



*The striking glass façade of the building*

## Liverpool South Parkway: A Public Transport Gateway into Liverpool

<b>Contractors:</b>	BAM Construction and BAM Nuttall
<b>Client:</b>	Merseytravel
<b>Designer:</b>	Jefferson Sheard Architects
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<b>Region:</b>	North West
<b>Sector:</b>	Local Authority, Infrastructure
<b>Contract value:</b>	£32m
<b>Project timescales:</b>	May 2005 to January 2007
<b>Themes:</b>	Long-term strategic planning, integrated teams, sustainability

**Liverpool South Parkway - a public transport gateway into Liverpool - was a complex scheme, combining the stations of Allerton and Garston, that successfully managed the objectives of combining major civil and building engineering works within a high quality transport hub.**

The project opened its doors to travellers on 11 June 2006, with final work taking the project up to January 2007. The interchange was client Merseytravel's biggest project, and is designed to link bus and rail services with Liverpool John Lennon Airport.

The major features of the scheme included:

- A single integrated booking office and passenger information and enquiry point for bus, rail and airport journeys
- Incorporated bus station and taxi rank
- High frequency bus shuttle to Liverpool John Lennon Airport
- A 240 space Park-and-Ride car park free to users of the facility
- A secure and safe environment with CCTV and customer information systems
- Secure motor bike and cycle storage
- Fully accessible facility incorporating 32 person lifts.

Restraints to the scheme included working within the parameters of maintaining existing busy local and national rail services on the West Coast Main Line (WCML) and managing the diverse partner objectives of Network Rail, Liverpool City Council and Liverpool

John Lennon Airport (LJLA), whilst meeting the funding stream obligations of the Department for Transport (DfT) and EU grants.

The eco-friendly futuristic interchange has incorporated sustainable elements and a stunning design and supports the wider regeneration of South Liverpool. The project has incorporated multimodal journey modes as a public transport gateway.

Prior to the construction of Liverpool South Parkway, the existing public transport facilities in the area were thought to be sub-standard: the two local rail stations at Garston and Allerton, with bus links from rail to LJLA, were fragmented and mixed with local traffic. Regional links usually required a journey in to Liverpool City Centre and there were limited Park and Ride facilities.

The Liverpool South Parkway interchange has transformed public transport in South Liverpool and it now provides fast and efficient links to Liverpool John Lennon Airport and access to up to 11,000 jobs planned for the area, aiding local regeneration efforts and giving greatly improved bus penetration into the community.



The extensive use of glass floods the public spaces with natural light

### Significant benefits for South Liverpool

The Liverpool South Parkway project involved several key disciplines; civil engineering, rail engineering and construction. As part of the BAM group of companies both BAM Construction Ltd North West and their sister company BAM Nuttall Ltd actively seek to identify opportunities where their combined skills can add value to a capital project – Liverpool South Parkway was such a project.

BAM Nuttall's links with the transportation sector in the North West are strong - their experience in the rail sector in Liverpool stretches back to the construction of the original Mersey rail tunnels.

A strategy was formulated where BAM Construction constructed the complex terminal building and BAM Nuttall took charge of the rail and civil engineering aspects of the project. The result is a significant landmark project which has brought considerable benefits to the communities of South Liverpool.

*"Liverpool South Parkway is a state of the art interchange that is breaking new ground not just nationally but internationally. It is unique, fit for purpose and is pioneering new forms of sustainability in transport infrastructure. We're justifiably proud of what we have achieved at Liverpool South Parkway. We've set a standard which has now been recognised nationally and one we hope that others within the transport industry and elsewhere will emulate."*

Neil Scales, Chief Executive, Merseytravel

### Complex Phasing Strategies

The project was procured through a single stage competitive tender. The contract was based on the ICE conditions. Pre-planning was paramount if the complexities of the scheme were to be understood before work commenced and the construction team worked hard during the tender stage to ensure that the complex phasing strategies, which are imposed when working next and above major rail networks, were understood. Although the contract was let on a traditional basis, BAM Construction worked with the client and its design team to develop several critical and complex aspects of the design. Along with their supply chain, BAM Construction were instrumental in resolving construction details for: -

- The complex roof structure, made of recycled aluminium, which curved and sloped in three directions, a design which Corus acknowledged was almost impossible to achieve
- The Planar glazing that is both curved and tilted on plan
- A complex M&E installation including sophisticated data management systems for the public information screens

The constraints imposed by the site - the adjacency of the West Coast Mainline and the local Merseyrail Garston to Liverpool line, for example - had a significant effect on how the site work was able to progress. Interfaces with civil and rail engineering works had to be carefully planned to coincide with track possessions and the rules of the route.

A good example of how work had to be planned and carried out without a hiccup was where the bridge over the high speed West Coast Mainline was placed in a single lift on Christmas Day, ensuring minimum disruption to the service.

### Sustainability

The new interchange was designed to achieve high levels of environmental sustainability including:

- Rainwater harvesting from a sloping roof designed to save 700,000 litres of mains water per year
- The south facing wall fitted with numerous solar panels estimated to save 1.5 tonnes of CO<sub>2</sub> per annum
- Ground source heat pumps using 18 100 metre deep bore holes. These were more expensive in capital cost terms but it has been estimated that these will save between 30 and 60 per cent on heating costs compared with conventional systems
- The use of timber from sustainable sources
- The use of 2.3 tonnes of recycled aluminium for the roof (as above)
- The use of waste blast furnace slag instead of cement, saving 310 tonnes of Carbon Dioxide (CO<sub>2</sub>) compared to the production of ordinary cement

*"The building has a striking exterior and excellent visibility throughout. The extensive use of glass linking the interior and exterior floods the public spaces with natural light. It is possible to see straight through the building to the sky beyond and also the movement of the people within, creating a strong sense of the building's purpose and also a better perception of openness and security."*

Nick Bogle, Project Architect, Jefferson Sheard

The station was awarded the Green Apple Award in the transport and freight category; was shortlisted for Energy Efficient Project of the Year at the Builder and Engineer Awards, and Project Manager Jim Rooney was 'Highly Commended' in the CIOB Construction Manager of the Year Awards.

The project achieved a 'Very Good' rating in a specially designed BREEAM assessment.

There were also steps taken to assist disabled users of the Parkway. These include easy access doors, colour contrast design features to assist people with low vision, variable height ticket counters, accessible toilets and induction loop systems for people with impaired hearing.

### Meeting the Client's Expectations

The outcomes of most projects can be measured in many ways. The expected project outcomes of the Liverpool South Parkway project and the client were met and in certain cases exceeded:

- The client's need for a modern, sustainable, user friendly transport hub, have been met and some say exceeded. The project opened in line with timetabling requirements and the building has already won an award from within the rail industry for its approach to sustainability and the environment
- Passenger numbers using the interchange have exceeded the most optimistic predictions; public perception of the benefits to the transport network is also high
- The scale and impact of the structure has been likened to the John Lennon Airport terminal building and this was one of the design team's early aspirations
- During the course of the works the targets set for health and safety and environmental Key Performance Indicators were all achieved. The constructor team were particularly proud of their achievement of no lost time accidents throughout the course of the works

### A 'Special' Project

Liverpool South Parkway was a unique project. The client's project brief was extremely ambitious as was the design solution resulting from that brief. This has made the project a special one, due to the following:

- The constraints of the site and the nature of the work were overcome and the teamwork needed to deliver the project was highly developed
- The client was committed to providing a sustainable and environmentally friendly building and had the courage to invest in modern technology and materials to achieve these aims
- Its striking Architecture which, when viewed from all aspects, cannot fail to impress. It has improved the community in which it is set, it has improved the lives of those who use it by improving the local and national public transport system and it has and will continue to improve the local economy
- It has created a new gateway into a city which revitalised itself in readiness for its 2008 City of Culture status

### Key Lessons Learned

Amongst the most important needs of the project were delivery within set timescales, sustainability, user perception, value to the community, the creation of a landmark building and value for money - these aspirations were met by the team and the key lessons that were learnt were as follows:

- Close team integration, particularly in the early phases of the project, had benefits for design development.
- Closer physical links between the parties, via the use of shared office facilities on site, would have helped our teams to integrate even more quickly.

In summary Liverpool South Parkway was an extremely complex project with several key interfaces which had to be managed in minute detail if it was to succeed. The project team believe that the finished building is testament to the efforts made by all of those involved.



Aerial view of Liverpool South Parkway



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