

LIGHT AT THE END OF THE TUNNEL

**Transforming railway viaducts
in central London**



Light at the End of the Tunnel is a far-reaching, multi-million pound masterplan to reduce the severing effect of a network of railway viaducts, which slice through central London south of the River Thames. The Victorian structure, stretching over 10 kilometres from Vauxhall to Bermondsey cuts through some of the most intensely deprived areas of the capital, creating a barrier to growth and development.

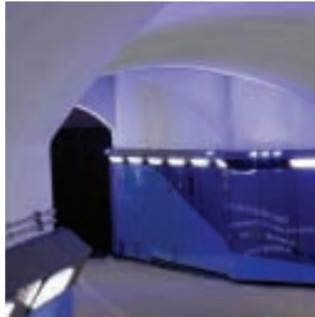
Cross River Partnership formed initially to tackle a major physical and social barrier in London - the River Thames. As the city has developed, the Thames has become a national asset to be celebrated. However, a second barrier exists in the form of a railway viaduct, which hems in the area south of it, making it impenetrable to development. In 2002 CRP began to tackle this new challenge with the launch of 'Light at the End of the Tunnel', which aims to make the viaduct an asset to development in London, rather than a barrier.

Light at the End of the Tunnel is a unique solution to a unique problem, which has only been possible due to the commitment of a number of parties (listed below). It considers the viaduct as a whole, transforming the environment from intimidating spaces into bright, safe passageways and innovatively renovated arches. Opening up the tunnels and the areas surrounding them for residents, businesses and tourists results in enhanced access to transport, better public safety and greater enjoyment of local amenities. This in turn is unleashing the inward investment potential of the area.

This brochure is a celebration of Light at the End of the Tunnel's achievements to date, from extensive refurbishments to the development of new components unique to the programme. Not only this, but it is an exciting look forward at the future of the programme, its expansion, new features and ultimate completion.



Vauxhall Cross Interchange
Stunning refurbishments of pedestrian tunnels at Vauxhall Cross Interchange



Facelift for Vauxhall tunnels

Vauxhall Cross Interchange is the gateway into London for tens of thousands of people every day. Two pedestrian tunnels link the local community and businesses south of the viaduct, in Vauxhall, Kennington and beyond, with the transport links of Vauxhall Cross Interchange, including bus, rail, underground services and the amenities of the river.

Prior to refurbishment, the tunnels were dark, dirty and forbidding. As such they limited public access to transport services, preventing them from switching between transport modes, continuing journeys on foot or walking in the area.

Now that the foot tunnels have been restored, access to the interchange has been opened up, and perceptions of personal safety have increased. The transformation is dramatic; the tunnels now feature stunning blue and white lighting, and graffiti-proof, brightly coloured artwork panels designed by local community groups line both sets of walls.

The artwork draws on Vauxhall's rich heritage and reminds people that Vauxhall Pleasure Gardens, which for more than 200 years drew crowds to enjoy their fountains, paths, arbours, fireworks and concerts, are adjacent to the site of the new interchange.



Tanner Street
Dark and intimidating prior to refurbishment



Tanner Street

At Tanner Street in Southwark, the tunnel under the railway bridge was in very poor condition. The footway was uneven, graffiti covered the walls, lighting was poor and there were a number of broken and illegal signs.

Tanner Street is used by an estimated 216,000 people per year. Considering this, the poor quality of the tunnel and its proximity to recent work at Gedling Place, Shand Street and Barnham Street meant that it was overdue for renovation.

The changes were spectacular. The innovative lighting design creates a wall of light in the tunnel and provides a striking crimson wash of light over the parapet, making the link through the viaduct highly visible. This has enhanced both the aesthetic quality and the safety of the route. Also to improve safety, the dark corners and crevices have been removed, a new clearly laid-out footpath and road surface have been added, and the graffiti and broken signs have been removed.

Southwark Council hopes that the improvements will encourage greater use of the route, which will in turn deter vandalism and graffiti, keeping it clean and safe for the long term.

The Tanner Street improvements form part of the Community Investment Programme in north Southwark. The entire programme budget is in excess of £30m. This project is managed by Southwark Council and funded by More London Development and Pool of London Partnership."

Tanner Street
Purple wash of light after refurbishment

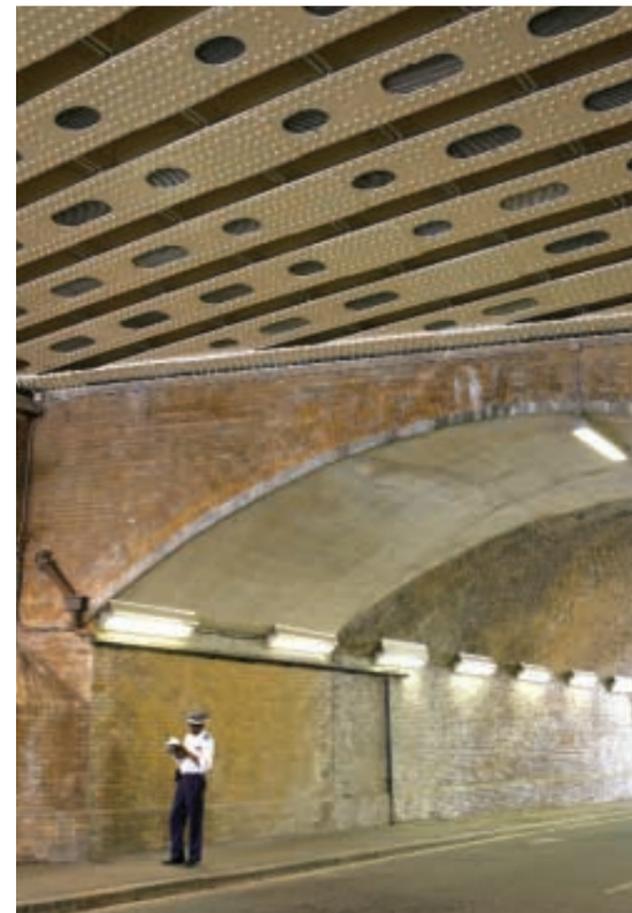


Centaur Street

Centaur Street is a major route linking social housing with public open space at Archbishop's Park, as well as providing access for staff at St Thomas Hospital to Lambeth North tube station, local and tourist access to the river itself, and job opportunities to the north of the river.

However, due to the poor quality of the tunnel, using this route had become an intimidating prospect. Peeling paint, dirty walls and poor footways created an unsavoury environment for pedestrians.

Renovation has now changed the feel of the tunnels completely. Extensive cleaning, high quality paintwork and new lighting has brightened up the tunnels and created a much-improved environment. A brand new pigeon-proofing system has made a particularly dramatic difference to the surroundings. A recent survey undertaken by CRP demonstrated that most users felt that there had been an improvement.



Top: Centaur Street
Restored bridge at Centaur Street

Left: Centaur Street
New bright and clean interior of Centaur Street

Right: Centaur Street
Dark and unsavoury tunnel in poor condition before refurbishment

Creative Business Space

In the Light at the End of the Tunnel project area alone there are almost 1,000 railway arches, amounting to more than 250,000 square metres of space. CRP estimates that if each of these arches were occupied by a business, it would create a new business corridor for central London, capable of accommodating 12,000 jobs. Through improving access to employment, Light at the End of the Tunnel is helping to address issues of social exclusion and poverty in Central London. Thus the worlds of transport, land use and economic development are uniquely combined in one programme.

Wootton Street and Joan Street

Transforming the viaduct poses one of regenerations greatest challenges. However, this has taken a major step forward with the opening of a number of business units at Wootton Street and Joan Street, in a strategic location near Waterloo Station. Eighteen such units were built into arches at Wootton Street, creating a much improved environment. By renovating adjacent land and nearby road and pedestrian tunnels, businesses were further encouraged to move in. This is already visible and a creative hub is emerging, with architectural practices and creative businesses snapping up the unique business spaces. A buzzing quarter of vibrant bars and cafés has been established in six newly refurbished arches in Joan Street, and breathed new life into the area.

Spacia, the property arm of Network Rail, carried out the restoration with funding from CRP. Wootton Street comprises a 60,000 sq ft railway arch office and leisure development scheme, which has attracted wide interest from the capital's small business community.

Ian Campbell, Director, Spacia, said: **'The Wootton Street development has been a huge success with London's small businesses by providing high quality, innovative commercial premises in a strategic location. Spacia's annual research highlights the under-supply of suitable business space for SME's with some 47 per cent nationally saying they have experienced problems finding premises. This rises to 52 per cent among small businesses in London. High-class developments like Wootton Street certainly go some way to addressing this property shortfall. However, as the engine of growth for the capital, it is important that we cater for small business requirements, and do more to meet this growing demand.'**



Wootton Street
Disused and rundown street before refurbishment

New Office Space
Transformation of Wootton Street after refurbishment

Joan Street
Restaurants and bars in new vibrant quarter of Waterloo

CRP's international architectural ideas competition invited practices from around the globe to look afresh at the viaduct, consider it as a single structure, and develop designs to help transform it from a barrier to an asset. The first of its kind, the competition has set a standard for others as a format for generating ideas, publicity and potential funding.

CRP devised the competition in conjunction with Spacia and the Royal Institute of British Architects (RIBA) with the objective of demonstrating the huge potential of the structure to developers and investors, as well as speeding up the process of restoration.

A great deal of interest was generated by the competition. Entries from 53 practices across six different countries tackled the challenge of creating design ideas that considered the whole viaduct and were capable of being used at any location. Designs had to be consistent with Network Rail design parameters and heritage considerations, and provide spaces that were compatible with the aspirations of the surrounding area as well as the current and projected use of the arches.

While the sky was the limit for creativity, the ideas needed to be grounded in practicality and capable of being developed, given the viaduct's primary function of transporting trains into some of the busiest stations in Europe. The figures also had to add up – practices needed to demonstrate it would be financially viable to take forward their designs.

Winners were presented with awards at an exciting VIP reception, held in one of the refurbished arches at Wootton Street near Waterloo.

Winning entries were as follows:

1st Prize - The Facility - A linear pedestrian park, GlowGrowGrass(3G) Park, connecting neighbourhoods and providing an intriguing and unique leisure resource.

2nd Prize – FXV - An elegant and flexible proposal using the latest technology to allow a series of components to float within the existing tunnels.

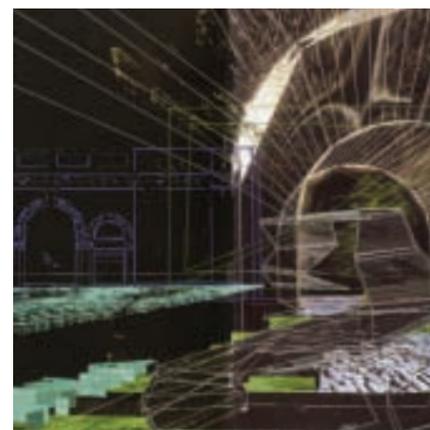
Joint 3rd Prize – Carey Niemen Architects - A new concept called Sparc unites the two sides of the viaduct and creates striking buildings for commercial use in order to nurture a creative cluster in the heart of London.

Joint 3rd Prize – Lewis and Hickey - This explores prefabrication to create space, reducing the dissecting effect of the viaducts by providing a visual connection between the two sides.

Michele Ragozzino, from one of the short-listed practices, sums up the concept of Light at the End of the Tunnel superbly:

'The heroic awkwardness of the viaducts makes them such an interesting proposition that simply responding with a gross lettable area will not do justice to their historical value, or feeling of being in their depth.'

Regeneration is based on the understanding that bridging the apparent divide across the viaducts can take place only once they are occupied and believable city space. Then regeneration can occur without displacing all that is tunnel-like about them.'



1st Prize
The Facility

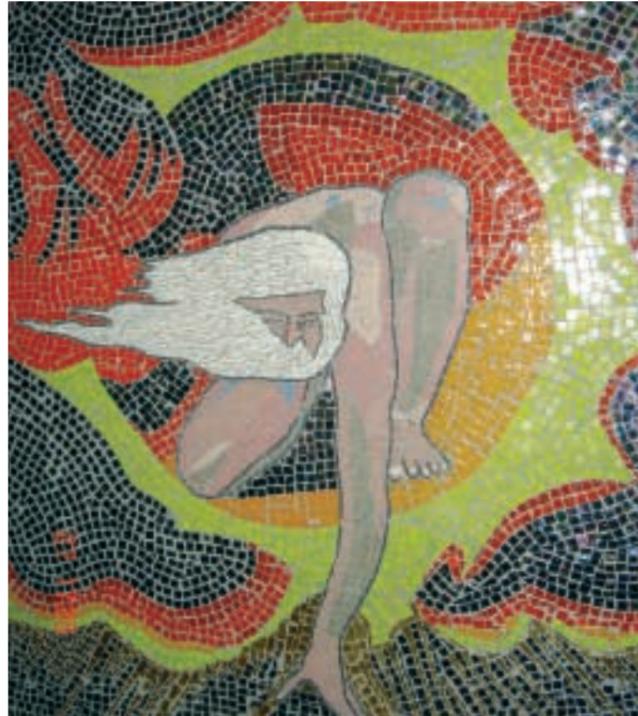
2nd Prize
FXV



Joint 3rd Prize
Carey Niemen Architects

Joint 3rd Prize
Lewis & Hickey





Top: Blake Mosaics
Ancient of Days – taken from Blake’s 18th century drawing, one of a series of pieces made by South Bank Mosaics for the Carlisle Lane tunnel

Bottom: Hercules Road Arches
New business space following arch refurbishments

Carlisle Lane

Carlisle Lane tunnel acts as a way through from Hercules Road to Archbishops Park for local residents. It is set to become even busier with the arrival of a clutch of new businesses in the adjacent arches, recently refurbished by Spacia. Light at the End of the Tunnel strives to involve the local community wherever possible, and considering the difference this project will make to local residents, there has never been a more appropriate time to involve them.

David Toothill is a local Waterloo resident and teacher, with a passion for William Blake. He has brought together local teenagers to work on this project with his fledgling company, South Bank Mosaics. Together, for the past three months they have been making a series of mosaics based on Blake’s epic poem cycle, *Innocence & Experience*. When finished, the mosaics will be permanently displayed in the newly refurbished railway tunnel at Carlisle Lane, Waterloo.

David’s great enthusiasm for the project is clear. He says:

“Not many people know that Blake used to live here in Waterloo on Hercules Road in late 18th century. Scholars are fairly sure he must have written the Innocence and Experience poems while he was there, so the Carlisle Lane tunnel is an ideal site for these artworks.”

Spacia are confident that the newly developed adjacent arch spaces will fill up quickly, aided by the refurbishments at Carlisle Lane and Centaur Street. Before the refurbishments, the whole site was in very poor condition and the area didn’t generate a lot of employment. Now, these new light-industrial units are attracting a wide range of businesses likely to employ a lot more people than before.

The project brings together funding from Transport for London via CRP’s Borough Spending Plan (BSP), London Development Agency Single Regeneration Budget (SRB) via the Waterloo Project Board and Waterloo Community Regeneration Trust, and Network Rail who will be funding pigeon proofing measures.

Dedicated youth space for Whites Grounds

A project to create a space dedicated to local young people is another superb example of how Light at the End of the Tunnel is involving the local community. In March 2005, DIVE architects began a consultation process with local people about how they would like to see this railway tunnel at Whites Grounds, used in the future. The scheme led by Southwark Council will be funded by Pool of London Partnership’s SRB6 programme, More London, and Southwark Council’s Cleaner Greener Safer funding.

The ideas that this generated have started to gain ground as a blueprint for dedicated youth space. Ia Hjärre from DIVE was particularly pleased with the ideas local schools generated in workshops, organised as part of the consultation, he said: **“We were amazed at the energy and creativity local kids have for this project. The obvious preference is for a ball/skate facility, and we will now work with their design ideas, and the comments of the local parental population, to design a space which will be popular without opportunity for abuse.”**

Cllr Nick Stanton, Leader of Southwark Council (one of the project partners together with the Pool of London Partnership and More London) is supporting the scheme, he remarked: **“Holding a consultation event in a railway arch was very innovative, and created both an excellent turnout and high levels of support from the local community for a play space scheme.”** Dan Taylor, the Project Manager from Southwark Council is in charge of bringing the project into life: **“We are excited to be moving the designs onto the next stage. Detailed plans are being prepared and we are looking forward to going on site with the final project.”**



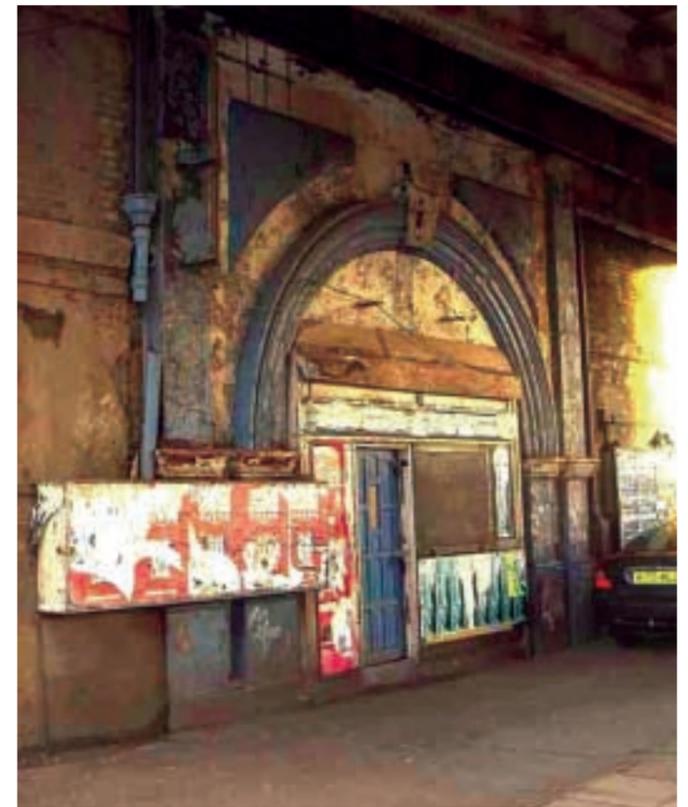
Whites Grounds
Artists impression of the a new youth space at Whites Grounds

Blackfriars Road

The challenges presented by working with a classic Victorian structure are what make Light at the End of the Tunnel such a fascinating project. The old dilapidated ticket hall set into the wall of the viaduct on Blackfriars Road is one of many intriguing original features, which require care and attention to detail.

The refurbishment of the exterior of the ticket hall, in conjunction with Railway Heritage Trust, and renovation of the bridge itself will form part of a scheme that will see improvements to a group of tunnels at Gambia Street, Blackfriars and Hatfields. This work will be complemented by restoration of the interior of the ticket hall undertaken by Spacia, which will mean that the space can be brought into commercial use. Working with Spacia and Railway Heritage Trust, refurbishment of the interior and exterior will make the space much more attractive to businesses.

The scheme, led by Southwark Council’s Alistair Huggett, will be funded through BSP, SRB 6 planning gain contribution, and the Railway Heritage Trust.



Blackfriars Road
Old ticket hall awaiting restoration

Breaking the Boundaries

As a classic Victorian structure, the 19th century viaduct poses a number of unique problems, and the isolation it causes creates distinctive issues. As Light at the End of the Tunnel has developed so have new and original solutions. High quality work is achieved through extensive, detailed research on the nature of the structure, the issues it generates and the available solutions including a pilot project, audit and report (January 2004) and studies of international best practice.

First-rate solutions are continually sought. Extensive work has been put into developing superior alternatives where existing methods are ineffective. When available resources are not of sufficient quality, designers are engaged to devise innovative bespoke designs to fit the purpose. A lot has been done to rationalise and improve engineering design.

Pigeon Proofing

A common problem with railway viaducts is that pigeons nest in the roof. This is messy, unhygienic and creates an unpleasant environment for pedestrians as well as damaging paintwork. Past work has found that often-used netting is an ineffective solution to the problem; the netting becomes damaged, trapping pigeons and litter.

Keen to find a better alternative, the Light at the End of the Tunnel team have been working with Environment Hygiene Services and Network Rail to develop a pigeon-proofing system for the iron overbridges used on much of the viaduct. The new system, known as Glide, is stronger and much more effective at keeping out pigeons. It also increases the life of the refurbishments by protecting the high quality finishes of the new paintwork. The system will be installed on a number of bridges in the Light at the End of the Tunnel scheme.

Lighting and Wastewater Management

Lighting is crucial in increasing pedestrian perceptions of personal safety and in decreasing levels of crime, factors which in turn lessen the barrier effect of the viaduct. The Light at the End of the Tunnel team has sought a high quality solution in the form of a new luminaire. Individually designed and making use of the latest in LED technologies, this has been future-proofed to allow for further developments. This ensures that results are not only outstanding but also sustainable.

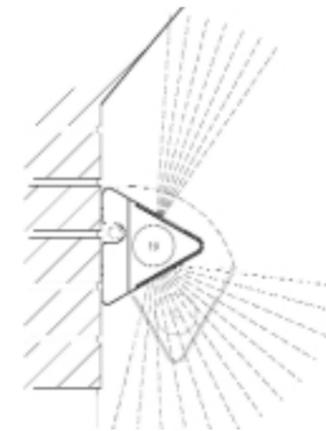
Waste water can be a problem in tunnels, and guttering used to carry it away can pose its own challenges. Both guttering and lighting provide a place for pigeons to sit, again creating an unpleasant environment. As part of this programme, specialist guttering has now been designed to prevent pigeons roosting and this feature has also been designed into the new luminaire.

Prototypes of both new technologies will shortly be ready to go into tunnels in Southwark and Lambeth.

Framework Contract

An innovative Procurement Framework has been created, which ensures quality and maximum flexibility for Light at the End of the Tunnel, and allows deployment of resources in the most efficient combination. A tender process taken through OJEC procedures appointed the most qualified and experienced engineers and construction companies. The overarching project can carry 'reserve' projects to ensure the maximum number of tunnel refurbishments possible.

Lambeth Council have entered into a three-year framework contract with four professional services companies and four contractors to carry out works on viaduct tunnels and their surrounding areas. Benefits of this kind of framework include confirmed schedules of rates, long-term partnering and joint learning, and having a choice of well-informed companies who are familiar enough with the scheme to award work to.



Previous solution
Net pigeon proofing

Guttering
Artist's impression of new guttering

Top: Luminaire
Light at the End of the Tunnel luminaire

Above: Luminaire design
Light at the End of the Tunnel luminaire design

Right: Unpleasant environment
The result of pigeons sitting on oldstyle lighting

Funding

In 2000 CRP successfully bid for funds from Round 6 of the Government's Single Regeneration Budget programme to build on an extensive regeneration programme already being delivered through funding sources including rounds 1, 2, 3, and 5 of SRB. This bid focused on transport and access in London. The overarching objectives were to:

- Improve transport and access for all, creating the conditions for an expanded, integrated and accessible heart of London.
- Maximise the benefits of investment and regeneration activity.
- Actively encourage previously excluded communities in shaping vision and strategy for the area.

It was with the aim of achieving these objectives that the Light at the End of the Tunnel programme was devised. The final report and implementation programme was launched in January 2004, with initial funding from Transport for London and SRB 6.

Light at the End of the Tunnel has continued CRP's proven track record of development and delivery. It has been able to use initial SRB and BSP funding (which each make up a small proportion of the total budget) to lever-in new funding from a wide range of sources across both public and private sectors in increasing amounts over the lifetime of the project. This has put the partnership in the advantageous position of being able to further expand the Light at the End of the Tunnel programme. With continued commitment and funding, the completion of the scheme is well within reach inside the next four years.

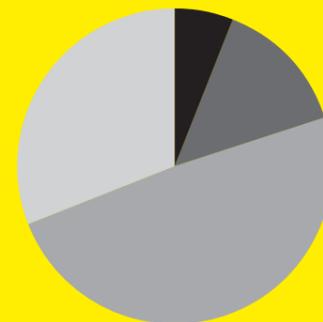
Measuring the value of an improved environment

In the past year CRP has made considerable advances in monitoring Light at the End of the Tunnel. Initial monitoring techniques involved repeating past counts of pedestrians, including tourists, and comparing them with baseline figures set out in the final report. While use of this method continues, CRP has now incorporated attitudinal surveys to add a qualitative measure of regular users. To get a more complete picture of the value people attach to the improvements, the team are working with Transport for London and other experts in the field to investigate new ways of measuring this value. A simple Cost/Benefit ratio has been applied to major infrastructure projects in order to measure their value, and CRP are looking at a number of methods which will apply similar processes to assess the quality of the pedestrian environment. It is hoped that such systems will aid the project monitoring process and help draw-in future sources of funding.

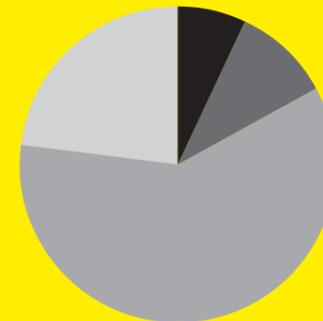
Pie charts showing breakdown of funding
Demonstrating an increasing ability to draw in new funding sources over project lifetime



Funding Sources up to 2005



Funding Sources 2005/06



Funding Sources Lifetime

Future

In the past year, Light at the End of the Tunnel has made great advances. The project has widened to create whole area-based schemes. This concept begins with the renovation of tunnels and arches, and expands to incorporate wider environmental improvements to the surrounding public realm, parkland and streetscape.

This results in area-based sub-projects of which the Black Prince Road and Salamanca Street area scheme (BRASS) is a key example. This combines existing greening initiatives with the Light at the End of the Tunnel programme, and brings together a range of borough departments including Transport and Highways, Environment and Parks. This results in the ability to undertake a wide range of initiatives including environmental improvements to tunnels, pedestrian environments and roads, pedestrian safety initiatives, new pedestrian crossings, and other improvements to parks and open spaces.

This amalgamation has given Light at the End of the Tunnel the opportunity not only to join-up expertise, but also to pool resources such as planning gain from Section 106 agreements. Creating area wide schemes also has the effect of increasing the value of the work already undertaken to renovate the tunnels and arch spaces.

Southwark are planning equally ambitious area based programmes including the Gambia Street bridges project. This scheme incorporates the refurbishment of four bridges lying immediately to the south of Southwark Street and north of Union Street. The bridges, (Gambia, Treveris, Dolben and Burrell Streets) all have different requirements. The scheme will draw extensively on experience gained from previous projects to ensure the highest quality result. Brickwork and tiles will be repaired and cleaned of graffiti, and new graffiti proof measures implemented, along with new lighting to improve safety. These improvements will complement the superb improvements to the public realm undertaken recently in the area.

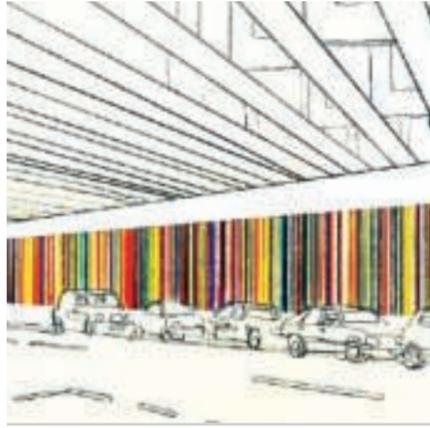
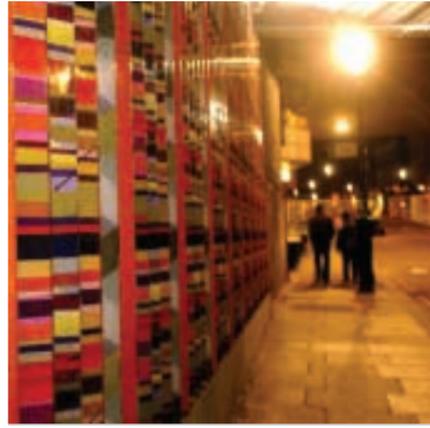
To aid the development of area-based Light at the End of the Tunnel programmes, CRP has begun an audit of the land adjacent to the viaduct. This will identify where work needs to be done and will pick up any derelict land that has moved off the public realm radar. This will allow project teams to deal with land that may potentially disfigure a refurbishment scheme because ownership has not been properly pinned down.

Top: Poor quality footpath
Footpath due to be improved as part of the BRASS area scheme

Middle: Open Space
Park due for environmental improvements as part of the BRASS area scheme

Bottom pair: Gambia Street
Newly improved public realm adjacent to Gambia Street





1st row
Examples of best practice in Berlin

2nd row
New commercial uses of arch space at Bank End, Southwark

3rd row
Exciting new artwork at Portobello Road (left and middle) and Southwark Street (right)

4th Row
Inventive commercial uses of arch space in Chiswick

Potential and Best Practice

Best Practice

CRP is keen to draw on examples of innovation and best practice in tunnel renovation. As such we have devoted time to researching international examples of best practice, through desktop research and site visits. Our investigations have found a range of innovative restoration techniques, uses for arch spaces, and approaches to adjacent public realm improvements.

Berlin

The City of Berlin has undertaken an extensive programme of viaduct refurbishment. In part, this has been brought about by German reunification, where the railway lines in former East Berlin and East Germany were modernised and electrified following unification of the country.

The viaducts in Berlin have many similarities and comparisons with London – for example they were built in the 19th century, and like London the railways were radial in nature, stopping at separate terminal stations. The pedestrian environment is perhaps the most important aspect of the Berlin viaduct refurbishment, which has been made in parallel to the adjacent pavements and streets. Pavements have been upgraded to a high standard, with new paving slabs and stone setts in a simple repetitive design, often with new tree planting and tree guards. Many of the roads adjacent to the viaduct have been pedestrianised, as have many of the tunnels through the viaduct. The brickwork within the tunnels has been cleaned and repaired to a very high standard, and a simple but effective lighting system installed.

Advancing Artwork in London

London boasts superb illustrations of originality in artwork within viaducts.

Portobello Road is one of London's top 10 tourist attractions and home to the world's largest antiques market. Yet the area north of the bridge is in the top 10% of Britain's most disadvantaged areas. Using bold large-scale art, new lighting and measures to banish pigeons, what was once a dark and threatening railway bridge has been turned into a bright, welcoming space, encouraging neighbourhood renewal and lessening the barrier that the bridge creates. Funky and attractive artwork with prints has been used on the parapet, and cladding used on the walls. The cladding is corrugated and coated in a polymer similar to that used in police riot shields to deter fly-posting and graffiti.

Similarly, Southwark Council is working with experts in Germany to produce a bright and exciting artwork installation to line the once dingy road tunnel at Southwark Street. Advanced techniques and a unique maintenance regime in partnership with Better Bankside will ensure the new artwork is both durable and graffiti-proof as well as stunning to look at.

Commercial Potential and Inventive Uses

London is a fantastic place to see examples of the potential of the viaduct for commercial use.

In Southwark's Bank End, a prime location for commercial development had been disused space for years. Now, once run-down viaducts are smart-looking leisure spaces, flooding light into the huge space through vast glass windows.

Accommodating popular restaurants, the arches are now a draw to the many tourists walking through the popular Bankside area of the borough.

The use of arch spaces as a swimming pool and diving centre by Ocean Leisure in Chiswick is a great example of innovation. The brand new centre is right next to Stamford Brook Underground station in Chiswick. The state-of-the-art complex includes a spectacular stainless steel swimming pool, room to store training equipment, classrooms and a fully equipped dive shop. This business found that having everything on site meant greater convenience for themselves and their customers.

Did you know...

Charlie Chaplin allegedly attended a Ragged School that operated out of a railway arch at Newport Street in Vauxhall. What is now Beaconsfield Art Gallery was originally built next to the viaduct to accommodate the growing number of pupils.

Carlisle Lane is so called because Carlisle House used to stand on the site as the home of the Bishop of Carlisle. The house was destroyed to make way for the viaduct.

The viaduct from London Bridge to Greenwich was the first railway built in London in 1836, making it pre-Victorian.

For more information or to request further copies of this brochure, please contact crossriver@lambeth.gov.uk or 020 7926 1132.

Halfway there and counting...

The Masterplan for Light at the End of the Tunnel set a seemingly overwhelming challenge for its partners, to refurbish at least 88 tunnels from Vauxhall to Bermondsey. This challenge was one met with enthusiasm by the partners and now thanks to their commitment, only three years since the idea was launched in 2002, over half the work has been completed. This enthusiasm and commitment has not waned, the programme is moving at a faster pace than ever before and is looking forward to the new challenges of an expanded programme and its ultimate completion.

Results are already visible on the ground and wide ranging regeneration projects to revitalise these areas have transformed once derelict arches into unique commercial units, laying the foundations for a new business corridor for London.

Dark and forbidding tunnels
are now light, bright walkways.

