CQC Annual Report

Membership Year 2016/2017

Contents

Executive Summary

The headline results from the latest round of CQC analysis, on Road Carriageway Maintenance data submitted by eighty-three members of the Network for the period 2009/10 to 2015/16, are as follows:

- Network members have improved their efficiency, on average, by more than 4% over the period.
- Net annual efficiency savings of £35m have been measured across the Network, relative to 2009/2010 expenditure.
- Fifty-nine members of the Network have made measurable efficiency savings totaling £46m, relative to 2009/10 expenditure.
- Remaining 'scope for improvement' across the Network, the gap to minimum cost, equates to £100m.

Background

The CQC Efficiency Network, formed in April 2015, is run in partnership by measure2improve and the Institute for Transport Studies (ITS) at the University of Leeds. Chaired by Jason Russell, Deputy Director Environmental & Infrastructure at Surrey County Council, the Network measures efficiency, evaluating the likely impact of changes to expenditure, practice and process and assists participating authorities realise efficiency savings. CQC has received recognition from the Department for Transport (DfT) and is referenced in its Incentive Fund Self-Assessment Questionnaire.

Eighty-four authorities are members of the network, up from sixty-seven in 2015/2016, representing 56% of all English Local Highways Authorities with responsibility for 72% of the Local Authority road network and an annual spend of £840 million.

What's Changed

The CQC model is constantly developing and the priority has been to improve the robustness of the model and better understand practice that drives superior performance.

Where possible data is gathered from public sources apart from expenditure data and practice and process information submitted by the membership. Data from public sources includes Land Area, Road Length, Traffic, Road Condition, Wages & Material Prices and Public Satisfaction. Many other datasets were considered but were found to be impractical to use.

Members provided Capex and Opex cost data for the period 2009/10 to 2015/16. Efforts have been made this year to separately identify additional investment as this was identified as an issue affecting 2015/2016 results.

The Network started collecting additional data, known as the Why Questions, last year to help explain why some authorities appear closer to their theoretical minimum cost than others. Changes have been made to the Why questionnaire this year to make reporting and analysis easier. This information together with collating Self-Assessment evidence should help to explain the differences between Authority results.

The basis on which adjustments were made has been changed this year. Importantly improvements in the consistency of data has given scope for a more ambitious approach to capturing cost differences in the modelling. Much work has been done looking at how the size of an authority affects the cost model. This year's analysis is based on the combination of land area and road length, which captures the

difference between urban and rural authorities and has shown to be the best method in other similar work.

Last year's study produced relatively weak relationships between road condition (RDC), public satisfaction and cost, and further work on these factors was prioritised in this year's study. Three variables have been introduced: the level of RDC, the year on year change in RDC and in public satisfaction i.e. current year less the previous year, which have provided more intuitive results.

These changes are a step forward in explaining cost differences between Authorities and the average efficiency gap has fallen from last year's analysis, indicating the modelling has improved and that the cost data is more comparable than before.

ITS developed several alternate statistical analyses utilising the data available, however, there are two sets of published results based on Total Expenditure and Total Expenditure minus any declared 'Additional Investment' where applicable.

Results

CQC provides a basis for measuring efficiency savings. Authorities that close the gap to their minimum cost realise efficiency savings. The savings made by each authority, and the Network as a whole, can be quantified below by multiplying the improvement in efficiency by average annual expenditure over the period.

Network efficiency has improved on average over the period by 4.6%. Taking this improvement and multiplying it by the total of all members' average expenditure per annum in 2016, which equates to £770 million, gives an overall net efficiency saving across the Network over the period of £35m per annum relative to 2009/2010 expenditure.

Looking at individual member performance, fifty-nine members made improvements over the period, the combined efficiency savings for these members amounting to £46m.

As well as providing a basis for measuring efficiency savings, CQC gives an indication of 'potential' for efficiency savings yet to be realised. 'Scope for Improvement' is quantified by the current gap to potential 'Minimum Cost', multiplied by average annual total expenditure over the period. On this basis, the 'Scope for improvement' across the Network is over £100m.

Please note: This 'Scope of improvement' figure may be overstated because there remain unavoidable costs, that are not currently allowed for in the model. It is also possible some of these potential savings cannot be realised for a variety of local practical, political and logistical reasons.

Next Steps

At the Network's National Members' Meeting, held in January 2017, it was agreed that the Network should continue to meet on a regional basis and introduce peer group meetings. Whilst many members thought it was too early to extend the analysis to other service areas, it has subsequently been agreed that a pilot should be undertaken in recognition that any model for a new service will take several iterations to develop.

Background

The CQC Efficiency Network was formed in April 2015 to measure efficiency, evaluate the likely impact of changes to expenditure, practice and process, and provide a stimulus to realising efficiency savings. CQC has received recognition from Department for Transport (DfT) and CQC methodology is referenced in DfT's Incentive Fund Self -Assessment Questionnaire.

The Network provides an Annual Efficiency Assessment building on the CQC Efficiency Model developed by the National Highways & Transport (NHT) Network and the Institute for Transport Studies (ITS) at the University of Leeds (UoL). The CQC Efficiency Model has been supported by funding from HMEP, and the Network continues to work closely with the programme to support its ambition to drive efficiencies in the local roads sector.

The Network is chaired by Jason Russell, Deputy Director Environmental & Infrastructure at Surrey County Council and creates focus groups to tackle specific issues as they arise. There are currently three such focus groups in operation, as follows:

- Cost Data Definitions
- Members' Constitution & Reporting
- Identifying Efficient Practice/Why Questions

Network membership grew in 2016/17 by seventeen, from sixty-seven to eighty-four authorities, with all except one of the founding members renewing their subscriptions. At this level of membership, the Network includes almost 56% of all English Local Highway Authorities (70% outside London) and Network members are responsible for 72% of the English Local Authority road network, with a combined annual spend on Road Carriageway Maintenance of £840 million.

The membership meets regularly both Nationally and in the Regions and the network is actively engaging with Alliances and Regional groups across the sector. Member meetings are used to explore differences and to share practice and experience. The Network website includes a Practice Library, which holds practice notes and case study material drawn from the membership.

This year's results are based on data returns submitted by 83 of the 84 local authority members of the Network. A full list of members is included in Appendix 1. Details of the data collected and the number of annual data sets available (observations) for the current analysis is provided in Appendices 2 and 3.

What changed this year

Refining and improving CQC's efficiency measurement methodology is an iterative process. The Network's initial priority has been to improve the robustness of the statistical model and to try and seek a better understanding of the practices that drive superior performance.

Data used in the analysis

Most of the data used in the analysis is gathered from public sources, the main exceptions being expenditure data and practice and process information, which are collected direct from the membership. Using publicly available data where possible was a deliberate strategy to ensure that there was comprehensive data coverage and that the data used is established and accepted within the sector.

The datasets collected from public sources, that were used in this year's analysis, were as follows:
- Land Area
- Road Length
- Traffic
- Road Condition (Red) (by A Roads, B & C Roads, U Roads)
- Change in Road Condition
- Wages & Material Prices
- Change in Public Satisfaction

A variety of other datasets were also collected; HGV Traffic, Population, Tender Price Index, NHT public satisfaction survey results (HMBI01), however none of this additional data was used in the final analysis.

Several other potential datasets were considered, including; weather variables, numbers of depots, amber and green road condition scores, but due to a lack of data available or for reasons of cost, none were practical to include this year.

Expenditure data

As in the previous year, members were asked to provide expenditure data split into Capex and Opex and to identify the split between Direct and Indirect costs in their returns. Anyone unable to split out their costs was asked to supply what data they could and include an explanation, rather than providing no data.

Members were asked to supply cost data for the last seven years from 2009/10 to 2015/16. Authorities that took part in the analysis last year were only required to submit data for 2015/16 however many founder members took the opportunity to revisit their previous return and submitted revised data for all years.

The main change to the data collection form, made by the cost definitions focus group this year, was to separately identify any additional investment/one off spend. Such one-off expenditure was identified as an issue affecting the results produced by the 2014/15 analysis.

The data capture form was amended to include the following; *'Please indicate how much of your Capex total spend is over and above your 'Baseline budget or Incentive fund allocation', e.g. part of an investment plan, emergency/disaster fund etc. Please include where the funding is from e.g. Challenge Fund, LEP etc.'*

'Why Questions'

To help identify efficient practice and explain why some authorities appear closer to their theoretical minimum cost than others, the Network started collecting additional information from the membership

last year. The 'Why Questions', were updated this year, with the help of the Efficient Practice focus group, and reflect suggestions collected during regional workshops held in May and June 2016.

The questionnaire was changed to a tick box format to make it easier to complete and this new style will make production of comparative reports easier than with the open text style questions used previously

- Carriageway Defects
- Carriageway Defect Service Levels
- Scheme and Programming Integration
- Carriageway Condition Surveys
- Carriageway Valuation
- Depots
- Street Permit Scheme
- Efficiency Savings

- Claims
- Delivery Model
- Payment Methods
- Carriageway Treatment Methods
- Planned Carriageway Maintenance
- New Treatment Types
- Performance Management
- Alliances & Collaboration

It is hoped that collating Self-Assessment evidence and Why Question data will help explain the differences between Authority results.

Cost adjustments

In the 2014/15 analysis, adjustments were made for: 'Size' - overall size of network and the mix of urban and rural roads, 'Composition' - the proportion of the network that is classified A, B, C and U, 'Road Condition' - the effect of road condition by road classification, 'Traffic' - the impact of traffic, 'Input Prices' - the effect of differences in wages and materials, and 'Public Satisfaction' - the effect of differences in public satisfaction.

Following a review of the 2014/15 results and based on the outputs from a pilot project run in Scotland covering all Scottish Roads authorities, it was decided to change the basis on which adjustments were made in this 2015/16 analysis. Importantly, the improvements in the consistency of the data have allowed us to be more ambitious with the extent to which cost differences in the modelling can be captured. Overall, this model represents a step forward from the previous model in terms of explaining legitimate cost differences between Local Authorities. This is confirmed by noting that the average unexplained gap has fallen relative to the analysis from previous years. This indicates that the cost data is more comparable and that the model is explaining more of the difference in costs between authorities than before.

Each element of the model is dealt with in turn below.

Size of local authority

A key change in the modelling this year is how the size of an authority is captured within the cost model. Size is a critical variable, because it is important to recognise that, through no fault of their own, authorities can be too large or too small relative to 'optimum size', in terms of minimising cost.

The 2014/15 analysis adopted the length of road by urban and rural classification as the measure of size. Whilst this performed reasonably for the majority of authorities, the results for highly urban or highly rural authorities were less reliable. The latest analysis uses a measure of overall road length (the sum of

urban and rural road length) and a measure of the geographical area. Together these capture the extent of the assets (length of road) and the dispersion of the assets throughout the Authority (how spread out they are). In recent work in Scotland, it was found that the combination of land area and road length seems to adequately capture the difference between urban and rural authorities, without relying on somewhat arbitrary road classifications. Some further alternatives, notably separate A, B, C and U Road Lengths (km) or Major and Minor Road lengths were considered, however, none proved to be better than the measures selected.

How size influences cost

Unlike all the other cost drivers, a larger size of authority does not automatically imply either a lower or higher unit (per road km) cost. That is because there is a 'minimum efficient scale' (MES) level for each authority i.e. a hypothetical size, where they are not too small and not too big: they have minimum possible unit costs all things being equal. MES levels are common in network industries. Up to a certain size, expanding will mean fixed costs can be spread over more units of output however, this is only the case up to the point when coordination problems arise and then average costs start to increase. That is what has been observed here, the costs involved with increasing size may be maintained up to a certain point after which average costs may start to increase.

This affect can be visualised in a graph of average cost (per road km) against size as shown below. As size gets larger, average costs fall to a point and then rise again. This chart is a simplification because there are two measures of size (road length and land area), but it does illustrate the conceptual point.
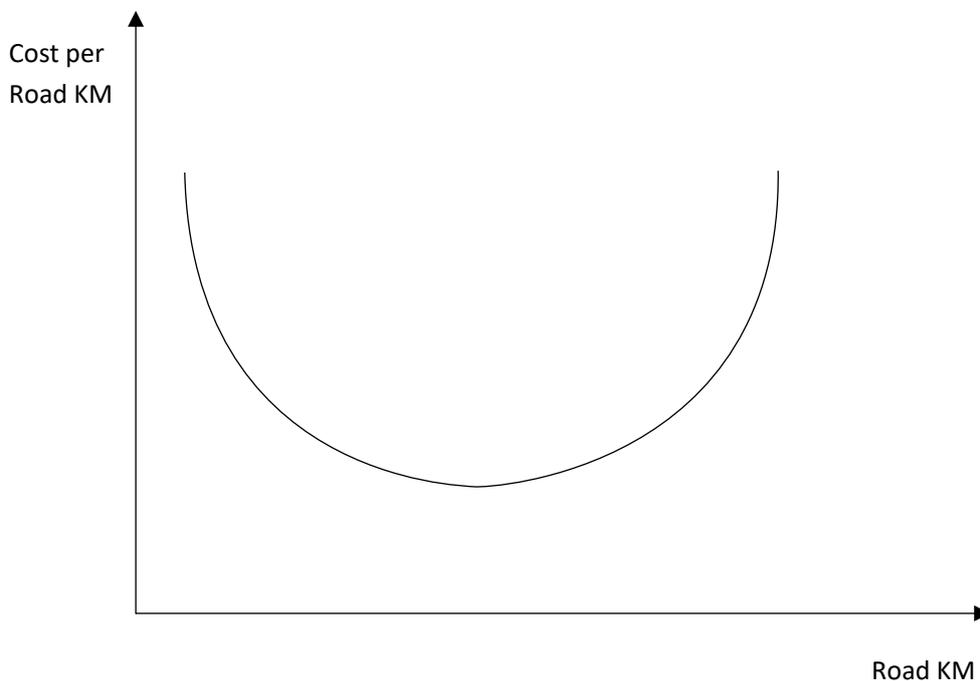
Road Condition and Public Satisfaction

One of the vexing challenges in this analysis is to simultaneously control for the influence of the condition and quality of an authority's assets (in this model the condition of the carriageway) and the influence on costs of public satisfaction. In the 2014/15 analysis, the standard 'red' road condition measure (RDC) was

included in the analysis alongside a measure of public satisfaction. This produced reasonable results but had two key limitations:

1. The anticipated direction of the relationship between the RDC and cost was not clear. One might have expected a simple relationship where a poor-quality network requires more maintenance, higher cost to keep it going, than a good quality network (the idea that a better capital stock reduces ongoing maintenance requirements). However, on the other hand, improving network condition and reducing the number of defects requires investment, and so falling RDC (reduced defects) is associated with higher cost.

2. There was a relatively weak relationship between public satisfaction and cost. Whilst this to some extent is due to road condition and satisfaction measuring similar factors i.e. the quality of provision, we prioritised a revisit of the issue in the latest round of analysis.

In this round of analysis, three variables have been introduced to characterise these factors: The level of RDC[1], the change in RDC from the previous year to the current year (DRDC – so DRDC for 2010/11 is the RDC in 2010/11 minus RDC in 20009/10 for example) and the change in public satisfaction from the previous year to the current year (DHMBI01). This provides intuitive cost impacts as explained below:

- RDC – This now clearly shows that the better the state of the network, the less cost is required to maintain it. Thus, if RDC goes up (road condition gets worse), cost goes up.

- DRDC – An increase of DRDC says that road condition has deteriorated from the previous year to current year. It was found that such a deterioration reduces the model spend. This is as expected because, all other things equal, road condition deteriorates if less money is being spent than needed to maintain stable condition. Conversely to improve the network quality (reduce RDC) requires investment over and above what is required to maintain RDC at a given level.

  Importantly, together, RDC and DRDC capture and separate the two competing effects found when using just RDC in the 2014/15 analysis. The net result is the model no longer penalises local authorities for investing to improve their assets. In addition, and in recognition that investment can be for other purposes and not just to improve road condition as measured by RDC, any itemised additional investment expenditure is netted off when computing the CQC rating.

- DHMBI01 – This is a change from the 2014/15 analysis. In the previous analysis, the level of HMBI01 (Public Satisfaction with Road Condition) was used, whilst here the change in HMBI01 from the previous year to the current year is used. This was done to discover if there might be a difference in the cost of maintaining a given level of satisfaction versus changing the level of satisfaction. What the results show is that it costs money to increase public satisfaction from whatever base level. However, no relationship could be found between cost and the level (as opposed to change) in HMBI01. This could be reflecting the nature of this data, in that changes

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[1] Note that RDC is actually reported by A road, B&C road and U road. We average these figures to come up with an overall local authority RDC (and DRDC) by weighting by the length of the respective road lengths. Further a subtle change from the 2014/15 analysis was to consider this weighted measure in the model rather than the three-road type RDC measures. Whilst this might seem like a step backwards, we only undertook the use of disaggregate RDC measures in the 2014/15 analysis because the averaged RDC measure was not producing statistically significant results. Given the introduction of DRDC in the recent analysis, we no longer have this problem.

from year to year are important, whilst overall differences between authorities are more susceptible to influences such as demographic differences rather than costs.

Traffic

There has been no change in the traffic measure between the latest analysis and the 2014/15 analysis. Traffic Density is used, defined as total motor vehicle (km) / total road length (km). This shows a positive relationship between costs and traffic; more traffic implies higher cost. Importantly the traffic data does now exclude Transport for London traffic which is important for modelling the costs of London Boroughs.

As part of the data collection review, meetings were held with Department for Transport traffic statistic representatives to gain a better understanding of the traffic data available and to see if it was possible to obtain a greater disaggregation of traffic data by local authority. DfT subsequently supplied data by vehicle type, rural and urban and major and minor roads. This is very detailed data. Unfortunately, it was not possible to find a superior relationship between this disaggregate traffic and cost. In particular, the following were examined:

- HGV and Non-HGV Traffic (km) – As in the 2014/15 round, no intuitive relationship between HGV traffic and costs was found.
- Traffic by Vehicle Type and/or Road Type (km) – In this round, access was available to a much more detailed breakdown of traffic by vehicle type (e.g. cars, buses, LGVs and several classes of HGVs) and tried many different aggregations but again no sensible relationship was found.
- Standard Axles – A weighting of vehicle kms by the amount of damage that each vehicle class does according to wear factors used in road construction. This was used in the project for Scotland, but with this dataset no statistically significant relationship could be found.

It may be desirable to return to this issue in subsequent years of analysis – particularly once DfT have undertaken their re-surveying exercise for minor roads, which will improve accuracy of the traffic data for this classification.

Input Prices

Two input price measures are used: wages and materials prices

For wages, data from the Annual Survey of Hours and Earnings for the Civil Engineering industry Median hourly wage (2009/10 to 2015/16) for all workers is used. The model therefore controls for regional variation in wages, and changes over time.

For materials prices, the materials component of the Resource Cost Index for Road Construction is used. Unlike the wage variable, this captures no regional variation, but allows for control of the trend over time. There is not a material price adjustment in the waterfall decomposition charts and tables. This is because the price used for materials is a price index and does not vary by authority.

How adjustments affect cost

The table below summarises the discussion in the above section as to how each cost driver affects costs

Cost Driver	Logic for inclusion	Effect on modelled minimum cost (from an increase)
Size (Road Length and Geographical Size)	Controls for how the different size of authorities can affect minimum average costs	⇕ Could be an increase or decrease depending on whether the authority is near its 'optimal size'

RDC (Road Condition – Proportion of road network Red)	Controls for the ongoing condition of the road network	⇧	The worse the condition of the network the more recurrent maintenance is required
DRDC (Change in Road Condition from the previous time period)	Controls for the impact of any investment (or dis-investment) in the network	⇩	If the network deteriorates (i.e. DRDC is greater than zero) the model decreases expenditure accordingly, presenting a lower minimum cost.
DHMBI01 (Change in HMBI01 – Public Satisfaction – from the previous period)	Captures the cost effect of improving public satisfaction	⇧	If DHMBI01 is greater than zero, then public satisfaction has increased. This costs money to achieve
Traffic	Captures the cost effect from more traffic wearing out the network (and undertaking maintenance on congested parts more problematic)	⇧	Greater traffic implies greater wear resulting in more maintenance being required
Wage	Captures the influence on cost of the wage rate	⇧	Greater wage rates imply greater cost for a given set of activity

How the analysis works

The CQC statistical methodology is designed to take account of factors outside an authority's control that are affecting its costs so that it can be compared with others. It does this by taking account of each authority's individual characteristics and circumstances including its size and scale, service quality and customer perception and evaluates how these affect the cost of its activities.

CQC enables 'like for like' comparisons between authorities, by taking account of each authority's local characteristics and circumstances and making allowance for the affect these differences have on the cost of its activities. For example, smaller authorities are not penalised in a comparison for being small. Details of how these allowances are made and the effect they have on cost is covered earlier in this report.

Each member has been sent details of the allowances that have been made for their authority in the model when comparing them with an 'efficient' authority with average characteristics, these adjustments are expressed in terms of changes in £/KM maintained.

The characteristics of the average 'minimum cost authority' are as follows:

- **Size:** 1) Land Area – 141,954.3 kmsq 2) Road Length - 2,787.147km. A 'optimal scale effect' increases cost if authorities are too big or too small.
- **Traffic**: 1,102,052 vehicle km per annum. Higher traffic density increases cost
- **Road condition**: 12.373% (weighted by road length of type). Higher % (worse condition) increases cost.
- **Wages** – Wages £12.695 per hour. Wage rises increase cost.

Taking these adjustments into account for every member of the Network, the CQC statistical model identifies authorities that are operating at, or very close to, minimum cost given their size and quality characteristics. Once minimum cost is established the model can be used to forecast a theoretical minimum cost for every authority in the network. This means each authority has its own minimum cost and this provides a unique benchmark for each authority, which accounts for its individual characteristics.

Full cost and cost driver data was not available for all authorities, for all years. An attempt was made to deal with this in a pragmatic manner, in order to provide results for authorities for as many years as possible, whilst simultaneously maintaining the statistical robustness of the approach. The table below summarises how the various data availability issues have been approached.

Cost or Cost Driver	Reason	Mitigation
No Total cost	Either no entry for the year or only CAPEX and no OPEX or OPEX and no CAPEX	If only CAPEX or OPEX report results for those categories only. This is likely to be an over prediction of the CQC efficiency score as it excludes a key element of cost
RDC in last year 2015/16	No RDC data is published by DfT for 2015/16 at the time of analysis	Assume RDC does not change from 2014/15 to 2015/16
RDC data in other years	For a limited number of authorities there are gaps in some of the RDC data (e.g. for U roads)	Use linear interpolation for most cases to generate a RDC variable.
No HMBI01 (change) data	Not all authorities participate in the NHT public satisfaction survey (and not for all years)	A mixture of: a) interpolation where there are two adjacent years of data; and b) predicting the cost adjustments and CQC rating from a model which does not include the change in HMBI01

The lack of RDC data for 2015/16 is significant, because it affects all authorities in the final year. It has therefore been assumed that road condition stays the same. Should some authorities have had large changes in road condition, then the CQC rating will be distorted by this assumption. Authorities that believe there has been a substantial change in their RDC between 2014/15 and 2015/16 should get in touch so that cost adjustment can be made and CQC rating predictions re-modelled.

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This year's results

The results for the latest CQC Efficiency analysis were issued to members in January 2017. This is the second round of data analysis to be completed since the CQC Efficiency Network was formed in April 2015, and builds on the pilot project undertaken in 2014 to test the econometric analysis method, supported with partial funding by HMEP.

Eighty-three of the eighty-four members submitted expenditure data, with fifty-two authorities providing data for all seven years requested, 2009/10 to 2015/16. Two members were only able to provide data for the last year, 2015/16. Most of the original membership took the opportunity to resubmit their cost data for previous years and more than two thirds of the members separately identified additional expenditure in their returns.

What has been achieved this year

In this year's data analysis, ITS developed several alternate statistical models utilising the data available, however because relatively few members could provide a full breakdown of their Capex and Opex expenditure and Direct and Indirect Costs, the published results are based on two models which use Total Expenditure data. The first model was based on Total Expenditure only and the second model on Total Expenditure number minus any declared 'Additional Investment'.

ITS also evaluated alternative ways of using the available data on Road Condition and Public Satisfaction to better represent the relationships between cost and public satisfaction and between road condition and cost. The final analysis uses the change in Road Condition as well as the actual level of Condition, and the change in Public Satisfaction to positive effect, giving more intuitive results. An explanation for these changes and their effect on the results in covered earlier in this report.

It is also encouraging that the analysis provides sensible returns to scale and that there appears to be no systematic evidence of the model's top performers running down their assets. In fact, there is some evidence of improvements taking place measured by Public Satisfaction.

In all the reporting sent to members, results from the model allowing for additional investment were used wherever they were available. It was felt that those authorities investing in their network were being unfairly represented in the previous year's analysis.

Summary results

The cost data provided by members this year is generally more consistent than the data provided last year and this is reflected in the statistical analysis which has produced a better and more consistent set of efficiency scores. Consequently, the distribution of efficiency scores is more plausible, with a mean score of 85% and a median of 89%.

The analysis shows a general improvement in efficiency scores over time and a closing of the gap to minimum cost. The table below shows the quartile values of Network member scores in each of the financial years for which cost data was collected this year. *Note: Efficiency scores are shown as CQC Ratings in member reports*

NHT Network – Efficiency Quartile Scores (CQC Ratings)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Minimum [1]	45%	48%	25%	30%	38%	37%	38%
Quartile 1	80%	80%	83%	83%	85%	89%	86%
Quartile 2 (median)	87%	88%	90%	88%	91%	93%	92%
Quartile 3	92%	93%	93%	93%	94%	96%	94%
Quartile 4 (max in a year)	99%	99%	100%	98%	100%	100%	100%

Individual reports have been issued to every member showing their efficiency scores as CQC Ratings, these Ratings are also expressed in Bands, A to D, which are based on the quartiles set out in the table above:

- Band A = CQC Ratings between Quartile 3 and 4,
- Band B = CQC Ratings between Quartile 2 and 3,
- Band C = CQC Ratings between Quartile 1 and 2,
- Band D = CQC Ratings between Minimum and Quartile 1.

These Bands will be used as a way of giving greater transparency of individual results between the members.
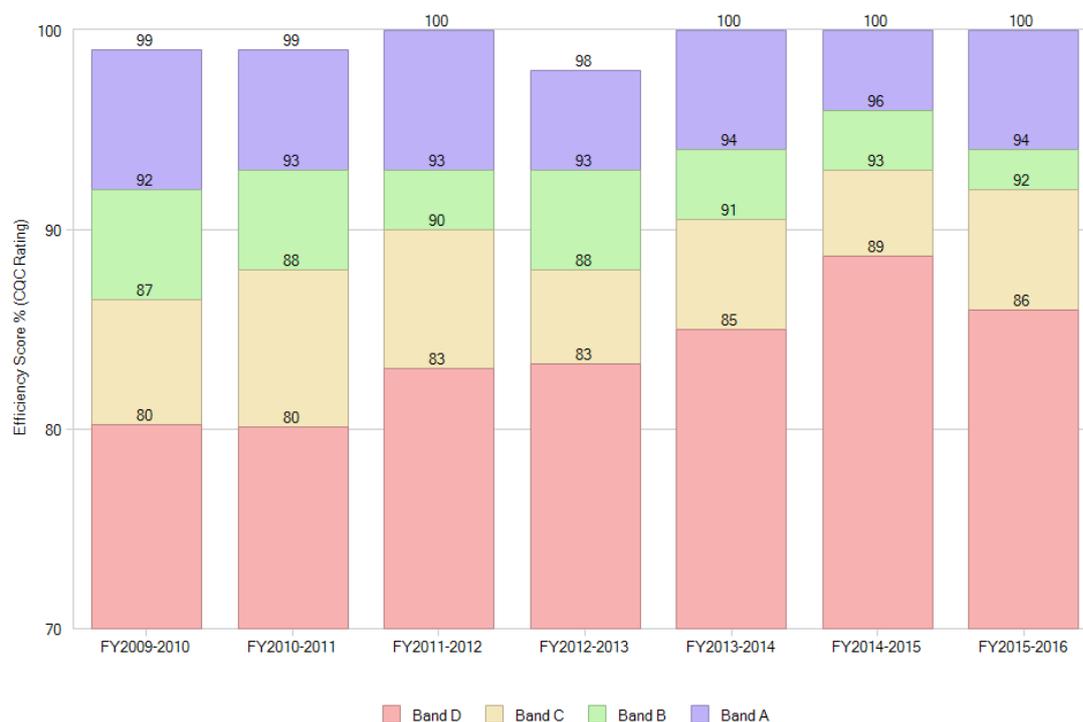
However, it is important to note that as the scores have been improving over time, the differences between Bands is narrowing. As the graph below shows an improvement of as little as 3% in an authority's 2015/16 score would move them from the top of Band 'C' to the bottom of Band 'A'.

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[1] The low minimum comprises one or two authorities which appear to be anomalies in the analysis, most likely because of issues with the coverage of their cost data. Work will be done with these authorities to better align their reported costs to the network's data definitions.

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Efficiency Savings

CQC provides a basis for measuring efficiency savings. Authorities that can improve their CQC Rating over time and close the gap to their minimum cost realise efficiency savings.

The efficiency savings made by each authority and the Network as a whole can be quantified below by multiplying the improvement in 'CQC Rating', by average annual expenditure over the period.

The graph above shows the Network average ratings for the Total Expenditure model (Totex) and the Total Expenditure minus additional investment model (Totex-Investment). It includes a statistical trend line for the Total Expenditure minus additional investment model, which shows the Network average has improved over the period by 4.6% on average.
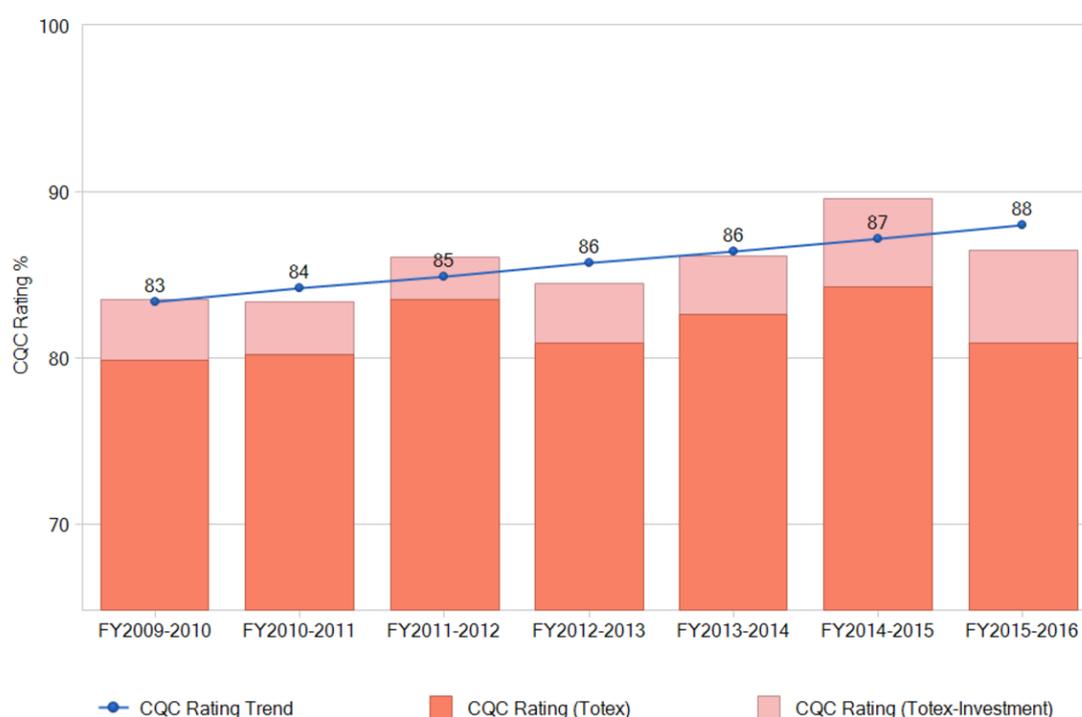
Taking this improvement in CQC Rating and multiplying it by the total average expenditure by all members per annum in 2016, which equates to £770m, gives an overall net efficiency saving across the Network over the period of £35m per annum relative to 2009/2010 expenditure

Looking at individual member performance, fifty-nine of the eighty-four members made improvements in their CQC Ratings over the period, the combined efficiency savings for these members amounting to £46m per annum relative to 2009/2010 expenditure. Three members Ratings were unchanged over the period.

Scope for Improvement

As well as providing a basis for measuring efficiency savings, CQC gives an indication of the 'potential' for efficiency savings that are yet to be realised. 'Scope for Improvement' is quantified by taking the difference between the average CQC Rating and your potential 'Minimum Cost' (100%) over the period, multiplied by average annual total expenditure over the same period.

On this basis, the 'Scope for improvement' across the whole Network is over £100m; this is based on an 8% difference between the average CQC Rating and Minimum Cost.

Please note: This 'Scope of improvement' figure may be overstated because there remain unavoidable costs, that are not currently allowed for in the model. It is also possible some of these potential savings cannot be realised for a variety of local practical, political and logistical reasons.

Reporting

All reporting of individual authority CQC results remains anonymous.

Member Reports

Following feedback on last year's reporting, when a single report was compiled and sent to each member, this year a set of separate standard reports have been complied for each member as follows:

- Results Summary - This report provides details of each member's CQC Ratings, their CQC Band and their trend in performance for each of the years they have provided cost data. It also includes details of the adjustments applied to their spend data.
- Financial Summary – This report quantifies the results of the analysis in financial terms and provides details of any realised 'efficiency savings' and any remaining 'scope for improvement'
- Data input and Validation Report – This report provides details of the data used in the analysis for the authority, it includes a comparison of the cost data provided with other members of the Network.
- Cost Adjustment Report – This report shows details of the cost adjustments applied and includes comparative reports for each cost driver showing where the authority adjustment appears in relation to other members.

Next steps

At the Annual Conference of the Network, held in London on the 26th January, workshop sessions were held to discuss how the membership would like to see the Network develop. Several questions were discussed; how should the Network operate e.g. Regionally, by Peer Group or in some other way, should analysis extend to other Service Areas, if so which, what should the Network focus on in the next round of member meetings and how should efficient practice be identified and shared?

The consensus of the meeting was that the Network should continue to meet on a regional basis and should introduce a round of peer group meetings, that it was too early to extend the analysis to other service areas but that it would be useful to explore the potential by running a pilot.

The next round of member meetings should focus on 'why' there are differences in the results and explore self-assessment evidence as a source of efficient practice.

'What-if Tool'

ITS produced a 'what-if' tool for the 2014/15 CQC statistical model to consider the cost implications of changes to some of the cost drivers used in the statistical analysis. For example: it would allow an

Authority to ask what the cost implications would be of improving the condition of their 'A Roads' by 5%. As part of the development process a first prototype version was distributed to 10 Authorities in the Network, representing the English regions, that were asked for their feedback.

It is intended to develop this tool further to include the other cost drivers, public satisfaction is a notable exclusion form the prototype, and to consider developing a web based version that will be available to members via the Network website.

Appendices

Appendix 1 – CQC Efficiency Network Membership 2016/17

Barnsley Metropolitan Borough Council
Bath & North East Somerset Council
Bedford Borough Council
Blackpool Council
Bolton Council
Borough of Poole Council
Bournemouth Borough Council
Bracknell Forest Council
Buckinghamshire County Council
Bury Council
Calderdale Council
Cambridgeshire County Council
Central Bedfordshire Council
Cheshire East Council
Cheshire West & Chester
City of Bradford MDC
City of Stoke on Trent Council
City of Wolverhampton Council
Coventry City Council
Cumbria County Council
Darlington Council
Derbyshire County Council
Doncaster Metropolitan Borough Council
Dorset County Council
Dudley Metropolitan Borough Council
Durham County Council
East Riding of Yorkshire Council
East Sussex County Council
Essex County Council
Gateshead Council
Hackney Council
Hampshire County Council
Hartlepool Borough Council
Herefordshire Council
Hertfordshire County Council
Hull City Council
Kirklees Council
Leeds City Council
Leicestershire County Council
Lincolnshire County Council
Luton Borough Council
Medway Council

Middlesbrough Council
Newcastle City Council
Norfolk County Council
North Somerset Council
North Yorkshire County Council
Northamptonshire CC
Northumberland County Council
Nottinghamshire County Council
Oldham Council
Oxfordshire County Council
Peterborough City Council
Plymouth City Council
Redbridge Council
Redcar & Cleveland Council
Rochdale Borough Council
Rotherham Metropolitan Borough Council
Sandwell Metropolitan Borough Council
Shropshire Council
Slough Borough Council
Solihull Metropolitan Borough Council
Somerset County Council
South Gloucestershire Council
Southampton City Council
Southend On Sea Borough Council
Staffordshire County Council
Stockport Metropolitan Borough Council
Stockton on Tees Borough Council
Suffolk County Council
Sunderland City Council
Surrey County Council
Swindon Borough Council
Telford & Wrekin Council
Thurrock Council
Trafford Council
Wakefield Council
Walsall MBC
Warwickshire County Council
West Berkshire
West Sussex County Council
Wigan Council
Wiltshire Council
Worcestershire County Council

Appendix 2 – Data used in analysis & number of observations

	Data Source	Data Used
Size		
Land Area	Office for National Statistics (ONS)	Standard Area Measurements (SAM) report – land area in hectares excluding inland waters
Road Length	Department of Transport (DfT)	Report rd102 road length in kms
Traffic	Data source – Department of Transports (DfT)	Date Used - Traffic by Local Authority Road Type, report run specifically for CQC showing Vehicle km travelled per annum
Road Condition	Data Source: Department of Transport (DfT)	Data Used: Road condition reports rdc0120 and rdc0130
Customer Satisfaction	Data source – NHT Public Satisfaction Survey (NHT PSS).	Data Used: HMBI01 (Highways Maintenance Benchmark Indicator 01) – Condition of Road Surfaces
Wages	Data source - Standard Industrial Classification of economic activities (SIC)	Data Used: SIC2007 - Table 5.5a Hourly pay – Gross (£) for all employee jobs: United Kingdom Civil Engineering (SIC Code 42)
Cost Data	Authorities	Capex & Opex

Data Definitions

Capex	Is anything that adds life to the asset, e.g extends how long it can provide serviceability. This includes any resurfacing treatment or reconstruction including for example resurfacing, surface dressing, programmed patching (not reactive patching to fix urgent defect or failures in the road surface or reactive type patching on a localised area). Also, includes any micro asphalt, rejuvenation (recycling) or re-texturing.
Opex	Is anything ad-hoc or reactive in nature to maintain serviceability. This includes CAT 1 defect repairs, any ad-hoc generated patching such as in response to safety inspections, public enquiries, accident damage or defects the local inspection team have seen – generally only done on a local basis in response to something rather than having planned.
Additional Investment	Is anything over and above your Baseline budget or Incentive fund allocation, e.g. Part of an investment plan, emergency/disaster fund etc.

Appendix 3 - Number of Observations

Total Expenditure (Capex and Opex)

Number of members who provided total expenditure data in each of the year under study and for which a CQC rating has been calculated.

Year	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Observations	58	68	74	78	80	81	78

Total Expenditure, less Additional Investment

Number of members who provided total expenditure data and separately identified Additional Investment spend in each year under study.

Year	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Observations	11	20	25	17	31	47	38