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| Committee(s) Streets and Walkways Sub – For information Planning & Transportation – For information Policy & Resources – For information | Dated: 27 September 2016 4 October 2016 6 October 2016 |
| Subject: Major Highway Works for 2016/17 | Public |
| Report of: Director of the Built Environment | For Information |
| Report author: Ian Hughes | |

Summary

1. As predicted in last year's report, the volume of activity taking place in the Square Mile has placed increasing demands on the City's highway network. In particular, the sheer scale of schemes such as Crossrail, the Bank Northern Line upgrade and the imminent Thames Tideway project means that long-term co-ordination of works is vital to keep the City moving.
2. In addition, the City currently has the largest volume of building development taking place since 2008, and although this is traditionally the sign of a thriving Square Mile, this activity brings with it a need for road space, additional streetworks connections and additional heavy vehicle traffic.
3. The most significant impact on the City's road network in the last 12 months has been the construction and subsequent operation of TfL's cycle super highway, and although it is too early to reach definitive conclusions, observations would suggest that areas of traffic congestion can frequently be found on those roads directly affected by the scheme, and a degree of network resilience to absorb other temporary activities has been lost as road capacity has been reallocated.
4. Otherwise, the City has a statutory responsibility to minimise disruption as part of its Network Management Duty, and so officers will continue to work to ensure the co-operation of major project sponsors, utility companies and developers in co-ordinating their works and minimising disruption. The key objectives remain:
 - balancing the need to keep projects on track with the need to minimise congestion and limit the impact on traffic and pedestrians (especially vulnerable road users);
 - ensuring the needs of the City's wider stakeholders (ie businesses, residents and visitors) are also considered;
 - maximising the opportunity to combine works together to minimise their overall impact;
 - working with Transport for London and our neighbouring authorities to ensure the needs of the wider transport network are considered.

Key to that effort remains:

- the close level of contact established by officers with individual utilities, developments and projects;
- the ability of officers to find, influence and negotiate innovative solutions to construction problems and programmes with contractors;
- understanding, programming and managing the City's own long-term programme of projects;
- continuing the development of the City's various communication channels through which upcoming activities are publicised.

Recommendation(s)

Members are recommended to receive this report.

Main Report

Background

5. The Highways team within the Transportation and Public Realm Division of the Department of the Built Environment (DBE) is tasked with co-ordinating all major activities on the highway, and has officers involved in negotiating, approving and facilitating the extent and timing of:
 - All road closures and diversions
 - Major building site operations, including mobile crane works
 - Special events, including the Lord Mayor's Show
 - Street works by utilities
 - Major street scene and transportation projects by the City
 - Resurfacing & highway repairs by the City's term contractor, JB Riney
 - Works by major transport infrastructure providers, such as Crossrail
 - Works by TfL on the 'Red Routes', and by the City's neighbouring authorities on the City fringe
 - Large scale deliveries and building removals through the parking 'dispensation' system
 - Large film shoots and outside broadcasts
 - Parking bay suspensions
6. To deliver this function, officers have well-established links with the City's Environmental Health and Highway Structure teams, the emergency services,

Transport for London and other key City stakeholders so that information can be shared, co-ordinated and publicised to the general public.

7. The demand for room on the City's streets remains high, and officers try to accommodate the needs of applicants and works promoters whenever they can. However, the Highways team seeks to ensure that the needs of the public are not forgotten, and that a balance is struck between their needs and those of the works promoters.
8. As an example, when considering road closures, the following general approach is adopted:
 - no works are allowed that directly conflict with each other;
 - no diversions that use the same streets;
 - no parallel streets to be affected;
 - local access to be maintained as much as possible;
 - ideally two 'north / south' and 'east / west' routes through the City to be kept clear of disruption at all times;
 - no more than four major daytime closures in the City at any one time, ideally spread across the Square Mile (albeit this number may have to be reduced as a consequence of changes in network capacity from schemes such as the cycle super highway).

Limitations to the Consent Process

9. The City exercises its authority to control activity on-street through the issue of scaffold & hoarding licences, permits to dig up the street, traffic orders to allow roads to be closed, approval of Construction Logistics Plans for developments, and the agreement for parking dispensations & bay suspensions for lorries to deliver.
10. However, the City has to act reasonably in exercising these powers, and its ability to control the pace and detail behind major works has a number of limitations. This can often mean using the power of influence to co-ordinate and manage that activity, rather than what might be a limited regulatory authority. For example:
 - The utilities retain wide-ranging statutory powers to excavate the highway; the City's authority is more about timing and impact than the works per se.
 - A developer can decide when they wish to trigger a planning application that leads to a major building site, and highway reparation or enhancement works around the site typically need to be delivered before the building is occupied.
 - As Strategic Transport Authority, TfL have the authority to implement Mayoral transport policy such as the construction of the cycle super highway on their road network.
 - Crossrail, the Bank Northern Line upgrade and Thames Tideway come with bespoke powers enabled by Acts of Parliament that assume primacy of their works over other projects. They disapply many of the

City's normal controls, and are deliberately drafted to limit the ability of a local authority to prevent, delay or control those works.

11. Where the City does have full control is obviously in relation to its own works, and these are programmed to ensure they only proceed with a full understanding of their scale, timing and impact on-street, plus any consequences for network resilience. That means looking to avoid other major projects and works on-street, or equally the main special events

Current Position

Activity Levels

12. The first half of this report looks back at the last year, and despite the volume of street works in the City remaining more than 30% below pre-Olympic levels, the demand for space on the City's highway network has continued to be tested by the largest concentration of major construction initiatives in the Square Mile for many years. Overall, those works can be categorised into four areas:
 - Development activities
 - Major transport projects
 - Utility works
 - City of London works
13. Although utilities are traditionally thought to be the main source of disruption to the highway network, the scale of major projects such as the cycle super highway, Crossrail, Bank Northern Line upgrade and Thames Tideway has changed that profile. Such projects have had a wide ranging impact, but the City is also enjoying the largest boom in building development since 2008, and although this is usually to be welcomed as a sign of a healthy City economy, the current concentration of development requires road space for scaffolds, hoardings, lorries and logistics, as well as associated utility connections.
14. The table below shows the breakdown of road closure applications by source over the last six years.

Road Closure Application Volumes

| Type / Year | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 |
|--------------|------------|------------|------------|------------|------------|------------|
| Developments | 145 | 99 | 107 | 101 | 155 | 231 |
| Utilities | 96 | 68 | 52 | 62 | 67 | 89 |
| Emergencies | 48 | 92 | 69 | 26 | 57 | 68 |
| CoL | 47 | 22 | 25 | 40 | 85 | 89 |
| Other | 11 | 18 | 8 | 3 | 18 | 17 |
| Total | 347 | 299 | 261 | 232 | 382 | 494 |

15. The continuing surge in development activity has fuelled an increase in building-related applications of more than 130% in the last two years, and although most of these applications are for side streets and at weekends (for things like crane operations), a significant number are for much longer periods to facilitate day to day construction activity.
16. In parallel, the number of road closure applications from utilities has increased by a third in the last year, which is also thought to be linked to development activity as most developments require upgraded and diverse supplies from multiple utilities.
17. The table also indicates that last year's increase in road closure applications by the City itself has been maintained. This results from a more proactive approach to highway maintenance issues, where additional funding has been secured to deliver essential road resurfacing and repairs. However, in contrast to building sites, these closures are typically short term and confined to evenings and weekends.
18. As in previous years, officers continue to identify opportunities to combine works from different contractors, thereby reducing the need for yet more closures. This resulted in 584 days of disruption saved on the network between January and July this year - an exceptionally high number for any highway authority - and reflects the pro-active forward looking approach by officers and the level of co-operation by utilities in using round table discussions to draw out medium and long-term works plans.

Traffic Congestion

19. The first half of 2016 saw the delivery of a number of major highway schemes, including:
 - the north / south and east / west cycle super highways by TfL
 - a major gas main upgrade in Newgate Street by National Grid Gas
 - power supply connections by UK Power Networks in Old Broad Street for the Angel Court development
 - the closure of Liverpool St bus station for Crossrail works
 - the closure of the Fenchurch St / Leadenhall St / Aldgate junction for the final major road element of the City's Aldgate scheme.

20. Even with careful advance planning and publicity, each of these works inevitably created pockets of congestion that had to be addressed. One example was the closure of Newgate Street, which in the past had been successfully managed with a diversion through Ludgate Circus. However, with the cycle super highway reducing capacity at that key junction, traffic congestion was greater than previously experienced, and this led City officers, Members and TfL colleagues to identify and implement a new box junction at Ludgate Circus, adjust four bus diversion routes to create capacity, and increase parking enforcement coverage at pinch points, all to mitigate this effect.
21. With so many temporary activities needing to be accommodated, it can be difficult to appreciate and understand the real background level of traffic congestion, but a dedicated officer was brought in and tasked with monitoring the road network in the past six months to try to identify consistent hotspots, and to tackle those hotspots in real time as best they can.
22. To begin with, those observations suggest that the number of occasions when traffic is actually at a standstill is really very low, and when it does happen, the cause is usually traceable to one-off incidents such as a vehicle collision, a badly parked lorry or another form of temporary activity. An example of this was the fatal accident on 29th March that closed Old Street and Great Eastern Street, causing gridlock as far away as Aldgate.
23. Nevertheless, it is accepted that slow moving traffic can be a regular feature of some localised parts of the City, although by contrast other parts of the City can equally flow freely on most days. Observations would suggest that when the network is free from other disruptions, congestion generally happens in the same geographical areas, and is slightly worse in the afternoon peak as traffic leaves both the City and the West End together (see Appendix 8).
24. In terms of those localised areas, they can typically be divided in two, namely the Bank junction and its approaches, and those streets affected by the cycle super highway.
25. The capacity issues at Bank have, of course, been known for some time and are linked to the very nature of the junction and the safety of those who use it. Together with the Monument junction (see below), Bank remains a key pinch point for the City's network, and as Members are no doubt aware, a project is already underway to consider how best to approach the issue of making the junction operate more safely and efficiently. Interestingly enough, the Crossrail project's closure of Moorgate has had a beneficial impact at Bank as this has removed pressure from the Princes Street approach, which in turn has reduced congestion at the junction.
26. Away from Bank, one other consistent theme from our observations has been traffic congestion on those streets carrying the north / south and east / west cycle super highways (Farringdon St / New Bridge St and Upper / Lower Thames St respectively), as well as the primary alternative to the east / west route from Fleet Street to Great Tower Street via Ludgate Hill and Cannon Street.

27. That impact is particularly felt at two locations, namely:

- Monument junction, which is having to balance normal traffic flows of a five way junction with the additional impact of the Arthur Street closure (by TfL), the Tooley Street closure (by Network Rail), a lane closure on London Bridge (for the redevelopment of 33 King William Street) and displaced traffic from the east / west cycle super highway. This will be further complicated by the upcoming diversion for the City's closure of Tower Bridge from October.
- Ludgate Circus, which now has to accommodate new signal phases as well as an 'all red' pedestrian element for the cycle super highway. This has affected the capacity on all four arms, resulting in queues on the approaches extending further than before, and reducing the junction's ability to cope with other temporary activities on the network.

28. As noted earlier, Monument junction remains a key consideration in the overall Bank project, and TfL's attention will no doubt return to Ludgate Circus once Newgate Street reopens following the completion of the gas works there. However, it is understood that TfL will continue to dynamically fine-tune the balance of traffic signal timings at both locations in response to local conditions.

29. Otherwise, TfL continue to do their own monitoring in relation to both general traffic congestion and the impact of the cycle super highway, and some of that information is shared with City officers on a daily basis. These Network Performance Reports largely support our observations of localised traffic congestion on certain routes, but on the wider front, they also suggest that traffic congestion across central London is still limited to known major pinch points (often influenced by construction works), and in other areas the network performs well with a high degree of journey time reliability.

30. Finally, as mentioned earlier, this year DBE has had a dedicated officer troubleshooting issues that might be the cause of slow moving traffic, as well as monitoring the network to identify weekday congestion hotspots. This is primarily done using the City's CCTV coverage, but problems are often investigated on the ground and solved through liaison with any number of key stakeholders, such as:

- Requesting additional parking enforcement from the City's parking contractor, asking for Civil Enforcement Officers to attend to vehicles parked in contravention
- Contacting TfL's Road Traffic Enforcement Officers for assistance on the Red Routes
- Highlighting information to be put out via the City's social media channels
- Seeking assistance from fellow City officers in relation to streetworks and building sites under the umbrella of the Considerate Contractor Scheme
- Contacting TfL to report traffic signal faults or requesting TfL's Traffic Control Centre to adjust traffic signal phasings
- Liaison with the City Police regarding the appropriate response to incidents and accidents

Details of Major Works and Schemes 2016/17

31. The second half of this report looks ahead to the major works expected to take place in the next 12 months from October 2016, including details of how officers have sought to assess, co-ordinate and influence each project in turn. Summary details can be found in the appendices to this report, including an outline calendar of major works proposed in 2016/17 and a map of the locations of these various projects.

Major Transportation Projects

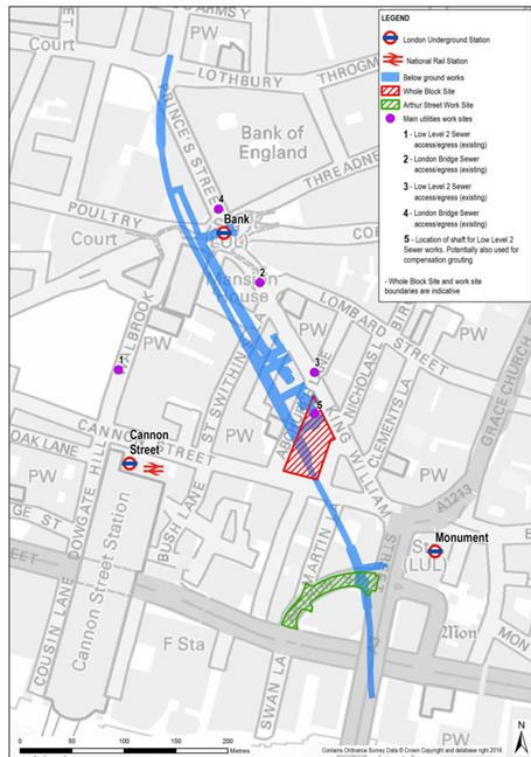
Crossrail

32. Crossrail continues to have a major presence in the Square Mile, but thanks to the close co-operation between the City and the five surface-level construction sites at Moorgate, Liverpool Street, Blomfield Street, Finsbury Circus and Lindsey Street, complaints from the public remain at a very low level, and its impact has been 'manageable'. The scale of the project may be much larger than a 'normal' set of building sites, but Crossrail has managed to become part of the background activity in the City.
33. Moorfields, Moor Place, Finsbury Circus (west arm), Liverpool Street (west), Hayne Street and Charterhouse Square (westbound) all remained closed throughout the last year, and will likely stay closed until the completion of the project. In a repeat of an earlier closure, Moorgate (southbound) closed again in July to facilitate the station construction, and this is currently expected to be in place until March 2017.
34. Now marking five years of close liaison and co-operation, Crossrail and the City continue to meet fortnightly to plan and review the project's highway works, and Crossrail continues to recognise that without this level of commitment, the project would be well behind schedule and have had a far more disruptive impact on City life.

Bank Northern Line Upgrade

35. This project will deliver a new Northern Line tunnel for Bank station by 2022, plus a new ticket hall in Cannon Street, various new interchanges underground, and lift access from street level direct to the Docklands Light Railway.
36. At surface level, the project now has two main worksites, namely Cannon Street for the new station entrance and Arthur Street, where a new shaft will connect to the tunnelling operation.

Bank Northern Line Upgrade: Works Location Plan



37. TfL have had Arthur Street closed for some time to move the utilities in the highway and to start the shaft's construction, and they have now started demolition of the building above the second construction site, closing both Abchurch Lane and Nicholas Lane in order to do this safely.
38. There is still a possibility that TfL will require at least one major road closure away from Arthur Street to complete their advance utility works which are needed to protect utility plant from the vibration and potential settlement of the tunnelling. The key remaining issue involves a gas main directly underneath the pedestrian passageways for Bank station, but given the difficulty in gaining access to that main, National Grid Gas and London Underground are still reviewing how this can be done.
39. City officers have been involved in the overall planning of the Bank project's construction activity since its inception, and continue to meet the project team on a fortnightly basis to discuss the progress of works. Both sides also meet on a regular strategic level to discuss planning considerations, legal consents, noise issues, local stakeholder engagement, adjacent development activity and TfL's overall programme.

Cycle Super Highway

40. As Members are no doubt aware, work to construct the Mayor's separated cycle lane corridors, north / south and east / west across London, has largely completed. Snagging of those works continue with TfL, who are also monitoring a small number of locations where a redesign of the localised network may be needed.
41. However, there are two main locations where TfL are expected to undertake cycle super highway-related works in the next 12 months:
- TfL have committed to amending the junction of Tower Hill and Trinity Square to facilitate a movement into the Square 'at any time', but funding is not available in the current financial year. Therefore works are expected to start in Q2 2017, with lane closures on Tower Hill as utilities need to be relocated and kerbs realigned.
 - TfL have also just completed a public consultation on an extension to the north / south super highway, starting in Farringdon Street by Stonecutter Street and heading north towards Kings Cross. Proposals are still subject to detailed design and approval by TfL's Project Board in March next year, but if approved, works (with lane closures) are likely to start in July 2017.
42. As with the previous super highway programme, City officers will work closely with TfL colleagues to understand the impact of the construction, monitor & inspect any works on City Corporation streets, and co-ordinate activity on the rest of the network.

Thameslink

43. The Thameslink works to upgrade London Bridge station continue, and as part of those works, Network Rail have now closed Tooley Street eastbound until February 2018. As noted earlier, this has placed additional pressure on London Bridge and the Monument junction, and given the upcoming closure of Tower Bridge, TfL will continue to monitor traffic flows in the area and adjust traffic signals to try to balance the needs of all road users.
44. However, it is worth noting that TfL have modelled the combined impact of Tooley Street being closed on the Tower Bridge diversions, and in consultation with the City and LB Southwark, TfL feel the Tooley Street closure will not have a material impact on the congestion from the works at Tower Bridge.

Utilities

45. The volume of utility work taking place in the City has continued to remain low compared to its peak level just before the Olympics, when the pressure to accelerate works prior to the 2012 moratorium coincided with Thames Water's Victorian Mains Replacement programme.

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|----------------------------------|------|------|------|------|------|------|-------|
| Total Permit Applications | 3755 | 4379 | 3331 | 3319 | 3099 | 3074 | 3115* |

* Projection based on permit application volumes from Jan-June 2016.

46. Since the Olympics, only National Grid Gas have sought to undertake proactive capital upgrade works to their infrastructure, leaving the remaining utilities to focus on development connections, faults and emergencies. This low volume of work (compared to 2011) is reflected in a relatively low number of permits applications, with just a small increase expected this year over 2015.

47. However, looking into these figures in more detail, officers believe the impact of the development boom is being felt, and the proportion of permits within these figures that relate to the delivery of additional power, heating, cooling and telecom requirements for new developments is increasing.

Citigen: Customer Connection to the Barts Square Development

48. Citigen are currently installing a heating & cooling supply to the new development in Bartholomew Close from the mains connection in Aldersgate St. These works are much larger than a typical utility operation, involving the installation of four 320mm pipes, 2m below the road surface, beneath the existing utility and drainage networks already in place.

49. This project began in early 2016 and won't be finished until Spring 2017, just in time for the first occupation of Helical Bar's Bartholomew Square development. Having laid pipes along Bartholomew Close and Newbury Street, the current phase involves a closure of Long Lane eastbound and 'no right turns' at the Aldersgate Street / Long Lane junction, as Citigen cope with the needs of local premises, through traffic, and the fact that these pipes will lie just above the Tube lines.

50. Works have been closely co-ordinated with residents, Smithfield, TfL and Crossrail, and in particular, Citigen will reopen Long Lane in December in recognition of the needs of the Market, who require all access & egress points to be available during their peak festive period.

Combined Utility Works: Cornhill / Leadenhall St

51. Three utilities have highlighted their need to undertake major works along the east / west corridor of Cornhill and Leadenhall St. They are:
- BT, who need to demolish and rebuild a major carriageway chamber in Cornhill that is starting to fail.
 - Thames Water, who need to undertake a series of new connections, some left over from the Victorian Mains Replacement project.
 - UK Power Networks, who need to complete the permanent power supply connections to the Scalpel and 10 Fenchurch Ave developments
52. These three sets of works (plus the City's work at Aldgate – see below) are all expected to require directional road closures lasting several weeks, so City officers are proceeding on the basis of combining those works into one combined corridor closure, minimising the extent of their individual impacts. This is likely to take place in early 2017, once the works at Tower Bridge have finished.

Water Main Repair: Old Broad Street

53. During the recent closure of Old Broad Street by UK Power Networks, a whole series of other utility works were combined into the closure and then the road was resurfaced by the City. During that work, Thames Water disappointingly identified that the majority of the Victorian Mains Replacement work that they thought had been completed in Old Broad Street was in fact unfinished, and they have since requested the opportunity to return to fix this.
54. However, given the street has just been resurfaced, City officers are not inclined to prioritise an immediate excavation, although Thames Water's long-term need to tackle potential sources of leakage is fully recognised. Other planned works also mean an immediate working window is not available.
55. As a result, works are likely to take place sometime next year, but as part of these discussions, Thames Water will be pressed to resurface a wider part of the street to compensate for the disturbance to our new road surface (as opposed to just a narrow reinstatement of their works area).

Thames Water: Thames Tideway Tunnel

56. Thames Water's project will involve a large construction site in the Thames connecting London's 'super sewer' to the outfall of the River Fleet, just west of Blackfriars Bridge. This particular outfall is high on Thames Water's priority list as it still discharges around 500,000 tonnes of raw sewage into the Thames every year.

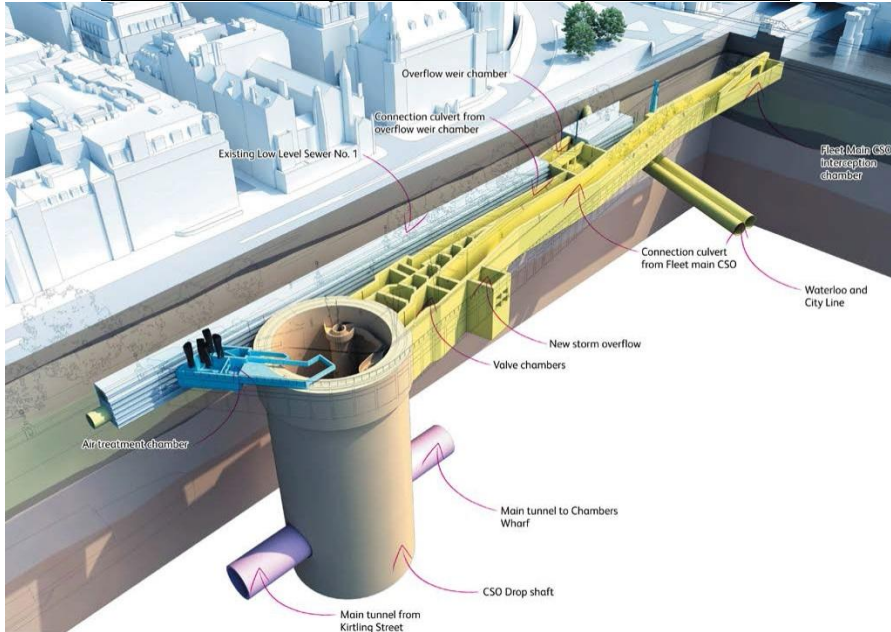
57. Enabling works have already started, with a new pedestrian lift under construction, and Blackfriars Pier about to be relocated east of Blackfriars Rail bridge. Main site construction will begin in March 2017, with two main consequences:

- Firstly, the works will involve the removal of the riverside walkway to enable the shaft, overflows and valve chambers to be constructed. This will close the riverside footpath, and requires pedestrians to be diverted via the new lift, across the Blackfriars junction and towards Temple Ave.
- Secondly, the site will be located at the intersection of the north / south and east / west cycle super highways, and will require the closure of the down ramp from Blackfriars Bridge to the Embankment. This is currently occupied by the connecting link between the two cycle routes, and will require a significant revision of TfL's scheme. TfL and Thames Tideway have been scoping several options to divert this interchange, and are expected to bring those to the City very shortly.

Thames Tideway Tunnel Location at Blackfriars



Thames Tideway Tunnel Cut-away at Blackfriars



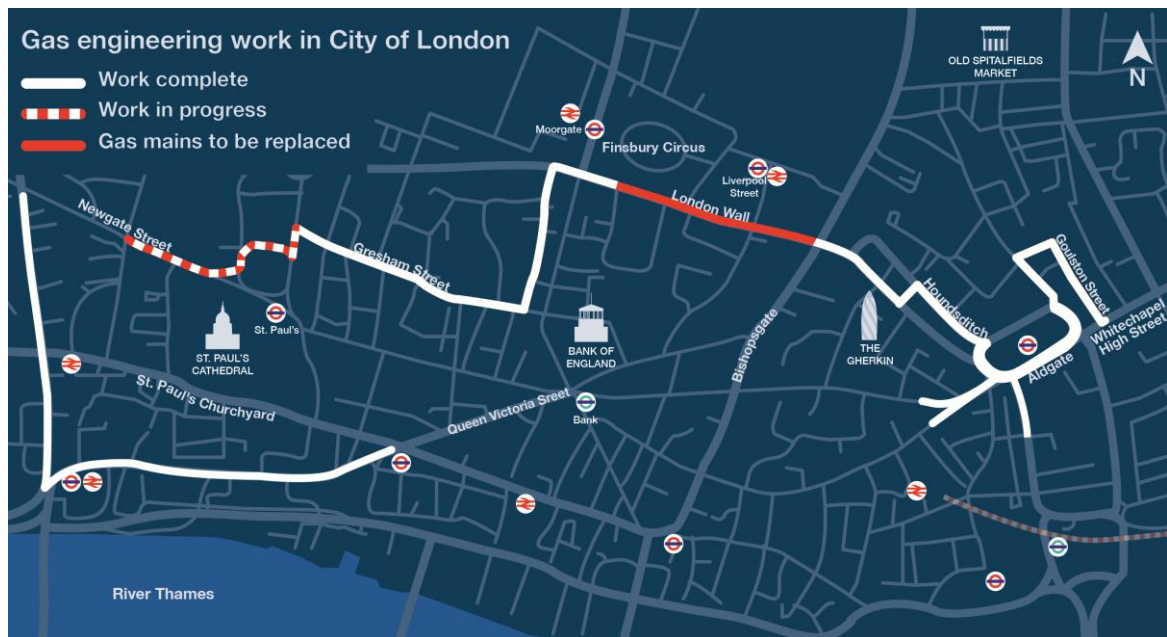
58. As with Crossrail, City officers now meet the Thames Tideway project team fortnightly to discuss these highway aspects, and a forum for higher level cross-borough strategic discussions has been in place for several years. However, the City expect Thames Tideway's local level stakeholder engagement to accelerate in the next few months as they move towards the mobilisation of their major site works.

National Grid Gas: Gas Main Replacement Programme

59. National Grid Gas (NGG) are replacing and upgrading their Victorian gas mains with new, more durable pipes across the City, from Aldgate in the east to Farringdon and Blackfriars in the west. The works are part of a wider long-term programme agreed with Ofgem and the HSE to replace ageing gas mains, and are essential to reduce leakage and maintain a safe and reliable gas supply.

60. As Members will know, in the last year NGG have completed this process in the Aldgate area, Gresham Street, St Martins le Grand, Angel Street and (most recently) Newgate Street. The map below indicates that the last remaining part of their network needing to be upgraded is in London Wall by Circus Place, which Members may know has been subject to a number of leaks and emergency road closures in the last six months.

National Grid Gas: Works Complete (white) / Outstanding (red)



61. Given the size of the main involved and its location under several other utilities, the works in London Wall will be a major undertaking, likely to need a closure in one direction to facilitate work at several places at once. Each existing main has to be exposed at both ends to allow the new main to be inserted inside the old one, and this process has to begin again every time there is a bend in the pipe.
62. In their work so far, NGG have sought to minimise the duration of their works by using a number of methods including the use of robotic cameras to pinpoint any bends or obstructions inside the gas main, extended working hours agreed with City Environmental Health, and new techniques to excavate the road known as core & vac.
63. We will expect them to adopt the same practices here, and to fully publicise the works to the widest possible extent beforehand. In the City's wider programme, the ideal time for this work is in summer 2017, co-ordinated with Crossrail and a number of other utility works in the vicinity. In addition, this timing will be when traffic levels are at their lowest, and the gas mains pressure is best suited for this work.

Development Activities

64. Once a developer has a planning consent in place, the City cannot control when a development wants to start, nor do we have the power to stop a development just because other activities are taking place in the vicinity. In other words, we are unable to set an arbitrary limit on the volume of development taking place in any one area
65. In many ways, redevelopment of the City has historically been seen as an indication of a thriving Square Mile, but given the overall level of on-street

activity is noticeably higher, work sites will inevitably overlap in places as they bring with them a need for road space, a reduction in network capacity and additional heavy vehicle traffic to our streets.

66. However, those same streets still need to function for residents, businesses and visitors, and be safe for motor vehicles, cyclists and pedestrians. To that end, we have staff dedicated to liaising with building sites to understand their construction needs, to working with the major projects to help manage their impacts, and to co-ordinating activities so that works overlap as little as possible.
67. That typically involves making the best use we can of the tools we have at our disposal, including our Considerate Contractor Scheme (which currently has over sixty active building sites as members) and Construction Logistics Plans for sites that are conditioned from the Planning approval process.
68. For the next 12 months, the key activities relating to building developments in the City are briefly as follows.

London Wall Place

69. Works will be required to reinstate the highway and enhance the public realm around the London Wall Place development in London Wall, Fore Street and Wood Street (see Appendix 4). The largest element will be in London Wall itself, where the footway will need to be extended over the underground car park to accommodate the new building design, albeit the construction space required is likely to mirror the same eastbound lane closure currently used by the site's lorries.
70. Works will be phased in stages around the development from November 2016 to January 2018, with the key London Wall element taking place in the first half of 2017.

Bloomberg

71. Similarly, works have already started in Walbrook to implement the new public realm and highway design around the Bloomberg development at Cannon St / Queen Victoria St. This 20 month programme involves new paving, kerb lines, trees and lighting on all four sides of the site, co-ordinated in phases with the completion of the development (see Appendix 5).
72. Works have already been integrated into the wider City programme, including the closure of Tower Bridge and the implementation of the 'Bank on Safety' project. This advance planning process led to a major reprogramming exercise when the original first phase in Cannon St was thought to clash with Tower Bridge, and now this phase has been delayed until Q1 2017 in order to fit between that project and the likely Bank implementation date.

Eastern Cluster

73. The greatest concentration of activity in the City is still in the Eastern Cluster, where the number of individual building sites proposed or already underway has increased to 24 (see Appendix 6).
74. It is almost inevitable that works for 100 Bishopsgate, Creechurch Place, the Scalpel, the Matrix Hotel, 80 Fenchurch St, 75 Fenchurch St and 120 Fenchurch St will overlap, but the City continues to meet these sites together once a month to co-ordinate their respective programmes, and to combine (or separate) their utility works, crane operations and construction logistics. This also allows officers the opportunity to feed in our plans for Aldgate and Tower Bridge, look ahead to the future enhancement of Fenchurch Street and keep key stakeholders such as Lloyds of London informed.

City of London Works

75. Although most of the City Corporation's own schemes for public realm enhancement, road danger reduction or highway maintenance are due to take place with little if any disruption to the network, three significant schemes are worthy of note.

Tower Bridge

76. The City's project to re-deck the bascules of Tower Bridge and to waterproof the viaduct approaches will result in a three month closure of road and river traffic at Tower Bridge from October to December, including three weekends when the bridge will be closed to pedestrians as well. This will also require the diversion of the Congestion Charge Ring Road through the City, via London Bridge, Southwark Bridge, Eastcheap and Fenchurch Street.
77. Closing Tower Bridge will have a significant impact on traffic throughout much of the City (see TfL's assessment in Appendix 7), and it will be the dominant planned activity throughout that period. As a result, all other major network activities (beyond Crossrail and the Bank Northern Line Upgrade) have already been brought forward or delayed, and the publicity campaign to raise awareness of the works has already started.

Aldgate

78. Members will be fully aware of the City's own programme of works to regenerate and redefine the Aldgate gyratory. In the context of this report, the City has now completed the highway works elements, leaving the completion of the pavilion and the landscape spaces.

79. The only major road closure required relates to the completion of the western landscape space directly adjacent to Aldgate High Street, and an eastbound closure lasting a month may be required to complete this in early 2017. However, in order to minimise the impact of these works, the City intends to include this within the closure of the east / west corridor mentioned earlier for BT, Thames Water & UKPN.
80. As before, works will be carefully planned with TfL, traffic will be advised beforehand and there will be wide publicity to those who live and work in the area via our well-established communications channels and co-ordination protocols.

Bank Junction

81. As the 'Bank on Safety' project progresses towards the consideration of an experimental scheme, Highways officers are working with the Bank team to understand the network resilience implications of removing traffic from Bank. In both the interim design and the permanent options, the on-going need to manage temporary activities and road closures on the network will be factored into this assessment.
82. The current programme suggests that if approved, the 'Bank on Safety' scheme will be implemented in April 2017, and so all the works programmes listed above, both overlapping this date and subsequent to it, will have to be considered in the context of this new traffic environment.

Communications

83. The Highways team continues to strengthen its communications with the public, helping to mitigate the impact of all these works. These channels include:
- 2,900 followers to the Highways Twitter feed (@squarehighways), providing up-to-date information on road closures, special events and road safety initiatives.
 - Nearly 1,200 people receive the weekly e-mailed Traffic Management Bulletin, covering major highway works and events for the week ahead.
 - Over 53,000 people visited our road closure web pages in the first half of the year, and another 14,000 used our interactive map of streetworks.
 - The recent post on our Facebook page regarding the Tower Bridge works (www.facebook.com/squarehighways) reached almost 4,000 people.

Summary

84. The approach from officers remains to identify the needs of these major projects early, to combine them where possible, and to keep them apart when necessary. This requires officers to:

- establish the dependency between separate projects;
- understand their potential conflicts and impacts, and;
- engage with project managers at an early stage (and frequently thereafter) to ensure that disruption can be minimised through a combination of regulation, negotiation and influence.

Conclusion

85. With projects such as Crossrail, Thames Tideway and Bank Northern Line Upgrade now well underway, co-ordinating works on the City's road network will remain a challenge into the longer term, but officers will continue to work to ensure the co-operation of major project sponsors, utility companies and developers in co-ordinating their works programmes, as well as regulating the City's own activity into that picture.

86. The aim will remain to ensure there is a balance between the need to keep projects on track and the need to limit both the direct and cumulative impact they cause on the public at large.

Appendices

- Appendix 1 – Major Works Timeline (2016/17)
- Appendix 2 – Major Works Map (2016/17)
- Appendix 3 - Major Works Details (2016/17)
- Appendix 4 – London Wall Place Highway Works: Phasing Plan
- Appendix 5 - Bloomberg Highway Works: Phasing Plan
- Appendix 6 – Current and proposed sites in the Eastern Cluster
- Appendix 7 – Tower Bridge Diversions & Impact
- Appendix 8 – Cycle Super Highway Congestion Impact Corridors

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Appendix 1: Major Works Timeline 2016/17 (High, Medium & Low Impact schemes)

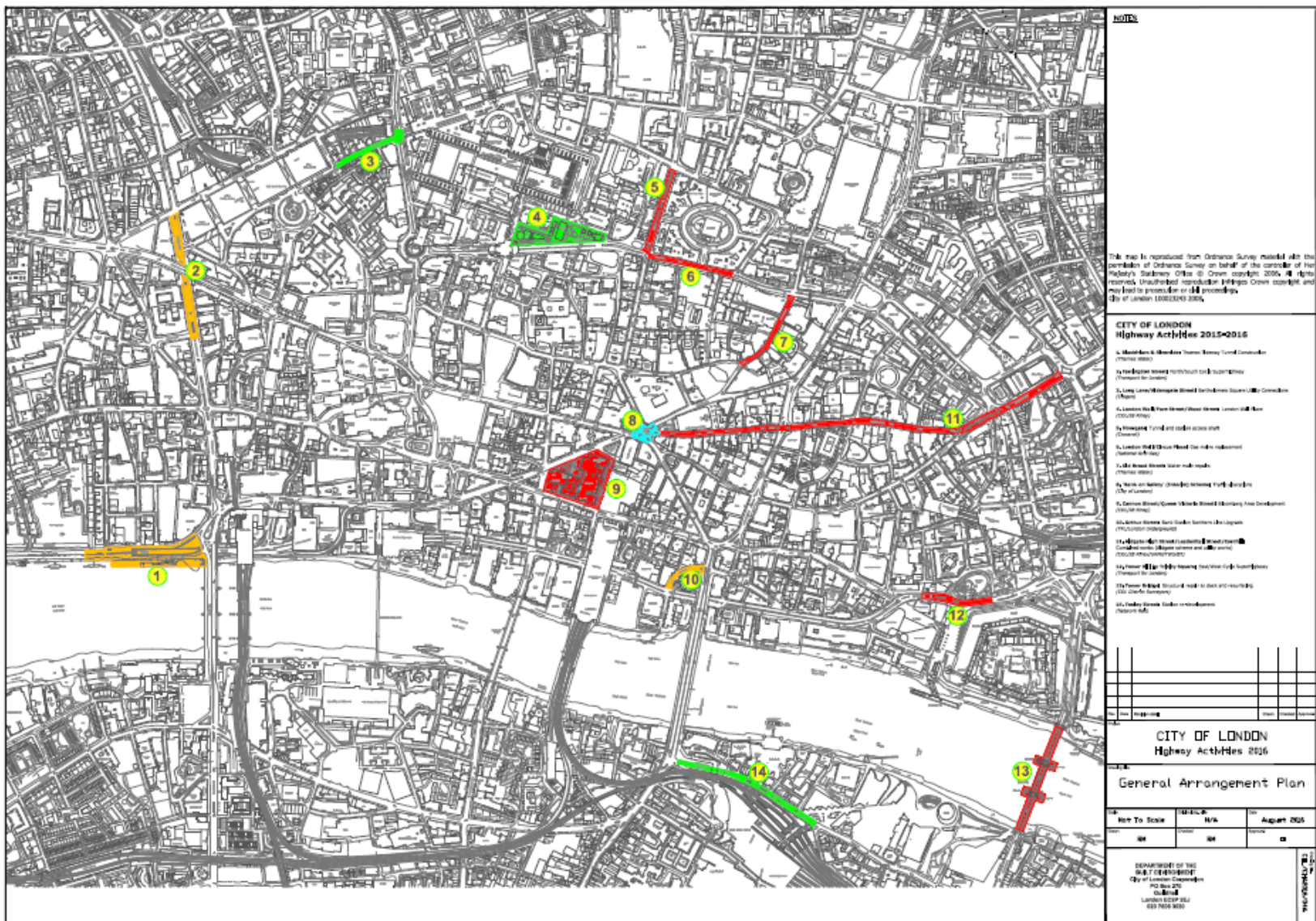
| | | | |
|----|---|--|---|
| Q4 | <p>October</p> <p>Tower Bridge (CoL) Moorgate S/B (Crossrail)</p> <p>Arthur St (TfL / LUL)</p> <p>Tooley St (Network Rail) Long Ln / Aldersgate St (Citigen)</p> | <p>November</p> <p>Tower Bridge (CoL) Moorgate S/B (Crossrail)</p> <p>Arthur St (TfL / LUL)</p> <p>Tooley St (Network Rail) Long Ln / Aldersgate St (Citigen)</p> | <p>December</p> <p>Tower Bridge (CoL) Moorgate S/B (Crossrail)</p> <p>Arthur St (TfL / LUL)</p> <p>Tooley St (Network Rail)</p> |
| Q1 | <p>January</p> <p>Moorgate S/B (Crossrail) Cannon St W/B (Bl'mberg)</p> <p>Arthur St (TfL / LUL)</p> <p>Tooley St (Network Rail) Long Ln / Aldersgate St (Citigen)</p> | <p>February</p> <p>Moorgate S/B (Crossrail) Cannon St W/B (Bl'mberg)</p> <p>Arthur St (TfL / LUL)</p> <p>Tooley St (Network Rail) Long Ln / Aldersgate St (Citigen) London Wall Place (E/B)</p> | <p>March</p> <p>Moorgate S/B (Crossrail) Cannon St W/B (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT)</p> <p>Tooley St (Network Rail) London Wall Place (E/B)</p> |
| Q2 | <p>April</p> <p>Cannon St W/B (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT)</p> <p>Tooley St (Network Rail) London Wall Place (E/B)</p> <p>*'Bank on Safety' (CoL)</p> | <p>May</p> <p>Queen Vic St (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT)</p> <p>Tooley St (Network Rail) London Wall Place (E/B)</p> | <p>June</p> <p>Queen Vic St (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT)</p> <p>Tooley St (Network Rail) London Wall Place (E/B)</p> |
| Q3 | <p>July</p> <p>Cannon St W/B (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT) Farringdon St (TfL CSH)</p> <p>Tooley St (Network Rail)</p> | <p>August</p> <p>Queen Vic St (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT) Farringdon St (TfL CSH)</p> <p>Tooley St (Network Rail)</p> | <p>Sept</p> <p>Queen Vic St (Bl'mberg)</p> <p>Arthur St (TfL / LUL) B'friars/Vic Embank (TTT) Farringdon St (TfL CSH)</p> <p>Tooley St (Network Rail)</p> |

* This notes the anticipated date for the introduction of the 'Bank on Safety' scheme.

To be programmed:

| Location | Contractor | Works | TM | Duration | Timing |
|----------------------------|-------------------|------------------------|-------------------|-----------------|---------------|
| Leadenhall St | UKPN | Customer connection | E/B closure | TBC | Q1 2017 |
| Aldgate High St | CoL Highways | Aldgate scheme | E/B closure | 1 month | Q1 2017 |
| Cornhill | TWU / BT | Combined utility works | Full/part closure | 10 weeks | Q1 2017 |
| | | | | | |
| Old Broad St | Thames Water | Mains repair | Full closure | 12-20 weeks | Q1-Q2 2017 |
| | | | | | |
| London Wall / Circus Place | NGG | Gas governor | E/B closure | TBC | Q2-Q3 2017 |
| | | | | | |
| Byward St / Trinity Square | TfL | Cycle Super Highway | Lane closure | TBC | Q2/Q3 2017 |

Appendix 2 – Major Works Map 2016/17



Appendix 3: Major Works Details 2016/17

| No. | Location | Activity | Contractor | Traffic Mgt | Impact | Start | Finish | Cert.* | Powers |
|-----|--|--|--------------------------------------|---------------------------------------|--------|-------------|------------|--------|-----------|
| 1 | Blackfriars & Riverside | Thames Tideway Tunnel construction | Thames Tideway Tunnel (Thames Water) | Slip road closure & lane restrictions | Med | March 2017 | 2021 | High | TWA |
| 2 | Farringdon Street | North / south cycle super highway | TfL | Lane restrictions & side road closure | Med | July 2017 | Dec 2017 | Med | TfL / CoL |
| 3 | Long Lane / Aldersgate Street | Utility connections for Barts Square development | Citigen | E/B road closure & No Right Turns | Low | In progress | Feb 2017 | High | CoL |
| 4 | London Wall / Fore Street / Wood Street | Area enhancement around London Wall Place | CoL (Riney) | Eastbound lane closure | Low | Feb 2017 | June 2017 | High | CoL |
| 5 | Moorgate | Tunnel & station access shaft | Crossrail | Southbound road closure | High | In progress | March 2017 | High | TWA |
| 6 | London Wall / Circus Place | Gas mains replacement | National Grid Gas | London Wall closed E/B | High | Q2 2017 | Q3 2017 | High | CoL / TfL |
| 7 | Old Broad Street | Water main repairs | Thames Water | Road closure | High | Q1 2017 | Q2 2017 | Low | CoL |
| 8 | 'Bank on Safety' experimental scheme | Traffic alteration | CoL | TBC | TBC | April 2017 | April 2017 | Med | CoL / TfL |
| 9 | Cannon Street / Queen Victoria Street | Area enhancement around Bloomberg development | CoL (Riney) | Westbound road closures | High | Jan 2017 | Oct 2017 | High | CoL / TfL |
| 10 | Arthur Street | Bank Northern Line Upgrade construction | TfL (London Underground) | Road closure | Med | In progress | 2022 | High | TWA |
| 11 | Aldgate High St / Leadenhall St / Cornhill | Combined works (Aldgate scheme & utility works) | CoL (Riney), UKPN, TWU, BT | Eastbound road closure | High | Q1 2017 | Q1 2017 | Low | CoL / TfL |
| 12 | Tower Hill by Trinity | East / West cycle | TfL | Lane restrictions | High | Q2 2017 | Q3 2017 | Med | TfL / CoL |

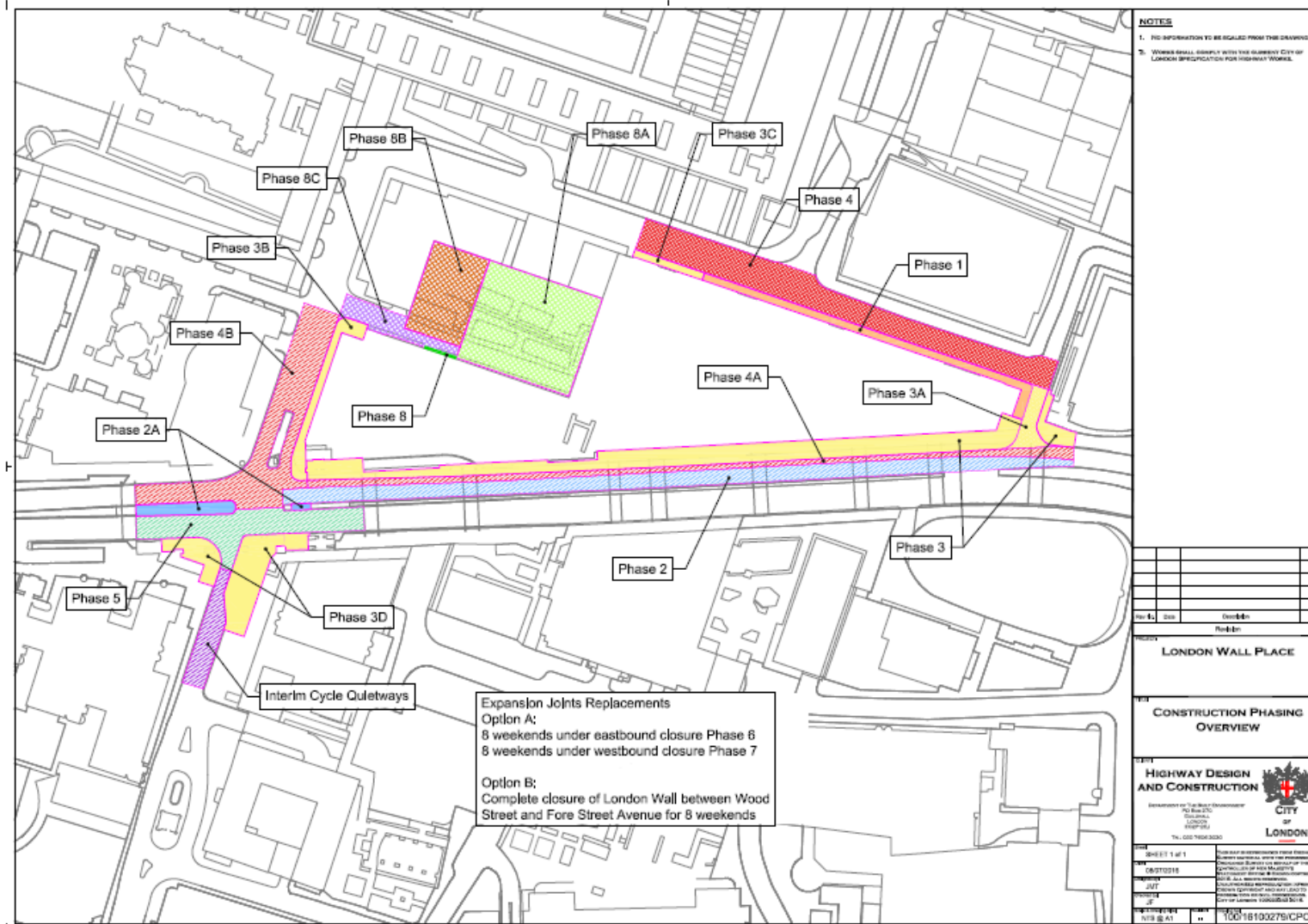
| | | | | | | | | | |
|----|--------------|---|--------------------------|----------------------------------|------|-------------|----------|------|-----------|
| | Square | super highway | | & side road closures | | | | | / LBTH |
| 13 | Tower Bridge | Structural repair to deck & resurfacing | CoL (District Surveyors) | Road & (part) pedestrian closure | High | Oct 2016 | Dec 2016 | High | TfL / PLA |
| 14 | Tooley St | Station redevelopment | Network Rail | Eastbound road closure | Low | In progress | Feb 2018 | High | TfL |

* Cert = Certainty, or how likely the programme is currently expected to be met

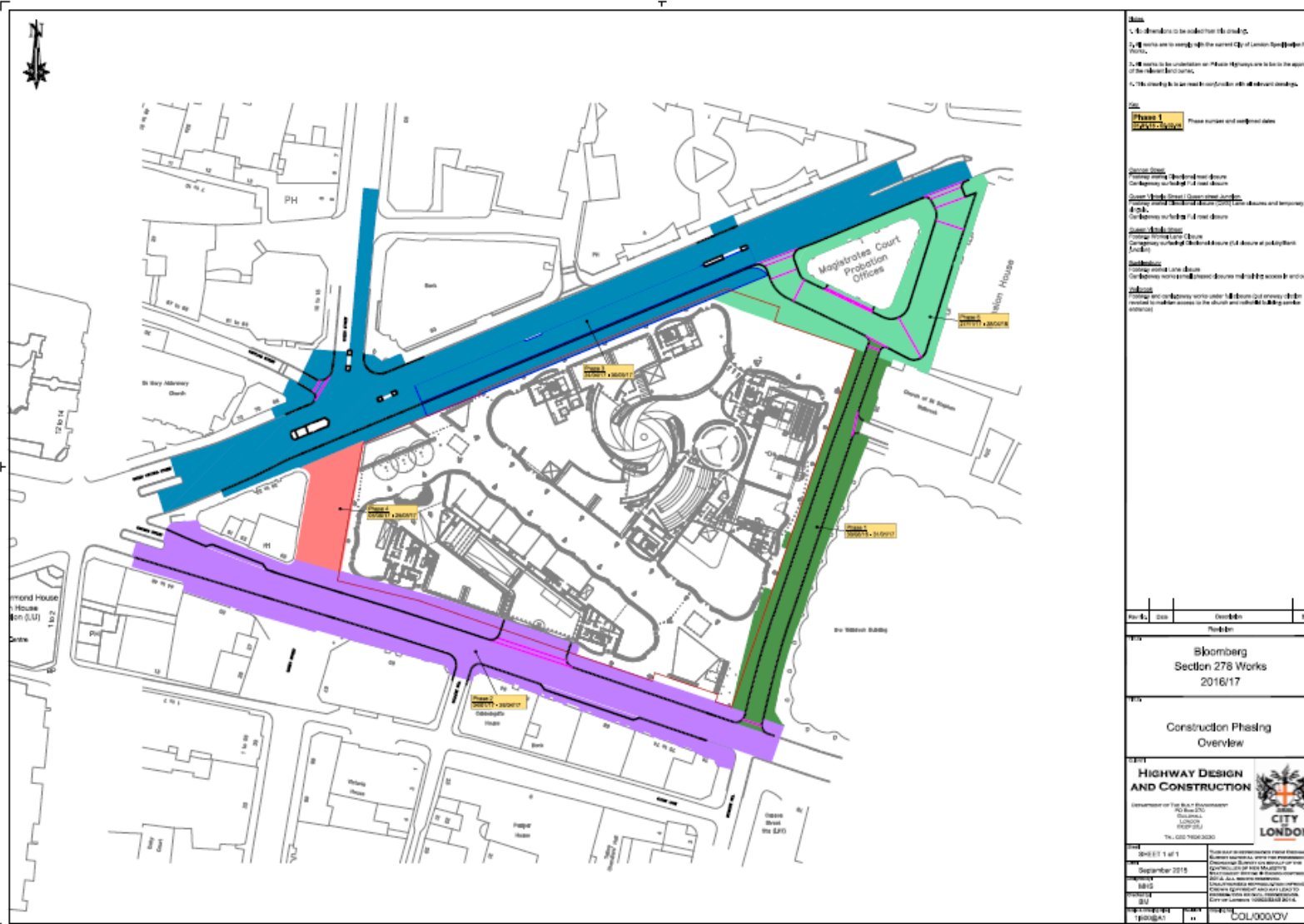
Powers

- CoL = City Corporation authority required
- TfL = TfL authority required (either as highway authority on the Red Routes, or as overall Strategic Transport Authority)
- LBTH = London Borough of Tower Hamlets authority required
- TWA = Transport & Works Act granting bespoke powers to the work promoter (Crossrail Act, Northern Line upgrade, Thames Tideway)
- PLA = Port of London Authority approval required

Appendix 4 – London Wall Place Highway Works: Phasing Plan

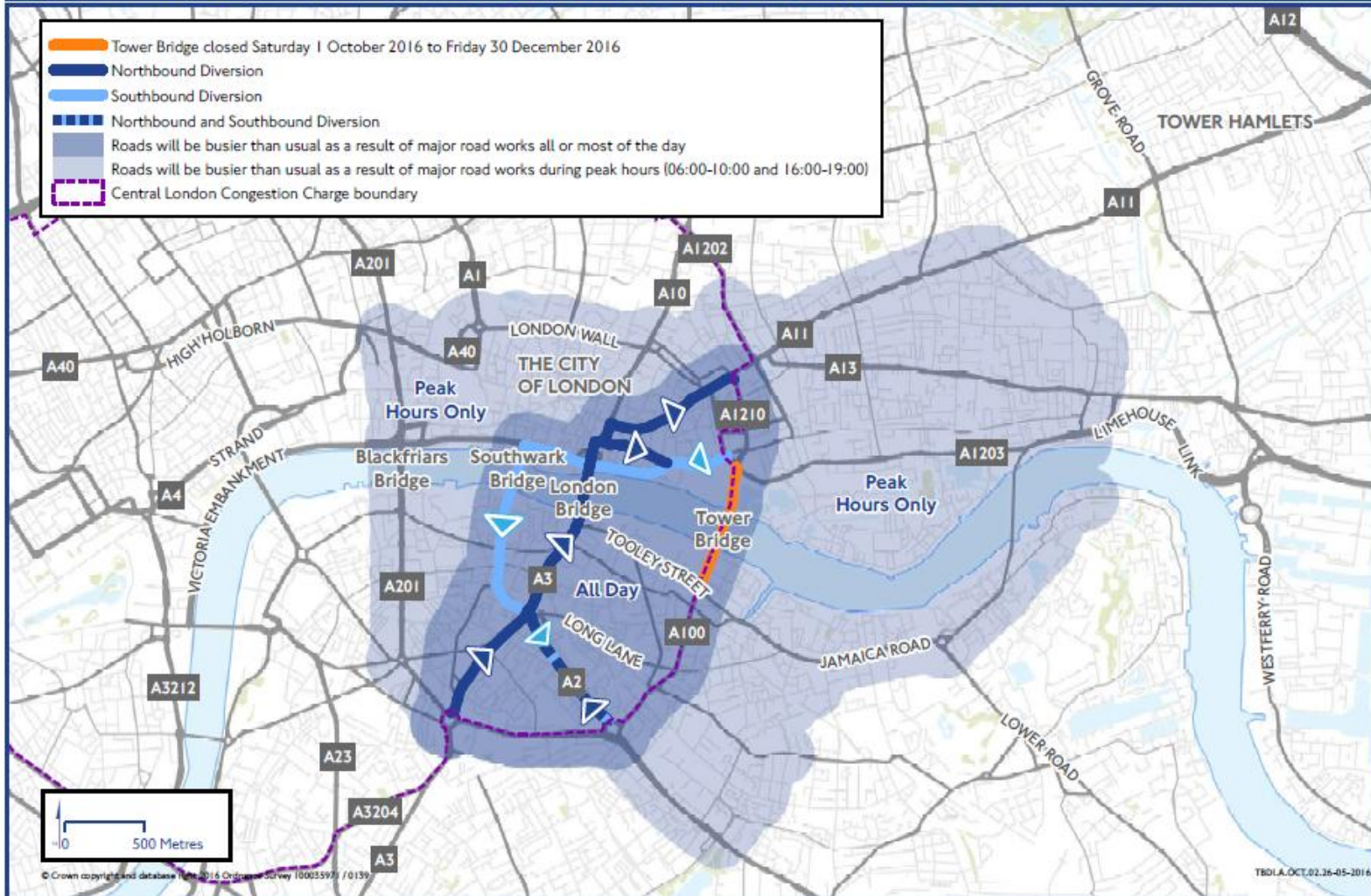


Appendix 5 – Bloomberg Highway Works: Phasing Plan



Appendix 7 – Tower Bridge Diversions & Impact

Tower Bridge closure: Saturday 1 October 2016 to Friday 30 December 2016



Appendix 8 - Cycle Super Highway Congestion Impact Corridors

