high profile location as this principal gateway to London's financial centre, such considerations must work with the provision of an urban realm that facilitates movement and other static activities.

At Liverpool Street, we obtained and presented strong evidence showing both that there would be plenty of room for pedestrian movement even under 'worst case' forecasting for 2054 and that there is huge demand for things to rest on. Nevertheless, we were faced with strong opinions



(and personal preferences) about the importance of keeping the street space empty of clutter that would impede pedestrian movement or visual simplicity. Confident of our rationale, we resisted inappropriate pressures and proceeded to develop flexible designs for the urban realm around and between both station entrances (see image on page 23). These are best able to handle the wide range of both functional and aesthetic demands that will come once Crossrail is open, and for many years afterwards.

CASE STUDY 3 – ABBEY WOOD CROSSRAIL STATION

This interchange case study is entirely different from both the previous two; Abbey Wood station is to see significant change as it becomes not just a station on the North Kent Line but the eastern terminus for Crossrail services south of the Thames. The current two tracks will be expanded to four, and the new station design is predicated on providing excellent cross-platform interchange between Crossrail and North Kent line services in the same direction (eastbound or westbound). However, the scale of the opportunity and associated complexity goes well beyond the internal workings of the railway station.

Up until 1976, the east-west railway corridor was traversed by the north-south local high street by means of a level crossing. This crossing was closed and replaced by a dual carriageway flyover on the north-south alignment (Harrow Manor Way). The flyover was built without footways and numerous signs proclaim 'No Pedestrians on Bridge', as though it was a matter of pride. North-south pedestrian movement is facilitated by a large complex of steps and ramps to overcome a 6m change in level. Although providing 24 hour public access across the tracks, the structure is currently also used by passengers entering and leaving the station. The sheer number of steps is bad enough, but those who cannot use them must negotiate a dispiriting and very long set of switchback ramps. The environment beneath the structure is as attractive as you would imagine...

Bus-rail interchange is focused at the high level, with passengers walking between the bus stops at the summit of the Harrow Manor Way bridge and the platform level using the steps and ramps just

↑ West End Lane, West Hampstead Street Interchange (Base photo by Google)
↑↑ West End Lane proposals

↑ Abbey Wood Crossrail Station

described, except that the dual carriageway bridge design means that people walking to and from the eastern (southbound) bus stops are not permitted to cross the highway and must use an extension of the steps/ramps complex to pass under the bridge at 'mezzanine' level. There is no step free access to these southbound bus stops. This is both a truly dismal interchange and an urban realm that is hostile in every sense imaginable.

Putting aside the obvious refrain that 'they should never have built it like that in the first place', what constrains the opportunity now to is the challenge of enabling a range of different partners to focus on the whole rather than just their section of it. Each partner – Network Rail, Crossrail, Transport for London, and the London Boroughs of Bexley and Greenwich (their boundary line runs due north-south along the old high street) – are subject to their own constraints in terms of engineering feasibility, land ownership, legal powers, funding, leadership and internal communications. There is, however, a willingness to work together for the greater good, despite these constraints, and a recognition that the whole must be greater than the sum of the parts.

Testimony to this is the fact that we are now pursuing a design option that transforms Harrow

Manor Way into a more balanced street that accommodates walking and cycling; one that can be crossed safely by pedestrians; and has a vibrant high-level interchange as its focal point. If these are achieved, the steps/ramp complex will be removed. Focusing on the wider urban realm, rather than on specific technical challenges and modal priorities, has meant that there is now a probability that the Crossrail project will not only deliver a better station but underpin the badly-needed regeneration of Abbey Wood as a place.

SUMMARY

Addressing the improvement of the urban realm around stations is almost always key to maximising the benefits of any improvement works focused on the stations or main-mode interchanges themselves. Failure to pay attention to the attractiveness of the walking environment around stations and of the setting of station buildings, invariably leads to a failure to make the most of the opportunities available: to add value. This usually involves greater complexity, both in terms of the technical aspects and the number of partners who need to be involved and agree what is to be done. For people travelling; and therefore for everyone else involved, this is very worthwhile. ●

● John Dales, Director,
The Urban Movement Team
at Urban Initiatives Ltd

AMSTERDAM BIJLMER ARENA STATION

Anton Valk describes a model Dutch interchange



The Netherlands has one of the best performing railways in Europe operating on a densely used network. With services operated by NS and infrastructure operated by ProRail, more than a million passengers per day use the train services, and NS prides itself on understanding customer requirements be it in transit, at stations or when purchasing tickets.

With nearly 17 million people living in the Netherlands in an area equivalent to the London and South East of England, the Dutch rail system faces operational challenges to maintain peak flow through stations and onto other modes of transport to complete journeys. With no truly large cities, but over 50 major conurbations to transport passengers to and from, the Dutch rail system consists of a network of interlinked services operating regularly.

A journey can be broken down into specific components to deliver a seamless travel experience to a customer. These are:

- deciding the mode of transport for the journey
- preparation for the journey
- travel to the departure point
- station facilities, including ticketing
- finding the train, boarding and departing
- the journey itself (A to B)
- arrival at the destination station
- station facilities
- onward journey to destination, and
- customer care and after sales

It is recognised that the actual train journey from A to B is only part of the journey made by passengers. It is necessary to think holistically about the passenger's journey and look beyond the parameters of the train ride and work with other public transport operators and local authorities in order to ensure the entire journey is as easy and satisfying as possible. Stations play a crucial part in this. Passengers' main requirements during their journey are:

- Safety and reliability – feeling safe and secure throughout the journey; find what you expect at any time and place in the journey
- Speed/ travel time – fast end to end journey; smooth and seamless interchange, and
- Ease – a hassle free, seamless journey

From detailed studies conducted by NS, there is clear evidence to show that the most important difference between a train and a car journey is the fact that car drivers do not have the inconvenience of an interchange. This transfer barrier is an integral part of most if not all train journeys.

The interchange or transfer barrier is generally an unwanted interruption in the passenger's journey which does not contribute to the passenger requirements in a positive way. In studies for NS, Van Hagen and Peek found that one of the most efficient ways of mitigating the impact was to add value to the time that passengers spend at, or passing through, a station. In order to make interchange time more valuable, station development in the Netherlands is built around three principles – accelerate, condense and enhance:

- Accelerate: reduce the journey time for passengers
- Condense: locate urban facilities such as housing, working places and leisure centres, closer to a station
- Enhance: provide an attractive environment with services and facilities that enhance the least valued element of any journey – the waiting and transfer time

These principles are being successfully applied by NS and ProRail in close cooperation with local authorities and communities for the major Dutch stations. They were also used when redeveloping Amsterdam Bijlmer Arena station.

Around 18,000 rail passengers travel in or out of Amsterdam Bijlmer Arena station on any single day, a further 1,500 use the station as a rail interchange. Over 8 million people can travel to this station within an hour by rail or road making it a highly



accessible destination for business, commuting or leisure purposes. In addition, during major events at the ArenA, the station comes under increased pressure with in excess of 10,000 passengers per hour travelling through it. Accommodating train, Metro, urban and regional bus transport, Amsterdam Bijlmer Arena is a station hub and an interchange between national, (inter) regional and urban public transport.

The original station on the Bijlmer site opened in 1971. It was a small station on the rail line connecting Amsterdam and Utrecht. In 1976 it was redeveloped into a station with rail and metro tracks. In the late 1980s the retail and business area Amsterdamse Poort was opened on the eastern side of the station. Following the 1992 Bijlmer air crash urban redevelopment works have been undertaken which have significantly changed the area. In this period too, the Amsterdam ArenA, home to football club Ajax, was opened (1996), accommodating 50,000 people and the surrounding business park Amstel III was developed. In 2007 the Utrechtboog was opened, which is a flyover railway line in the south-east of Amsterdam that directly connects Utrecht and Schiphol, doubling the track between Utrecht and Amsterdam Bijlmer Arena.

These developments resulted in a shift in the station's status, from a small station with footfall of approximately 4,500 passengers per day and little

← Amsterdam Bijlmer Arena Station
↑ Master plan and station locations at Amsterdam Bijlmer Arena
↑↑ The Utrechtboog flyover railway line



↑ Platform level with the long glass rooftop

interconnectivity, into a larger station connecting major cities such as Utrecht and Amsterdam with anticipated passenger growth of 250 per cent. It is expected that by 2020 passenger numbers will increase to 20,000 per day and with increased residential investment in the local area.

Considering this investment in leisure, residential and commercial infrastructure, and the potential demand the station could expect, Amsterdam Bijlmer Arena became a prime site for redevelopment. When designing the station, it had to meet two key criteria:

- Optimal passenger comfort, including enhanced sense of safety
- Connecting the two urban areas surrounding the station on the East and West side

This superior station, with its unprecedented flair and self-explanatory location, is unique in the Netherlands

Amsterdam Bijlmer Arena was a joint project between Grimshaw Architects and Arcadis Architects. The design of the Amsterdam Bijlmer Arena station won both firms the BNA Building of the Year 2008 architecture award. This award is an initiative of the Royal Institute of Dutch Architects (Bond Nederlandse Architecten, BNA). The jury was extremely impressed with the building, stating 'this superior station, with its unprecedented flair and self-explanatory location, is unique in the Netherlands. This heroic building is, in all its facets, the very image of good craftsmanship. It is, above all, a paragon of openness that transcends its function of public transportation hub'. The jury also commended the building for its roof, which creates an enchanting and pleasant feeling of spaciousness and a phenomenal play of light.

The Amsterdam Bijlmer Arena station opened in 2007 and plays an important part in the redevelopment and regeneration of Amsterdam Bijlmer/ South East. The contemporary glass building fits perfectly with the on-going

improvement of the surrounding area. Creating the new, large and transparent station to accommodate the six railway tracks and two Metro tracks transformed the station environment and provided a more open connection between the two parts of Amsterdam Bijlmer/South East. The new station is built on top of the 70m wide, 700m long pedestrian passage (ArenA Boulevard), connecting the eastern and western side of the area.

Transparency was one of the key criteria in developing the station building. The result is a 200 metre long glass rooftop, rising from 20 to 30 metres high. Glass was used for the roof to achieve maximum passenger comfort and an increased sense of safety and security. This has proved successful with passenger satisfaction increasing significantly. Customer surveys show that 85 per cent of passengers find the station a pleasant place to be in 2011 compared to just 28 per cent in 2007. They also saw a remarkable improvement in station cleanliness from 32 per cent in 2007 to 90 per cent in 2011.

The station consists of 8 tracks:

- Two are dedicated to the Metro, and both have separate dedicated platforms
- Two are connected to the Utrechtboog, that directly connects Utrecht and Schiphol to Amsterdam Bijlmer Arena
- Underneath the platforms is the bus station, accommodating regional and urban bus services from several operators
- Underneath the station, on the south eastern side, an automated guarded bicycle storage facility is provided for residents and customers
- Amsterdam Bijlmer Arena also has one of the largest park and ride facilities in Amsterdam. It has a capacity of 500 spaces, where cars can be parked for €6 per day and customers receive two Metro tickets to travel into the city centre of Amsterdam
- The station and surrounding parking facilities are opened up to the surrounding motorways A1; A2; A9 and A10

Some key features that improved the station include a modernised station hall situated on the ground floor with retail facilities to enhance the quality of time spent at the station, and to contribute to passenger comfort. Escalators and elevators take passengers up to the platforms.

Architecture, the use of high quality materials, the provision of facilities for passengers and approaches to interchange have proven in the case of Bijlmer Arena to be a successful contributor to passenger growth and satisfaction at a medium size station and supporting the regeneration of a whole area. Similar approaches are now also being incorporated at other stations under redevelopment in the Netherlands. The approach taken at Bijlmer Arena could also serve as a best practice example for similar sized stations in regeneration projects across Great Britain. ●

● Anton Valk, Chief Executive, Abellio Group, a subsidiary of Netherlands Railways, and which also provides bus and train services in Great Britain and Germany

NEW RAILWAY STATIONS AS CATALYSTS FOR REGENERATION AND URBAN HUBS

June Taylor asks whether bigger is always better when it comes to station design

INTRODUCTION

In 2010 I had an opportunity to visit transport interchanges throughout Europe, funded by the Sintropher project, to study and report on good practice in interchange design. I set off armed with a copy of Transport for London's Guidelines, and a basic knowledge of transport planning, urban design and the many other fields of knowledge that help explain how urban places function. This article is based on those visits, and represents the subjective and partial view of an amateur enthusiast visiting a random selection of interchanges – not always the biggest, newest or best. The examples illustrate interesting points about the design and function of transport interchanges and their place within the wider urban environment.

Although most interchanges are simply railway stations with provision for other transport modes tacked on as an afterthought, other modes may become more significant in the future, particularly in the urban context, and encouraging their use may depend upon providing high-quality seamless interchange facilities. For these reasons, this article sometimes uses the term transport interchanges where railway stations would do as well.

Transport interchanges are both nodes within a transport network and places within the city. Passengers arrive and leave, changing trains or transferring between modes, perhaps having no interaction with the area beyond the interchange. However, interchanges and the surrounding public realm also offer opportunities for people to wait, meet, shop, eat and drink. They often form part of an historic town or city centre, appearing on tourist itineraries and co-existing with a multitude of urban functions in neighbouring buildings. The combination of node and place qualities has the potential to attract people in great numbers, explaining the renewed interest in commercial property development in and around major stations, particularly those with connections to high-speed rail networks and airports. The increasing numbers of office workers reinforces the demand for shopping, eating and drinking, and so the status of the area as a destination. Finally, interchanges also impact upon the permeability of the surrounding urban fabric, either reinforcing or reducing the physical barrier of railway tracks.

The art of designing a transport interchange could be described as one of integrating and balancing these three functions – an efficient



interchange between transport services, a link within the urban fabric, and a destination in its own right.

DESTINATIONS

When the French city of Lille became the central node in the high speed rail network linking London, Paris and Brussels, it also became, almost inevitably, an attractive location for commercial office, retail and leisure development. Linking the new Lille Europe station to the tram network

↑ Liège-Guillemins station
↑↑ Eurailille under Avenue le Corbusier



↑ Tram approaching Valenciennes station
 ↑↑ Eschwege interchange
 ↑↑↑ Amsterdam Bijlmer ArenA

and to regional train, metro and bus services at the old Lille Flandres station concentrated public transport accessibility within a confined space. With 500 metres separating the two stations, Lille is more successful as a destination than as an interchange – although facilities within the stations are limited, the Euralille development, built in the space straddling the two stations to accompany the opening of the high speed line, is now one of the main business districts in France. The open space between the stations provides the main pedestrian link but also succeeds as public realm; sheltered by the surrounding buildings and Avenue le Corbusier running above, it seems a good place to sit or throw a frisbee on a sunny afternoon.

The recent refurbishment of St Pancras station in London also illustrates the synergies between a new high-speed rail terminal and property development opportunities (in this case, the widely celebrated transformation of part of the Grade 1 listed station building into a hotel). The ongoing redevelopment of 67 acres of unused railway lands behind the adjacent King's Cross station and a second station refurbishment suggest the wider area will become an important hub of activity, and it will be interesting to see how the stations retail offerings

face up to the competition. The range and quality of shopping and eating experiences currently available at St Pancras suggests passengers are expected to spend a substantial amount of time in the station itself – a realistic aspiration in the case of those with long-distance and international connections, but perhaps less so for everyday commuters.

The 19th century railway station building in the French town of Valenciennes forms a visual node and landmark, sitting behind a public space at the semi-circular meeting point of five streets in a small commercial quarter between a major road and the railway tracks. A tram service, introduced in 2006 to link the town with the widely dispersed surrounding areas, runs across the front of the building – somewhat ironically, the building's historic status imposes statutory restrictions on the use of the adjoining space which prevent the trams from stopping directly in front of it. Nonetheless, the intimate street layout, the concentration of hotel, office and restaurant uses in the surrounding streets and new trams sweeping elegantly past the station have echoes of successful urban regeneration schemes elsewhere and suggest this could become an economically vibrant area again.

An interchange can attract new economic activity to the surrounding area

If it can increase the catchment area for potential employees, clients and business partners (providing a wider range of transport services and better connections between them), an interchange can attract new economic activity to the surrounding area. However, the example of Valenciennes suggests smaller towns and cities may struggle to replicate this effect, even where historic buildings and street patterns create a sense of place.

TRANSPORT INTERCHANGES

The major railway stations are now expected to impress as destinations, but it is less apparent that they are designed to encourage interchange with the bus, tram or metro. The Hauptbahnhof in Kassel, Germany provides a more seamless integration of regional rail and Regiotram services, sending both below street level to stop at adjacent platforms, linked by stairs and lifts to a common concourse running across the length of the building. Although bus services are less well integrated, the interchange between rail and tram could hardly be more convenient. Rail services terminate here, but the Regiotram continues, emerging onto the street several blocks away on its way through the town centre and into the surrounding villages and rural areas.

Interchange design should be a simpler matter at small stations but encouraging train passengers to continue by bus may depend on whether buses can be made to seem sufficiently attractive – few will relish a long walk in the rain to an unwelcoming bus stop. At Nelson, a small town in the north of England, passengers alight from the train into a warm and secure interchange facility, opened in 2008, which serves as ticket hall, information point and waiting area (complete with refreshments

and toilets) for both trains and buses. The new station in the equally small German town of Eschwege, opened in 2009, provides an exemplar of this approach and indicates that effective interchange design might involve thinking beyond the traditional station building: a single covered platform serves both trains and buses, remaining comfortable even in heavy rain, and leading directly into a ticket office-café-shop with additional covered outside seating. Although a railway station in name, Eschwege makes no distinction between train and bus passengers.

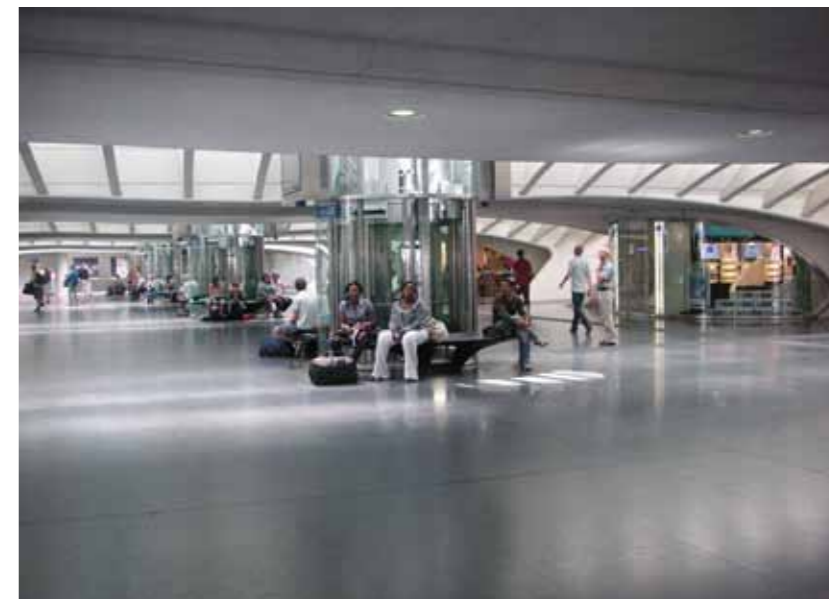
Yet, although providing an equal standard of facilities for train and bus passengers seems a simple concept, it rarely occurs in practice. Institutional fragmentation could be cited as a reason for this failure, with poor co-operation between national rail operators and local public transport authorities. At both Nelson and Eschwege, the new interchange projects were led by local authorities as part of an explicit economic and social regeneration agenda, involving replacement of an old, inaccessible and unpopular underground bus station, and of an old railway station on the edge of town with one in the centre of town, respectively.

PERMEABILITY

Railway tracks (and urban motorways) create a physical divide and lead to community severance and the design or redesign of transport interchanges should be seen as an opportunity to bridge this divide. At Sint-Niklaas, a city in the Flemish region of Belgium, the highway runs parallel with the railway tracks but is diverted into a tunnel under the railway station, which also links to car parking facilities (the tracks run above ground level). Controlling and segregating fast through traffic leaves the space in front of the station almost traffic-free, providing bus bays, cycle parking and safe routes for pedestrians and cyclists. This is a transport interchange that seems to meet the needs of all modes, even the private car. An open concourse through the station building at street level, and the commercial development also forming part of the building, provide links across both highway and the railway.

A similar approach is adopted at Amsterdam Zuid in the Netherlands. The railway and metro tracks sit between two halves of a ring road, running through the Zuidas financial district. The ground level dips slightly, allowing the pedestrian walkway to blend into a street-level concourse connecting the two sides, beneath the road and rail tracks. Although the concourse has ticketing and other passenger facilities, it is used equally as a pedestrian link – ticket barriers are located at the foot of the escalators to the platforms, allowing unrestricted access for non-travellers. This could be a useful strategy in the UK context, where controlling access to fare-paid areas is often an important issue.

Amsterdam Bijlmer ArenA station sits in the middle of two large, mainly pedestrianised, developments (leisure facilities including a football stadium and cinema to the west, and a shopping centre and residential neighbourhood to the east). It was rebuilt in 2007, incorporating Metro services alongside trains, with the embankment structure that separated the two areas replaced by raised



↑ Liège-Guillemins station – the structure itself provides informal seating

viaducts carrying the rail tracks. With its size, elevation and striking design, the station provides an effective focal point for the large high density developments characteristic of both areas. At street level, the ticket hall, access to platforms and bus bays are offset to one side, leaving a light and open central pedestrian space that merges seamlessly with the surrounding areas.

THE PERFECT INTERCHANGE?

Liège-Guillemins station in the Belgian city of Liège was designed to accommodate the arrival of high speed rail, replacing the existing station in 2009. Celebrated by architectural critics, it has become a tourist attraction in its own right and visiting it is an unforgettable experience. Interchanging between trains is smooth and efficient, with the consistent treatment of lifts, escalators and stairs to the concourse below and footbridge above. Retail units, passenger facilities, lifts and service information are integrated within the design of the concourse area, easy to access without obstructing passenger flow. Variable ground levels in the surrounding area are used to good effect, separating car parking facilities at the higher level to the rear of the station from access for pedestrians and public transport users at street level. The curved structure also provides some shelter from the sun and an array of informal seating. Despite its many excellent features, however, Liège-Guillemins remains just a train station, missing the opportunity to improve facilities for bus passengers and so to become a transport interchange in the true sense.

CONCLUSION

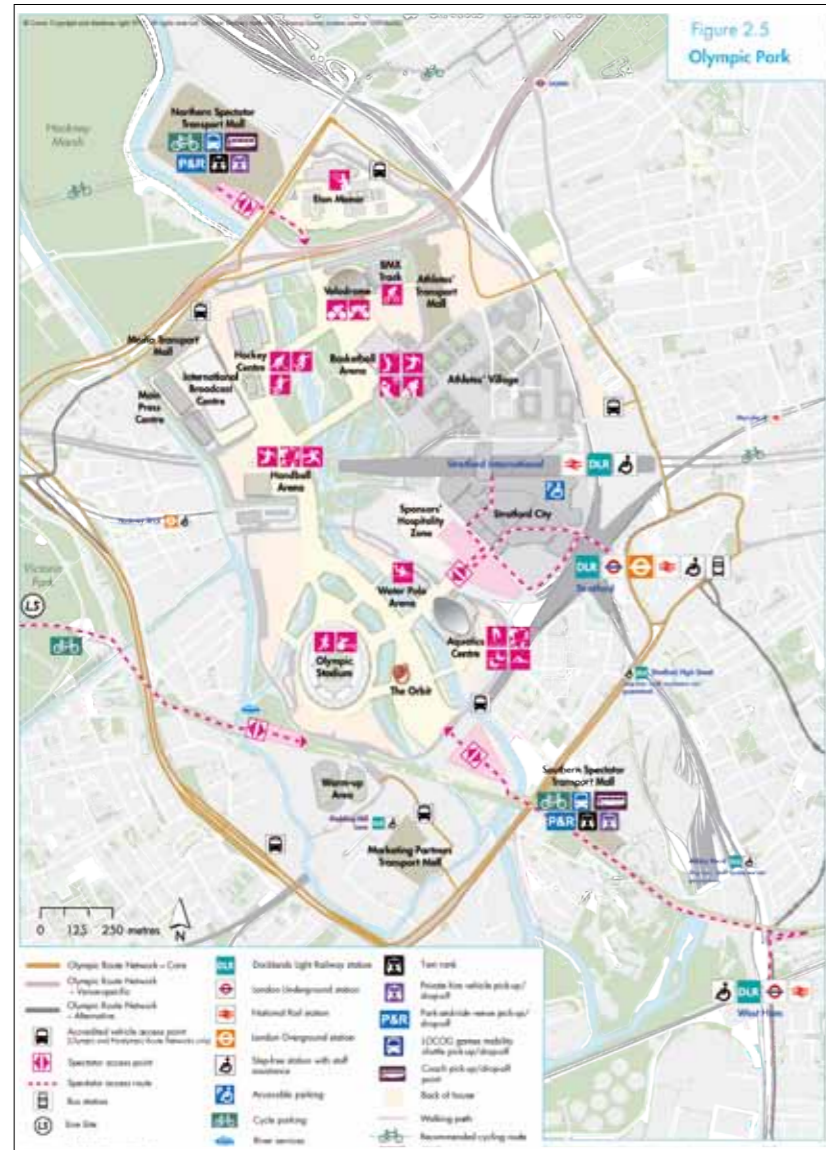
Whether transport interchanges can become or can help to create destinations depends at least in part upon the ability of the surrounding area to generate a variety of economic activities and a critical mass of people. Where this commercial potential exists it can, in turn, help attract funding to improve interchange and permeability functions. The major cities forming the hubs of the high speed rail network have all benefited from this synergy, but perhaps the biggest challenge is to find a way of extending the virtuous circle to small interchanges in more peripheral areas. ●

● June Taylor, Research associate, UCL

This article draws on site visits undertaken by the author as part of, and funded by, the Sintropher project. The Sintropher project is a five-year research project with the aim of enhancing local and regional transport provision to, from and within five peripheral regions in North-West Europe

REGENERATION THROUGH BETTER INTERCHANGE – STRATFORD CASE STUDY

Kate Pasquale and John McNulty describe a complex collaboration success



Stratford City is now recognised as one of the most ambitious developments within London’s M25 motorway, as well as one of the largest mixed-use developments in the UK. The site covers 73 hectares of principally derelict land, which is now seeing the creation of a new £4bn metropolitan centre in East London. Over the coming fifteen years, Stratford City will become home to more than one hundred shops, two department stores, cafés, schools, hotels, parks and health centres. Whilst, landmark towers and new leisure facilities with integrated water features will provide a heart to the new commercial district, the surrounding new urban districts will provide the quarters’ extra 11,000 residents and 30,000 workers. As part of this, Westfield’s Stratford Shopping Centre is estimated to provide some 13,000 jobs and is due to open in September 2011, whilst the residential element is now complete and ready to perform as the Olympic Athlete’s Village for the London 2012 Olympics next year.

OLYMPICS ROLE

The importance of Stratford as the gateway to the Olympics cannot be understated, as Hugh Sumner, Director of Transport for the Olympic Delivery Authority said, ‘Fundamentally the Games are about changing society: not just about hosting a summer of stupendous sport. The new Stratford station is therefore the gateway not just to the Games but in the longer term 10,000 jobs, maybe 30,000 housing units, the biggest mall in Europe and the largest park built in Europe in the last 150 years.’

With so much visionary development, the challenge was ensuring that it was supported by, and integrated with, Stratford Regional Station, one of London’s busiest transport interchanges. What has been achieved at Stratford City is significant and can in part be attributed to the Transport for London (TfL) Interchange team - responsible for the planning, initial design and business case for the integrated multi-modal interchange at Stratford Regional Station.

TEAM WORK

As early as 2003, TfL Interchange recognised the potential viability issues of this strategically important regeneration scheme and the respective major transport requirements. The complexity and substantial size of the scheme meant that neither the Borough nor the developer had the in-house capabilities or resources to adequately address the challenges and opportunities being presented there.

Ultimately, much of the success of the newly enhanced integrated transport interchange at

Stratford is the result of the strong programme and stakeholder management, as well as TfL Interchange’s commitment to ensure that the multi-modal transport hub would be delivered in harmony with the major development and regeneration in the area. It is this type of leadership, planning and coordination that ultimately allows the organisation to provide efficient, accessible and usable interchanges and spaces, giving customers and local communities a better experience, and in due course contributing to a better quality of life.

A BENEFIT TO THE ECONOMY

The benefits of TfL’s intervention and planning have helped to catalyse regeneration and contributed substantial benefit to the area; as Volterra Consulting stated in their July 2011 report¹ on Westfield Stratford City:

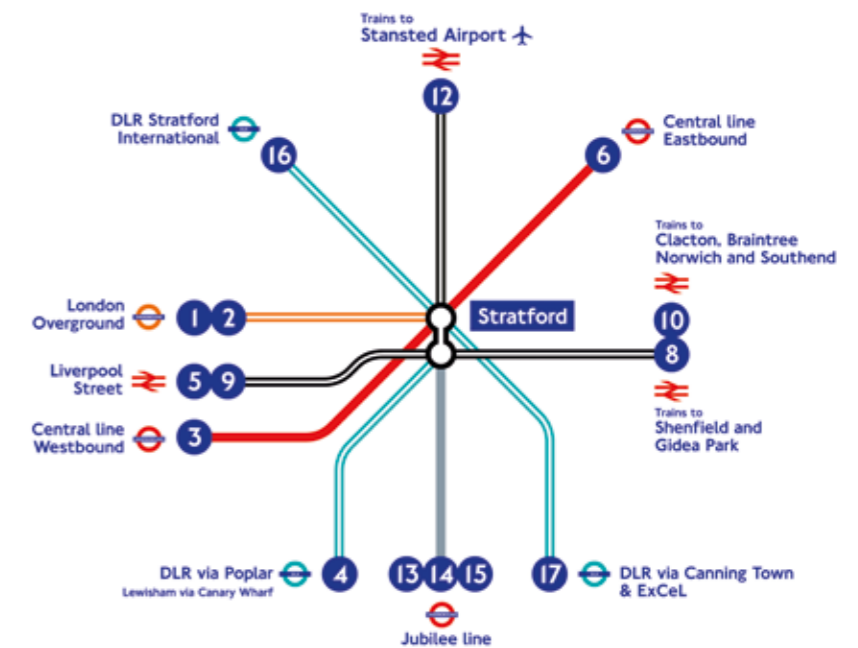
‘The public sector investment in infrastructure underpinning the Olympic Games enabled Westfield to bring forward their development of Stratford City around 5-7 years earlier than would otherwise have occurred... bringing forward the benefits of this significant scheme by 5-7 years is worth £1.1-£2.2 billion to the London economy.’

The success of the newly enhanced integrated transport interchange at Stratford is the result of the strong programme and stakeholder management

The TfL Interchange team brought together and coordinated various stakeholders, promptly commissioning a feasibility study, given that a development planning decision was forthcoming. These stakeholders included Stratford City Development Partnership (a partnership between major developers Stanhope and Chelsfield), London Borough of Newham, Greater London Authority, Network Rail, Transport for London (including London Underground, London Buses, London Rail, Docklands Light Railway, Streets, Public Carriage Office and Land Use Planning) and central government (including Department for Transport, Government Office for London, and Office of the Deputy Prime Minister). TfL Interchange established a Strategic Forum with the full support and commitment of the many key stakeholders. This was an approach employed previously to great effect at Wembley National Stadium, Kings Cross-St Pancras station, and other key interchange developments, whereby the team also successfully facilitated the forum and relationships with many stakeholders and associated issues. The forum was chaired for TfL by advisers to the Mayor of London. Additionally, the establishment of the Stratford Station Programme Board enabled the provision of joint governance of the transport scheme and overall programme management of the developments at Stratford.

DESIGNING FOR GROWTH

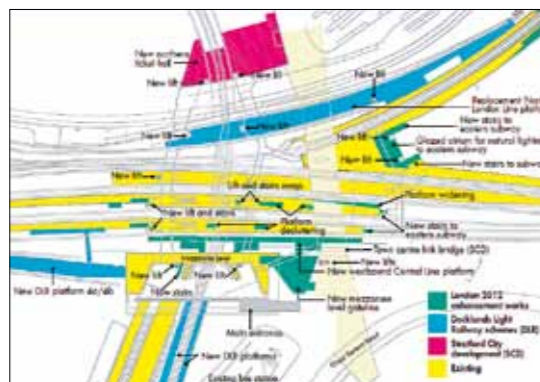
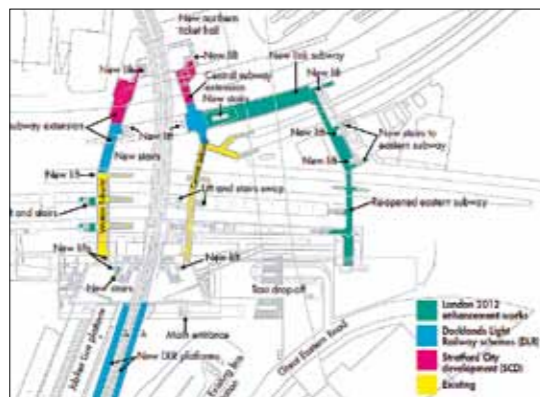
TfL Interchange’s role was to capture the various stakeholders’ requirements, and following tendering, commissioned a feasibility study. It



↑ Olympic Delivery Authority Transport Plan for the London 2012 Olympic and Paralympic Games, Second edition, June 2011

↑ Stratford City and Stratford’s interchange
↖ Stratford’s 17 platforms, creating a major interchange

→ Stratford Station upper level and subway plans showing enhancements to Stratford Regional Station



soon became clear that pre-feasibility assumptions were correct, in that a major investment would be required to develop the Stratford interchange and its many connections, in order to accommodate a growth in demand of approximately 100%. Approximately half of the predicted 100% growth was directly attributable to the Stratford City development, with the other half attributable to background growth. It was initially considered that this doubling of demand would require the prohibitively expensive rebuilding of the entire station, presenting both affordability and value-for-money challenges. However, creative planning and design led to the identification of a cost-effective, incremental interchange development that has since proved to be very efficient in terms of delivering the required benefits whilst minimising construction impacts and costs. This incremental development was then supported by incremental funding from both the developer and other public private sector funding as it became available.

A large number of complementary and smaller measures have helped to bring Stratford Station up to a higher specification

In interests of ensuring value for money, the programme underwent robust value management reviews whilst working in conjunction with the Borough and the Olympic Delivery Authority to secure funding via the section 106 agreement from the Stratford City Development.

It was during the course of the feasibility study that London announced its 2012 Olympic bid, centred on Stratford. This introduced significant complications in terms of additional stakeholders and requirements. However, it ultimately

transpired that the preferred option would satisfy peak Olympics and Paralympics demand, including the provision of full step-free access throughout the interchange. In addition special operational management measures were envisaged to ensure that the interchange would properly accommodate the large number of visitors, including many non-English speakers.

CONVERSIONS AND CONNECTIONS

The scheme works also involved modification of the existing North London Line (NLL) platforms and tracks to accommodate the conversion of the existing NLL to Docklands Light Railway (DLR) use; this permitted the conversion of the existing NLL lines and platforms for the new DLR railway extension - connecting the DLR at Canning Town to high speed international and Kent Fastlink services at Stratford International Station, via Stratford Regional Station. It was established that the DLR extension from Stratford Regional to Stratford International would satisfy the planning obligation on High Speed 1 to provide a 'mechanised link' to connect these two stations. This has been complemented by two pedestrian routes between the station - one through the shopping centre, a distance of some 400m, for those who may want to shop en route, and a shorter route from the Stratford International domestic services eastern ticket hall, for people who want the fastest walking route.

The construction of new terminating platforms for the NLL to the north-east side of Stratford Regional station has permitted the conversion of the existing NLL to DLR services between Royal Docks and Stratford.

A new ticket hall to the north of Stratford Regional Station has been integrated into the new Westfield Shopping Centre, adding value to the development with direct and easy access, and enhanced footfall, whilst reducing the overall transport construction costs. In addition, a new public footbridge over the railway now connects Stratford City to Stratford town centre, fully accessible from Stratford Station. Furthermore, a large number of complementary and smaller measures have helped to bring Stratford Station up to a higher specification, including the DLR service towards Canary Wharf, with new lifts making the station fully accessible, a new integrated bus station and cycle facility and other improvements including integrated signage and wayfinding, stairway improvements and platform decluttering.

This landmark scheme has now been completely delivered, with the final component being the Westfield Shopping Centre with its integrated northern ticket hall, bus station, cycle facilities and pedestrian footbridge, opening in September 2011. This is an excellent example of what can be achieved through proper collaboration and leadership. ●

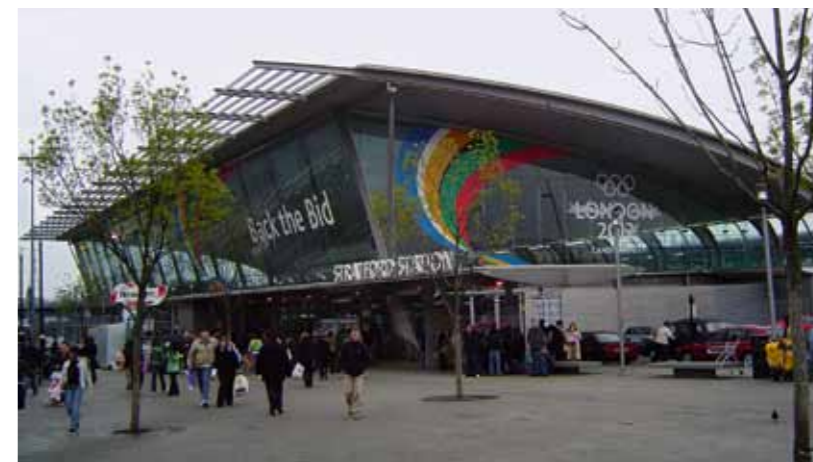
ACHIEVING BETTER INTERCHANGE

Peter Hall and Christopher Martin sum up interchange design issues

The major lesson that emerges from these contributions is that an interchange needs to be much more than an interchange. True, it must perform its basic function of transferring passengers speedily, efficiently and comfortably from one transport mode to another - and it must do so with the basic consideration that many of these passengers - parents with small children, travellers encumbered by heavy baggage, the older travellers who form a fast-increasing proportion of travellers in Europe, Japan and some other advanced economies - have special mobility problems and needs. It can be done, and even done brilliantly, as some best-practice examples in the preceding pages illustrate. It can and has been done exceedingly badly, as demonstrated by some of the negative examples in these contributions, happily now being remedied. But, as shown by the report that Chris Green and I wrote in 2009 for the then Secretary of State for Transport in England, there are very many interchanges where much still remains to be put right.

That said, the best of these interchanges show that they can do much more than merely move passengers. Located in the right urban locations, planned intelligently in close coordination with city planning offices and regeneration agencies, they can serve as major agents of revival for urban areas that are in need of economic transformation. Two spectacular examples demonstrate this brilliantly: the new Amsterdam Bijlmer Arena station, located on the east side of Amsterdam adjacent to a large housing estate with social problems, now being transformed by the new arena and by large-scale back office development, and London's new Stratford interchange, embodying the existing domestic station served by rail, underground, light rail and local buses, and the new international station which carries commuters from the Kent coast and will eventually also be served by international trains to mainland Europe. Here the new complex, connected through one of Europe's largest shopping centres which opened in September 2011, will similarly serve as the centre of a multi-use regeneration scheme for one of London's most deprived areas, including several sports arenas built for the 2012 Olympics which will then be converted to permanent use, as well as five large new housing developments (the first based on the Olympic village) and major back office development.

Not every city can aspire to regeneration on such a mega scale as these two examples. But, in many cities around the world, an existing interchange can be spectacularly enhanced by injecting new transport links, whether a new metro line or a new stopping point on inter-city and international services. This is a model illustrated long ago by examples like Shin Osaka on the original Japanese Shinkansen line, or Flemingsberg in Stockholm. It can and should be followed by cities across the world. ●



● Sir Peter Hall, Professor of Planning and Regeneration, The Bartlett School of Architecture and Planning, University College London
Christopher Martin, Urban Designer at Urban Initiatives and PhD Researcher at UCL

↑ Stratford Station
↑↑ Amsterdam Bijlmer Arena station platforms