

Committees:	Dates:
Streets and Walkways Sub-Committee Projects Sub	25 July 2016 20 July 2016
Subject: Gateway 7 Outcome Report: Holborn Circus Area Enhancement	Public
Report of: Director of the Built Environment	For Decision

Summary

Project Status – Green
Approved Budget - £3.2M
Final Cost - £2.9M

Summary

For many years Holborn Circus had been one of the most dangerous junctions in the City of London. The Holborn Circus Area Enhancement project was a safety-led scheme, which aimed to significantly reduce accident occurrence at the junction. It also aimed to significantly improve facilities for pedestrians at the junction. In both regards, the project has been highly successful. Accidents overall have reduced by 50%, with accidents involving cyclists having reduced by 91%. The scheme has now received awards for safety, public space improvement and for statue conservation.

Regarding delivery of the scheme, the scheme was delivered on time and within budget.

Recommendations

It is recommended that:

1. The final cost of the project is noted.
2. The lessons learnt are noted and the project closed.

Main Report

1. Brief description of project	<p>For many years Holborn Circus had been one of the most dangerous junctions in the City of London. The principal aim of the Holborn Circus Area Enhancement project was to reduce the number and severity of accidents at the junction.</p> <p>However, the junction had other significant shortcomings. Of the six arms of the junction, only one arm had formal pedestrian crossing facilities; on all of the other arms, pedestrians had to cross during gaps in the traffic, or when vehicles were held at red signal stages.</p> <p>A major feature of the junction was the Grade 2 Listed Prince Consort statue that formed a central point in the junction. The 140 year old statue had, over the years, steadily deteriorated in condition. Its inaccessible location made it difficult to maintain properly. Its central position in the junction</p>
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contributed towards the high accident rate, as it obscured sightlines across the junction.

Over a number of years, a design emerged which addressed the problems at the junction. The main features of the design are:

- Hatton Garden converted to one-way working (at its southern end only);
- St Andrew Street redirected from the junction onto New Fetter Lane;
- Creation of a new public space adjacent to St Andrews Church;
- Restoration and relocation of the Grade 2 Listed Prince Albert Statue;
- New pedestrian facilities on 4 arms of the junction, and a courtesy crossing at the southern end of Hatton Garden;
- Significant realignment of the junction to reduce weaving movements;
- Extra-deep Advanced Stop Line Reservoirs; and
- All footways replaced with York stone paving.

2. Assessment of project against success criteria

A series of success criteria had been set out for the scheme. These criteria are listed below, with commentary on how the scheme performed against each of the criteria.

i. Reduce accident rates

The scheme has been extremely successful in this regard. The most up to date accident information that we have been able to source from Transport for London covers the 17 month period following scheme opening (April '14 to September '15). For comparison, we have analysed the 17 month period prior to construction (January '12 to July '13).

The table below illustrates the overall accident statistics for the 17 month period before and after the scheme construction period.

	17 Months Before	17 Months After	Reduction
Fatal	0	0	
Serious	3	0	
Slight	13	8	
Total	16	8	50%

As can be seen, accidents overall have reduced by 50%, with serious accidents being eradicated completely.

We have undertaken a further analysis of the impact of the scheme upon accidents involving vulnerable users (cyclists

and pedestrians). The following table summarises that analysis.

	17 Months Before	17 Months After	Reduction
Pedestrians	2	2	0%
Cyclists	11	1	91%
Total	13	3	77%

As can be seen, the scheme has resulted in a dramatic reduction in accidents involving cyclists.

Pedestrian accidents remain unchanged, possibly because it would be difficult to reduce pedestrian accidents when starting from such a low base. However, we believe that the significant improvement of pedestrian facilities at the junction will ensure that as pedestrian flows through the junction increase in future, any increase in pedestrian accidents should be minimal.

Accidents involving cars have also reduced: from 8 accidents in the pre-construction period to 3 accidents post-construction, a reduction of 62%.

In recognition of the success of the scheme with regards to accident reduction, the scheme received the 2015 Highways Magazine Award for Best Safety Scheme of the year. The scheme has also received Commendations at the London Transport Awards and at the Chartered Institute of Highways and Transportation Awards, also in the Safety categories.

ii. Improved road safety and ease of movement for all modes of transport, particularly for the more vulnerable road user

As explained above, safety has been demonstrably improved at the junction.

The junction alignment has been significantly altered. The junction is much reduced in size, making it much easier to traverse for all users. Kerblines either side of the junction have been realigned to bring them into line with one another, meaning that less weaving movement takes place. Both of the above are extremely beneficial to cyclists in particular.

Ease of movement for pedestrians has been achieved by providing new pedestrian facilities on 5 arms of the junction.

iii. Improved sight-lines at the junction

The Grade 2 Listed Prince Consort statue has been moved from the centre of the junction and no longer blocks visibility across the junction.

In addition, the junction has been made physically smaller,

and the number of arms entering the junction reduced. All of these factors combine towards making the junction more legible for all users, as they are better able to predict what other junction users are going to do.

iv. Reduction in traffic congestion and journey times

We have reviewed the results of surveys undertaken at the junction in 2011 and 2015. These surveys specifically measured changes in queue lengths at the junction before and after scheme construction.

Overall, both average and maximum queue lengths have reduced on most arms of the junction in all of the periods surveyed (AM Peak hour, Interpeak hour and the PM Peak hour). The majority of traffic travelling through the junction will experience slightly reduced queuing as a result of the scheme.

The only noticeable increase in delay is for traffic turning right from Holborn Viaduct into Hatton Garden. However, it should be noted that only 3% of traffic using the junction actually makes this manoeuvre.

v. Improved accessibility and connectivity for pedestrians

As new formal pedestrian crossing facilities have been introduced on four arms of the junction, it is much easier for pedestrians to cross the junction. Each of the new crossing points has been equipped with tactile paving to assist the visually impaired. The new courtesy crossing on Hatton Garden has further improved pedestrian connectivity across the north of the junction.

vi. Creation of a more pleasant street environment with the introduction of a new public space, trees and seats

As the northern end of St Andrew Street was been redirected to join Fetter Lane, it was possible to create a new public space directly adjacent to St Andrew's Church. This new space, comprising 150m² of new footway, has been equipped with much-needed new seating and street trees. From its opening, the space has proved extremely popular with the public.

The new public space, and the associated restoration of the gardens of St Andrews Churchyard, were awarded the 2016 London Planning Award for Public Space.

vii. Preservation and ease of maintenance of the Grade II Listed Prince Albert Statue

Early on in the construction phase, the statue and plinth were both removed from the junction and transported to the

	<p>workshops of our architectural conservation consultant, Rupert Harris. Whilst at the workshop, the statue and plinth were extensively restored.</p> <p>In addition, it was discovered that parts of the statue had gone missing over time, either through theft or bomb damage – the Prince Albert Statue had lost a scabbard, whilst the one of the allegorical figures in the plinth (the Allegory of History) had lost its quill. Through painstaking study of historic photographs of the statue and allegories, it was possible to reconstruct a replacement scabbard and quill which were identical to the originals.</p> <p>A particular feature of the restoration was that over the years, an accumulation of grime had led to the finer details of the statue being obscured. When this grime was removed, the quality and detail of the original casting were revealed. As the statue now sits in a new location just west of the junction, the public can now properly appreciate the level of detail of the statue.</p> <p>In recognition of the work that had been done to restore and relocate the statue, the scheme received the 2015 Marsh Award for statue conservation.</p> <p>viii. <i>Improving the existing drainage system in the area as Holborn Circus is an area at risk of flooding</i></p> <p>As many of the kerblines of the scheme changed significantly, it was possible to extensively review and model ground levels throughout the scheme to ensure that gullies were located in the best locations to intercept storm water run-off.</p> <p>In addition, within the new public space, a sustainable drainage system has been installed. This consists of a series of slot drains which intercept storm water and transfer it to an underground attenuation tank. This attenuation tank stores the storm water, releasing it at a controlled rate into the subsoil. In doing so, this helps to relieve pressure on the local highway drainage system during high rainfall events.</p>
<p>3. Programme</p>	<p>The programme for the construction of the project had been determined by the award of £2.4M funding from Transport for London (TfL). As this funding was specific to the 2013/14 financial year, the scheme had to be delivered by April 2014. This deadline was achieved, in spite of the numerous challenges faced by the project.</p> <p><i>Construction Phasing</i></p> <p>The main challenge to delivering the project to deadline was the need to keep the junction fully operational throughout the construction period. Given the importance of the junction as a key gateway to the City, any disruption to the operation of the</p>

junction would have been expected to have widespread knock-on effects.

This risk was mitigated by drawing up and executing a very detailed construction programme, which ensured that the construction was phased in such a way to minimise traffic disruption. As a general principle, any potentially disruptive works were scheduled to take place at weekends, where the impacts would be minimised. For example, towards the end of the construction programme it was necessary to resurface the entire middle section of the junction. This could only be achieved through a complete closure of the junction. These works were implemented early on a Saturday morning, and the junction was re-opened as soon as the surface dressing had cured – which was by early that afternoon.

It should be noted that a major contributing factor towards meeting the April '14 deadline was the performance of the City's highways term contractor, JB Riney. Throughout the construction period, JB Riney was able to provide sufficient high-quality resources to ensure that each construction phase could be completed on-time without slippage in the programme.

The City's partnering arrangement with JB Riney was also extremely helpful. There were a number of occasions where the construction phasing had to be altered at short notice owing to unexpected sub-surface ground conditions – for example, when a 15 cubic metre void was discovered beneath the Prince Albert Statue. Had our contractor been retained on a standard NEC3 contract, this delay could have led to a compensation event. However, because of our partnering arrangement, JB Riney was able to deploy staff at another site whilst the void was investigated, then return those staff when construction recommenced.

The Grade II Listed Statue

The project faced an unusual challenge because of the requirement to relocate the Grade II listed Prince Albert statue.

To ensure the stability of the new statue, the City commissioned consultants to undertake a ground condition survey on the statue's new location. The recommendation of the consultants was that the base of the statue would need to be underpinned by 14 micropiles, each measuring 13m in length. This created numerous design challenges as the micropiles had to be located in such a way to avoid any underground utilities, whilst still being able to contribute towards stabilising the base of the statue. In addition, as the Central Line runs 20m below the new statue location, it was necessary to satisfy London Underground Ltd that the boring

out of the new piles would not affect the stability of the tunnel beneath.

It is worth noting in this regard that when the statue was removed from its original location, where it had sat for 139 years, it was found that the statue was simply sitting directly on the ground, with no specific foundation work beneath. Additionally, it was found that a 15 cubic metre void had developed in the ground below the statue, presumably owing to groundwater washing away the made ground beneath the statue. It appears likely that had the statue not been relocated, the statue would probably have begun to list at some point, necessitating urgent ameliorative works.

Management and Communications

One of the key contributors towards our ability to deliver the project on-time and on-budget was the management structure that was put in place for this project.

Overall governance of the project was overseen by the Transportation and Public Realm Director, the Assistant Director of Transportation, and the Assistant Director of Highways.

Day to day on-site management of the construction was overseen by the *Construction Manager*, who liaised with our contractor's site managers to ensure the smooth running of the site.

The project as a whole was overseen by the *Project Manager*. The Project Manager's key role was to ensure that the project delivered on the desired objectives of the study (as set out in Section 2 of this report), and to escalate serious issues to senior management where necessary. On a day to day basis, the Project Manager's role was to support the Construction Manager by ensuring that correct budgets were in place when required, and that urgent management decisions were taken in a timely fashion.

Based upon experience of other highways construction projects in the City, the management structure of this project included a dedicated *Communications Manager*. The Communications Manager was responsible for making sure that all of our planned communications were delivered to key stakeholders in a timely fashion, using communications media appropriate to that stakeholder. The Communications Manager was also responsible for gathering feedback from key stakeholders and ensuring that the Project Manager and Construction Manager were kept fully aware of stakeholder views. This ensured that the Project Manager and Construction Manager had advance warning of any emerging stakeholder issues, and could address these issues in a planned manner.

It should be noted that the entire project was managed in-house, by officers from the Department of the Built Environment.

It is also of note that much of the communications strategy developed for Holborn Circus was based upon lessons learned from the Cannon Street project. Given its success at Holborn Circus, this structure has been replicated (and will doubtless be further enhanced) in the Aldgate Highway Changes and Public Realm Enhancement project.

4. Budget

Although delivery of the project took place in the 2013/14 financial year, the feasibility and evaluation stages of the project had been going on for a number of years prior to this. Thus, whilst the bulk of the expenditure took place during the works phase, the project had incurred staff and fee costs over a number of years.

A summary of the final financial position of the project (including feasibility, evaluation, design and construction phases) is given below.

Description	Approved Budget (£)	Expenditure (£)	Balance (£)
Staff Costs	353,900	351,198	2,702
Fees	165,000	154,570	10,430
Works	2,610,312	2,389,433	220,879
Revenue	72,500	36,717	35,784
TOTAL	3,201,712	2,931,918	269,794

As can be seen, overall expenditure on the project was lower than forecast. The two most notable differences between Budget and Expenditure were in the Works and Revenue categories. The Works underspend can be largely put down to utility companies providing inflated costs estimates (which were then marked down after their works were complete). The Revenue underspend was down to various items included in the Communications budget not actually being revenue items. Ultimately, these costs had to be covered by Local Risk funds.

Over the course of the project, the following funds had been allocated to the project.

Funding Source	£
Transport for London (TfL)	2.6M
S106	0.3M
OSPR	0.3M
	3.2M

As there was an underspend on the project overall, all of the TfL allocation would have been expended, plus the bulk of the S106 allocation. It was not necessary to expend any of

	the OSPR allocation.
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Review of Team Performance

<p>5. Key strengths</p>	<p>The project was characterised by highly effective communications. This helped to ensure that:</p> <ul style="list-style-type: none"> i) The key objectives of the project were always reflected in the delivery stages of the project; thus, any modifications to the design that became necessary during construction were always reviewed in light of how they impacted upon key scheme objectives; and ii) Members of the public were extremely well-briefed upon the different construction phases, meaning that local businesses were able to plan ahead to ensure that the construction did not interfere with them conducting their normal daily business.
<p>6. Areas for improvement</p>	<p>Whilst the project was delivered on time and within budget, certain improvements to the City's financial system were identified which would enhance the day-to-day financial management and monitoring of projects.</p> <p>One major improvement, especially on a project of such magnitude and complexity as the Holborn scheme, would be the ability to track cash flows and readily produce projected spend estimates.</p> <p>This would allow project managers to more easily identify cost over/under-runs and manage the projects budgets more effectively without the need to calculate spending projections outside of the Chamberlains financial systems.</p> <p>Work is currently underway, with enhancements being made to the financial system, to introduce this and other improvements.</p>
<p>7. Special recognition</p>	<p>None</p>

Lessons Learnt

<p>8. Key lessons</p>	<p><i>Focus on Key Objectives</i></p> <p>Throughout the project, various interested parties / stakeholders were consulted on the design. In many instances, these consultations led to us introducing useful modifications to the design. However, the team would only agree to modifications if it could be demonstrated that the modification would contribute positively towards the key</p>
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objectives set out in Section 2 of this report.

This became a significant issue immediately prior to our Gateway 5 approval, as TfL's Cycling Commissioner exerted considerable pressure for us to radically alter the design. The changes that TfL wished to introduce would most likely have reduced the benefits to pedestrians of the scheme, and certainly would have led to significant increases in vehicle journey times through the junction. This was a particular challenge, as TfL were the main funder of the scheme. They also held key gatekeeper powers, through the GLA Act (1999). However, Officers maintained that the balanced set of key objectives was appropriate for this scheme, and eventually convinced TfL to go forward on that basis.

Communications

It had been recognised from other projects that poor communications could be extremely detrimental (and costly) to projects. Holborn Circus was the first DBE project in which we devised a specific communications strategy for the construction stage of a project. This is now standard practice within the division for major projects.

The principles underlying the strategy were:

i) it is much easier to mitigate potential problems if they can be identified in advance of construction. Being forced to change the construction programme or construction method during the construction phase is highly disruptive, compared to planning appropriate mitigation actions into the construction process. For example, through our pre-construction consultation we were able to establish that the pub at the southern end of Hatton Garden had very specific servicing needs – we were therefore able to redesign our traffic management on Hatton Garden to accommodate their requirements;

ii) No one should ever be surprised by what we are doing; and

iii) The team should always be confident that it has done its utmost to inform the public about the works.

The communications strategy involved identifying key stakeholders, understanding how they interfaced with the project, then devising the most appropriate way to communicate with each stakeholder. Based upon this assessment, stakeholders could be communicated with in person, or by email, or via our weekly E-bulletin. A drop-in session was also hosted as a means of giving all stakeholders an opportunity to speak directly to the project

team.

A key factor in the success of the strategy was the appointment of a specific officer to manage all communications relating to the project. This freed up the rest of the project team to focus on delivering the project without needing to manage stakeholder relationships.

In addition, the communications officer attended all of the weekly construction team meetings. This allowed the communications officer to advise the team of any particular concerns that were being expressed by the public. It also allowed the construction team to advise the communications officer of any particular messages that needed to be communicated to the public via the weekly E-bulletin.

Some key statistics regarding the level of communications that took place are provided below:

Pre-Construction Communications

No. Residents/Businesses contacted by letter	4,500 (approx.)
No. Stakeholders contacted by email	1,000 (approx.)
No. Ward and Committee Members contacted in advance	58
Attendance at pre-construction drop-in session	350 (approx.)
Other Statutory Consultees contacted	8
No. local businesses approached in person	35 (approx.)

Communications During Works

Recipients of weekly e-bulletin	262
Enquiries per week by general public	5-10
Enquiries per week by local businesses	2-3

9. Implementation plan for lessons learnt

The lessons learnt have been shared with the appropriate teams. In particular, the lessons learned have been directly applied on the Aldgate Area Enhancement project which is currently underway.

Appendices

Appendix 1	Before and after images

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