

Chapter 12

Interaction with other major projects

12.1 Introduction

- 12.1.1 This chapter describes the cumulative impacts arising from the interaction between the construction of Crossrail and other major projects. A full list of the documents referred to in this chapter is given in Section 12.4.
- 12.1.2 Prediction and evaluation of cumulative impacts is not straightforward since it is not always possible to directly combine different types of environmental impacts on an objective basis. Nevertheless, Government guidance (DoE 1994) on evaluating environmental information for planning projects notes that: ‘an impact which has cumulative effects is likely to be a more serious concern and should be highlighted’.

12.2 Definition of Cumulative Impacts

- 12.2.1 Cumulative impacts may be broadly defined as impacts that result from the accumulation of a number of individual impacts (EC, 1999, p iii and Section 2.1). They may result from various types of interaction, including:
- impacts which are the result of the combination of activities associated with Crossrail together with other development projects (for example, impacts caused by Crossrail construction may be exacerbated by construction activity from other major construction projects nearby) – these impacts are identified in this chapter;
 - impacts that arise from the accumulation of different impacts at a specific location (for example, construction noise and visual intrusion affecting a receptor – individually these may not be significant, but the accumulation of different impacts may give rise to an overall significant impact) – these impacts are identified in the relevant route window in Chapters 8 to 11; and
 - the accumulation of impacts of the same type at different locations (for example, non-significant individual ecological impacts at different sites collectively may give rise to an overall significant ecological impact in a route-wide context) – these impacts are identified in Chapter 7.

12.3 Assessment of Cumulative Impacts

Introduction

- 12.3.1 There are a number of key interfaces with other major projects that may occur at the same time as the Crossrail project, and any potential interactions are described in this chapter.
- 12.3.2 The other developments identified which may potentially interact with Crossrail and create cumulative environmental impacts have been chosen primarily through knowledge of other major infrastructure projects planned for development. Account has also been taken of major transport projects that are likely to be under construction at the same time as Crossrail (and form part of the 2016 baseline scenario for the modelling of Crossrail passenger flows).

12.3.3 The major developments that have been considered in this cumulative assessment are as follows:

- Thameslink 2000;
- the East London Line Extension;
- the Lower Lea Valley Olympics and Legacy Developments;
- Stratford City;
- the Thames Gateway Bridge; and
- the Docklands Light Railway, Woolwich Arsenal Extension.

Thameslink 2000

- 12.3.4 There is a potential that the construction of Crossrail will interact with works to construct Thameslink in Route Window C6 at Farringdon station. Network Rail has applied for an Order under the Transport and Works Act 1992 for powers to construct and operate the Thameslink 2000 project. It has also applied for various related planning consents.
- 12.3.5 For the purposes of this cumulative assessment, it is assumed that the new Thameslink station at Farringdon (if a Transport and Works Act Order were made) would be fully operational by December 2010. There would be a period of 36 months (between January 2008 and December 2010) where construction of Crossrail might overlap with the Thameslink works. Should this occur, the principal area of interaction would be around the Crossrail western ticket hall.
- 12.3.6 A review of the Thameslink Environmental Statement (Network Rail 2004), submitted in June 2004, indicates that the Thameslink construction works would result in significant impacts due to noise, vibration, visual intrusion and dust in the vicinity of Farringdon station.
- 12.3.7 The works to construct Crossrail will not result in significant impacts due to vibration or dust. However, significant noise impacts will occur during the construction of Crossrail and these may combine with those from the Thameslink works to give rise to higher noise levels than would otherwise be the case. The Secretary of State will ensure that any nominated undertaker will work closely with the Thameslink 2000 project team and the local authority to agree measures, prior to the start of works, which will ensure that any potential for cumulative impacts is kept to a practical minimum. Table 12.1 describes the interactions between the construction noise impacts that will occur from both projects.
- 12.3.8 The only significant traffic and transport impact predicted at Farringdon during the Crossrail works will occur due to the loss of off-street parking spaces around Smithfield. It is possible that this impact could be exacerbated during any overlapping period with the Thameslink 2000 works. If this were the case, the Secretary of State will ensure that any nominated undertaker will work closely with the Thameslink 2000 project team and the local highway authorities to plan works in order to minimise any cumulative impacts.

Table 12.1 Cumulative Construction Noise Impacts Arising from the Interaction between Crossrail and Thameslink 2000

Topic	Crossrail Impact	Thameslink 2000 Impact	Cumulative Impact
Construction noise	<p>2 residential properties on Cowcross Street impacted for one month during the daytime.</p> <p>1 commercial property on Farringdon Road impacted during the day.</p>	<p>5 residential properties on Cowcross Street will be affected on occasional nights over a period of about 21 weeks as well as over a few weekends.</p> <p>Up to 5 commercial properties on Cowcross Street will be significantly affected during the day for a period of up to 11 weeks; a further 10 to 15 will be similarly affected for up to 35 weekends.</p> <p>25 to 30 residential properties on Turnmill Street will be affected regularly during the night over a period of about 52 weeks and for about 10 weekends.</p> <p>Up to 5 commercial properties on Turnmill Street will be significantly affected during the day for up to 16 weeks and for up to 10 weekends.</p> <p>5 to 10 residential properties on Farringdon Road will be affected regularly during the night over a period of about 28 weeks.</p>	<p>The combination of these two projects over a period of 36 months is likely to result in significant cumulative impacts arising from construction noise. This, together with the significant dust and visual intrusion impacts that will arise from the Thameslink project, are likely to combine to create a heightened sense of awareness of two large-scale construction projects.</p>

East London Line Extension

- 12.3.9 The Crossrail construction works at Pedley Street and Whitechapel station will be carried out over a 40 month period from mid 2007 to late 2010. These works will interact with those to construct the East London line extension (ELLX) in Route Window C8 (Whitechapel). For the purposes of this cumulative assessment, it is assumed that the ELLX will be fully operational by autumn 2009. There will be a period leading up to autumn 2009 where construction of Crossrail will overlap with the ELLX works. This will last for approximately two and a half years.
- 12.3.10 Given the likely nature of the ELLX works proposed at Pedley Street and the track relaying at Whitechapel, it is likely that significant temporary disruption will arise from noise and visual intrusion.
- 12.3.11 The works to construct Crossrail will also result in significant impacts due to noise and visual intrusion. The Pedley Street worksite will operate 24 hours per day, and any noise impacts may therefore combine with those from the ELLX works in this area to give rise to higher noise levels and visual intrusion than would otherwise be the case. This is particularly the case at Weaver House because this property sits between both the Crossrail works (located to the north) and the ELLX works (located to the south). As a result, the Secretary of State will ensure that any nominated undertaker will work closely with the ELLX project and the local planning authority to agree measures, prior to the start of works, which will ensure that these cumulative impacts are kept to a practical minimum.
- 12.3.12 No traffic and transport impacts are predicted at the Pedley Street worksite during the Crossrail works. The main road access for the ELLX work is via the Bishopsgate Goods Yard, west of Brick Lane, with lorry accessing a secondary access at the eastern end of the site from Vallance Road. Crossrail will share this access point although it is possible that during any overlapping construction period a combination of lorry movements from the two projects could cause a significant impact. If this were the case, the Secretary of State will ensure that any nominated undertaker would work closely with the ELLX project team and the local highway authorities to plan works in order to minimise or mitigate against any cumulative impacts.
- 12.3.13 Table 12.2 describes the interactions between the different environmental impacts that will occur from both projects.

Table 12.2 Cumulative Impacts Arising from the Interaction between Crossrail and ELLX

Topic	Crossrail Impact	ELLX Impact	Cumulative Impact
Construction noise	Significant noise impacts are expected from construction works. Pedley Street worksite will operate 24 hours per day and residences around the site will be affected.	Significant noise impacts are also expected in the same area arising from the ELLX project. These are predicted to impact the same residences.	The two projects will impact on the residences in the area of Pedley Street, in particular Weaver House which is likely to experience more significant noise impacts than those from each project individually and for an extended period of time.
Traffic and transport	No traffic and transport impacts are predicted for the Pedley Street worksite.	Road works will occur on Pedley Street, Fleet Street Hill, Brackley Street and Weaver Street. Replacement access will be provided by a new road from Vallance Road and the Code Street Extension. Pedestrian access will be provided by a new footbridge at Fleet Street Hill.	The combined works have the potential to cause a significant impact on traffic and transport in surrounding residential areas such as Weaver House and Vallance Road due to road works and the combined lorry movements.
Visual intrusion	Significant visual impacts are expected from construction works. Pedley Street worksite will operate 24 hours per day and residences around the site will be affected.	Significant visual impacts are also expected in the same area arising from the ELLX project. These are predicted to impact the same residences.	The two projects will impact on the residences in the area of Pedley Street, in particular Weaver House which is likely to experience more significant visual impacts than those from each project individually and for an extended period of time.

Lower Lea Valley Olympics and Legacy Developments

- 12.3.14 Planning permission to construct the Lower Lea Valley Olympics and Legacy masterplan was granted by the relevant London boroughs on 9th September 2004. If the Olympics are awarded to London in July 2005, the construction works would commence in January 2006 and will be fully completed by January 2012 (in time for the August 2012 Olympic Games) (LDA 2004). Crossrail construction works will be carried out at Pudding Mill Lane station and the portal (in Route Window C13) from January 2007 to December 2012 and will therefore potentially interact with works to construct the Olympics masterplan during the five-year period leading up to January 2012.
- 12.3.15 Neither construction works for Crossrail nor those for the Olympics masterplan will result in significant adverse environmental impacts from construction noise. This is because the area surrounding the works is largely industrial and does not include nearby sensitive residential neighbourhoods. However, it is possible that other environmental impacts from each project, which are not significant individually, may combine to give rise to a greater level of temporary impact than would otherwise be the case during construction, most notably with regard to construction traffic.
- 12.3.16 The Environmental Statement for the Olympics proposals indicates that there will be no significant impacts arising from construction vehicle movements on the local road network. This is because the increase in traffic due to construction vehicles will be offset by the reduction in traffic previously associated with the light industrial and other facilities being demolished to make way for the Olympics proposals.
- 12.3.17 As part of the Crossrail works, it is proposed to transport excavated material from the portal site at Pudding Mill Lane by rail via a railhead at Bow Midland Yard and to transport segments to Bow Midland Yard by rail. As a result no transport impacts due to lorry movements are predicted. If the Olympics bid were to be successful, however, the Crossrail Bow Midland Yard East worksite would not be available. The potential unavailability of this worksite means a Crossrail worksite would be located between the Blackwall Tunnel northern approach and the River Lea.
- 12.3.18 With this arrangement, road transport would be used for removal of excavated materials with access and egress on Wick Lane, close to the Old Ford Interchange of the A12. The delivery of tunnel segments to the portal would be entirely by road, arriving via Cooks Road, rather than being transferred from the railhead via Marshgate Lane and Cooks Road. This would cause a significant impact on users of Wick Lane, Marshgate Lane and Cooks Road, and also on buses using Wick Lane. Since this impact would only be likely if London's Olympics bid for 2012 were successful, the additional effects will be further considered in a supplementary ES once the award of the 2012 Olympics is known. In any event, the Secretary of State will ensure that any nominated undertaker will work closely with the Olympics project team and the local authorities to plan works in order to minimise any cumulative impacts.
- 12.3.19 A Crossrail worksite on land between the River Lea and the Blackwall Tunnel Northern Approach Road would also put the worksite closer to the nearest noise sensitive receptors of Baldock Street Park East and Manhattan Buildings. However, even with the reduced distance between the worksite and these residential receptors, no significant noise impacts are predicted from construction activity in this area.

- 12.3.20 The permission for the Olympic proposals includes the realignment and restoration of the Pudding Mill River. In particular, the Olympic Masterplan proposes to restore the Pudding Mill River along Marshgate Lane, which conflicts with the Crossrail proposals to open up Marshgate Lane to traffic.
- 12.3.21 A possible solution would be to restore the Pudding Mill River, in part, along Pudding Mill Lane, rather than Marshgate Lane. At this point, the Crossrail line is estimated to be 2.1m above existing ground level which may cause a restriction in terms of navigation along the restored Pudding Mill River. In the event that London is awarded the 2012 Olympics, consultation will be undertaken with the London Development Agency, British Waterways and the Environment Agency to find the most appropriate route for the Pudding Mill River and to agree the appropriate engineering solution to secure it. Again, this issue will be addressed further in a supplementary ES should London's 2012 Olympics bid be successful.
- 12.3.22 It is possible that the two projects may interact to create significant positive cumulative contaminated land impacts. Table 12.3 describes how the two projects will interact.

Table 12.3 Cumulative Impacts Arising from the Interaction between Crossrail and Olympics

Topic	Crossrail Impact	Olympics Impact	Cumulative Impact
Construction traffic	As part of the Crossrail works, it is proposed to transport excavated material from the portal site at Pudding Mill Lane by rail via a railhead at Bow Midland Yard and to transport segments to Bow Midland Yard by rail. No transport impacts due to lorry movements are predicted.	There will be no significant impacts arising from construction vehicle movements on the local road network.	If the Olympics bid were to be successful, the Crossrail Bow Midland Yard East worksite would not be available. The delivery of tunnel segments to the portal would be entirely by road, arriving via Cooks Road, rather than being transferred from the railhead via Marshgate Lane and Cooks Road. This would cause a significant impact on users of Wick Lane, Marshgate Lane and Cooks Road, and also on buses using Wick Lane.
Water resources	Crossrail plans to open up Marshgate Lane to traffic.	Realignment and restoration of Pudding Mill River.	The activities of the two projects could potentially conflict. However a possible solution may be to restore the river along Pudding Mill Lane rather than Marshgate Lane. This may cause restriction in terms of navigation along the restored Pudding Mill River.

Table 12.3 Cumulative Impacts Arising from the Interaction between Crossrail and Olympics (continued)

Topic	Crossrail Impact	Olympics Impact	Cumulative Impact
Contaminated land	Remediation is proposed for the area to the south of the railway line to aid the construction of the Pudding Mill Lane cut and cover box and portal.	Remediation is proposed for the area to the south of the railway line to aid the construction of the Media Centre. The area to the north of the railway line will be remediated to make way for the warm up tracks and facilities.	<p>The remediation of these areas of contaminated land will remove sources of pollution that are currently affecting the River Lea.</p> <p>The combination of these two projects to remediate areas of contaminated land could have significant benefits to soil and groundwater quality, thereby facilitating wider environmental benefits.</p>

Stratford City

- 12.3.23 Outline planning approval was granted for the Stratford City proposals on 8 September 2004. Construction is scheduled to start in 2006 and will be phased over a period of 20 years. The Crossrail construction works at Stratford station will interact with works to construct Stratford City in Route Window NE1.
- 12.3.24 The Crossrail works at Stratford station will not result in significant environmental impacts at this location, since the works here are small scale and there are no sensitive receptors in the vicinity of the worksite. It is not envisaged that the works at this site will lead to significant cumulative impacts with the works required for the Stratford City project.
- 12.3.25 However the Crossrail works at Pudding Mill Lane have the potential to interact with the Stratford City project as construction traffic from both sites may utilise the A12 and cause a cumulative impact on the Bow flyover interchange in particular.
- 12.3.26 The potential cumulative impact on the road network in this area will be reduced by Crossrail's strategy of minimising lorry traffic by the use of alternative modes of transport for the delivery of segments and removal of excavated material. However, should the Olympics bid be successful, the cumulative impacts discussed above will arise. The Secretary of State will ensure that any nominated undertaker will work closely with the Stratford City and the Olympics project teams, as well as the relevant highway authorities, to plan works to minimise the impact of the cumulative impact.

Thames Gateway Bridge

- 12.3.27 The planning application for the Thames Gateway bridge proposals was called-in in January 2005 and will therefore be the subject of a public inquiry. Construction is assumed to start in 2008/9 and to be complete by mid 2012 (TfL 2004), although this programme may be delayed as a result of the public inquiry. The Crossrail construction works from January 2007 to December 2009 at Plumstead portal will potentially overlap with works to construct the Thames Gateway bridge southern approaches in Route Window SE6. There will be a 26-month period leading up to December 2009 where construction of Crossrail will overlap with the Thames Gateway bridge southern approaches works.
- 12.3.28 The Crossrail works at Plumstead portal will result in significant temporary impacts from noise and visual intrusion. There will also be a significant number of lorry movements taking excavated material from the portal site to Belvedere where it will be loaded onto barges, although no significant impacts on road users are predicted. No significant construction impacts are predicted from the Thames Gateway bridge works. The two worksites are over 1 km apart, and it is therefore unlikely that the receptors on Reidhaven Road location impacted by construction noise and visual intrusion from the Crossrail works (TfL 2004) will also be affected by the Thames Gateway bridge works.
- 12.3.29 However, it is possible that construction vehicle movements from both projects may combine when using Eastern Way, which would create a greater level of traffic impact than would otherwise be the case. The Secretary of State will ensure that any nominated undertaker will work with the Thames Gateway bridge project and the local planning authority to agree measures, prior to the start of works, to ensure that any potential cumulative impacts arising from the movement of construction vehicles are kept to a practical minimum. Table 12.4 describes how construction traffic movements from both projects may interact during the 26-month period when the works overlap.

Table 12.4 Cumulative Impacts Arising from the Interaction between Crossrail and Thames Gateway Bridge (TGB)

Topic	Crossrail Impact	TGB Impact	Cumulative Impact
Construction traffic	Excavated material from the Plumstead portal worksite will be removed by road, possibly along Eastern Way to Belvedere where it will be loaded onto barges and shipped to the disposal site. There will be no significant impacts.	TGB will use the existing haul roads to take excavated material to the Tilfen Landfill, which lies adjacent to the works in Thamesmead. The ES reports that the highway network at the southern end of the bridge will be able to easily accommodate the predicted levels of construction traffic from the works.	The two projects will both use the existing highways to move construction vehicles. It is likely that construction vehicles may interact along Eastern Way to create a heightened sense of awareness of the construction works. However, the combined vehicle movements will still be below any level where significant cumulative impacts would occur.

Docklands Light Railway Woolwich Arsenal Extension

- 12.5.30 In March 2004, powers were granted to allow the construction of the DLR Woolwich Arsenal extension (TfL website). DLR Limited intends to appoint a preferred bidder by early 2005, with construction scheduled to start in mid 2005. The extension will then take approximately three and a half years to construct with the project scheduled to be operational during 2008 (DLR 2002). The Crossrail works from January 2007 to December 2009 to construct its North Woolwich portal will potentially overlap with works at the DLR King George V worksite in Route Window SE4 over a two-year period leading up to December 2008.
- 12.5.31 The Crossrail works at the North Woolwich portal will result in significant impacts from noise and visual intrusion at 20 residential properties on Winifred Street and Roebourne Way. No significant construction impacts are predicted from the DLR King George V worksite (DLR 2002). The two worksites are approximately 300 m apart, and therefore different receptors will be affected by each worksite. Even though the two major projects will be carried out at similar times, it is therefore unlikely that local residents will experience greater levels of temporary impacts from construction disruption than would otherwise be the case. However, the Secretary of State will ensure that any nominated undertaker will work with the DLR extension project and the local planning authority to agree measures, prior to the start of works, which will ensure that cumulative impacts do not arise.

12.5.32 Consideration was given to how the construction traffic movements from the two projects could also interact to create a significant cumulative environmental impact. This is particularly the case when excavated material is being removed from each of the portal sites during construction of the bored tunnels under the Thames. However, the main locations for excavated material removal from each project are on opposite sides of the Thames, and therefore interaction is unlikely to occur. Table 12.5 describes how the two projects may interact.

Table 12.5 Cumulative Impacts Arising from the Interaction between Crossrail and DLR Woolwich Extension

Topic	Crossrail Impact	DLR Impact	Cumulative Impact
Construction noise	Construction of the cut and cover tunnel approach and northern tunnel eye will result in significant noise impacts at 20 properties on Winifred Way and Roebourne Way.	No significant noise impacts will occur during the construction of the northern tunnel approaches at the King George V worksite.	Although there is a two-year overlap between the two projects, different receptors are affected by each project. No significant cumulative impacts will therefore occur, but local residents could experience a greater sense of awareness from the presence of two large scale construction sites in the area.
Construction traffic	Excavated material removal will take place from the Plumstead portal worksite in Route Window SE6 on the south side of the River Thames.	Excavated material removal will take place from the King George V worksite in North Woolwich on the north side of the River Thames.	The excavated material removal from each project will take place on opposite sides of the River Thames. No significant cumulative impacts will, therefore, occur.

12.6 References

Department of the Environment (DoE) (1994) **Evaluation of Environmental Information for Planning Projects: A Good Practice Guide**, HMSO

Docklands Light Railway Limited (DLR) (2002) **Docklands Light Railway (Woolwich Arsenal Extension) Order, Environmental Statement Main Report and Appendices**, ERM, July 2002

European Commission DG XI (1999) **Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions**, OOPEC, May 1999

London Development Agency (LDA) (2004) **Lower Lea Valley Olympics and Legacy Masterplan, Environmental Statement, Symonds**, January 2004

Network Rail (2004) **Thameslink 2000 Environmental Statement: Main Report - Inner Area, Temple**, June 2004

Transport for London (TfL) (2004) **Thames Gateway Bridge Environmental Statement: Main Report, Scott Wilson**, July 2004

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