

Committees: Streets and Walkways Sub-Committee <i>[for decision]</i> <i>Projects and Procurement Sub-Committee [for information]</i>	Dates: 01 October 2024 21 October 2024
Subject: Beech Street Transformation and Public Realm Project Unique Project Identifier: 10847	Gateway 6: Outcome Report Complex
Report of: Director of Environment Report Author: Kristian Turner	For Decision
PUBLIC	

Summary

1. Status update	Project Description: For many years levels of nitrogen dioxide measured in Beech Street had been exceeding national limits. A zero emissions scheme was conceived as an interim traffic management measure to improve air quality by reducing the volume of polluting traffic using Beech Street. At the time it was envisaged that this would be the first stage of a phased approach for the transformation of Beech Street. The Beech Street Zero Emissions scheme was introduced as an Experimental Traffic Order (ETO) in March 2020 and ran for 18 months through to September 2021. RAG Status: GREEN Risk Status: Low Total Estimated Cost of Project (excluding risk): ~ Final account = £2.3M (of a total approved budget of £2,567,213)
2. Next steps and requested decisions	Requested Decisions: Member's of the Streets and Walkways Sub Committee are asked to: <ul style="list-style-type: none"> • Approve the contents of this report. • Agree to close the Beech Street Transportation and Public Realm project • Note the lessons learned • Agree to return unused funds to the central CIL fund
3. Key conclusions	<u>Scheme summary</u> Beech Street is a unique street in the City due it's "tunnel" like infrastructure as a "covered roadway". The pollution emitted by vehicles

is less able to disperse into the atmosphere due to the enclosed space and lack of ventilation points. As a result, pollutants such as nitrogen dioxide become more concentrated on Beech Street, making it one of the worst polluted streets in the City.

In 2019/20 traffic volumes on Beech Street were approximately 10k vehicles per day but would record elevated levels of nitrogen dioxide similar to levels recorded at Walbrook Wharf where up to 40k vehicles would be on Upper Thames Street.

Beech Street is also a key route for people walking between the Moorgate and Barbican areas, as an access route for residents to their properties and is well used by cyclists. All of these road users, in addition to drivers were exposed to the elevated levels of NO₂ in Beech Street, which in 2019 exceeded 60µm³ compared to the recommended national limits of 40 µm³.

As a result of these issues which many residents raised as a concern with the City, in 2018/19 Members requested that Officers investigate measures to urgently address the poor air quality in Beech Street. Initial analysis work (including air quality modelling) showed that the removal of some or the majority of traffic in Beech Street would lead to a reduction in levels of NO₂.

Options for reducing traffic included restricting westbound traffic, reducing eastbound traffic or in both directions. The air quality benefits of restricting traffic in both directions was estimated to be the most likely to lead to a reduction in NO₂ to acceptable levels (i.e. under 40 µm³).

In December 2019, Members approved a traffic experiment on Beech Street. The experiment restricted “through” traffic using Beech Street to vehicles that met Transport for London’s criteria for zero-emission vehicles (meaning the 153 bus and electric vehicles were exempt) but allowed access to the car parks and forecourts on Beech Street to any vehicle type.

The experiment commenced on the 18 March 2020 and concluded on 18 September 2021 where it was decided to not retain the traffic order and revert to its previous operation.

The duration of the experiment coincided with national restrictions due to the COVID-19 pandemic, making the impacts of the experiment on traffic and air quality difficult to quantify. At the conclusion of the experiment, the scheme was reported as a qualified success in that air quality on Beech Street was significantly improved, but that this could not be wholly disaggregated from the overall improvement to air quality across London due to the changes in behaviour over the pandemic. The reduction in nitrogen dioxide levels was greater on Beech Street than other locations in Central London, and this difference was estimated to be due to the zero-emission scheme operation.

Public views during the experiment were polarised, with levels of support and opposition to the scheme evenly split. The impacts of the restriction resulted in some disbenefits to some residents and road users, whereas others enjoyed the improved environment within Beech

Street. Challenges regarding access for deliveries and visitors was a consistent theme in the hundreds of enquiries received. Another consistent topic of feedback was street signing for the scheme which was not understood by a number of drivers but was legally compliant and necessary to be able to enforce compliance with the restriction.

During the experiment, feedback on difficulties experienced by residents with regards access for visitors, deliveries and taxis informed the City's decision making to amend the central reservations in Beech Street so that the car parks and forecourts on the south side could be accessed from the eastbound carriageway. This, along with changes made to satnav basemaps appeared to help mitigate the problems.

Following the conclusion of the experiment, the public were consulted in January 2023 on whether a permanent zero emission scheme should be reintroduced. This would have been similar to the experiment but amended to still allow traffic to use Golden Lane and turn left onto Beech Street as it was not possible at the time to gain the support of Islington to close the southern end of Golden Lane. Ward Members and S&W's Members were briefed that the public were evenly split on the issue. It was agreed by Streets and Walkways in July 2023 that the zero-emission scheme would not be reintroduced, and that the area wide Healthy Streets approach would be progressed which would in all likelihood seek to address the issues remaining on Beech Street.

When public engagement was undertaken on the Healthy Streets Plan for the wider area, Beech Street was by far the most commented upon street in the area, so whilst air quality on Beech Street is now within national limits, it remains a street requiring improvement according to the public feedback.

Key conclusions

Broadly, it can be concluded that traffic restrictions are a viable mechanism for improving air quality in enclosed environments such as Beech Street. However, there are a significant number of external variables that contribute to background air quality that also need to be considered and factored into monitoring. The focus of this project was on a single issue to essentially improve something that people couldn't physically see. Combined with the benefits and disbenefits that people experienced led the public to be divided on whether the restriction should be made permanent at the end of the experiment.

Main Report

Design & Delivery Review

4. Design into delivery	<p>The experimental traffic order and highway design for the Beech Street Zero Emission scheme was delivered at pace and was the first scheme of this type in the UK.</p> <p>The design of the scheme focussed on reducing traffic whilst minimising the overall impacts on local traffic as far as practical within the constraints of the existing street network.</p> <p>The experiment restricted “through” traffic using Beech Street to vehicles that met Transport for London’s criteria for zero-emission vehicles (meaning the 153 bus and electric vehicles were exempt) but allowed access to the car parks and forecourts on Beech Street to any vehicle type.</p> <p>The junctions of Bridgewater Street and Golden Lane with Beech Street were closed to through traffic except cycles. This led to a significant traffic reduction in this area and complaints from the residential areas north of Beech Street about resident/delivery access were negligible.</p> <p>A strategic traffic modelling exercise was undertaken with Transport for London using the TfL ONE Model to estimate the alternative routes that traffic would take. The modelling work identified that traffic from Beech Street would reassign to London Wall or Old Street, Moorgate and Aldersgate Street.</p> <p>We were able to negotiate with TfL that for the purposes of the traffic experiment, a full traffic model following the TfL Model Audit Process would not be required. TfL granted Traffic Management Act approval for the experiment based on the strategic traffic modelling that was done.</p> <p>As part of the modelling process, we identified that Golden Lane traffic would reassign to Fortune Street and Whitecross Street. Both streets are in Islington and are residential/commercial in nature. To mitigate this reassignment, the City funded an ANPR camera for Islington to restrict traffic for access only on Fortune Street.</p> <p>To ensure compliance with the scheme, regulatory signing and advanced warning signs were installed. In the design of the signing, we were restricted to using prescribed signing as set out in the Traffic Signs Regulations. As the first Zero emission street, there was no specific signing already authorised by DfT that matched the circumstances of Beech Street. Therefore, a sign for “no motorised vehicles” combined with a supplementary plate “Except for zero emission vehicles and for access to off-street premises” was used. This was the best combination of signing that could be arrived at that explained to motorists under what circumstances they could drive into Beech Street. The signing combination required additional authorisation from Department for Transport, which was granted.</p> <p>The scheme also used an innovative form of enforcement using ANPR cameras at each end of the tunnel with fixed timings to ascertain non-</p>
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compliant vehicles using Beech Street as a through route vs those accessing properties legally. Early in the experiment we re-calibrated the timings between the entry and exit points to ensure no errors were made in detecting compliant vehicle movements.

Overall, a good level of compliance with the restriction was observed, albeit with much less traffic on the network due to the pandemic. Successful challenges against Penalty Charge Notices were less than comparable traffic management schemes, indicating that the design approach was robust.

Six months of public consultation ran in parallel with the first six months of the experiment via an online portal which ~120 people responded to. Hundreds of enquiries from residents and the wider public were received and responded to and regular liaison meetings held with the Barbican Association. Through this engagement, minor modifications to the design of the experiment were approved to ease access issues for residents and deliveries. By the half-way point of the experiment, “gaps” in the Beech Street central reservation were created to allow right hand turns to be made from the eastbound carriageway into the Defoe House / Shakespeare Tower car park and Lauderdale Place (forecourt). This change was generally well received and was complimented with the work we did with Google in accurately mapping the restriction.

Statutory challenge and Judicial Review

During the course of the experiment, the traffic order was subject to a Statutory Challenge in the High Court. The judgement, which was handed down in December 2020 found that on the majority of the grounds, the City was found to have acted in accordance with the correct statutory procedures and the ETO was found to be valid and could continue. On two procedural grounds the Court ruled against the City. These two issues were the documentation not being available to view at Guildhall during the first period of lockdown, and the content of the ‘statement of reasons’ attached to the traffic order not being sufficient.

The Judicial Review challenging the February 2021 S&W’s sub-committee decision to continue with the ETO was heard in June 2021 and the final judgement in August 2021 found in the City Corporation’s favour.

The implication of the court decision on the statutory challenge to the traffic order was that the experiment could not automatically be made into a permanent measure if the decision was to keep the restrictions. Instead the regular process for making a permanent traffic order would need to be followed. This would include further consultation.

5. Options

The zero-emission scheme was intended as an “interim” scheme with

<p>appraisal</p>	<p>the immediate objective of improving air quality. The objectives of the experiment were set out to:</p> <ul style="list-style-type: none"> • improve air quality to acceptable limits • modernise the public realm by creation of a safer, cleaner, more comfortable and vibrant street that facilitates the delivery of Culture Mile • contribute to the successful outcomes of the exhibition halls refurbishment project <p>In September 2018 three options were approved for further development</p> <p style="padding-left: 40px;">Option 1 - An eastbound closure of Beech Street to vehicles; Option 2 - A westbound closure of Beech Street to vehicles; Option 3 - A total closure of Beech Street in both directions (i.e. pedestrianisation except for vehicular access to the Barbican Car Park, residential car parks and servicing).</p> <p>In July 2019 Members decided to proceed with a zero-emission scheme in both directions to reduce the volume of traffic in Beech Street. The two-way restriction was estimated to be the option that would maximise the air quality benefits. The preferred design iteration was a restriction at each end of the “tunnel” over a point restriction in the middle of the “tunnel”.</p> <p>The experiment concluded in September 2021, the restrictions were removed and the results of the experiment were reported for Member consideration in December 2021. Following that, further work with Islington Council regarding a permanent scheme for Beech Street was undertaken. In November 2022, a report to Members on an option to consult the public on a permanent design for Beech Street was considered. This was a variation on the previous experiment with Golden Lane remaining open to southbound traffic as Islington did not support traffic restrictions on Fortune Street due to access issues into the Bunhill area.</p> <p>In July 2023, Ward Members and Members of Streets and Walkways were briefed on the public consultation results and a summary of the benefits and disbenefits of the proposed permanent scheme. With the public evenly split, and City respondents marginally unsupportive, the decision was taken to not proceed with the permanent scheme for Beech Street but instead progress an area wide Healthy Streets Plan.</p>
<p>6. Procurement route</p>	<ul style="list-style-type: none"> • The construction package was prepared inhouse by the Highway Engineer and work on site undertaken by the City’s term contractor. • Specialist traffic camera work was undertaken by the City’s term contractor Siemens (latterly Yunex) • A variety of other consultants undertook tasks relating to traffic

	<p>modelling, road safety, equalities analysis, air quality analysis and modelling, noise modelling and traffic surveys. These were all procured using standard procurement methods.</p>
<p>7. Skills base</p>	<p>The pace of delivery requested to implement the experiment proved a resource and technical challenge for Officers as no project of this type had been delivered before in the City or across the country.</p> <ul style="list-style-type: none"> • Specialist consultants were commissioned to analyse and model air quality • The Transport and Air Quality teams in the City began to work more closely together than ever before, which has been beneficial and has continued. • Other specialist consultants were brought in for bespoke tasks where either technical knowledge or resource capacity was not available. • The Projects team working knowledge on Experimental traffic orders had previously been limited to the Bank on Safety scheme. This led to some errors around internal procedures for reviewing traffic order document. Both the projects team and legal services team are now more cognisant with the issues surrounding the experimental traffic order making process. • The impact of lock downs and remote working meant officers were not able to easily monitor Beech Street and observe the behaviour of the vehicles that were on the network, we had to rely on roving workers and working on-line.
<p>8. Stakeholders</p>	<p><u>Members and the community</u></p> <p>The need to improve the air quality and street environment in Beech Street was identified in a number of City Strategies including the Air Quality Strategy and the Barbican Area Enhancement Strategy. The desire for corrective measures was a clear aspiration of residents and Members and this gave the project momentum.</p> <p>A clear shortcoming in the initial stages of the project was undertaking the design work without sufficient engagement with resident representatives. Experimental traffic orders do not require consultation in advance of the experiment going live. Given the time pressure being exerted to deliver change in this location, Members were asked to authorise delivery of the experiment before any meaningful engagement with residents had taken place. . Whilst strictly speaking the first six months of an experiment is the Statutory consultation period, and there is plenty of time for people to consider their experience of the traffic change, there was disappointment from Barbican residents to find out about the City’s decision to proceed with the experiment in the media, rather than from the City themselves.</p> <p>Officers have learned from this and recognise that earlier engagement could have reduced some of the issues experienced and would have</p>

	<p>created a stronger and more collaborative approach with the local residents.</p> <p>Following this, a lot of hard work was undertaken by the project team and local Members to better communicate the project objectives and workings. Over time a collaborative working relationship developed between Officers and Barbican Association representatives, working through emerging issues from the operation of the experiment, particularly around deliveries, signing and other scheme adjustments.</p> <p><u>Traffic authorities</u></p> <p>In advance of launching the experiment, close working with both Islington and Transport for London was required. With TfL, existing positive working relationships and the work undertaken on the strategic traffic model plus a desktop traffic reassignment study meant City officers were able to obtain TfL approval for the experiment without having to follow the full Model Audit Process. TfL estimated the volumes of traffic reassigned would not create problems on the Strategic Road Network on Old Street and London Wall. This is estimated to have saved 12-18 months of traffic modelling work.</p> <p>As highlighted in the section above, the street network in the area is quite complicated due to the nature of the infrastructure, the existing traffic management measures and the functional purpose of the streets. We worked closely with Islington as the neighbouring traffic authority as changes to traffic patterns from Beech Street affected traffic across the whole area.</p>
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Variation Review

<p>9. Assessment of project against key milestones</p>	<ul style="list-style-type: none"> • The implementation of the traffic experiment started on time as per the Gateway 3-5 report of December 2019 • The experiment lasted for 18 months and was then closed • The interim scheme did not realise the other project objectives such as improved public realm and enabling the Exhibition Halls. As the experiment was discontinued there was no scope to make meaningful public realm improvements and the Exhibition Hall programme remains a work in progress as the Podium waterproofing programme advances and the Barbican renewal programme is developed.
<p>10. Assessment of project against Scope</p>	<p>The project's scope remained broadly unchanged, a number of signing and access adjustments were made but these did not affect the main scope of the experiment</p>
<p>11. Risks and issues</p>	<p>Several risks did materialise into issues during the experiment, including:</p> <ul style="list-style-type: none"> • Legal challenges in the form of a statutory challenge to the traffic

	<p>order process, and an application for Judicial Review</p> <ul style="list-style-type: none"> • Some people did not understand the traffic restriction, and this had an impact on deliveries, visitors and taxi journeys in some instances • Monitoring of some of the issues was not practical, i.e. it is not possible to identify a driver who refuses to drop a passenger in the tunnel, or use the car park to make a delivery, making it difficult to discern if these instances were minor or more significant issues. • The impact of the pandemic and the national restrictions had a significant impact on the experiment.
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Value Review

12. Budget	<p>Beech Street Transformation and Public Realm project</p> <ul style="list-style-type: none"> • Estimated Cost at G3 for full Transformation scheme: £12M-15M • Estimated cost of Phase 1 Zero Emission scheme: £1.8M <p>The table below summarises the estimate at the Gateway 5 (Authority to Start Work) to implement and undertake the experiment, and the final outturn spend.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Item</th> <th style="width: 35%;">At Authority to Start work (G5)</th> <th style="width: 30%;">Final Outturn Cost</th> </tr> </thead> <tbody> <tr> <td>Fees</td> <td style="text-align: right;">£745,735</td> <td style="text-align: right;">£638,696</td> </tr> <tr> <td>Staff Costs</td> <td style="text-align: right;">£1,147,208</td> <td style="text-align: right;">£1,090,237</td> </tr> <tr> <td>Works (incl. utilities)</td> <td style="text-align: right;">£222,119</td> <td style="text-align: right;">£203,331</td> </tr> <tr> <td>Purchases (ANPR) cameras</td> <td style="text-align: right;">£70,000</td> <td style="text-align: right;">£46,400</td> </tr> <tr> <td>Risk allowance</td> <td style="text-align: right;">£100,000</td> <td style="text-align: right;">£0</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: right;">£2,285,062</td> <td style="text-align: right;">£1,978,664</td> </tr> </tbody> </table> <p>* The final accounts for this project are yet to be verified.</p>	Item	At Authority to Start work (G5)	Final Outturn Cost	Fees	£745,735	£638,696	Staff Costs	£1,147,208	£1,090,237	Works (incl. utilities)	£222,119	£203,331	Purchases (ANPR) cameras	£70,000	£46,400	Risk allowance	£100,000	£0	Total	£2,285,062	£1,978,664
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13. Assessment of project against SMART objectives	<p>The experiment delivered on its primary objective of improving air quality. Air quality in London is constantly improving and since the experiment concluded air quality in Beech Street now sits just below the national limits for nitrogen dioxide.</p> <p>Although NO₂ has recently increased in Beech Street whilst London Wall has been closed, the annual average concentration for 2024 still looks unlikely to breach the national limit of 40 µm³.</p>																					
14. Key benefits realised	<p>Ultimately the key benefits of the experiment were only realised for 18 months as the experiment was not continued and the previous traffic operation resumed.</p>																					

Lessons Learned and Recommendations

15. Positive reflections	<p>Delivering the experiment at the pace requested by Members proved challenging but was delivered on time:</p> <ul style="list-style-type: none">• We were able to agree an abridged traffic modelling exercise with TfL to attain Traffic Management Act consent in a comparably short timeframe• We engaged closely with the taxi trade who were broadly supportive as the objective to improve air quality is commensurate with the taxi trades own policy, electric taxis were able to use Beech Street unfettered• We successfully worked with Islington who consented to the experiment, we funded an ANPR camera for Fortune Street to enforce an access restriction so that traffic wouldn't reassign from Golden Lane to Whitecross Street• We got dispensation from Department for Transport for the statutory signing variation to use the Diag. 619 sign with supplementary plate wording for zero-emission vehicles• We successfully defended 6 of 8 grounds on the statutory challenge to the traffic order making process in the High Court• We successfully defended the Judicial Review of the decision to continue with the experiment during the pandemic• We successfully worked with local stakeholders to make adjustments to the experiment to mitigate reported access issues• We were able to innovate to come up with an ANPR camera system of fixed timings to determine if polluting vehicles had complied with the traffic order• The enforcement of the restriction was robust, standing up to appeals at a rate higher than comparable traffic schemes and compliance with the restrictions was good• Ultimately, air quality was improved in Beech Street over and above the improvement attributable to the lockdowns• Members and officers alike have gained a much greater understanding of the complexities of traffic restriction schemes
16. Improvement reflections	<p><u>Key learning areas of learning for future projects</u></p> <p>Lessons were learned across all aspects of the project which has provided valuable knowledge for the transport team when working on future complex traffic management projects.</p> <p><u>Legal lesson - Traffic orders</u></p> <p>The statutory challenge to the traffic order making process highlighted some shortcomings in the processes followed, particularly in the detail provided in the statement of reasons document. The unusual circumstances of the pandemic meant that the Guildhall was not accessible to the public to view the traffic order documents and this led to the initial challenge.</p>

New processes have been embedded into the ways of working within the Environment Department and Legal Services around the drafting, checking and accessibility of statutory traffic order making documents. This is a direct improvement from the lessons learned on the Statutory challenge to the experiment in 2020.

Stakeholder engagement

One key area of learning was around engaging more proactively with local residents and stakeholders if intending to do an experimental or permanent traffic experiment, see Section 8 above. We now have a better understanding of the need to engage more proactively with stakeholders on traffic schemes in the area, over and above that which is statutorily required.

Working with partners – Islington

The City's timelines placed some pressure on Islington to undertake a mitigation scheme on Fortune Street which became politically challenging for them. This became an issue when considering if the experiment should be made permanent and the result was Islington did not agree to the permanent closure of the Golden Lane junction which likely meant some people no longer supported the overall scheme. Going forward with the area wide Healthy Neighbourhood plan we are working iteratively on the future options for Beech Street/Chiswell Street corridor.

Technical lesson – air quality

Air quality in London is constantly evolving due to a variety of climatic, policy, societal and vehicle factors. London air quality is constantly improving, but the variables are so many that measuring the impacts of a traffic scheme in isolation is challenging. For example, to cover a wide area we are reliant on a relatively unsophisticated method of using diffusion tubes to measure monthly Nitrogen Dioxide levels. The precise siting of these tubes is dependent on the available street furniture. Results can be skewed if the tube is in an area where vehicles accelerate. The conclusion is that air quality should only be measured over long periods to determine broad trends rather than at a detailed level and that whilst the methods used help to show patterns over the longer term, it is not possible to determine and proportion the impact a particular traffic restriction has had on improving air quality.

Technical lesson – traffic journeys:

The restriction adversely affected some vehicle journeys whilst others were unaffected, and this depended very much on the origin and destination of each individual journey. The number of permutations of routes meant that the impacts of the experiment

	<p>were challenging to convey to stakeholders and the general public. In future the intention is to embed better data and provide easier to understand information to the public so they can better understand the impact of proposals on their own journeys.</p> <p><u>Technical lesson – public understanding of signing</u></p> <p>A frequent area of feedback from residents and taxi drivers regarded understanding of the street signing. Some people did not understand the signing and as such could not or would not complete a journey, i.e to drop off a passenger, visit a relative or make a delivery</p> <p>Whilst the scheme used the most appropriate and legally compliant signing, it can be difficult to get the signing right when there are unique street network constraints. This may require more creative thinking and lobbying of DfT to agree bespoke signing and an acceptance that this may take longer.</p>
<p>17. Sharing best practice</p>	<p>Information has been disseminated through and between teams via project staff briefings.</p> <p>Externally, lessons learned on the statutory traffic order making process have been shared with other local authorities via a team member presentation to Urban Design London Learning.</p>

Appendices

Appendix 1	Project coversheet
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Contact

Report Author	Kristian Turner
Email Address	kristian.turner@cityoflondon.gov.uk