

# Streetworks reopener

National Grid Gas Distribution

May 2015



*Redacted version: Edits limited to the removal of other network information and specific contractor price elements that are commercially sensitive to those organisations.*

## Contents

Section 1: Executive Summary .....	3
Section 2: Output Commitments .....	6
Section 3: What has changed since the start of RIIO-GD1 and what is the impact on costs? .....	9
Section 4: East of England - £8.43m (09/10) .....	16
Section 5: North West - £7.57m (09/10) .....	20
Section 6: North London - £12.24m (09/10) .....	24
Section 7: Section 74A Lane Rental Scheme costs (North London only) .....	28
Section 8: Customer Bill impact .....	35
Section 9: Data Assurance – Irregular Submission .....	35
Section 10: Stakeholder Engagement and Industry Collaboration .....	36
Section 11: Future Legislation changes and the risks to delivering our outputs .....	38
Section 12: Appendices / Supporting Information .....	38

## Section 1: Executive Summary

- 1.1 As part of RIIO-GD1 Ofgem and National Grid Gas Distribution (NGGD) consulted on how to manage uncertain costs that would be better managed through an uncertainty mechanism as opposed to an ex ante allowance. The uncertainty mechanisms are limited to specific legislative or government driven external factors, one of which was in relation to Specified Street Works Costs.
- 1.2 NGGD has completed the analysis of its Specified Street Works Costs for 2013/14, assessed the impact on delivery of customer output commitments, and determined that the actual costs and forecast costs for the following networks will exceed the materiality thresholds as specified in our RDN licence Special Condition 3F as set out below. This covers 47 additional Highway Authorities that operate permit schemes and the first Lane Rental scheme in London.

Distribution Network	Materiality threshold (09/10)	Total Costs in 09/10 prices	Costs (after application of IQI) in 09/10 prices
East of England (EoE)	£5.03m	£ 8.43m	£ 5.31m
North London (NL)	£3.53m	£12.24m	£ 7.71m
North West (NW)	£3.65m	£ 7.57m	£ 4.77m

- 1.3 The proposed adjustment is based on our actual costs incurred during 2013/14 for Permit Fees, administration and loss of productivity driven by the permit conditions imposed by Highway Authorities. We have used 2013/14 actuals as our efficient costs and used this to create our forecast for the remaining period of RIIO-GD1 with adjustments to reflect new Highway Authority permit schemes in 2014/15 and the change in workloads across our emergency repair, mains replacement and connections services that we deliver for our customers.
- 1.4 Our Permit Fees for 2013/14 reflect the costs paid to Highway Authorities to undertake our works. For administration and productivity impacts, the costs reflect our additional payment to our contractors through a Compensation Event mechanism that included review and challenge to ensure only incremental costs were accepted. We have confidence in the Compensation Events only representing the efficient cost attributable to permit schemes and lane rental as we had established new contracting arrangement with our contractors from the 1 April 2013, which determined the efficient benchmark costs to undertake our iron mains replacement and connection works.
- 1.5 As costs associated with new Permit and Lane Rental Schemes were uncertain, a mechanism for the contractor to recover additional evidenced costs similar to the cost recovery mechanism under RIIO-GD1 has been put in place. We have also utilised the learning through the management of our existing London Permit Scheme (LoPS) in the assessment of our contractor Compensation Event costs in the North West and East of England.
- 1.6 Similarly, for Lane Rental costs in London, our proposed adjustment is based on our actual Lane Rental Fees paid and the costs incurred to avoid ('cost avoidance') the Lane Rental charges. Where we have incurred Lane Rental charges we have explained that this has been necessary to either keep the public safe, driven by either

- an immediate emergency work or the replacement of high risk iron mains, or to deliver a specific customer requirement, such as a new gas connection.
- 1.7 Looking across our networks there are differences in the level of costs incurred and the unit cost per metre for productivity and cost per project for administration. We have explained within our submission why permit schemes and the implications on costs do vary from one network to another.
- 1.8 Permit schemes are individually unique as the legislation has been designed to allow Highway Authorities to impose relevant restrictions for different geographic areas. We have used the additional permit scheme population to assert that there is a correlation between population density and productivity cost impacts, driven by factors, such as, road types and the types of permit conditions imposed on each work activity influencing the productivity impacts.
- 1.9 Population density and road type mix (volume of heavy trafficked roads such as A and B roads), does lead to greater road traffic and therefore, when we are required to carry out works, an additional level of permit condition restrictions or different working practices are being required by Highway Authorities to minimise the disruption to road users.
- 1.10 With the additional permit schemes we have been able to demonstrate this through experience showing that higher trafficked and more densely populated areas have more stringent permit requirements in order to keep the traffic flowing. This is seen by Highway Authorities using their powers to ensure their road users and constituents, who are already sensitive to heavy road use, have in place relevant restrictions to reduce the level of delay that may be caused by our works. Where there is less of an impact and in more rural areas, Highway Authorities tend to apply lower levels of restrictions.
- 1.11 For North West network we have seen Highway Authorities using Time and Duration conditions more than other Highway Authorities across our networks. For East of England network the permit schemes are predominantly designed and are applicable to high trafficked road types (Road Types 0, 1, 2 and Traffic Sensitive roads), which increases the average Permit Fee costs, the administration to manage traffic management plans and increase the affect on productivity costs. Both of these examples explain why it is valid for the network costs to be above average albeit significantly below existing permit schemes in London [REDACTED].
- 1.12 Taking the above factors into account, which influence permit costs, administration and productivity, this would confirm that our costs are at an efficient level and that there are genuine reasons for each network having a different level of cost on a unit cost basis.
- 1.13 Once we had determined the efficient costs for 2013/14, we have used a mechanistic approach to forecast future year allowances against the workload we will be required to deliver in order to meet our output requirements set as part of RIIO-GD1 Final Proposals.

- 1.14 We have not included adjustments for Real Price Effects or the increase productivity costs as we deliver a higher proportion of our large diameter pipe replacement. Our assumption is that we believe these impacts will have to be covered by ongoing efficiencies. We have outlined our approach to mitigate the cost increases driven by Streetworks legislation, which includes collaboration with other industry parties.
- 1.15 We have undertaken specific stakeholder engagement regarding our approach to the legislation and our uncertainty cost claim and have included the feedback received. This highlighted the following;
- An average score of 8/10 from respondents saying they are clear why National Grid have to work in the highway.
  - Permit schemes bring key benefits of minimising disruption and congestion on the highway.
  - Most supportive of the concept of National Grid claiming efficient additional costs incurred to operate within permit schemes.
  - Good, positive relationships between National Grid and Highway Authorities.
  - Advance notice by National Grid of works could be improved.
  - Government responded felt National Grid had not fully embraced the S74 changes and Lane Rental scheme, however did feel that NGGD was performing in line with other works promoters.
- 1.16 Given the feedback from Stakeholders, we will look at areas where we can improve and where this may help in meeting our efficiency challenge to reduce costs.
- 1.17 Given the above arguments and justification, our proposed adjustments to Specified Streetworks Costs as defined under Special Condition 3F and the Price Control Financial Model (PCFM) are set out in the table below in 2009/10 prices.

**Proposed adjustments to Specified Street Works Costs**

£m (09/10 prices)	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
East of England	0.867	0.969	1.099	1.102	1.109	1.103	1.096	1.089	8.434
London	1.167	1.924	1.883	1.451	1.466	1.458	1.450	1.441	12.240
North West	0.774	0.809	1.026	1.018	1.013	0.995	0.978	0.958	7.572

**Existing Specified Streetworks Costs - PCFM variable IAESW**

£m (09/10 prices)	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
East of England	2.507	2.429	2.360	2.295	2.235	2.174	2.115	2.056	18.171
London	9.070	8.967	8.880	8.785	8.834	8.606	8.599	8.581	70.322
North West	1.038	0.959	0.887	0.819	0.755	0.694	0.636	0.582	6.370

**Proposed values for Specified Streetworks Costs for PCFM variable IAESW**

£m (09/10 prices)	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
East of England	3.374	3.398	3.459	3.396	3.345	3.277	3.211	3.145	26.605
London	10.236	10.891	10.763	10.237	10.300	10.064	10.049	10.022	82.562
North West	1.812	1.768	1.913	1.837	1.767	1.689	1.614	1.540	13.942

## Section 2: Output Commitments

2.1 The RIIO framework is in place to ensure delivery on a number of output commitments that we have made to customers. The key outputs that National Grid has committed to delivering for its customers, which are impacted by Street Works legislation and the associated costs that have not been possible to mitigate, are as follows:

<b>Emergency repair service to safeguard life and property</b>			
Output	Description	Target	Potential impact on Streetworks
Gas escape repair risk	Safety: Outstanding repairs cumulate a risk score. This must be kept to a minimum by repairing escapes based on risk level	Maintain 2012/13 performance	High risk escapes where there is risk to life or property must be repaired as a priority, therefore access to the highway may be required in order to carry out works at the time the escape has been identified.
<b>Mains replacement programme to upgrade old metal gas mains with safer plastic ones</b>			
Gas mains risk removed	Safety: removing risk from the distribution system by replacing metal pipes with polyethylene pipes	Set level of risk removal per network	This is the work that is planned in advance. Planning is completed in the most cost effective way that causes the least amount of disruption with customers. Sometimes due to the risk level of the pipe the impact is unavoidable but it is mitigated where at all possible.
<b>Provision of new gas supplies to prospective customers as requested</b>			
Connections completion dates	Connections: ensuring connections are completed within the stated timescales	90% completed within agreed timescales	Providing new connections to customers and this is done at a time and date agreed with the customer. This involves working in the highway, but steps are taken to minimise disruption for road users.
<b>Safeguarding future generations</b>			
Virgin aggregate	Environment: reducing the amount of virgin aggregate used when reinstating	Less than 30% of non-recycled materials used in backfill	By innovating and reducing the amount of excavations required, not only is disruption reduced but there is also a reduction on the amount of spoil sent to landfill and minimises the use of aggregates.
Spoil to landfill	Environment: reducing the amount of spoil sent to landfill	Less than 10% of all spoil sent to landfill	

## Background to Street Works

2.2 Street Works Legislation has changed over recent years, specifically with the advent of the Traffic Management Act 2004 (TMA) with all works promoters needing to obtain permission to work on the highway when either maintaining or installing their assets. The aim of this legislation is to minimise disruption and congestion to road users caused through road works on the highway by the introduction of working conditions, enabling greater coordination, collaboration and co-operation of works on the highway.

### Permit Schemes

2.3 The New Roads and Street Works Act 1991 (NRSWA) was amended by the Traffic Management Act 2004 (TMA), which in turn was enacted in 2004. Part 3 of the TMA (Permits) allowed an authority to operate permit schemes to aid and assist both collaboration and coordination of works undertaken by works promoters (e.g. Utilities) and those impacted by such works (e.g. Bus companies etc.). The primary legislation for the operation of permit schemes was enacted in November 2007.

2.4 Under the previous price control (GDPCR1) there were only 20 Highway Authorities operating permits within the National Grid Gas Distribution Network and costs associated with these were included within the allowances from the onset of RIIO-GD1.

2.5 Since the beginning of RIIO-GD1 in April 2013, there are now 67 Highway Authorities operating permit schemes within the National Grid Gas Distribution Network (GDN).

### Lane Rental Schemes

2.6 Section 74A of NRSWA makes provision for regulations governing the application of charges made by reference to the duration of works. The regulation (Section 74A of NRSWA), referred to as "Lane Rental", came into force in respect of works carried out in specified "pinch-points" on the Transport for London (TfL) Strategic Road Network with effect from June 2012.

2.7 Lane Rental Fees are the payments that utilities and other works promoters incur when they undertake works on these strategic roads within the peak timeframe. The aim is to incentivise utilities to avoid these peak times when it is cost effective to do so.

2.8 The power for local highway authorities to implement Lane Rental schemes in England is subject to the approval of the Secretary of State. Following the pilot schemes which ran between 2002 and 2004, no further schemes had been submitted to the Department for Transport (DfT), but new regulations are being put in place to allow authorities to bring forward new scheme proposals.

2.9 Although there is no current plan to roll out Lane Rental to any further Highway Authorities, the DfT are currently undertaking a review of the existing schemes to

evaluate the effectiveness of the legislation. National Grid will be engaging with the DfT to ensure they understand the impact schemes can have on customer's energy bills.

### **Licence Requirements and Scope**

- 2.10 The costs identified relate to the activities and legislative changes as defined under Special Condition 3F of the RDN License and cover:
- Permit Fees – costs incurred in obtaining a permit to carry out works. These are invoiced costs for undertaking works across repair, connections and replacement activities.
  - Administration – Additional enduring costs incurred to administer the permit scheme process.
  - Productivity Impacts – The increase in costs driven by additional requirements / conditions specified in the permit to work in the highway.
  - Lane Rental Costs / Fees – Costs incurred to avoid occupying the highway at specified times or the fees paid when specified times have been unavoidable.
- 2.11 The actual and forecast costs identified relate to all Permit and Lane Rental Schemes that were operational on or before 31st May 2015 and had not been included within RIIO-GD1 Final Proposals. The forecasts are derived from 2013/14 actual costs and reflect the costs required to deliver on customer output commitments over RIIO-GD1.

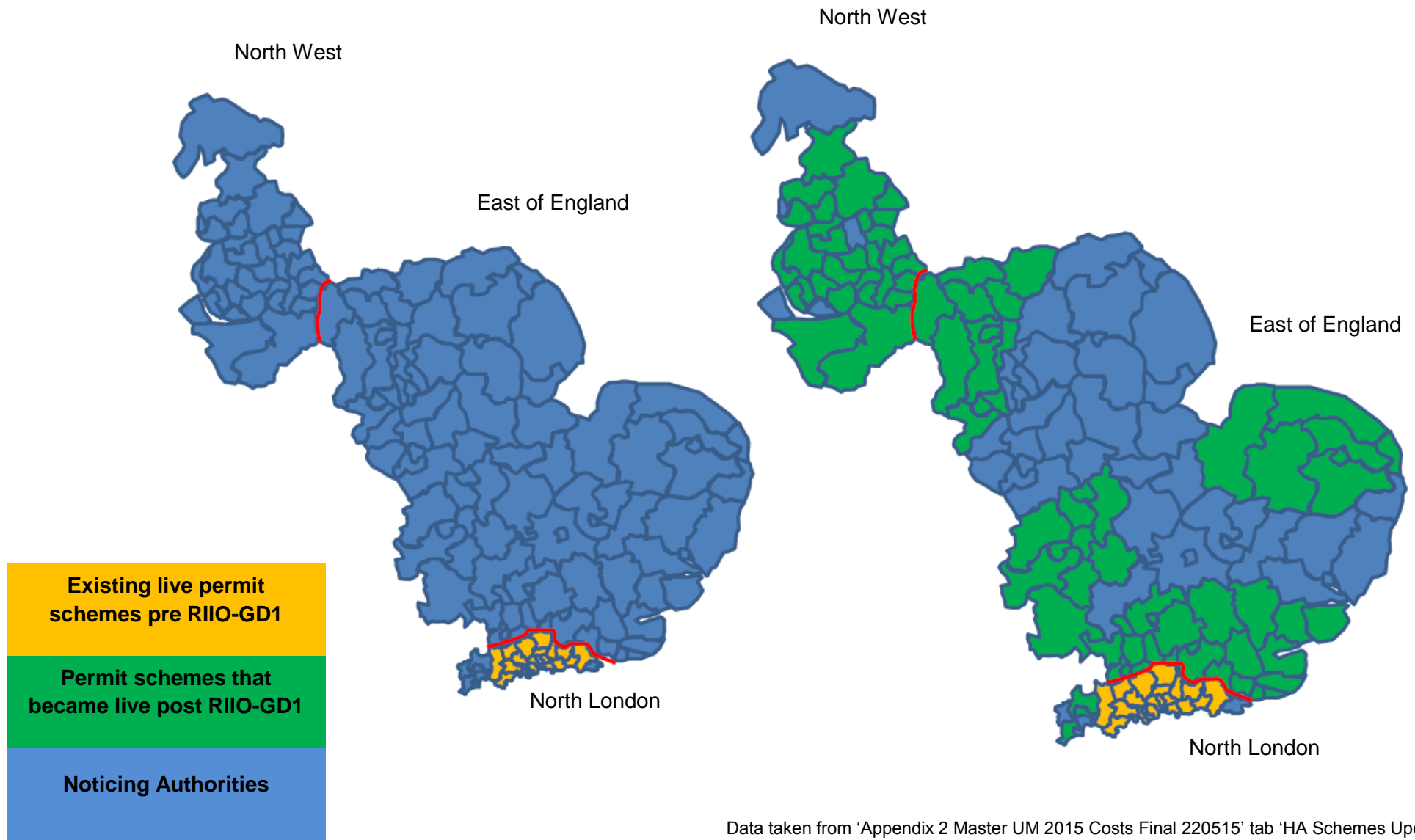


### Section 3: What has changed since the start of RIIO-GD1 and what is the impact on costs?

- 3.1 Since RIIO-GD1 Final Proposals, an additional 47 Highway Authorities operate permit schemes in addition to the 20 allowed for as part of RIIO-GD1. Therefore as a result of this change comes an increase in permit fees, administration costs and productivity issues. The enactment of Section 74A Lane Rental was also not reflected within allowances for RIIO-GD1.
- 3.2 The numbers in relation to the increase in permit schemes can be seen in the table below and the diagram overleaf shows the geographic impact.

Network	Total Number of HA's	Number of HA's Operating Permit Scheme in April 2012	Number of HA's Operating Permit Scheme in May 2015
East of England	28	3	17
North London	31	23	29
North West	25	0	18
West Midlands	12	0	3
Totals	96	26	67

Table data taken from 'Appendix 2 - Master UM Costs Final 220515' Tab 'HA Schemes Update'



Data taken from 'Appendix 2 Master UM 2015 Costs Final 220515' tab 'HA Schemes Update'

### **Contractor Strategy for RIIO-GD1**

- 3.3 To deliver the primary outputs related to mains risk removed and connections, Gas Distribution Strategic Partnership (GDSP) contracts have been put in place, which were tendered through a procurement event in 2012 and commenced 1<sup>st</sup> April 2013. The procurement event allowed costs to be base lined for replacement activities, which included only live permit schemes at the time of the tender. The permit scheme costs included in all contractor rates reflected those that we had received funding for as part of RIIO-GD1 final proposals.
- 3.4 As costs associated with new Permit and Lane Rental Schemes were uncertain, a mechanism for the contractor to recover additional evidenced costs similar to the cost recovery mechanism under RIIO-GD1 has been put in place.
- 3.5 The new contract arrangements and mechanism, has allowed for the identification of specific costs driven by Street Works against the very latest competitively tendered rates for our replacement activities.

### **Cost Drivers associated with Productivity Cost Impacts**

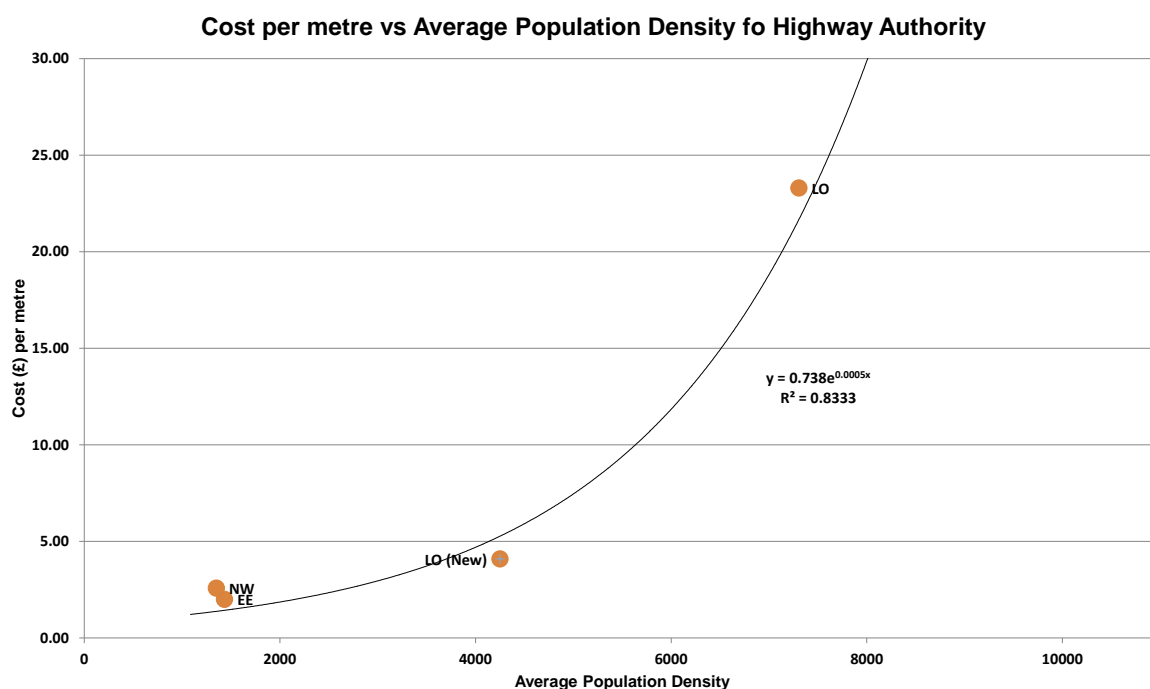
- 3.6 As part of the GDPCR1 Income Adjusting Event in 2011 and through our RIIO-GD1 business plan discussions with Ofgem, we put forward arguments that the productivity cost impacts of permit schemes varied by Highway Authority. Our main arguments centred round population density and road type mix, which in the main would lead to greater road traffic and therefore an additional level of permit condition restrictions or different working practices being required by Highway Authorities to minimise the disruption to road users driven by our works.
- 3.7 From experience we see that higher trafficked and more densely populated areas have more stringent permit requirements in order to keep the traffic flowing. This is where Highway Authorities are using the powers to ensure their road users and constituents, who are already sensitive to heavy road use, put in place relevant restrictions to reduce the level of delay that may be caused by our works. Where there is less of an impact and in more rural areas, Highway Authorities tend to apply lower levels of restrictions.
- 3.8 Since April 2013, we have had a number of new permit schemes implemented across our networks. This has provided us with additional data sets to demonstrate the linkages between population densities, permit scheme conditions and road types.
- 3.9 We have set out our arguments below to support the linkages between costs, specific geographic constraints, road types and permit conditions. However, we recognise that we have limited ability to break down the costs further without significant additional data collection costs. We do believe that the analysis provided demonstrates why our actual costs are either lower or higher than the benchmark set for London and Southern Gas Networks of £18 per metre as part of the price control.
- 3.10 We believe the analysis provides confidence that our claim is limited to the costs that meet the requirements of the permit scheme legislation.

3.11 The table and graph below brings together our findings across our networks and we have included Southern Gas Network Streetworks cost impacts per metre from the shared RRP data for 2013/14. For the New Highway Authorities the costs are explained in more detail later in sections 4 to 6.

Network and key to graph	Network / Scheme	cost per metre	Range and (Average) Population Density per km <sup>2</sup>	Average Permit Conditions per project
East of England –EE	11 New HAs	£21.81 <sup>1</sup> (£2.00)	100 to 8,632 (1,434)	13.54
London – LO	Existing Schemes (Pre RIIO-GD1)	£23.30	2381 to 13,886 (7,592)	13.71
London - LO(New)	New Permit Schemes (Post RIIO-GD1) in London	£4.09	909 to 12,942 (4,251)	7.75
North West - NW	5 New HAs	£2.58	98 to 4,349 (1,350)	13.66
Southern – SO	8 Existing HAs (Pre RIIO-GD1)	█ <sup>2</sup>	204 to 11,358 (3,148)	█
Southern - SO(New)	3 New HAs (Post RIIO-GD1)	█	178 to 3,035 (974)	█

National average population density by Local Authority 1,653 per km<sup>2</sup>

3.12 For the table, we have derived population densities from 2011 census information and Local Authority area measurements. The costs for groups of Local Authorities have been taken from our RRP report of Streetworks Costs and / or costs that have been agreed with our external contracting partners through specified Compensation Events. The chart below shows how these costs compare and appendix 1 includes the data used to create the graph.



<sup>1</sup> East of England permit schemes are unique in that restrictions only apply to a proportion of the most traffic sensitive roads.

<sup>2</sup>

- 3.13 For East of England network the permit scheme applies to road types 0,1,2 or Traffic Sensitive roads, and we have replaced a total of 22.78 km of iron mains in these location out of the total workload length of 248.11 km within the Highway Authority area. This exaggerates the cost impact per metre at £21.81 for road types that we know will drive a high proportion of the productivity impact. To make this comparable with other networks we have averaged the cost across the workload of 248.11 km that was undertaken in the Highway Authority areas covered by the permit scheme, which produces a cost of £2.00 per metre. We have used the £2.00 per metre in our analysis and the methodology is provided in Appendix 1.
- 3.14 The information in the table, whilst being grouped for a number of Local Authorities (aka Highway Authorities) to show an average population density and average cost, does show a correlation between the impact to productivity we have experienced vs the population density.
- 3.15 From operational experience in London and our previous cost submissions, we would assert that the exponential trend line shown is representative of how costs change in relation to Streetworks. This is based on our previous experience when costs average £37 per metre in London and some more densely populated Highway Authorities in London exceeding £70 per metre.
- 3.16 [REDACTED]
- 3.17 Other factors of permit volumes and permit restrictions do come into play in providing support to the variances. For example, North West, [REDACTED] and East of England the permits per km all average above 11 permits. Each of these productivity costs are above the trend line, however for [REDACTED] and London new permit schemes (Post RIIO-GD1), the average permits is below 9 per km and are below the trend line.
- 3.18 Building on these factors we have looked at the types of conditions that are being applied to the permits. The main conditions that impact productivity are;
- Timing and Duration conditions – These conditions can restrict the time we are allowed to work within the highway and the overall duration of the works. Limiting time and duration can have an impact on the amount of overtime paid to reduce the overall job duration or costs to restrict our works at certain periods of the day.
  - Road Space Conditions – This can significantly limit the space we have access to carry out our works efficiently, such as reducing occupation lengths from 100 metres down to 50 metres. This can limit productivity of our teams, which will add additional costs to our replacement activity.
  - Traffic Management Conditions – This can impose specific traffic management requirements and plans to ensure traffic movement, which can add additional costs to the works in terms of planning costs and operational costs. The planning and design elements are captured within the increased administration costs.

- 3.19 One of the greatest impacts is through the application of 'Timing and Duration' conditions that can limit the time to undertake works on the highway. North West Highway Authorities are using Time and Duration conditions over 40% of the time, which is almost double that of East of England (25%) and both London existing (19%) and new (11%) permit schemes, which will drive a loss of productivity.
- 3.20 Road space conditions can also have a severe impact on productivity limiting the working zone and thus reducing the efficiency of the teams undertaking the activities.
- 3.21 Comparing Road Space Conditions across networks from the 13/14 RRP return, all Highway Authorities apart from those in [REDACTED] use this condition, which adds additional justification why both North West and East of England see a higher productivity unit cost, [REDACTED]. As this does limit how we can manage our work efficiently on site, this would further support why productivity cost impact will be higher than the trend line and higher than Highway Authorities that do not impose these conditions.
- 3.22 Given the above, we believe we have been able to deliver these schemes at an efficient cost driven by our contract partnering approach, recognising the individual characteristics of the scheme, but also recognising the costs of operating existing permit schemes in London are above the £18 per metre benchmark set by Ofgem.

#### **Confidence in underlying costs**

- 3.23 By tendering our contracts to align with the RIIO-GD1 period and including design and planning activities within the contracting scope, we have been able to obtain the latest market rates to deliver our agreed iron mains replacement programme and provide longer term contracts that allow our contracting partners to invest in improving systems and processes to reduce the cost base. The underlying costs we have achieved are lower than our allowances at Final Proposals and therefore we are able to deliver the replacement outputs at a lower unit cost. These savings are seen in our Streetworks Activity in terms of productivity and administration costs where we have reduced our costs from £37 per metre in 2009/10 to £23.30 per metre.
- 3.24 For 2013/14 our contractors submitted Compensation Events to recover the additional costs incurred. Our Contract Management and Control function, learning from earlier years, has reviewed and challenged the costs as part of their assurance process to confirm that they are reflective of actual cost impacts above and beyond the existing costs to undertake our mains replacement.
- 3.25 By using our controls process, we are confident that our proposed Streetworks adjustments agreed with our Contract Partners only reflect those productivity impacts driven by the need to comply with the permit scheme legislation.
- 3.26 For our forecast productivity costs, we have derived these from our 13/14 actuals and 13/14 workload mix. There is a risk that costs would increase when we start to deliver our larger mains replacement programmes. However, we have not included an allowance for this. In addition, we have not included any Real Price Effects as we consider this would be offset by efficiencies we may be able to deliver. We have

adjusted our costs to reflect delivery of our mains replacement length output as this is a specific output requirement over the RIIO-GD1 period.

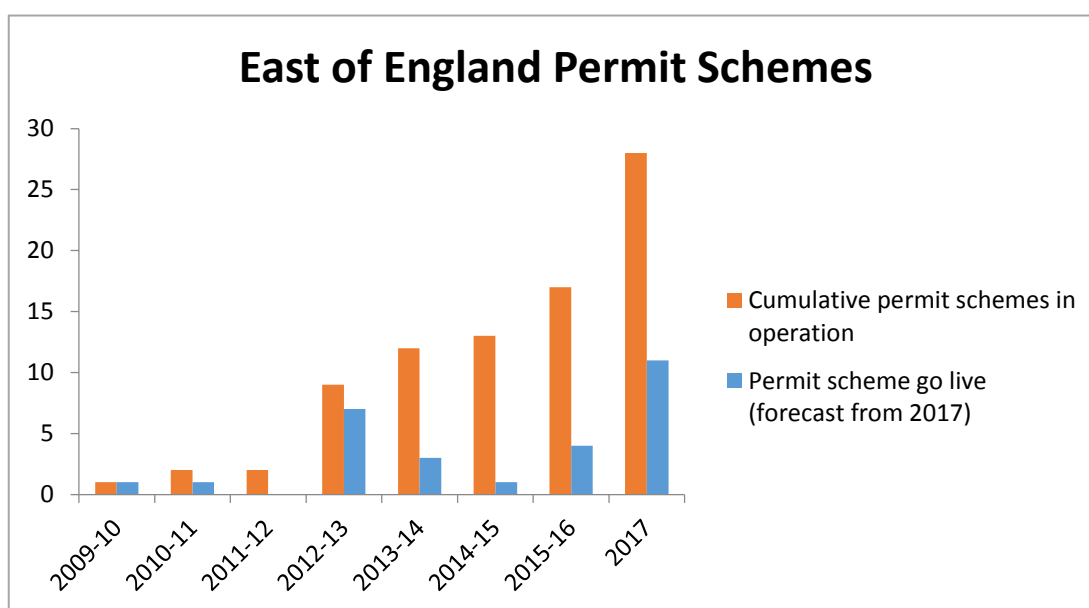
### **Network By Network Detail**

3.27 We have provided our actual and forecast costs for each network and described this in more detail. We have taken the time to explain how each network is built up. Points that are consistent with all networks are as follows:

- Due to the timing of the reopener all costs are based on 13/14 actuals and these are used to project future years cost allowances.
- The forecast workloads are as specified in our 13/14 RRP
- Only permit schemes that have been introduced up to and including May 2015 have been included.

## Section 4: East of England - £8.43m (09/10)

- 4.1 National Grid proposes an increase in allowances of £8.43m for Specified Street Works Costs for East of England network. This sum includes the costs of Permit Fees, the additional administrative activity and productivity costs incurred to operate permit schemes within 17 additional Highway Authorities.
- 4.2 The graph below identifies the increase in the introduction of permit schemes by Highway Authorities in the East of England from 2012 onwards and forecasts that 92% of all Highway Authorities will have permit schemes in place by 2017. We have not included schemes post May 2015 and would include these in our potential claim in May 2018.



- 4.3 There are 28 Highway Authorities within the East of England Gas Distribution Network with a potential for all to operate permit schemes.
- 4.4 Of the 17 Highway Authorities operating schemes, 12 are covered in our 13/14 actual costs submission and, for the remaining 5, we have produced forecast costs based on our 13/14 actuals. The existing highways of Enfield and Barnet (part) have been excluded from this claim as they were included in the RIIO-GD1 allowances.
- 4.5 The East of England permit schemes differ from all other schemes due to the specific scope. All other GDN's have full permit coverage for all roads and all streets. The East of England is significantly different in that the East of England Permit Schemes (EEPs) operates on all roads and streets in comparison to the Yorkshire Permit Scheme (YCPS) that operates on class 0, 1, 2 and Traffic Sensitive Streets only<sup>3</sup>. There are 7 highways that operate on the 0, 1, 2, TS criteria within EoE network.
- 4.6 Permit scheme coverage and the associated workloads were also taken into account when calculating the costs incurred and those forecast. Actual costs from the RRP

<sup>3</sup> As determined in 'The Street Works (Registers, Notices, Directions and Designations) (England) Regulations 2007 (Section 16) and the Guidance on Road Classification and the Primary Route Network 2012'



were proportional to the number of permit schemes and also proportional to the length of mains abandoned within those schemes. This is shown in the table below and is derived from the RRP table 3.13 for Streetworks as detailed in Appendix 2.

- 4.7 The Replacement forecast was based on the actual data contained in the RRP return for 2013/14 and the forecast was projected in proportion to the number of highway authorities deploying permit schemes.

Permit Scheme Coverage	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Total
Number of operators	No.	12	13	17	17	17	17	17	17	17
% coverage of Network	%	43%	46%	61%	61%	61%	61%	61%	61%	61%
Mains Replacement (impacted by Permit Scheme)	km	23	26	29	29	30	30	30	30	227
Number of permits (actual / Forecast)	No.	5,014	5,562	6,186	6,047	5,913	5,766	5,618	5,471	45578

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'EOE 0910' cells B11 – B15 through to M11-M15.

### Permit Fees - £2.12m (09/10)

- 4.8 The permit fee costs are based on the actuals reported in the 2013/14 RRP for the East of England.

TMA Permits (contractors inclusive)	Unit	New HA's			
		Total	Opex	Repex	Capex
<b>Workload</b>					
Number of permits/year	no.	5,014	3,273	564	1,177
Number of permits granted/year	no.	3,159	1,916	262	981
Number of permits variations/year	no.	1,855	1,357	302	196
<b>Costs</b>					
Net Cost of Permits (£'m) - excluding income related to customer contribution	£m	0.2722	0.1240	0.0683	0.0798
Net Average cost (£ per Permit)	£	54.28	37.90	121.11	67.80

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab '3.13 Streetworks EoE' cells Q11 – Q28 through to T11-T28.

- 4.9 The 2013/14 'Net Average Cost' for replacement activities is £261 per permit.
- 4.10 The variance in the costs between the work types is dependent on both volumes and types of work and associated variations requested by Highway Authorities. The maximum cost for Major works predominantly used in the Repex activity is £345 per permit on Class 0,1,2 or Traffic Sensitive (TS) road, and £225 on class 3,4 and Non TS roads with permit variations at £45 and £35 per variation by road type respectively.
- 4.11 It can be seen that the unit costs is higher in comparison with other Networks as a number of the schemes operating within the East of England predominantly apply to Class 0,1,2 and TS roads, which attract higher charges. For example, North West and East of England have a similar number of permitting authorities but the permit costs in the North West are 84% greater due to the application and fees applying to all roads. However, the average cost per permit is lower due to circa 80-90% of the costs in the North West being for road types 3 and 4.
- 4.12 Workload volumes were also taken into consideration when calculating and forecasting the future costs. It can be seen from the table below that there is a forecast reduction on the number of repairs by some 24% that will drive a proportional

reduction in the number of permits required. Mains Replacement workload increases by 9% and this would see a proportional increase in the number of permits required to complete the works. These two factors along with the increase in permitting highway authorities were taken into consideration when forecasting the permit volumes and fees over the 8 year period.

Workload	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Total Repairs (Opex)	No.	19834	21710	20959	20206	19451	18695	17936	17175	155966
New services (Capex)	No.	8514	8514	8514	8514	8514	8514	8514	8514	68112
Mains Replacement (Repex)	km	577	624.93	627.75	634.35	645.35	645.35	645.35	645.55	5046.03

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'EoE 0910' cells B6-M6, B8-M8 and B9-M9

- 4.13 The workload figures contained in the table above were taken from the forecasting model as submitted in the 2013/14 RRP workload forecasting table 2.3 (see Appendix 4)

#### Permit Administration Costs - £1.36m (09/10)

- 4.14 The onset of the permit schemes added additional costs in administration of the permit process. Within East of England, significant costs were also incurred in the supply of Traffic Management plans (not required under NRSWA), and the additional on-site visits prior to works commencing by supervisory staff.
- 4.15 Within the GDPCR1 and RIIO-GD1 Final Proposals, allowances were set at £8,000 per project for the additional administration. A major benefit of our new GDSP's is that we have been able to reduce administration and back office processes, which in turn has allowed us to manage changes, such as new permit legislation more efficiently. Our actual costs for East of England results in administration cost of £2,127 (13/14 prices) per project and we have used this level to forecast future expenditure.
- 4.16 For Road Types 0, 1, 2 and Traffic Sensitive (TS) roads, which have higher traffic flows and traffic sensitivity does increase the necessity for onsite meetings with the Highway Authority and a need to deploy additional traffic management plans, which are included in the administration costs. This type of requirement as part of the permit conditions does increase the cost of administration per project in East of England. We would argue that this still represents an efficient level as the same contractor operates in both East of England and London networks and manages to the requirements of the individual Highway Authorities.

#### Productivity Costs - £4.95m (09/10)

- 4.17 The East of England network claim seeks to capture all additional costs incurred as a result of working under the permit conditions resulting in an additional £20.69 per metre over the 8 year period. This cost applies to circa 25% of the length due to the East of England scheme applying to the road types 0,1,2 or Traffic Sensitive (TS) road. To make this comparable with other networks, we have averaged this cost across the workload, which produces a cost of £2.00 per metre.

- 4.18 The original Compensation Event submission provided by our contracting partner totalled [REDACTED] in productivity impacts and [REDACTED] in administration over year 1 and was submitted within the original RRP for 2013/14.
- 4.19 Since the Compensation Event submission, our Contract Management and Control function have been able to review and challenge the claim to validate that the costs are driven specifically by the new permit scheme and permit scheme conditions from other geographic or legislative constraints. This has resulted in the claim being accepted for East of England at [REDACTED]. We have used the agreed figure in our claim and for future year forecasts. (Appendix 3)
- 4.20 The increase in productivity costs were primarily driven through the imposition of restrictive conditions that were placed upon our works by the permitting authorities.
- 4.21 An analysis of the conditions placed on our works can be seen below with 1,422 conditions applied throughout the 2013/14 replacement programme which equates to 13.54 conditions imposed per project undertaken.

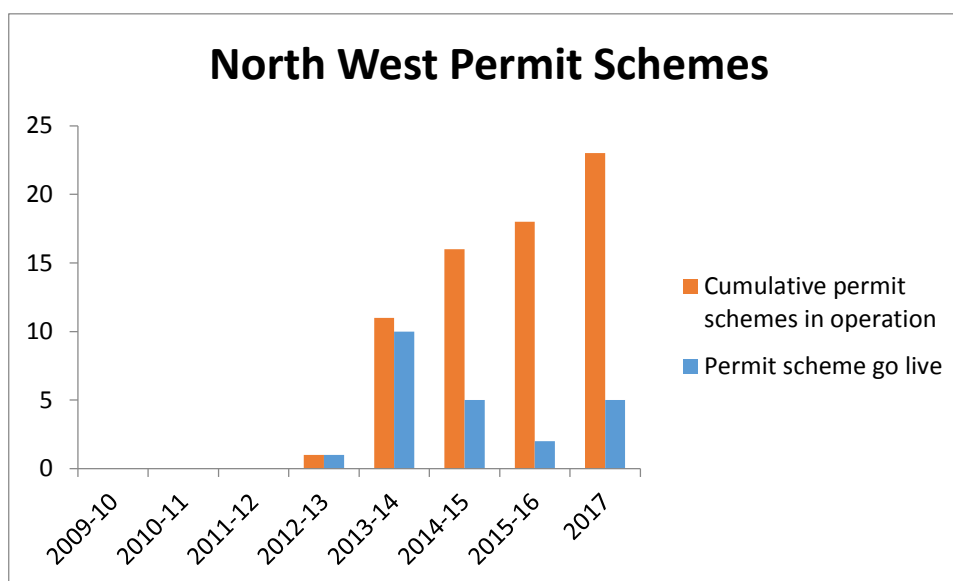
Conditions - Numbers	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Timing and Duration Conditions	No.	363	376	427	427	427	427	427	427	3,303
Road Space Conditions	No.	276	286	325	325	325	325	325	325	2,511
Traffic Management Provisions	No.	97	100	114	114	114	114	114	114	881
Methodology Conditions	No.	154	160	182	182	182	182	182	182	1,407
Consultation & Publicity	No.	213	221	251	251	251	251	251	251	1,941
Environmental Conditions	No.	28	29	33	33	33	33	33	33	258
Local Conditions	No.	291	302	343	343	343	343	343	343	2,653

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'EoE 0910' cells B23-30 through to M23-30

- 4.22 There are up to 32 differing conditions that can be applied within the schemes operating within the East of England that fall into categories identified in the table above. The greatest impact is through the application of 'Timing and Duration' conditions that can limit the time to undertake works on the highway on any given day. In addition, road space conditions can also have a severe impact on productivity, limiting the working zone and thus reducing the efficiency of the teams undertaking the activities.
- 4.23 The forecasting methodology deployed takes into account the additional schemes that have gone live throughout the 2014/15 period and also proportions the length of main per highway authority.

## Section 5: North West - £7.57m (09/10)

- 5.1 National Grid proposes an increase in allowances of £7.57m for Specified Street Works Costs for North West network. This sum includes the costs of Permit Fees, the additional administrative activity and productivity costs incurred to operate permit schemes within 18 Highway Authorities.
- 5.2 The graph below identifies the increase in the introduction of permit schemes by Highway Authorities in the North West from 2012 onwards and forecasts that 92% of all Highway Authorities will have permit schemes in place by 2017. We have not included schemes post May 2015 and would include these in our potential claim in May 2018.



- 5.3 There are 25 Highway Authorities within the North West Gas Distribution Network with a potential for 23 to operate permit schemes. The exceptions are Flintshire and Powys that operates under the legislation of the Welsh Assembly in which there is no proposal to introduce permit legislation.
- 5.4 Of the 18 Highway Authorities in this submission, 11 are covered in our 13/14 actual costs submission and for the remaining 7 we have produced forecast costs based on 13/14 actuals.
- 5.5 Permit scheme coverage and the workloads were also taken into account when calculating the costs incurred and those forecast. Actual costs from the RRP were proportional to the number of permit schemes and also proportional to the length of mains abandoned within those schemes. This is shown in the table below and is derived from the RRP table 3.13 for Streetworks as detailed in Appendix 2.
- 5.6 The Replacement forecast was based on the actual data contained in the RRP return for 2013/14 and the forecast was projected in proportion to the number of highway authorities deploying permit schemes.
- 5.7 The number of permits forecast in the table was based on the data submitted in the 2013/14 RRP for permitting authorities. The forecast takes into consideration the

differing workloads and the additional permitting authorities as detailed in the RRP 20/13/14 Streetworks 3.13 and 2.3 workload forecasting. (See appendix 5)

Permit Scheme Coverage	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Number of operators	No.	11	11	18	18	18	18	18	18	18
% coverage of Network	%	44%	44%	72%	72%	72%	72%	72%	72%	72%
Mains Replacement (impacted by Permit Scheme)	km	108	114	148	150	153	153	153	152	1130
Number of permits (actual / Forecast)	No.	11,430	11,892	14,822	14,418	14,014	13,543	13,065	12,560	105745

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NW 0910' cells B11-15 through to M11-15

### Permit Fees - £3.91m (09/10)

5.8 The permit fee costs are based on the actuals reported in the 2013/14 RRP for the North West Network.

TMA Permits (contractors inclusive)	Unit	New HA's			
		Total	Opex	Repex	Capex
<b>Workload</b>					
Number of permits/year	no.	11,425	7,780	2,084	1,561
Number of permits granted/year	no.	6,082	3,348	1,314	1,420
Number of permits variations/year	no.	5,343	4,432	770	141
<b>Costs</b>					
Net Cost of Permits (£'m) - excluding income related to customer contribution	£m	0.4926	0.1887	0.2153	0.0886
Net Average cost (£ per Permit)	£	80.99	24.25	103.30	56.78

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab '3.13 Streetworks NW' cells G12-G28 through to J12-J28

5.9 The 2013/14 'Net Average Cost' was £103 per permit for replacement activities.

5.10 The variance in the costs applicable to the permit unit costs is dependent on both volumes and types of works. The maximum cost for a Major works predominantly used in the replacement activity is £345 per permit on Class 0,1,2 or TS roads and £225 on class 3,4 and Non TS roads with permit variations at £45 and £35 per variation by road type respectively.

5.11 The average cost of a permit on replacement activities is lower when compared to the East of England average due to North West permit schemes applying to all roads, which attract lower fees. Class 3 and 4 roads comprise over 80% of the road network and thus the higher volumes of works. North West and East of England have a similar number of permitting authorities but the permit costs in the North West are 84% greater due to the application and fees applying to all roads.

5.12 Workload volumes were also taken into consideration when calculating and forecasting the future costs – it can be seen from the table overleaf that there is a reduction on the number of repairs by some 24% that will drive a proportional reduction in the number of permits required. Mains Replacement workload increases by 9% and would see a proportional increase in the number of permits required to complete the works. These two factors along with the increase in permitting highway authorities were taken into consideration when forecasting the permit volumes and fees over the 8 year period.

<b>Workload</b>	<b>Unit</b>	<b>13/14</b>	<b>14/15</b>	<b>15/16</b>	<b>16/17</b>	<b>17/18</b>	<b>18/19</b>	<b>19/20</b>	<b>20/21</b>	<b>Totals</b>
Total Repairs (Opex)	No.	19318	20200	19362	18498	17608	16694	15757	14797	142234
New Services (Capex)	No.	4285	4285	4285	4285	4285	4285	4285	4285	34280
Mains Replacement (Repex)	km	455.54	478.8	484.37	491.47	500.67	500.67	501.67	499.97	3913.15

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NW 0910' cells B6-M6, B8-M8 and B9-M9.

- 5.13 The workload figures contained in the table above were taken from the forecasting model as submitted in the 2013/14 RRP workload forecasting table 2.3 (see Appendix 5).

#### **Permit Administration Costs - £0.75m (09/10)**

- 5.14 The onset of the permit schemes added additional costs in administration of the permit process.
- 5.15 Our actual costs for North West results in an administration cost of £202 per project and we have used this level to forecast future expenditure. This administration cost is less than other Networks and this is partly driven by the reduced use of Traffic Management provisions conditions, which requires the development and provision of traffic management plans.

#### **Productivity Costs – £2.91m (09/10)**

- 5.16 For the North West network the additional costs to work to the permit conditions results in an additional £2.58 per metre over the 8 year period. This applies to 23% of the workload as the permit scheme applies to all roads.
- 5.17 The original Compensation Event submission provided by our contracting partner detailed [REDACTED] (Cost per metre of [REDACTED] in 13/14 prices) in productivity loss ([REDACTED]) and administration ([REDACTED]) over year 1 and was submitted within the original RRP for 2013/14.
- 5.18 Since the Compensation Event submission, we have been able to review and challenge the costs and differentiate those costs that were driven specifically by the new permit scheme and permit scheme conditions from other geographic or legislative constraints. We have used our experience in the London Network to ensure we have differentiated between normal Streetworks activities and costs driven by permit schemes. This has allowed us to ensure that we have the correct level of detail to justify any claim from our contractors. As a result, we have identified and agreed that [REDACTED] in 13/14 prices of the Compensation Event was directly attributable to permit scheme activities with [REDACTED] being associated with productivity and [REDACTED] being Administration. We have used the agreed figure in our claim and for future year forecasts (See appendix 6).
- 5.19 The increase in productivity costs were primarily driven through the imposition of restrictive conditions that were placed upon our works by the permitting authorities.

- 5.20 An analysis of the conditions placed on our works can be seen below with 4,633 conditions applied throughout the 2013/14 replacement programme which equates to over 13.66 conditions imposed per project undertaken.

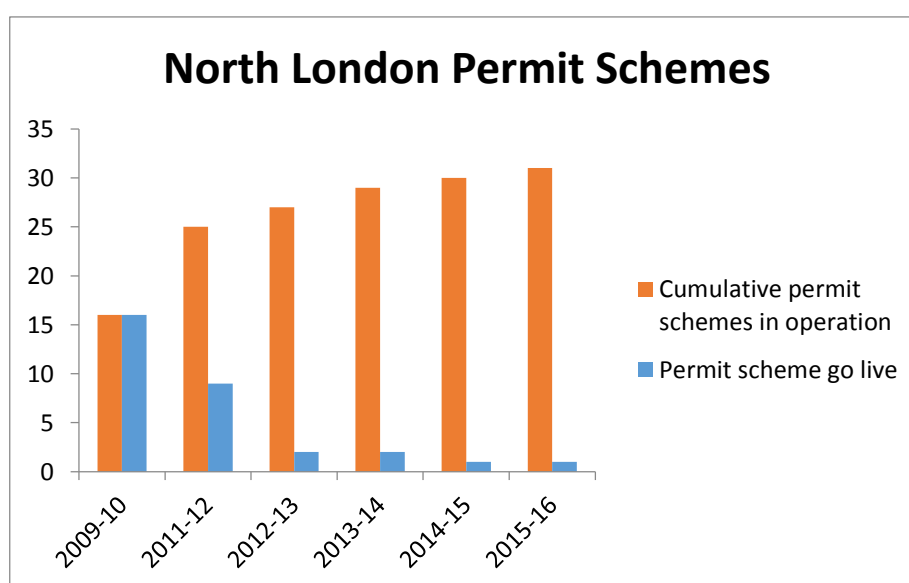
Conditions - Numbers	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Timing and Duration Conditions	No.	1891	1988	2574	2611	2660	2660	2666	2657	19706
Road Space Conditions	No.	439	461	597	606	617	617	618	616	4571
Traffic Management Provisions	No.	127	133	173	175	179	179	179	178	1323
Methodology Conditions	No.	190	200	259	263	268	268	268	268	1984
Consultation & Publicity	No.	572	601	779	790	805	805	807	804	5963
Environmental Conditions	No.	114	119	155	157	160	160	160	160	1185
Local Conditions	No.	1336	1404	1818	1845	1879	1879	1883	1877	13921

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NW 0910' cells B23-30 through to M23-M30.

- 5.21 There are 16 differing conditions within the schemes operating within the North West that fall into the categories identified in the table above.
- 5.22 The greatest impact is through the application of 'Timing and Duration' conditions that can limit the time to undertake works on the highway. North West Highway Authorities are using Time and Duration conditions over 40% of the time, which is almost double that of East of England (25%) and both London existing (19%) and new (11%) permit schemes. The conditions will drive cost either through increased overtime to reduce the overall job duration or loss of productivity costs to restrict our works at certain periods of the day and supports our justification for a higher North West productivity cost per metre.
- 5.23 The forecasting methodology deployed takes into account the additional schemes that have gone live throughout the 2014/15 period and also proportions the length of main per highway authority. We have assumed a similar level of restrictions being applied year on year.

## Section 6: North London - £12.24m (09/10)

- 6.1 National Grid proposes an increase in allowances of £12.24 million for Specified Streetworks Costs for North London network. This sum includes the costs of Permit Fees, the additional administrative activity and productivity costs incurred to operate permit schemes within 5 Highway Authorities. The proposed increase allowances include actual and forecast costs driven by the introduction of the Lane Rental Scheme by Transport for London (TfL).
- 6.2 The graph below summarises the increase in the introduction of permit schemes by Highway Authorities in the North London Network from 2012 onwards and forecasts that all but 2 Highway Authorities, Windsor & Maidenhead and Thurrock, will have permit schemes in operation in 2015. We have not included schemes in our costs post May 2015 and would include these in our potential claim in May 2018.



- 6.3 There are 31 Highway Authorities within the North London Gas Distribution Network with a potential for all to operate permit schemes. 29 Highway Authorities are currently operating schemes with all the schemes covering all roads within the specified boundaries.
- 6.4 Of the 31 Highway Authorities, 5 are covered in our 13/14 actual costs submission and we have used these costs to develop our cost forecast for the remaining RIIO-GD1 period.
- 6.5 Permit scheme coverage and the workloads were also taken into account when calculating the costs incurred and those forecast, actual costs from the RRP were proportional to the number of permit schemes and also proportional to the length of mains abandoned within those schemes. This is shown in the table below and is derived from the RRP table 3.13 for Streetworks as detailed in Appendix 2.



Permit Scheme Coverage	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Number of operators	No.	27	28	29	29	29	29	29	29	29
% coverage of Network	%	87%	90%	94%	94%	94%	94%	94%	94%	94%
Mains Replacement (impacted by Permit Scheme)	km	99	118	120	127	129	129	129	129	982
Number of permits (actual / Forecast)	No.	4,616	5045	5101	5101	5053	4967	4881	4793	39558

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NL 0910' cells B11-B15 through to M11-M15.

6.6 The permit Highway Authorities included within this claim for the North London Network are Slough, Tower Hamlets, Southend, Surrey and Bracknell Forest.

### Permit Fees - £2.36m (09/10)

6.7 The permit fee costs are based on the actuals reported in the 2013/14 RRP for the identified 5 authorities within the North London Network.

TMA Permits (contractors inclusive)	Unit	New HA's			
		Total	Opex	Repex	Capex
<b>Workload</b>					
Number of permits/year	no.	4,616	2,691	1,341	584
Number of permits granted/year	no.	3,293	1,964	832	497
Number of permits variations/year	no.	1,323	727	509	87
<b>Costs</b>					
Net Cost of Permits (£'m) - excluding income related to customer contribution	£m	0.3207	0.1126	0.1622	0.0458
Net Average cost (£ per Permit)	£	69.47	41.83	120.99	78.49

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab '3.13 Streetworks NL' cells Q11-Q28 through to T11-T28.

6.8 The 2013/14 'Net Average Cost' was £195 per permit for replacement activities.

6.9 The variance in the costs applicable to the permit unit costs is dependent on both volumes and types of works. The maximum cost for a Major works predominantly used in the replacement activity is £345 per permit on Class 0,1,2 or TS roads and £225 on class 3,4 and Non TS roads with permit variations at £45 and £35 per variation by road type respectively.

6.10 In London there is a greater level of Traffic Sensitive streets due to heavy trafficked roads, which significantly increase the proportion of 0,1,2 or TS road permits and therefore leads to an increase in the net average permit cost.

6.11 Workload volumes were also taken into consideration when calculating and forecasting the future costs – it can be seen from the table below that there is a reduction on the number of repairs by some 16% and this will drive a proportional reduction in the number of permits required.

6.12 Mains Replacement workload increases by 23% and would see a proportional increase in the number of permits required to complete the works and these two factors were taken into consideration when undertaking the forecasting methodology regarding permit fees over the 8 year period.

<b>Workload</b>	<b>Unit</b>	<b>13/14</b>	<b>14/15</b>	<b>15/16</b>	<b>16/17</b>	<b>17/18</b>	<b>18/19</b>	<b>19/20</b>	<b>20/21</b>	<b>Totals</b>
Total Repairs (Opex)	No.	18034	18436	17916	17384	16847	16307	15764	15219	135907
New Services (Capex)	No.	2411	2411	2411	2411	2411	2411	2411	2411	19288
Mains Replacement (Repex)	km	322.62	373.49	369.11	388.31	396.74	396.74	396.74	396.44	3040

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NL 0910' cells B6-M6, B8-M8 and B9-M9.

- 6.13 The workload figures contained in the table above were taken from the forecasting model as submitted in the 2013/14 RRP workload forecasting table 2.3 (see Appendix 7)

#### **Permit Administration Costs - £0.99m (09/10)**

- 6.14 The onset of the permit schemes added additional costs in administration of the permit process. Within the London Network the existing back office staff were utilised to administer the new schemes with costs being incurred for the provision of traffic management plans and extra supervisory visits as requested by the permitting authorities.
- 6.15 Within the GDPCR1 and in RIIO-GD1 Final Proposals, allowance were set at £8,000 per project for the additional administration. A major benefit of our new Gas Distribution Strategic Partnerships is that we have been able to reduce administration and back office processes, which in turn has allowed us to manage changes, such as new permit legislation more efficiently. Our actual costs for North London results in an administration cost of £470 per project (in 13/14 prices) and we have used this level to forecast future expenditure. These individual schemes have also been less disruptive on our operations than the existing London permit scheme, therefore we have been able to minimise the impact.

#### **Productivity Costs - £4.01m (09/10)**

- 6.16 For the North London network, the costs incurred for those additional permitting authorities resulted in an additional £4.09 per metre over the 8 year period.
- 6.17 A Compensation Event provided by our contracting partner request [REDACTED] (in 13/14 prices) in productivity loss [REDACTED] and administration ([REDACTED]) over year 1 and was submitted within the original RRP for 2013/14.
- 6.18 Since the Compensation Event submission, our Contract Management and Control function have been able to review and challenge the costs to validate that the costs are driven specifically by the new permit scheme and permit scheme conditions from other geographic or legislative constraints. This has resulted in the claim being accepted for North London at [REDACTED]. We have used the agreed figure in our claim and for future year forecasts. (Appendix 3)
- 6.19 The increase in productivity costs were primarily driven through the imposition of restrictive conditions that were placed upon our works by the permitting authority.
- 6.20 An analysis of the conditions placed on our works can be seen in the table below with 3,106 conditions applied throughout the 2013/14 replacement programme which equates to over 7.75 conditions imposed per project undertaken.

Conditions - Numbers	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Timing and Duration Conditions	No.	343	355	366	366	366	366	366	366	2,891
Road Space Conditions	No.	1096	1132	1167	1167	1167	1167	1167	1167	9,231
Traffic Management Provisions	No.	102	106	109	109	109	109	109	109	862
Methodology Conditions	No.	88	91	94	94	94	94	94	94	742
Consultation & Publicity	No.	702	725	748	748	748	748	748	748	5,914
Environmental Conditions	No.	200	206	212	212	212	212	212	212	1,680
Local Conditions	No.	574	593	611	611	611	611	611	611	4,834

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NL 0910' cells B23-30 through to M23-M30.

- 6.21 There are 16 differing conditions within the schemes operating within the North London Network that fall into the categories identified in the table above. The greatest impact is through the application of Road Space conditions that have a severe impact on productivity limiting the working zone and thus reducing the efficiency of the teams undertaking the activities.
- 6.22 The forecasting methodology deployed takes into account the 5 additional authorities adopting permit schemes post 2013-14 period and also proportions the length of main per those highway authorities.

## Section 7: Section 74A Lane Rental Scheme costs (North London only)

- 7.1 The Lane Rental scheme operated by TfL allows charges to be applied for occupying the highway. The charges apply to specific pinch points as determined by the authority and in the case of TfL impact 57% of their network which is equal to 3% of all roads within London. For TfL the actual charging level for the pinch-point locations is £2,500 or £800 per works per day. It was proposed that these charges should be avoidable in circumstances where the works can be completed outside normal hours and/or using “non-invasive” techniques.
- 7.2 Whilst the scheme became operational before the commencement of RIIO-GD1 no allowance was made in Final Proposals.
- 7.3 As part of the GDSP contracting strategy, it was chosen to exclude these from contractor costs and put in place a mechanism to allow the contractor to claim efficient costs in avoiding the lane rental charges where possible.
- 7.4 TfL operates one of only two Lane Rental Schemes in existence (the other being within Kent). In June 2013, National Grid submitted a claim for Lane Rental fees of £0.234m under the GDPCR1 reopener. This was a part year claim and also had the Olympic embargo where works in the highway were restricted from June to September. Ofgem disallowed these costs through lack of evidence to support the claim on the actions and any costs incurred in avoiding the costs associated with Lane Rental.
- 7.5 For 2013/14 a robust cost capture processes was introduced to capture the information related to Lane Rental costs and evidence where avoidance had been undertaken with any associated ancillary costs. This included the development of new technology that can be utilised on site to aid the team leader/supervisor on appropriate course of action to take when encountering Lane Rental streets.
- 7.6 The data is input into both a mobile application and a portal which enable costs to be identified and evidenced accordingly.
- 7.7 The GDSP has also developed and deployed a process planning mechanism to determine if the planned works fall into the trigger for replacement.
- 7.8 Processes and procedures have been adopted to ensure all the data is captured and recorded for all works on Lane Rental streets. A full list of data can be found in Appendix 2.
- 7.9 Our proposed claim for Lane Rental scheme costs is £4.88 million over the 8 year period, including £1.5m for the London Medium Pressure Replacement Scheme. £0.67m for emergency and escape activities and £0.59m for connection activities. Replacement activities are forecasted to be £2.11m (see full details in table below)

Lane Rental Impact	Unit	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	Totals
Lane Rental Opex	£m	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.67
Lane Rental Capex	£m	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.59
Lane Rental Repex	£m	0.22	0.26	0.26	0.27	0.28	0.28	0.28	0.28	2.11
LMPRS	£m	0.00	0.60	0.55	0.07	0.07	0.07	0.07	0.07	1.50
Lane Rental Sub Total		0.39	1.02	0.97	0.50	0.50	0.50	0.50	0.50	4.88

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'NL 0910' cells B32-B37 through to M32-M37.

7.10 The costs are split into two defined areas; the day to day activities for OPEX, CAPEX and REPEX processes; and the London Medium Pressure Replacement Scheme (LMPRS).

### Day to day activities - £3.38m in 09/10 prices

7.11 In 2013/14 National Grid completed 289 works (excluding LMPRS) on the TfL network that involved a potential Lane Rental charge of £2.42million in 09/10 prices. (See appendix 2)

Lane Rental - Summary of Costs for Day to Day works						
			Total	Repex	Capex	Opex
Potential	Total Work volumes	No.	289	42	29	218
	Expected Occupation	Days	2006	494	154	1358
	Potential Fees	£	2,421,552	743,471	211,967	1,466,114
Actual	Works Incurring Fees	No.	41	7	9	25
	Actual Occupation incurring Fees	Days	287	176	46	65
	<b>Actual Fees paid (A)</b>	<b>£</b>	<b>310,708</b>	<b>192,082</b>	<b>56,656</b>	<b>61,970</b>
Works with mitigation actions	Potential Occupation	Days	175	32	5	138
	Actual Occupation	Days	22	2	0	20
	Avoided Fees	Days	153	30	5	118
	Potential Fee costs	£	419,134	52,542	63,770	302,823
	<b>Mitigation Costs (B)</b>	<b>£</b>	<b>77,125</b>	<b>32,255</b>	<b>17,479</b>	<b>27,390</b>
	<b>Total Costs</b>	<b>£</b>	<b>387,833</b>	<b>224,337</b>	<b>74,135</b>	<b>89,360</b>

7.12 Of the 289 works completed on the Lane Rental roads the total cost incurred was £388k. We avoided Lane Rental charges and any additional costs on 228 works, which results in our claim being restricted to 41 jobs where we have incurred either Lane Rental charges or costs to reduce the impact driven by our works.

7.13 Two specific processes and procedures have been adopted to reduce the impact of Lane Rental, these are a mobile application utilised by Repair crews to determine the best time and best cost option to undertake works on Lane Rental streets, subject to the primary driver of safeguarding life and property. In addition a SAP portal has been developed to assist our contractual partners in analysing the impact of replacement works and assist in planning the works.

7.14 An analysis of those 41 works incurring costs identified that 31 had some mitigation and 10 had no mitigation to reduce the costs or impacts of Lane Rental. A breakdown of the actions taken for the 10 with no reduction in the cost was as follows:

- 4 Immediate Work activities, 3 of which were gas escapes with the asset being located in the road, the Lane Rental Application was deployed and an assessment for the use of core and vac was considered but deemed unsuitable. These works

only incurred 1 days charge each. The remaining Immediate Works was a dangerous 2 hour defect that had to be corrected immediately that was completed within the day but there is no 'free allowance for this activity'.

- 4 Customer driven works, 2 involving new supplies with the asset within the carriageway. The works were completed within the calendar day and incurred only 1 days charge each. The other 2 works were disconnections, again the assets requiring carriageway access, and there were issues locating the service to be disconnected these works were completed within 2 and 5 days respectively.
- 2 Replacement works, the first to lay 6m of 90mm Pipe to replace the existing risk rated main – the risk assessment was carried out on the risk main to see if the works required undertaking (see appendix 7) and planned for replacement - no other available minimum dig technique available to access the parent main. The second was the replacement with 265m of 180mm plus 7 mains interconnections on Kings Cross Road and an additional 34 service connections to replace a risk pointed main. Our forecast reflects that we would expect a limited number of seed risk mains being required to be replaced in Lane Rental roads over the 8 year period.

#### 7.15 Of the remaining 31 works

- 20 were Immediate Works to safeguard life and property in repairing gas escapes. These jobs averaged 2.1 days incurrence of Lane Rental charges. Rapid cure concrete was utilised on 8 of the works to enhance the reduction of occupation of the highway. Core and Vac was deployed on another although there were other traditional methods deployed. Vehicle parking was a factor in incurring charges with no other alternatives other than to occupy the Lane Rental Street with the vehicle. Total number of days Lane Rental occupation – 42 days.
- 2 works involved the restoration of supplies following temporary isolations on multiple occupancy buildings where the asset was replaced back to the parent main in the carriageway to restore supplies within the Guaranteed Standards of Performance – average occupation was 2.5 days per works.
- 2 customer led works for a new supply to the asset in the carriageway – 1 day occupation per works.
- There were 7 works that required CCTV and the location of 'back-feeds' to abandon risk mains where the assets were located in the carriageway and there were no other alternatives than working in the highway to mitigate the charges.

#### 7.16 In undertaking cost avoidance measures the submission also includes costs of £89.9k incurred in avoiding Lane Rental charges; including:

- Overtime premium paid (£58,000) to reduce occupation where works have been undertaken out of hours;
- The costs (£21,800) incurred for the enhanced use of rapid setting concrete over and above the standard materials;
- A premium (£10,100) for the utilisation of keyhole technology out of hours.

- 7.17 Of the potential 2006 days of planned occupation of the highway only 287 days of actual occupation (14%) were recorded with the key mitigating actions being:
- parking the vehicles off the highway whilst the works are undertaken (128 occasions)
  - working only in non-chargeable area's (parking bays) (9 occasions)
  - deferring works that are not at risk and completing works within the free period or outside the recognised traffic sensitive hours (18 occasions)
  - Ensuring administrative errors were not charged (32 occasions)
  - Coordinating and working with the highway authority to agree 'no charges' (13 occasions)
  - Working outside the Lane Rental applicable hours and working extended hours to utilise the fee if applied (44 occasions)
  - Works outside the Lane Rental designations were not charged (4 occasions)
- 7.18 All the works undertaken on Lane Rental streets are tracked and logged to understand any additional costs to the business through the supporting application and portal.
- 7.19 For our forecast we have used 13/14 as the benchmark and used this as the basis of future years assumptions on the percentage of our works that will fall in the London Lane Rental Scheme.
- 7.20 Whilst the claim does include a small allowance to recover Lane Rental Fees in addition to our incurred and forecast cost to avoid the charges, we do believe the detailed evidence provided shows we have only occupied the highway at traffic sensitive times when we have had no alternative driven by the need to either keep the public safe, whether immediate emergency or replacement of high risk iron mains or driven by a specific customer requirement, such as a new gas connection.

## Lane Rental Costs for London Medium Pressure Replacement Scheme (LMPRS)

“We value our relationship with them, we think they are a forward thinking and innovative authority and would like to continue working with them” *Martin Low, Westminster City Council*

- 7.21 In October 2014, proposals were finalised to deliver the London Medium pressure replacement programme that will see the complete delivery of medium pressure mains renewal over RIIO-GD1 and GD2
- 7.22 We have looked at a number of options to either fully mitigate Lane Rental Charge or minimise the costs and the options are detailed later in this section. Below is a table that shows the option we have chosen, which when comparing the direct cost per metre of the works vs the next lowest cost scheme it is more cost effective to deliver the works through insertion and incur some Lane Rental Fees (£4.7m), than incur the significant additional costs for a potential alternative route (£10m).

	Cost Comparison LMPRS Project (Lane Rental Impact)			
	Unit Cost	Length Impacted by Lane Rental	Lane Rental Costs	Total Costs
	£m	metres	£m	£m
Option 1 (Insertion)	800	4000	1.5	4.7
Option 3 (Open Cut)	2500	4000	0	10

- 7.23 The selected route for the LMPRS will involve working in Lane Rental charge areas and will incur Lane Rental charges to the value of £1.5m, a breakdown of which is detailed below.

MP STRATEGIC REPLACEMENT MAINS SCHEME :	LANE RENTAL ALLOWANCES: IN			Lane Rental Duration (Weeks)	Total Duration (Weeks)	RIIO Forecast Period - Charge Split - £million							
	Daily Charge £/day	Days	£m			13/14 £m	14/15 £m	15/16 £m	16/17 £m	17/18 £m	18/19 £m	19/20 £m	20/21 £m
FULHAM TO HYDE PARK MP STRATEGIC REPLACEMENT MAINS SCHEME :	2,500	200	0.50	40	377	0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.07
IP MAIN FULHAM TO GROSVENOR RD. MP STRATEGIC REPLACEMENT MAINS SCHEME :	2,500	200	0.50	40	78	0.00	0.25	0.25	0.00	0.00	0.00	0.00	0.00
ALDGATE MP STRATEGIC REPLACEMENT MAINS SCHEME :	2,500	45	0.11	9	90	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00
BATTERSEA PARK ROAD MP STRATEGIC REPLACEMENT MAINS SCHEME :	800	65	0.05	13	52	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00
COMMERCIAL ROAD MP STRATEGIC REPLACEMENT MAINS SCHEME :	2,500	114	0.29	23	28	0.00	0.14	0.14	0.00	0.00	0.00	0.00	0.00
QUEEN VICTORIA STREET ABANDONMENT	2,500	20	0.05	4	4	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS		644	1.50	129	629	0.00	0.60	0.55	0.07	0.07	0.07	0.07	0.07

Table data sourced from 'Appendix 2 - Master UM 2015 Costs Final 220515' Tab 'LMPRS' cells A2-A12 through to N2-N12.

- 7.24 The total LMPRS programme is 25km of which about 4km is associated with Lane Rental. This includes a number of routes that will not have any physical works



undertaken, but will require the deployment of Traffic Management to facilitate the works in adjacent streets or areas. Under the Lane Rental scheme, these Traffic Management requirements will still attract a charge.

## Project Options

- 7.25 The original project sanction considered a number of options all of which would still meet the primary driver for removing the risk from our iron mains within the City of London. The chart below uses a traffic light system to show the benefits of each option.

Driver/Consideration	Option 1 City Centre Schemes	Option 2 'Square Mile' Schemes	Option 3 Outside City Centre	Option 4 Defer	Option 5 Do Nothing
City Centre Process Safety Risk	Green	Yellow	Red	Red	Red
Meets RIIO Outputs Commitments	Green	Red	Green	Yellow	Red
Reputation (Reg. & Stakeholder)	Green	Red	Red	Yellow	Red
Deliverability	Yellow	Red	Green	Green	Green
Net. Present Value	Green	Red	Green	Red	Red

- 7.26 We have covered below options 1 and 3 to provide some background to our decision to utilise a route that would attract Lane Rental Fees together with the steps we have taken to mitigate the total Lane Rental costs.

### Option 1:

#### Deliver City Centre Schemes - Recommended

- 7.27 This option is focused on decommissioning the pipes at the centre of the city. By doing so, this strategic plan decommissions the mains that pose a higher process safety risk to the public and buildings in close proximity to these mains, at the centre of the city.
- 7.28 The option contributes towards the risk removed, length of main (Risk index) decommissioned and leakage output commitments. Of all the options available, this approach contributes most towards the risk removed output commitment.
- 7.29 The strategic plan is consistent with the RIIO-GD1 business plan and fulfils the expectations of Ofgem & HSE in this regard. If the strategy can be delivered in a collaborative and efficient way, minimising our effect on the public, there is the opportunity for a positive reputation outcome with our stakeholders for this flagship replacement job.

**Option 3: Outside City Centre Schemes - Discounted**

- 7.30 This option focuses on decommissioning the mains outside of the city centre, still removing pipes that pose a process safety risk.
- 7.31 The proposed option would replace mains that did not pose as high a process safety risk as those in the city centre (Option 1).
- 7.32 The option makes a comparable contribution towards the London output commitments as option 1. However, is not consistent with the expectations that have been set with Ofgem and HSE.

**Mitigating the impacts on Lane Rental roads**

- 7.33 Prior to agreeing the route and route options, we undertook extensive local Stakeholder engagement to discuss options. This was factored into our evaluation as can be seen in the previous table.
- 7.34 Once we had decided the overall best option, we identified where works will be coordinated with other utilities in order to reduce or eliminate costs and these assumptions are built into the scheme costs and duration for Lane Rental occupation.
- 7.35 To demonstrate that we have sought to minimise the Lane Rental costs from our selected design, we have been in consultation with the Highway Authority to attempt to mitigate and reduce the impacts. Mitigations include;
- Extended working hours (0700-2000) on a daily basis
  - Agreements on changing timings on traffic signals to facilitate traffic flows
  - Co-ordination with UK Power Networks to undertake collaborative working
  - Collaboration with Scotia to co-ordinate cross network operations
  - Working with Cycle Super Highway Team in collaborative work
- 7.36 To minimise the costs of the project we will be utilising the existing mains for insertion (planned at circa 99%), which requires us to use the route of the existing mains infrastructure. This will limit our excavations to insertion access pits although of significant size due to the diameter of the replacement being undertaken
- 7.37 We have included the impact from working collaboratively with other work promoters e.g. City of London regeneration scheme at Aldgate and with TfL at the Vauxhall gyratory. However, this practice has only secured a percentage reduction in the Lane Rental charges and this has been included in our cost forecast.
- 7.38 We are looking to adopt new innovations to minimise the impact and we are looking to utilise a new plating system that has been used before by Thames Water, but due to the size of the pipes being replaced, and therefore size of excavation required, this has limited its use. We are discussing the use of the technology with TfL for a section of the works, which would allow working at night and then return the carriageway to use during the day to allow normal traffic conditions.
- 7.39 Other key factors in selecting Option 1 are detailed below:

- Utilisation of dead insertion techniques – least cost option for mains replacement and the project cost is £800 per metre as opposed to £2,500 per metre for Open Cut.
- There are off takes for customers including some large non-domestic users Hospitals etc. that would require the supplies to be maintained whilst remove the risk pipes within the vicinity.
- Lack of space - It is really difficult to find a new route to dig a new trench in London especially as these are large diameter pipes.
- If a different route could be found to open cut then this would normally be through residential areas that may have a massive impact on residents in respect of environmental issues.
- Open cut is as less safe method of operation due to potential risk of damage to underground utilities when excavating.

7.40 Given our approach to the LMPRS, we believe we have selected the most economical, safe and practical route for London stakeholders and customers that will minimise disruption overall and have sought to minimise the impact on Lane Rental roads through our mitigation actions.

## **Section 8: Customer Bill impact**

- 8.1 Our Performance for 2013/14 document stated that £139 of an average £755 annual domestic gas bill covers the cost of National Grid's distribution services. £15.5m of the total £28.24m claim was included within 13/14 RRP, therefore forms part of the £139. This figure contributes 10 pence per year to the bill.
- 8.2 The remaining cost identified of £12.74m, will add an additional 9 pence per year to the customer bill over the RIIO-GD1 period. The slight increase is reflective of the additional permit schemes that have been introduced.

## **Section 9: Data Assurance – Irregular Submission**

- 9.1 In line with Data Assurance Guidance requirements, we have produced an irregular submission assurance report and this is attached as Appendix 8

## Section 10: Stakeholder Engagement and Industry Collaboration

“NG used to be a poor performer utility company for us but we’ve worked closely and the relationship has improved well – it’s a good utility company now” *Anonymous, North West Network*

- 10.1 At National Grid we are active in working with key organisations to ensure that we can input, co-ordinate and collaborate with other organisations in improving performance, benchmarking and moving Streetworks forward to the benefit of all our customers and stakeholders. Ultimately we as National Grid want to keep our customers and the public safe whilst delivering against our outputs and keeping disruption on the highway to a minimum.
- 10.2 Examples of National Grid’s key Streetworks stakeholders:
- Local Government Associations
  - Highways Authorities
  - Ofgem
  - Department for Transport (DfT)
  - National Joint Utilities Group (NJUG)
  - Highway Authorities and Utilities Committee (HAUC)
  - Energy Networks Association
  - Gas Network Companies (British Gas etc.)
- 10.3 Some examples of how National Grid has collaborated across the industry can be seen below
- 10.4 National Joint Utilities Group (NJUG) – National Grid holds a Directorship on the NJUG Board and works with 57 other Utility members to promote best practice and improve Streetworks performance. Significant benefits are brought to the industry by reviewing and establishing new or amended legislation that is fit for purpose for institutions undertaking Streetworks. National Grid also instigated a review into how NJUG operates including implementing Expert Practitioner Groups that specialise in different areas of Streetworks legislation to aid understanding across the industry.
- 10.5 Highways and Utilities Committee (HAUC) – National Grid is an active member of HAUC England, acting as joint Chair of the Co-ordination working group that helps produce advice notes on legislation. Sharing best practice across the Utility industry to reduce disruption in the highway.
- 10.6 Local Government Association – National Grid is assisting in drafting “What Good Looks Like” for Streetworks. We are also engaging with Infrastructure UK to develop a strategy for delivering and safeguarding supplies of gas and energy for future growth of our cities. This work ensures that the challenges surrounding Streetworks are understood and considered when developing future energy networks.
- 10.7 DfT – National Grid supports the DfT in drafting and reviewing amended legislation and advising on new regulations such as Statutory Guidance for permit schemes. By collaborating with Government departments National Grid aims to protect the interests of its customers and also shape the future of legislation.

“There have been some good examples of that (utilities working together) particularly between Thames Water and NG Gas when they have combined works to try and reduce disruption overall.” *Martin Low, Westminster City Council*

10.8 Key examples of where National Grid has collaborated with and influenced the industry are as follows:

- *Permit Regulations* – working with the DfT and HAUC, National Grid have succeeded in getting an amendment to both the Regulations and the Statutory Guidance that will drive uniformity in both the application and deployment of permit schemes including a defined set of National Conditions that will enable all works promoters to adopt consistency when working on different highway authority assets. It is expected that once these changes have been agreed throughout the Streetworks community, it will drive cost savings in administration and productivity.
- *Specification for Reinstatements of Openings in the Highway (SROH)* - National Grid is currently working with the DfT and HAUC community to redraft the regulations appertaining to reinstatement that will remove the ambiguity and challenge regarding reinstatement. Inclusion of redefined performance criteria and a more efficient process for the inclusion of innovative techniques (e.g. vacuum excavation) to be incorporated into legislation.
- *Inspections Codes of Practice* – National Grid are currently reviewing this legislation to improve the performance of current processes in respect of inspections including defining a set fee for all inspection, a new way of calculating inspections based on occupation and a unified approach for escalation for non-compliance. Again savings are expected in the administration of this legislation.
- *Lane Rental Review* – National Grid has been asked to take part in a review and impact assessment of Lane Rental by the DfT to define the benefits the scheme has produced for the Highway Authority and the impact of costs for the utility.

### **Stakeholder Feedback on our Specified Streetworks Cost proposals**

10.9 Feedback from stakeholders is invaluable when looking to improve performance and share proposals. An overview of this claim was provided to a number of National Grids key Streetworks stakeholders, followed up with telephone interviews requesting feedback on the service National Grid provides together with views/opinions of the foundations of the claim.

10.10 It must be noted that Government stakeholders were approached to feedback, however due to the 2015 General Election and period of Purdah, the majority were unable to comment on the proposals at that time.

10.11 In summary, the main points raised by our stakeholders were as follows:

- Average score of 8/10 from respondents saying they are clear why National Grid have to work in the highway.
- Permit schemes bring key benefits of minimising disruption and congestion on the highway.
- Most were supportive of the concept of National Grid claiming efficient additional costs incurred to operate within permit schemes.
- Good, positive relationships between National Grid and Highway Authorities.
- A government respondent felt that there should be a reduction in costs of permit fees where techniques to reduce impact of work can be demonstrated, but did support the need to recover costs incurred related to permit fees or costs associated with loss of productivity.
- Advance notice by National Grid of works could be improved.
- A government respondent felt National Grid had not fully embraced the S74 changes and Lane Rental scheme, however did feel that NGGD was performing in line with other works promoters.

10.12 The detailed feedback can be found in appendix 9.

## Section 11: Future Legislation changes and the risks to delivering our outputs

11.1 National Grid is fully aware of potential future legislation that may be enacted, and is working with its stakeholders to improve its performance and to deliver against the promised output commitments to ensure more regulation is not required.

Examples of key areas that may be enacted:

- Further roll out of Lane Rental
- Section 73 NRSWA – contributions towards maintaining the highway
- Section 78 NRSWA – half width reinstatement

## Section 12: Appendices / Supporting Information

Number	Details	Type
1	Population Densities	Excel Spreadsheet
2	Master Costs	Excel Spreadsheet
3	TMA Compensation Event – EoE/NL	PDF
4	Forecast tables – EoE	Excel Spreadsheet
5	Forecast tables – NW	Excel Spreadsheet
6	TMA Compensation Event - NW	PDF
7	Forecast tables – NL	Excel Spreadsheet
8	DAG Assessment	PDF
9	Stakeholder Feedback	PDF