**REGENERATION THROUGH BETTER INTERCHANGE - STRATFORD CASE STUDY**

Kate Pasquale and John McNulty describe a complex collaboration success

BACKGROUND

Visit Stratford today and it is unrecognisable from the industrial ramshackle and council estate dominance of the 1980s. This once unfrequented part of the east end of London is seeing rapid and enthusiastic change, brought on by the excitement of the London 2012 Olympics, as well as a host of regeneration initiatives and transport investment. As would be expected, this transformation was not an overnight inspiration, but a series of well planned, project managed and negotiated initiatives, with tremendous collaboration, support and commitment from key stakeholders, both public and private sector.

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 development 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, cafes, 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 largestparkbuiltinEuropeinthelast150years.’

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 report’ 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 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 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.

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.

Olympic Delivery Authority Transport Plan tor the London 2012 Olympic and Poralympic Gomes, Second edition, June 2011

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

**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 passenger 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.

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**EMBEDDING SUSTAINABILITY AT CITY-SCALE SUZHOU ECO-TOWN**

*John Thompson* & *Partners (jTP) led a team that won an international competition to design a new eco-town next to China's third largest lake*

For this project, JTP collaborated with Gillespies' Glasgow office (Landscape and Urban Design); Colin Buchanan's London and Shanghai offices (Transportation Engineers); Joachim Eble Architektur (Eco-architects) based in Tiibingen, Germany, Professor Yen-YiLi (bioclimatic design and wind modeling) from Taiwan Shute University, and Professor Shuh- Ren Jing (hydrological management and waste water management) from Taiwan Chia-Nan University of Pharmacy and Science.

AIMS

The aim of the masterplan was to create a balanced eco-system to enable long term, sustainable human habitation – environmental, social and economic. The key to achieving this was to develop a bioclimatically designed masterplan that established significant and effective synergies between the different components of landscape, movement, urban design, energy and water systems.

CONCEPT MASTERPLAN

The concept was informed by knowledge gained from the Eco-City project - an EU funded research project that set out to develop a framework for sustainable urban development. JTP and JEA were key team members in the project. The central theme emerging from Eco-City is the need for integration of all aspects of the design and use of our living environment. In our proposal for Suzhou this is reflected in a series of strategies that show how human needs can be met in ways that are In harmony with natural and ecological systems.

THE PROCESS

Six integrated strategies:

1 AGRICULTURE + URBAN LIVING + WATER

The existing land use of the area designated for the Eco-Town is predominantly agricultural. The Eco-Town proposals encourage ‘Agro-Urbanism' - the establishment of a coherent functional inter-relationship beteen the production, distribution and consumption of food. This concept is enshrined in Ebenezer Howard's visionary diagrams of the Garden City, and the Suzhou plan incorporates these ideas by connecting the urban areas to the agricultural land between the Eco-Town and Tai Lake. Water forms a key component of the open space framework and a network of canals will be used for flood control, irrigation, cleansing of eutrophication, and also water transport, enabling farmers to bring their produce to strategically located floating markets in the urban centres.

2 CLIMATE + URBANISM

Agro-Urbanism contributes to the concept of Bio-climatic design, in which agricultural land, recreational green spaces, and tree-lined streets are interwoven within the urban environment. These green spaces and water bodies, being cooler than built-up areas, capture and cool breezes that reduce the 'Urban Heat-Island' effect. This in turn reduces energy consumption and emissions.

The masterplan embraces the traditional Chinese principles of south facing, west-east orientated streets, yet combines this with bio-climatic strategies to ensure the creation of comfortable micro-climates throughout the year. These strategies have been applied at a wide variety of scales, from city to urban block, and are based on a rigorous understanding of the environmental conditions of the local climate.

In summer, the more fractured urban form to the south will allow the southerly breeze to flow along the wind corridors and cool the streets and buildings. Waterways woven throughout the scheme promote passive, downdraught cooling, and tree-lined streets shade southern facades from the summer sun. In winter, the more solid urban form to the north shields the colder winter wind from entering the Eco-town. The southern facades of buildings receive passive solar gain from the low winter sun. By incorporating these bio-climatic principles, the Suzhou Eco-town drastically reduces the amount of energy used for heating in the winter and cooling in the summer.

3 MOVEMENT + ENVIRONMENT + LIFESTYLE

A Slow-Movement strategy, combined with Slow-Life principles is the basis for the approach to movement in and around the site. The strategy, founded on the town's compact and functional layout, encourages the use of healthy, environmentally friendly modes of transport and discourages the use of private cars. Integrated transportation - light rail / trams and buses – combine to serve the Eco-Town and connect it to Suzhou. The overall masterplan is divided into areas of contrasting character and density in order to create a legible series of distinct neighbourhoods each with its own strong identity and connected through the integrated transport system.

4 URBAN STRUCTURE + INTEGRATED RECYCLING + BUILDING COMMUNITY

The urban framework is based around a main town centre surrounded by a series of eight walkable neighbourhoods, each with its own local centre. The centres have been designed to promote a strong sense of community, with shops and services, schools and recycling facilities for local residents. Each recycling centre is part of an 'Eco-station' in which the processing of domestic and agricultural waste is combined in a 'Terra Preta' grey and black water treatment system that produces rich soil for use in agriculture. This soil can be sold as an income generator and also used on site to grow vegetables, also for sale.

LESSONS LEARNED AND CONCLUSIONS

At present, China's overall environmental footprint is relatively low, but peaks highlight growing patterns of unsustainable development in urban areas, such as The Yangtze Delta region where Suzhou is located. As the world's fastest growing economy, there is an urgent need for China to introduce new exemplar sustainable concepts to prevent unsustainable approaches being rolled out for the world's most populous nation. Integrated planning at a city scale combined with bioclimatic design can create a low carbon and energy efficient infrastructure before fabric technologies are even considered for buildings.

Masterplan informed by traditional Suzhou water towns and bio-climatic principles

**GREYFRIARS, GLOUCESTER**

***NEW Masterplanning describe the proposed transformation of the former 'GlosCAT' college site* in *the historic core*** *of the* ***city***

Gloucester 'Heritage' URC (Urban Regeneration Company) has soc listed buildings, with Victorian Docks, the most complete Dominican Friary in England and an ancient Cathedral (site of Henry III's coronation and Harry Potter's education). Even in a city of such historic importance, Greyfriars has a pivotal role.

The site marks the edge of the Roman city, contains Grade I listed buildings, scheduled ancient monuments, a medieval friary and monastic cemetery. It marks the transition between the commercial core and the surrounding residential areas and is an integral part of the visitor and shopper circuit.

HCA bought the Greyfriars site to facilitate GlosCAT's move to a new building in the docks. They chose Linden Homes to deliver an exemplar, modern, city centre, mixed-use scheme.

**HERITAGE-LED REGENERATION**

Our masterplan is informed by the heritage objectives of the Historic Characterisation Study and the regeneration objectives of the URC Framework. The masterplan:

• Reinforces the Roman street pattern

• Supports the main shopping streets

• Enhances Greyfriars Lane ('via Sacra')

• Creates a housing typology to bring families back to the city centre

Delivering these objectives means changing perceptions of city centre living.

In particular it means removing the 'monolithic' college buildings which the characterisation study stated dominate and isolate the site, and creating a finer grain of development in keeping with the historic character of Greyfriars.

**REINFORCE THE ROMAN STREET PATTERN**

The first design principle puts the emphasis firmly on Greyfriars Lane, the Roman wall and the historic Roman street pattern. Offices and apartments will front these streets, shops and cafes can spill out into these areas and pedestrian movement will be concentrated along these routes.

**SUPPORT THE MAIN SHOPPING STREETS**

The scheme is residential-led but focuses commercial uses in key locations to encourage activity and pedestrian flow.

Primary Care Trust and office uses front Brunswick Road. Restaurants and cafes announce arrival in the historic core of the city, at the prominent corner of Brunswick Road and Greyfriars Lane. This helps increase footfall between the important retail areas of Southgate Street, Brunswick Road and the Eastgate shopping centre.

**ENHANCE THE 'VIA SACRA'**

The improvement of Greyfriars Lane (the 'via Sacra') is a cornerstone of the masterplan. Currently it is a wide and unattractive street, flanked by large blank walls and parking areas. It has therefore lost much of its historic character.

HCA has committed considerable investment to relocate services which run under the parking areas. This enables the masterplan to remove the traffic, move the building line, narrow the street and restore an appropriate sense of enclosure. This is recognised as a significant heritage benefit for the city.

New public spaces, of very different character, mark either end of the 'via Sacra'. Library Square is a hard space fronting Brunswick Road and the Grade I listed public library. It is a lively space, allowing the proposed cafe to spill out and encouraging visitors to explore the via Sacra in more detail.

**DESIGN LESSONS**

Securing public acceptance for essential demolition can be difficult, particularly if the only justification provided is financial viability. Although the 1930S college building on Brunswick Road attracted some local support, our design appraisals demonstrated that its retention would undermine the improvements to the via Sacra and the delivery of family housing.

The impact of existing 'monolithic' college buildings and car parking on the 'via Sacra'

A new public space enhances the setting of Greyfriars Friary (Feilden Clegg Bradley Studios Stuoios illustration)