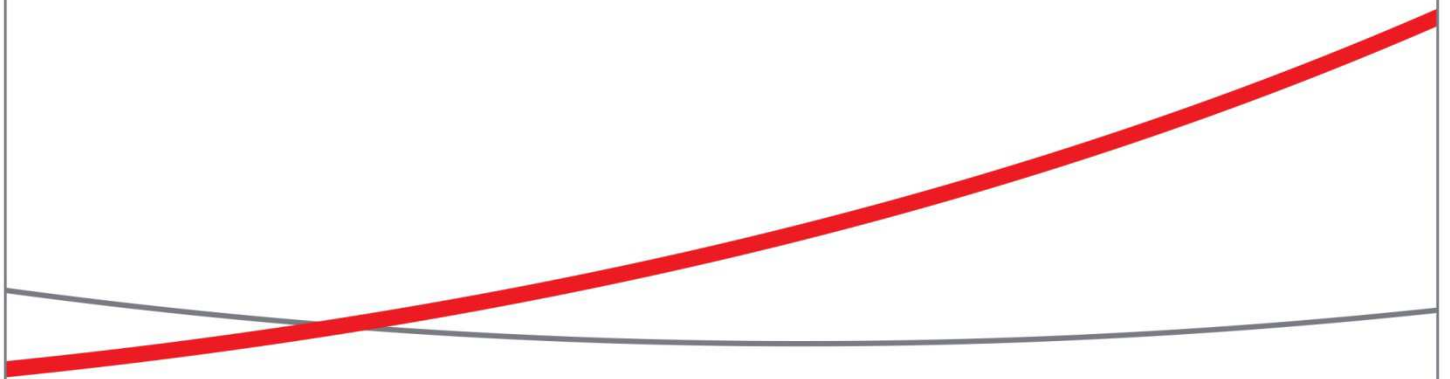


Department for Transport

Technical Advice to the HS1 Government's Representative

Review of the International Stations' CP2 Proposals

July 2014



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Executive Summary

As required by the Concession and Leases Agreement, HS1 Ltd has been preparing Lifecycle Reports (LCRs) for each International Station and have released these and associated supporting documents and files in April 2014 in order to enable the Government's Representative to form an early view prior to formal submission on 30 June 2014. Within two months of the date of receipt of the formally submitted LCRs, the Government Representative is required to provide HS1 Ltd with a written response to the submission, indicating:

- whether the Government's Representative does or not approve the LCRs; and
- if the Government's Representative does not approve the LCRs, to state the reasons for not approving these.

The Government's Representative would only be able to withhold approval of the LCRs if they do not comply with the requirements described in the HS1 Concession and Leases for the International Stations.

A review has been undertaken to assess the appropriateness of the assumptions, processes and tools, used by HS1 Ltd for the development of the Asset Management Strategy (AMS), LCRs and supporting financial models.

A number of inadequacies were identified against the HS1 Concession and Leases Agreement. That is, HS1 Ltd has a total of 60 obligations relating to the LCRs, AMS and associated financial models. HS1 Ltd was found to be fully compliant to 15 and partially compliant to 29 of its obligations while 16 non-compliances were also identified.

Over 100 comments and associated recommendations as well as several minor observations were collated as part of the review; 10 key recommendations were identified and the DfT has been advised to provide these to HS1 Ltd for further consideration and/or action.

At the point of completing the review of the CP2 Package released in April 2014, the following recommendations were made to the DfT:

Overarching Recommendation I: The Government Representative should not approve the CP2 Package released by HS1 Ltd in April 2014 because HS1 Ltd does not fully comply with all the requirements in the HS1 Concession and Leases Agreement.

Overarching Recommendation II: The Government Representative should provide HS1 Ltd with a copy of this report because it is considered that it contains the reasons for not approving the CP2 Package and request that HS1 Ltd revise the AMS, LCRs and LCC/LTC models using the key and other recommendations described here in.

Note: May add further text here, i.e. in a future version of this report, to cover verification of actions. It is also noted that the above are not the final recommendation to DfT which will be added once HS1 Ltd have the opportunity to address any agreed actions. For further details see Section 5.3.3.

| ID | Clause | Section Title | Jun-14 |
|----|-----------------|--|------------|
| 1 | 5.1 | Life Cycle Reports | Partially |
| 2 | 5.2.1 - a | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 3 | 5.2.1 - b | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 4 | 5.2.1 - c | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 5 | 5.2.1 - d | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 6 | 5.2.1 - e | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 7 | 5.2.1 - f | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 8 | 5.2.1 - g | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 9 | 5.2.1 - h | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 10 | 5.2.2 - a | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 11 | 5.2.2 - b | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 12 | 5.2.2 - c | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 13 | 5.2.4 - a | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 14 | 5.2.4 - b | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 15 | 5.2.4 - c | Life Cycle Reports: Forecast Life Cycle Works | Fully |
| 16 | 5.2.4 - d | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 17 | 5.2.5 - a | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 18 | 5.2.5 - b | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 19 | 5.2.5 - c | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 20 | 5.2.6 - a | Life Cycle Reports: Deferrals | Partially |
| 21 | 5.2.6 - b | Life Cycle Reports: Deferrals | Not at all |
| 22 | 5.2.6 - c (i) | Life Cycle Reports: Deferrals | Not at all |
| 23 | 5.2.6 - c (ii) | Life Cycle Reports: Deferrals | Not at all |
| 24 | 5.2.6 - d | Life Cycle Reports: Deferrals | Not at all |
| 25 | 5.2.6 - e | Life Cycle Reports: Deferrals | Not at all |
| 26 | 5.2.7 | Life Cycle Reports: Distribution of Life Cycle Works Savings | Not at all |
| 27 | 5.2.8 | Life Cycle Reports: Adjustments to Available Life Cycle Funds | Not at all |
| 28 | 5.2.9 | Life Cycle Reports: Long Term Charge | Partially |
| 29 | 5.2.10 - a | Life Cycle Reports: Long Term Charge | Partially |
| 30 | 5.2.10 - b | Life Cycle Reports: Long Term Charge | Fully |
| 31 | 5.2.11 - a | Life Cycle Reports: Long Term Charge | Fully |
| 32 | 5.2.11 - b | Life Cycle Reports: Long Term Charge | Partially |
| 33 | 5.2.12 | Life Cycle Reports: Modifications to the AMS and the Life Cycle Budget | Fully |
| 34 | 5.2.13 | Life Cycle Reports: General | Partially |
| 35 | 4.1 | Asset Management Strategy | Partially |
| 36 | Annex 1 - 1 | Scope | Fully |
| 37 | Annex 1 - 2 | Station Elements | Fully |
| 38 | Annex 1 - 3a | Life Cycle Works | Partially |
| 39 | Annex 1 - 3b | Life Cycle Works | Partially |
| 40 | Annex 1 - 4 | Performance Monitoring | Partially |
| 41 | Annex 1 - 5a | Life Cycle Budget: Expenditure | Partially |
| 42 | Annex 1 - 5b | Life Cycle Budget: Expenditure | Partially |
| 43 | Annex 1 - 5c | Life Cycle Budget: Expenditure | Partially |
| 44 | Annex 1 - 5a | Life Cycle Budget: Revenues | Partially |
| 45 | Annex 1 - 5b | Life Cycle Budget: Revenues | Partially |
| 46 | Annex 1 - 5c | Life Cycle Budget: Revenues | Partially |
| 47 | Annex 1 - 5 | Life Cycle Budget: Cashflow | Partially |
| 48 | Annex 1 - 6 | Financial Model | Fully |
| 49 | Annex 1 - 6a | Financial Model | Fully |
| 50 | Annex 1 - 6b | Financial Model | Not at all |
| 51 | Annex 1 - 6c | Financial Model | Not at all |
| 52 | Annex 1 - 6d | Financial Model | Not at all |
| 53 | Annex 1 - 6e | Financial Model | Not at all |
| 54 | Annex 1 - 7 | Long Term Charge | Fully |
| 55 | Annex 1 - 7a | Long Term Charge | Fully |
| 56 | Annex 1 - 7b | Long Term Charge | Not at all |
| 57 | Annex 1 - 7bi | Long Term Charge | Not at all |
| 58 | Annex 1 - 7bii | Long Term Charge | Not at all |
| 59 | Annex 1 - 7biii | Long Term Charge | Not at all |
| 60 | Annex 1 - 7biv | Long Term Charge | Not at all |

Abbreviations

| | |
|-------------|--|
| AMS | Asset Management Strategy |
| BCIS | Building Cost Information Service |
| BPS | Basis Points |
| CP | Control Period |
| CP1 | Control Period 1 (April 2010 – March 2015) |
| CP2 | Control Period 2 (April 2015 – March 2020) |
| D | Deleted |
| DfT | Department for Transport |
| HS1 | High Speed 1 |
| L | Long Term Charge |
| LCC | Life Cycle Cost |
| LCR | Life Cycle Report |
| LTC | Long Term Charge |
| ORR | Office of Rail Regulator |
| Q | See Qx |
| Qx | Qualifying expenditure |
| ROI | Return On Investment |
| SAC | Station Access Conditions |
| SoS | Secretary of State |
| TOC | Train Operating Company |

1 Introduction

1.1 General

This report has been prepared for the Department for Transport under an on-going commission for the provision of Technical Advice to the HS1 Government's Representative. The report presents the findings and recommendations from the review of the International Stations' Control Period 2 (CP2) package released in April 2014. The CP2 package includes the Asset Management Strategy (AMS), Life Cycle Reports (LCRs), associated Life Cycle Cost (LCC), and Long Term Charge (LTC) models and supporting documentation.

Note: It is anticipated that a revised CP2 package will be formally submitted to DfT at the end of June. This report will be amended after the end of June to capture the verification of actions undertaken by HS1 Ltd and list any new/further findings and recommendations. Relevant issues that may arise from the forthcoming stakeholders' consultation will also be captured in a future version of this report, as appropriate.

1.2 Background

HS1 Ltd was awarded a 30 year Concession Agreement in 2010 by the Secretary of State (SoS) for Transport to operate and maintain the high speed route (infrastructure and stations) from St Pancras International in London to the Channel Tunnel boundary (108km). The SoS remains the freeholder of the route including the International Stations at St Pancras, Stratford, Ebbsfleet, and Ashford.

The route is used by international and domestic passenger services and freight. The Office of Rail Regulation (ORR) regulates the track and infrastructure on the route. The Government's Representative, from the Department for Transport (DfT), regulates the stations and sets the necessary charges based upon an AMS and LCRs submitted by HS1 Ltd. International train operators and domestic train operators pay a long term charge (LTC) to use the stations.



Source: <http://www.highspeed1.com>

As required by the Concession and Leases Agreement, HS1 Ltd has been preparing LCRs for each International Station. An interim review of the evolving AMS and LCRs was undertaken during the last quarter of 2013. Following a stakeholder consultation in early 2014, HS1 Ltd has released a revised version of the documents in April 2014 in order to enable the Government's Representative to form an early view prior to formal submission. The latest date for formal submission is 30 June 2014. **[Note: May add text here to mention whether or not the documents were changed between the versions released in April as compared to formal submission]**. Within two months of the date of receipt of the formally submitted LCRs, the Government Representative is required to provide HS1 Ltd with a written response to the submission, indicating:

- whether the Government's Representative does or not approve the LCRs; and
- if the Government's Representative does not approve the LCRs, to state the reasons for not approving these.

The Government's Representative would only be able to withhold approval of the LCRs if they do not comply with the requirements described in the HS1 Concession and Leases for the International Stations.

As with previous reviews, i.e. review of the AMS in 2012 and the interim review of the LCRs in 2013, the DfT appointed EC Harris to act as technical advisors for the final review of the CP2 proposals, which commenced in late April 2014.

1.3 Objectives

The objectives of the commission are to:

- support the DfT in their assessment to determine if the LCRs submitted by HS1 Ltd are sufficient to deliver effective asset management and are in line with the AMS and HS1 Ltd.'s duties under the Concession;
- critically assess the CP2 package, i.e. AMS, LCRs, LCC and LTC models, against HS1 Ltd.'s contractual obligations and recognised good practice, where possible;

- consider and/or challenge the inputs, definitions and assumptions which underpin the financial models; and
- verify that HS1 Ltd have undertaken agreed actions for addressing any identified deficiencies resulting from the previous and the latest review and also from the stakeholders' consultation(s).

1.4 Scope

The scope of work covered is to:

- Critically assess the AMS, LCRs for the four International Stations and review the LCC models and the financial model used to determine the LTC, and to refer to any other associated documentation.
- Determine if the LCRs, the associated LCC/LTC models:
 - contain the appropriate renewal activities
 - enable the effective delivery of asset management activities
 - align with the latest AMS
 - align with HS1 Ltd.'s General Duty under the Concession
 - comply with Schedule 10, Annex 1 of the HS1 Lease
 - align with recognised good asset management practice
- Verify whether any deficiencies or issues that impact the LCR's previously identified, i.e. during the 2012 AMS review and the interim 2013 LCRs review, have been adequately addressed.
- Assess whether the comments provided by stakeholders during consultation(s) have been adequately addressed.
- Assess and challenge the appropriateness of the definitions and assumptions underpinning the financial models, particularly the application of the renewals definition.
- Identify and recommend, as appropriate, any aspects that should be improved or expanded in accordance with the HS1 Concession and Leases Agreement or industry good practice.
- Produce a report [this report] highlighting identified deficiencies, omissions or errors in the available documentation, models, etc., including an overview of the findings and recommendations alongside the proposed timeframe for addressing these.
- Facilitate a limited number of meetings for familiarisation to the CP2 package documentation and in particular the financial models, and to present/discuss findings and recommendations.



Source: <http://stpancras.com/tourists/>

The following are outside the scope of this commission:

- Detailed site visits, examinations and/or intrusive surveys of any aspect of the four International Stations.
- Assessment of the condition, life expectancy, and replacement cost of the station individual assets or components.
- Validation of station plans or specific asset items and quantities.
- Detailed review of HS1 Ltd's Asset Management Policy and Asset Information Strategy.
- Review of any documents that are not associated with the International Stations.
- Assessment of the impact of the review findings on the HS1 Ltd business case.
- A detailed and full listing of omissions and errors in the draft LCC/LTC models, LCRs, and AMS.
- A detailed functionality review of the LCC/LTC models.
- An audit of the LCC/LTC models for completeness of content, accuracy and adequacy of the structure.
- A detailed review of maintenance and repair activities contained in the financial models.
- Checking for consistency of the approach, assumptions and cost allocations across financial models used for assets other than Stations and/or for activities other than renewals.

1.5 Report Layout

The layout of this report is summarised in Table 1.

Table 1 – Report Layout

| Section | Description |
|---|--|
| 2. Methodology | Describes the approach adopted for undertaking the review of the CP2 package |
| 3. Review Findings and Recommendations | Summarises the key findings from the review and groups these into a number of themes. Key recommendations are provided against each theme. |
| 4. Verification Review Findings and Recommendations | Note: Place holder for a section that may be added in a future version of this report |
| 5. Summary and Concussions | Provides a summary of conclusions and recommendations |
| Appendices | Provide supporting information |

2 Methodology

2.1 Overview

This section describes the approach adopted for the review of the CP2 package of documents. This was undertaken in the five steps listed below and described in the subsequent sections:

- Step 1 – Information Collation and Knowledge Share
- Step 2 – Comments Template and Compliance Matrix
- Step 3 – Assessment of the CP2 Package
- Step 4 – Feedback Sessions and Workshops
- Step 5 – Verification Review **[Note: This is a place holder for a section to be added in a future version of this report.]**

2.2 Step 1 – Information Collation and Knowledge Share

A number of documents and other files were received that enabled the current review to be undertaken and these are listed in **Appendix A**. Relevant documents and other files from previous reviews are also listed in **Appendix A** as they were also referred to during this review. The column titled 'When Received' in **Appendix A** indicates in which review period (year) each listed document was provided.

The review mainly focused on the International Stations' AMS, LCRs and LCC/LTC models technical content, with other associated documents also used to inform our understanding, including the Asset Information Strategy as well as historical versions AMS, LCRs and LCC/LTC models which were provided during previous reviews.

Furthermore, we sought to understand the assumptions and methods used in the development of the CP2 package and how this evolved since the interim review was undertaken in 2013. To enhance our understanding and ensure that we fully utilise the knowledge and experience of both the DfT and HS1 Ltd we attended a small number of knowledge share workshops and maintained an on-going dialogue with both organisations.

2.3 Step 2 – Comments Template and Compliance Matrix

To enable the consistent capturing of comments and observations resulting from the review, the comments and observations template shown in Figure 1 was developed and populated.

The image shows two overlapping Excel spreadsheets. The top spreadsheet is titled 'HS1 International Stations - Review of CP2 Proposal' and contains a table for 'Minor Observations'. The bottom spreadsheet is also titled 'HS1 International Stations - Review of CP2 Proposal' and contains a table for 'Comments and Recommendations'. Both tables have columns for document identification, section reference, comment number, and the content of the observation or comment, along with suggested amendments or recommendations.

| Doc. ID | Section (=§) / Paragraph (=¶) | Comment No. | Minor Observations | Suggested Amendments |
|------------|----------------------------------|-------------|---|--|
| 029 030 | LTC Index tab § 2.2, Figure 2 | MOB1 | The 'Index' tab includes interest rate, cost of debt and efficiency overlay | Consider changing name to 'Financial Rates' |
| 030 | § 2.2, Figure 2 | MOB2 | Colour key missing | Add colour key: Blue=Inputs, Red=Processing, Green=Outputs |

| Doc. ID | Section (=§) / Paragraph (=¶) | Comment No. | Observations and Comments | Recommendations |
|---------------------------|--|-------------|--|---|
| 029 030 | § 1.3, ¶ 3 LCC Models, Parameters tab LTC Model, Assumptions tab | 1 | The switching system is now considered obsolete as it is envisaged that the models remain in Asset Stewardship state. May lead to incorrect results in the LTC model if all the LCC models are not all switched to the same 'mode' either Asset Stewardship or Baseline. | Remove switching capability. |
| 024, 029 | §5, p 57 LTC Model, Assumptions tab | 2 | Impact of efficiency overlay can be challenged (e.g. technology breakthrough is expected to reach a limit during the length of the concession hence limited efficiency during this period) | Agree with DfT to revise efficiency overlay during the length of the concession |
| 025, 026, 027, 028 030 | §2.1, ¶ 4 | 3 | The number of items for St Pancras (largest station) and Ashford (oldest station) are lower (692 and 658 respectively) than for the newest stations Stratford and Ebbsfleet (774 and 751 respectively) | Check/confirm the number of items are correct for the 4 stations |
| 029 | LCC Input tabs | 4 | Historic records of what Halcrow had used for uplift (i.e. BMIC) not relevant for current models/calculations | Group the historical calculations so they only appear on a need-to-know basis |
| 025, 026, 027, 028 | Report tab | 5 | Smoothed LCC does not provide an accurate picture of the spend profile as it is unrealistic to expect high spend increase for particular years (e.g. year 37 for SPI) vs. and no spend for certain years (e.g. years 34 & 35 for SPI) | Reconsider the approach for smoothed LCC results |
| 029 030 | LCC Inputs tabs §7.1, ¶ 7 | 6 | Where is the statement behind the use of the RPI index? LCC_model_notes.tab states use of RPI in maintenance | Clearly state assumption(s) |

Figure 1 – Comments and Observations Template Screenshot

The comments and observations template is comprised of the following parts:

- Documents – provides a list of the documents received, which are also listed in **Appendix A**.
- Comments – provides a list of the review findings, observations and associated recommendations.
- Minor Observations – provides a list of low impact findings and suggested amendments recommendations.

The compliance matrix shown in Figure 2 was also used to capture HS1 Ltd.'s level of compliance, i.e. 'Fully Compliant'; 'Partially Compliant'; or 'Not at all Compliant', against each of the obligations listed in Schedule 10, Clause 5 and Annex 1 of the Concession and Leases Agreement.

| Clause | Section Title | Detail | Period the clause refers to | Compliance | Doc. ID | Section / Paragraph | Doc. ID | Section / Paragraph | Comments | Recommended Action |
|---------|--------------------|--|-------------------------------|------------|--------------------|-----------------------------------|--------------------|---------------------|--|--|
| 5.1 | Life Cycle Reports | The Tenant shall submit a Life Cycle Report to the Government's Representative for each Station no later than nine (9) months prior to the end of each Review Period. | CP2 | Partially | 034, 035, 036, 037 | All LCRs | 034, 035, 036, 037 | Whole document(s) | Subject to all other comments. | Address recommendations below, as appropriate |
| 5.2 | Life Cycle Reports | Each Life Cycle Report shall, in respect of each Station, include: Works undertaken and costs incurred | CP1 | Fully | | | | | The current review period is CP1; the LCRs are assessed against clause 5.2.1-a in respect of the works undertaken and costs incurred | |
| 5.2.1-a | Life Cycle Reports | A summary of the following in respect of the current Review Period: the Life Cycle Works carried out by the Tenant (or that it is anticipated will have been carried out by the end of the current Review Period); | CP1 | Partially | 034, 035, 036, 037 | 3.1.2 | 034, 035, 036, 037 | 3.1.2 | Detailed description of works for Ashford but short summary for other three stations especially Ebbwfleet. | Provide more detailed description of the Life Cycle Works carried out during CP1 for all stations particularly Ebbwfleet. This should be similar to the descriptions provided for Ashford. |
| 5.2.1-b | Life Cycle Reports | the Available Life Cycle Funds at the end of each Financial Year (or the anticipated Available Life Cycle Funds by the end of the last Financial Year in the current Review Period); | CP1 | Partially | 034, 035, 036, 037 | 3.2.1.5 | 034, 035, 036, 037 | 3.2.1.5 | All LCRs and LTC model include several individual 'Available Life Cycle Funds' for CP1 and beyond. The actual balances, which is now known for 2010/14 was not used (because it was not known at the time of producing) the difference do not appear to be significant and so may not impact the CP2 LTC values. | May consider re-running the LTC model with now known closing balances for 2010/14. |
| 5.2.1-c | Life Cycle Reports | the Life Cycle Works Cost (or anticipated Life Cycle Works Cost by the end of the current Review Period); | CP1 | Fully | 034, 035, 036, 037 | Table 7 in 3.2.1.1 and Appendix E | 034, 035, 036, 037 | 4.1.2.1 | Table 7 is missing from section 3.2.1.1 of the Stratford LCR. | Add Table 7 in the Stratford LCR. |
| 5.2.1-d | Life Cycle Reports | the Deferred Life Cycle Works Savings (if any) approved in previous Life Cycle Reports; | Period before CP1 (not valid) | Fully | 034, 035, 036, 037 | 5.1.3 | 034, 035, 036, 037 | 5.1.3 | Table 15 in 4.2.2.2 for last two years of CP1; Table 1 for the first 3 years of CP1 and Appendix E for all years in CP1. | Could state that there was no review period prior to CP1 and so no Deferred Life Cycle Works Savings were (or could have been) approved in previous LCRs. |
| 5.2.1-e | Life Cycle Reports | the Life Cycle Works Savings (if any) brought forward from previous Review Periods; | Period before CP1 (not valid) | Fully | 034, 035, 036, 037 | | 034, 035, 036, 037 | 5.1.8.5.2 | Table 15 in 4.2.2.2 for last two years of CP1; Table 1 for the first 3 years of CP1 and Appendix E for all years in CP1. | Could state that there was no review period prior to CP1 and so no Life Cycle Works Savings were brought forward. |
| 5.2.1-f | Life Cycle Reports | the effect of any Rulebook Changes of Law that have occurred during the Review Period; | CP1 | Fully | 034, 035, 036, 037 | 3.2.0, 3.2.1, 3.2.2 | 034, 035, 036, 037 | 3.2.4 & 4.2.5 | Agrees with differences between tables in forecast in 5.1.3, however there was no previous review period prior to CP1 and so no Deferred Life Cycle Works Savings could have been approved in previous LCRs. | |
| 5.2.1-g | Life Cycle Reports | an analysis of breakdown frequencies and the performance of the Elements of the Station which were identified in the Asset Management Strategy as being managed by the Tenant; | CP1 | Partially | 034, 035, 036, 037 | 3.3 | 034, 035, 036, 037 | 3.3 | 3.2.4 refers to changes in low during CP1; included in LCRs 3.2.3 apart from Ebbwfleet which is 3.2.4 (wrongly numbered); 4.2.5 for anticipated future changes in low (expected under 5.2.4 - c below) within 4.2.5.2 at SP1 but in 4.2.5.2 for the other three stations. | Could amend report(s) matrix (Appendix A) to correct reference. |
| 5.2.1-h | Life Cycle Reports | the reviewed and implemented (if any) undertaken by the Station Operator in order that it discharged its Safety Obligations in respect of the Station (as which were not identified in the current Life Cycle Report ("Station Safety Works"); | CP1 | Fully | 034, 035, 036, 037 | 3.1.4, 3.1.3, 3.1.3 | 034, 035, 036, 037 | 3.1.4, 3.1.3, 3.1.3 | Statistics in 3.3.1 only for 2012/2013 (except Ashford) | Element performance trend analysis during CP1 required |
| 5.2.2 | Life Cycle Reports | In respect of the current Review Period a progress report, comparison and reconciliation by reference to the Life Cycle Report approved for the previous Review Period. | CP1 | Fully | | | | | The current review period is CP1; the LCRs are assessed against clause 5.2.2 - c | |

Figure 2 – Compliance Matrix Template Screenshot

Irrespective of the compliance level assigned, the relevant document and section from the reviewed documents is stated against each of the obligations as identified by the review. This can be compared to the relevant document and section as identified by HS1 Ltd in its own compliance matrix contained in the documentation provided for the review. Comments and recommendations are provided particularly against those obligations that have been assigned 'Partially Compliant'; or 'Not at all Compliant' ratings.

2.4 Step 3 – Assessment of the CP2 Package

Based on our previous experience with supporting DfT in this type of reviews, our knowledge and in-depth understanding of good asset management practice, as well as the requirements set out in the HS1 Concession and Leases Agreement, we assessed the appropriateness of the assumptions, processes and tools used by HS1 Ltd for the development of the CP2 package.

Comments were provided where inadequacies have been identified against each requirement along with proposed recommendation(s) and these are presented in subsequent sections of this report.

2.5 Step 4 – Feedback Sessions and Workshops

A small number of short sessions were hosted every fortnight, which enabled sharing the emerging findings with the DfT as the review was progressing. In addition, these sessions acted as a forum where additional documentation required and clarification(s) for successfully completing the review could be requested.

In early June 2014, a workshop was facilitated in order to discuss the findings and recommendations with the DfT and HS1 Ltd and agree the necessary actions and timeframes. The previously populated compliance matrix, associated comments and recommendations was used as the main discussion medium during the workshop. This was updated following the workshop and was issued to the DfT and HS1 Ltd for further consideration and/or action.

Note: A short description on the attendance/presentation at the stakeholders' workshop scheduled for 14 July to be added in a future version of this report. Other meetings scheduled in July/August with the DfT may also be mentioned here, as appropriate.

2.6 Step 5 – Verification Review

Note: This is a place holder for a section to be added in a future version of this report. It may contain a short description to explain how we checked that agreed actions both from the review findings and the forthcoming consultation were addressed by HS1 Ltd. The approach to reviewing comments received from consultees may form part of this or a separate section in this report.

3 Review Findings and Recommendations

3.1 Overview

This section summarises the key findings from the review and groups these into a number of themes. Recommendations are provided against each theme. The themes cover the following:

- Reclassified Life Cycle & Maintenance Activities
- Top 10 Most Expensive Items by Station
- Cost Rates
- On-costs
- Inflation Rate and Profile
- Efficiency Overlay Profile
- Approach to Expenditure Smoothing
- Escrow Accounts Balance
- Environment & Energy Initiatives
- Renewals Acceleration, Deferral and Omissions
- Retail Contribution to LTC

Appendix B contains specific comments against HS1 Ltd's obligations while other individual comments on specific parts of the released documentation are included in Appendix C. Appendix D contains some minor observations on specific parts of the released documentation. Recommendation and/or suggested amendments are provided against each individual comment in the Appendices.

Appendix E contains a summary of HS1 Ltd's evolution of compliance against their obligations as it was captured during different reviews.

3.2 Reclassified Life Cycle & Maintenance Activities

Each of the station elements listed in the LCC models are assigned one of three categories:

- "L" – Long Term Charge (LTC) / renewal activities
- "Q" – Qualifying Expenditure (Qx), which covers operations, maintenance and repair
- "D" – Deleted elements

These categories were used to keep track of changes that occurred during the various iterations of the LCC models.

It is noted that a large proportion of elements were moved from "L" to "Q" as presented in Figure 3, Figure 4, Figure 5, and Figure 6. Two pie charts are shown for each station, titled:

- DfT suggestions – summarises the suggested proportion of L / Q / D activities/items as challenged during the 2013 interim review of the CP2 package; and
- HS1 Response – summarises the proportion of L / Q / D activities/items contained in the April 2014 version of the LCC models.

For St Pancras International Station the "L" elements decreased from 75% to 35% whilst "Q" elements increased from 24% to 54%. For Stratford International Station the "L" elements decreased from 77% to 44% whilst "Q" elements increased from 18% to 38%. For Ebsfleet International Station the "L" elements decreased from 77% to 53% whilst "Q" elements increased from 17% to 40%. For Ashford International Station the "L" elements decreased from 69% to 38% whilst "Q" elements increased from 27% to 55%.

The reclassification of activities/items from the "L" to the "Q" categories is one of the factors contributing to the proposed reduction of the LTC. Stakeholders, and in particular the Train Operating Companies (TOCs), may find this approach [and set of assumptions] preferable as Qx activities are charged when they actually occur. Although, collection of the LTC is unavoidable in order to ensure that future asset renewal activities can be appropriately funded, long-term predictions are inherently associated with future uncertainty. The current and previous reviews enable interrogating the assumptions, processes and tools that underpin the development of the LCCs/LCRs and associated LTC. In addition, the LTC level is reviewed regularly, e.g. formally every 5 years, although the mechanism exists for formal interim reviews to be instigated.

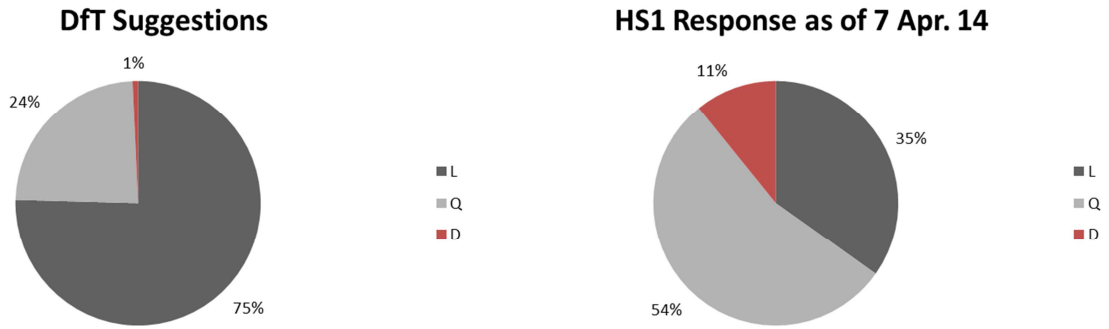


Figure 3 – St Pancras International Activities Reclassification

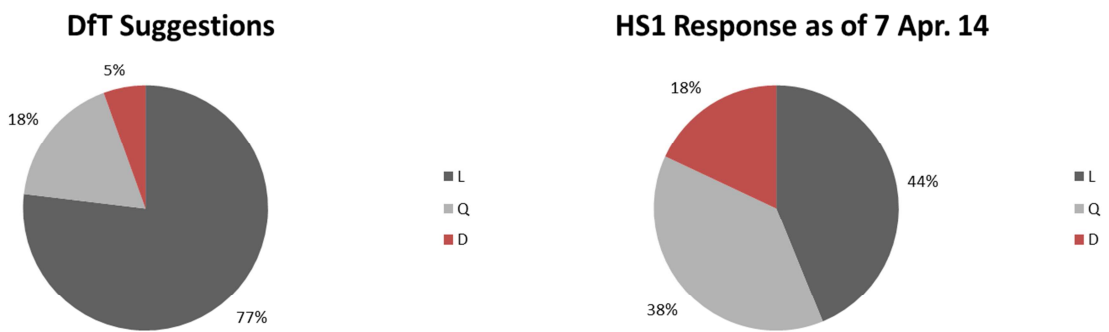


Figure 4 – Stratford International Activities Reclassification

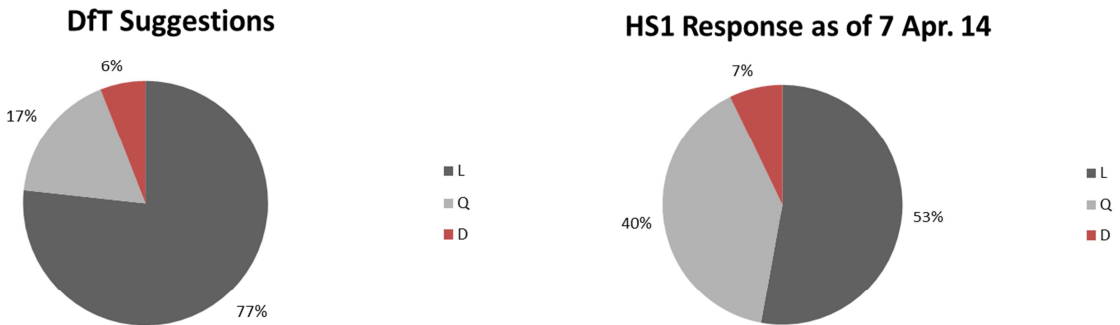


Figure 5 – Ebbsfleet International Activities Reclassification

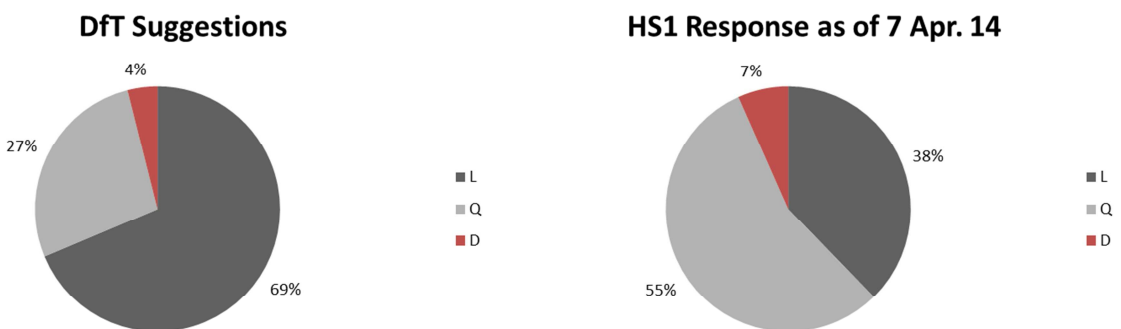


Figure 6 – Ashford International Activities Reclassification

There may be a small number of inconsistencies in the LCC models in terms of elements which are assigned an “L” or “Q”. One such example is shown in Figure 7 where “2HR1.03 Fire Resistant Doors Replace seals” has 14 different rows in the LCC model for St Pancras. 5 rows are “Q” elements and 9 others rows are “L” but have the same cycle summary (Commencing yr 7 Repeating on 10 year cycle) and the same percentage replacement per event (50%). Also 4 rows have a cost rate of £30 whilst the other 10 rows have a cost rate of £60.

Another example is included in Figure 8 where “3C2.03 Suspended ceilings Metal tile suspended ceiling, exposed suspension grid, acoustic insulation” has 5 different rows with the same cycle summary (Commencing yr 0 Repeating on 1 year cycle at 1%) and the same percentage replacement per event (1%). All entries have the same cost rate.

| Ranking by total (50 year) LTC | Location | Description | Works | Cycle summary | G&T Cost Rate Q2 2013 |
|--------------------------------|---------------------------------------|--|---------|---|-----------------------|
| UnRanked | St Pancras - Common Facilities | 2HR1.03 Fire Resistant Doors Replace seals | replace | Q - Commencing yr 7 Repeating on 10 year cycle at 50% | £30 |
| UnRanked | St Pancras - Common Facilities | 2HR1.03 Fire Resistant Doors Replace seals | replace | Q - Commencing yr 7 Repeating on 10 year cycle at 50% | £30 |
| UnRanked | St Pancras - Common Facilities | 2HR1.03 Fire Resistant Doors Replace seals | replace | Q - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| UnRanked | St Pancras - Platforms | 2HR1.03 Fire Resistant Doors Replace seals | replace | Q - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| UnRanked | St Pancras - Platforms | 2HR1.03 Fire Resistant Doors Replace seals | replace | Q - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 229 | St Pancras Cat A | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 183 | St Pancras Cat A | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £30 |
| 202 | St Pancras Cat A | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 219 | St Pancras Cat B | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 230 | St Pancras Cat D | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 182 | St Pancras Cat D | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £30 |
| 235 | St Pancras Cat D | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 207 | St Pancras Fabric Variation July 2010 | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |
| 217 | St Pancras Fabric Variation July 2010 | 2HR1.03 Fire Resistant Doors Replace seals | replace | L - Commencing yr 7 Repeating on 10 year cycle at 50% | £60 |

Figure 7 – Extract from St Pancras International LCC | Inconsistent “L” & “Q” items

| Ranking by total (50 year) LTC | Location | Description | Works | Cycle summary | G&T Cost Rate Q2 2013 |
|--------------------------------|-------------------------------------|--|-------------------------------|---|-----------------------|
| UnRanked | Ashford - Common Zone First | 3C2.03 Suspended ceilings Metal tile suspended ceiling | Replace missing/damaged tiles | Q - Commencing yr 0 Repeating on 1 year cycle at 1% | £ 35 |
| UnRanked | Ashford - Common Zone Ground | 3C2.03 Suspended ceilings Metal tile suspended ceiling | Replace missing/damaged tiles | Q - Commencing yr 0 Repeating on 1 year cycle at 1% | £ 35 |
| UnRanked | Ashford - Common Zone Service | 3C2.03 Suspended ceilings Metal tile suspended ceiling | Replace missing/damaged tiles | Q - Commencing yr 0 Repeating on 1 year cycle at 1% | £ 35 |
| 113 | Ashford - International Zone First | 3C2.03 Suspended ceilings Metal tile suspended ceiling | Replace missing/damaged tiles | L - Commencing yr 0 Repeating on 1 year cycle at 1% | £ 35 |
| UnRanked | Ashford - International Zone Ground | 3C2.03 Suspended ceilings Metal tile suspended ceiling | Replace missing/damaged tiles | Q - Commencing yr 0 Repeating on 1 year cycle at 1% | £ 35 |

Figure 8 – Extract from Ashford International LCC | Inconsistent “L” & “Q” items

Recommendation 1: Investigate possible inconsistencies in the designation of elements with the same description and cycle summary and ensure they are allocated to the ‘correct’ activity (L/Q).

3.3 Top 10 Most Expensive Items by Station

The top 10 items for each station, ranked in terms of total cost over the 45 year evaluation period are listed in Table 2, Table 3, Table 4, Table 5; included for information. It is noted that CCTV & CIS Systems represent the highest combined spend for each individual station across the 45 year period, ranging from circa £2m at Ashford to circa £6m at Stratford & Ebbsfleet and circa £42m at St Pancras.

Table 2 – St Pancras International Top 10 Items | Total LCC for all Station Assets = £219,188,104

| Rank | Description | Basic cost per event (£) | Total cost per event (£) | Total LCC cost over 45 years (£) | Ratio ¹ |
|------|---|--------------------------|--------------------------|----------------------------------|--------------------|
| 1 | 5.L Complete Security/CCTV/Access Control | 3,472,777 | 5,834,265 | 29,171,325 | 13.31% |
| 2 | 5.M Special Installations CIS Complete | 1,524,744 | 2,561,570 | 12,807,850 | 5.84% |
| 3 | 3A1.17 Steel and glass wall cladding | 8,250,000 | 12,457,500 | 12,457,500 | 5.68% |
| 4 | 5.M Special Installations_ Specialist DATA?COMMS Installations | 3,553,539 | 5,969,946 | 11,939,891 | 5.45% |
| 5 | 2C2.14 Roof Covering Glazing | 3,839,852 | 6,182,162 | 6,182,162 | 2.82% |
| 6 | 5.J Lift and Conveyor Installations_TRAVELATOR Travelator Comments: Verified | 3,575,000 | 6,006,000 | 6,006,000 | 2.74% |
| 7 | 5.L Communications and Security Installations_ Communications and Security Installations Infrastructure Comments: | 1,722,928 | 2,894,519 | 5,789,038 | 2.64% |
| 8 | 5.M Special Installations_ Specialist BMS Installations; controls | 1,685,145 | 2,831,044 | 5,662,087 | 2.58% |
| 9 | 5.M Special Installations_ Specialist BMS Installations | 1,072,365 | 1,801,573 | 5,404,720 | 2.47% |
| 10 | 5.H Electrical Installations_POWER UPS (Asset Reg Qts) | 334,172 | 538,017 | 4,842,152 | 2.21% |

Table 3 – Stratford International Top 10 Items | Total LCC for all Station Assets = £38,708,227

| Rank | Description | Basic Cost per event (£) | Total cost per event (£) | Total LTC cost over 45 years (£) | Ratio |
|------|---|--------------------------|--------------------------|----------------------------------|-------|
| 1 | 2F1.07 Windows Curtain walling | 1,236,634 | 1,805,486 | 1,805,486 | 4.66% |
| 2 | Complete CCTV, Intruder and Access Control Installation | 169,506 | 269,515 | 1,347,573 | 3.48% |
| 3 | CIS Screens and Systems | 169,337 | 269,246 | 1,346,231 | 3.48% |
| 4 | Complete CCTV, Intruder and Access Control Installation | 169,202 | 269,030 | 1,345,152 | 3.48% |
| 5 | CIS Screens and Systems | 163,249 | 259,566 | 1,297,828 | 3.35% |
| 6 | 2C2.14 Roof Covering , glazed | 797,880 | 1,284,587 | 1,284,587 | 3.32% |
| 7 | Complete Passenger Lift Installation | 768,800 | 1,199,328 | 1,199,328 | 3.10% |
| 8 | Complete CCTV, Intruder and Access Control Installation (full system replacement) | 107,491 | 160,161 | 800,807 | 2.07% |
| 9 | Complete Escalator Installation | 450,000 | 715,500 | 715,500 | 1.85% |
| 10 | Control Panels | 153,760 | 229,102 | 687,307 | 1.78% |

¹ Ratio = Total LCC cost over 45 years LCC / Total LCC for all Station Assets

Table 4 – Ebbsfleet International Top 10 Items | Total LCC for all Station Assets = £41,437,580

| Rank | Description | Basic Cost per event (£) | Total cost per event (£) | Total LCC cost over 45 years (£) | Ratio ² |
|------|--|--------------------------|--------------------------|----------------------------------|--------------------|
| 1 | Complete CCTV, Intruder and Access Control | 230,740 | 368,030 | 1,840,149 | 4.44% |
| 2 | 2F1.07 Windows Curtain walling | 1,236,634 | 1,805,486 | 1,805,486 | 4.36% |
| 3 | CIS Systems | 225,541 | 359,738 | 1,798,690 | 4.34% |
| 4 | CIS Systems | 190,067 | 303,156 | 1,515,780 | 3.66% |
| 5 | Complete Escalator Installation | 450,000 | 717,750 | 1,435,500 | 3.46% |
| 6 | Complete Escalator Installation | 450,000 | 717,750 | 1,435,500 | 3.46% |
| 7 | 2C2.14 Roof Covering Covering, glazed | 880,720 | 1,417,959 | 1,417,959 | 3.42% |
| 8 | 2C2.14 Roof Covering Covering, glazed | 768,450 | 1,237,205 | 1,237,205 | 2.99% |
| 9 | Platform Luminaires | 328,250 | 523,559 | 1,047,118 | 2.53% |
| 10 | Complete CCTV, Intruder and Access Control | 119,157 | 178,140 | 890,698 | 2.15% |

Table 5 – Ashford International Top 10 Items | Total LCC for all Station Assets = £36,057,832

| Rank | Description | Basic Cost per event (£) | Total cost per event (£) | Total LCC cost over 45 years (£) | Ratio |
|------|--------------------------------------|--------------------------|--------------------------|----------------------------------|-------|
| 1 | CCTV System | 260,583 | 402,601 | 2,013,007 | 5.58% |
| 2 | 2F1.07 Windows Curtain walling | 1,144,178 | 1,727,709 | 1,727,709 | 4.79% |
| 3 | Link bridge to car park painting | 374,890 | 521,097 | 1,563,291 | 4.34% |
| 4 | Aluminium standing seam roof | 846,995 | 1,321,311 | 1,321,311 | 3.66% |
| 5 | Platform canopy roof | 772,600 | 1,127,996 | 1,127,996 | 3.13% |
| 6 | Link bridge to platform painting | 400,000 | 556,000 | 1,112,000 | 3.08% |
| 7 | Lift | 630,000 | 1,017,450 | 1,017,450 | 2.82% |
| 8 | Boiler | 310,605 | 479,885 | 959,769 | 2.66% |
| 9 | 3A1.17 Steel and glass wall cladding | 639,804 | 934,114 | 934,114 | 2.59% |
| 10 | Control Panels | 192,200 | 296,949 | 890,847 | 2.47% |

Note: If changes to the top 10 items incur due to possible model iterations we may compare movement and add further narrative here, as appropriate

3.4 Cost Rates

The cost rates represent labour & material only for undertaking a work activity. However, the cost rates are not broken down to their constituent parts and a detailed specification of different activities has not been provided, thus making it difficult, in general, to assess/conclude whether specific cost rates are appropriate. Nevertheless, some observations are contained in the following paragraphs.

Some items with the same description have different rates. For example, in Figure 9 element “2HR1.01 Fire Resistant Doors Ironmongery” at St Pancras which has 17 rows with the same description but with varying rates between £100 - £7,200. No explanation has been provided with regards to why the rates used are

² Ratio = Total LCC cost over 45 years LCC / Total LCC for all Station Assets

different for seemingly the same items. Also there is no explanation with regards to why the cycle summary is different.

Similarly in Figure 10 element "2H1.07 Metal/Glazed door" at St Pancras has 7 rows with the same description but rates between £1,500 and £2,500. No explanation has been provided with regards to why rates are different for seemingly the same items.

| Description | Works | Cycle summary | G&T Cost Rate Q2 2013 |
|--|---------|--|-----------------------|
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 17 Repeating on 20 year cycle at 25% | £600 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 17 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 17 Repeating on 20 year cycle at 25% | £7,200 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 17 Repeating on 20 year cycle at 25% | £100 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £650 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £600 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £600 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £600 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £600 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |
| 2HR1.01 Fire Resistant Doors Ironmongery | replace | L - Commencing yr 7 Repeating on 20 year cycle at 25% | £900 |

Figure 9 – Extract from St Pancras International LCC | Inconsistent Cost Rates

| Description | Works | Cycle summary | G&T Cost Rate Q2 2013 |
|--------------------------|---------|---|-----------------------|
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £2,500 |
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £2,500 |
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £1,500 |
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £2,500 |
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £1,500 |
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £1,500 |
| 2H1.07 Metal/Glazed door | replace | L - Commencing yr 37 Repeating on 40 year cycle at 100% | £2,500 |

Figure 10 – Extract from St Pancras International LCC | Inconsistent Cost Rates

| Location | Description | Works | Quantity | Unit | G&T Cost Rate Q2 2013 |
|--------------------------------|--|---------|----------|------|-----------------------|
| St Pancras - Common Facilities | 3A1.09 Ceramic Tiling - inc backing | replace | 831 | m2 | £59 |
| St Pancras - Common Facilities | 3B.01 Ceramic Tiling - inc backing | replace | 277 | m2 | £59 |
| St Pancras - Common Facilities | 6A2.07 Surface Treatment Tarmacam or reinforced concrete roads including all | replace | 4447 | m2 | £180 |
| St Pancras - External | 2C2.14 Roof Covering Glazing | repalce | 8807 | m2 | £545 |
| St Pancras - External | 2C2.24 Lead flashings | replace | 1 | m | £600,000 |
| St Pancras Cat A | 3A1.09 Ceramic Tiling - inc backing | replace | 9 | m2 | £59 |
| St Pancras Cat B | 3A1.09 Ceramic Tiling - inc backing | replace | 384 | m2 | £59 |
| St Pancras Cat B | 3B.01 Ceramic Tiling - inc backing | replace | 20.67 | m2 | £59 |
| St Pancras Cat D | 3A1.09 Ceramic Tiling - inc backing | replace | 3442 | m2 | £59 |
| St Pancras Cat D | 3B.01 Ceramic Tiling - inc backing | replace | 544.7 | m2 | £59 |
| St Pancras Station | 5.A Sanitary Appliances_ Sanitary Appliances Infrastructure Comments: | replace | 107683 | m2 | £1 |

Figure 11 – Extract from St Pancras International LCC | Selection of Work Descriptions and Cost Rates

Figure 11 shows a selection of work descriptions and associated rates, extracted from the St Pancras LCC model.

The highest rate used is £600,000 per meter for lead flashings. Our database indicates a labour & material rate in the range of £70-85 per m² for the installation of lead flashings.

The lowest rate is £1 per m² for sanitary appliances which seems low but the assumptions behind it have not been provided.

Other values in between the highest and lowest rates were selected at random and for ceramic tiling a rate of £59 per m² is used. Our database indicates a labour & material rate in the range of £40-50 per m² for the installation of ceramic tiles.

A rate of £180 per m² is used for surface treatment (including all earthworks, drainage, pavements lighting, signs, fencing and safety barriers). The comparable rate in our database for labour & material is of £265 per m².

For roof glazing a rate of £545 per m² is used. Our database indicates a labour & material rate in the range of £40-50 per m² for the installation of ceramic tiles

Overall the descriptions provided against cost rates are very short. A detailed explanation of how these rates have been derived was not provided but is a fundamental input to all calculations. Some, if not all, may well be justified and understood by HS1 Ltd, but enhancing the description provided would be beneficial to the DfT and other interested parties.

Recommendation 2: Ensure correct unit rates are applied in the LCC models. Enhance descriptions and provide a detailed explanation of how each of these rates has been derived.

3.5 On-costs

One of the recommendations of the 2013 interim review of the CP2 package was to 'revisit on-costs remove duplications and errors, enhance descriptions provided and ensure correct application in the LCC models'.

The assumptions behind the derivation of the on-costs are stated in the report titled: 'HS1 International Stations CP2 LTC Review'^[024] and the models user guide^[030]. A small number of errors may still exist in the LCC models in relation to the application of some of the on-costs.

For example, Figure 12, two line items remain in the St Pancras LCC to cover access to the Barlow Roof but the access cost on-cost is switch on in error. Also it is unclear, based on the stated assumptions it is unclear whether the heritage on-cost should be applied to the scaffolding allowance items and to the line item(s) that contain the work activities associated with the Barlow Roof. Another example is the application of access cost to scaffolding items at Ashford as shown in Figure 13. Based on the stated assumptions it is unclear whether the disposal on-cost should be applied to the scaffolding items.

| Description | Basic Cost of Element | Access Costs | Heritage |
|--------------------------------------|-----------------------|--------------|----------|
| 2CR2.13 Scaffolding Allowance 40 yrs | £ 202,561 | £ 10,128 | £ 20,256 |
| 2CR2.14 Scaffolding Allowance 30 yrs | £ 615,664 | £ 30,783 | £ 61,566 |

Figure 12 – Extract from St Pancras International LCC | Application of On-cost

| Description | Basic Cost per event | Access Costs | Disposal Scrap (inc Stripout) |
|---|----------------------|--------------|-------------------------------|
| 2E.27 Scaffolding; mobile cradle for facade maintenance | £ 15,000 | £ 750 | £ 1,050 |
| 2E.27 Scaffolding; mobile cradle for facade maintenance | £ 15,000 | £ 750 | £ 1,050 |

Figure 13 – Extract from Ashford International LCC | Application of On-cost

It is noted that HS1 Ltd conducted an on-cost benchmarking exercise and a summary of the results collated are listed in Table 6. At individual on-cost level Further Detailing and Contingency are above the benchmarks while Indirect Cost and PEO Cost fall within the benchmarks range.

Table 6 – On-Cost Benchmarking Results ^[024]

| On-Costs | HS1 Ltd | Benchmark (Lower Range) | Benchmark (Upper Range) |
|-------------------|---------|-------------------------|-------------------------|
| Further Detailing | 10% | 5% | 7% |
| Indirect Cost | 25% | 38% | 46% |
| PEAO Cost | 16% | 17% | 20% |
| Contingency | 10% | 0% | 0% |

Recommendation 3: Address any remaining errors that may still exist in the LCC models in relation to the application of on-costs.

3.6 Inflation Rate and Profile

In the LTC model an inflation rate is applied annually and this rate is flat throughout the length of the evaluation period. In the documentation provided it is unclear which, if any, professional body or similar source is used for the inflation forecast. In addition an explanation is not provided with regards to why this rate should remain constant.

The escrow account is likely to be directly impacted by the inflation rate and is very sensitive to change in its value (e.g. 100 BPS³ change in inflation rate could increase LCC costs by circa £150k at St Pancras).

Recommendation 4: Provide underlying source of the inflation forecasted values used. If this source is not deemed to be appropriate it may result to calculation changes being required in the LTC models.

3.7 Efficiency Overlay Profile

In the LTC model an efficiency overlay percentage is applied annually and this percentage is flat throughout the length of the evaluation period. This could be extremely challenging, especially if prices rise. It is acknowledged that a lot of uncertainty is associated with such long term predictions. However, it is unlikely that the efficiency overlay will remain flat throughout the life of the concession as technology for instance, is likely to reach a peak and then plateau, thus decreasing efficiency gains.

It is appreciated that the opportunity exists to review the overlay at five-yearly intervals but in order to capture and address any short term risks, 'informal' annual reviews should, if not already, be undertaken.

Consideration may be given to systematically running sensitivity analysis or scenario testing to aid understanding the cost of uncertainty and associated asset related risk. To achieve future generation(s) of the financial models may need to be enhanced to support this type of analysis.

Recommendation 5: More frequent informal reviews (e.g. annually) of the efficiency overlay may be more beneficial in capturing and assessing short term risks.

3.8 Approach to Expenditure Smoothing

In the LCC models the elemental costs are smoothed by spreading each year's calculated works costs 30:40:30 over the three years from the preceding year to the following year. This seems quite a simplistic method of smoothing which does not actually result in a smoother expenditure profile overall. As shown in Figure 14 forecast expenditure peaks, especially in the latter years still remain, implying huge jump(s) in required funding.

³ BPS are Basis Points (100 BPS = 1%)

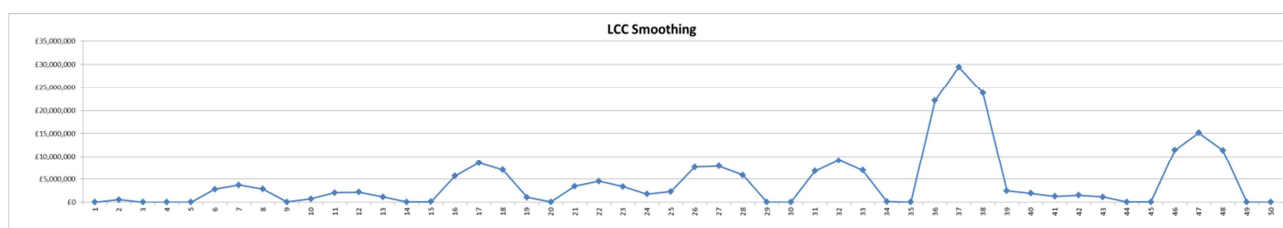


Figure 14 – St Pancras International Smoothed LCC Profile

An alternative approach to smoothing should be considered reflecting for example how projects are likely to be phased, e.g. some assets may need to be renewed within a year depending on their criticality and condition while renewals on other assets could be extended for a period longer than 3 years.

Recommendation 6: Consider adopting an alternative approach to smoothing expenditure profiles.

3.9 Escrow Accounts Balance

The LTC model uses the actual escrow accounts balance for the first three years in CP1, i.e. FY 10/11, 11/12, and 12/13, which reflects the available information at the time the models were built and/or calculated. However, the actual balance of the escrow accounts for FY 13/14 is now known. Table 7 shows the actual funds in each of the escrow accounts on 31 March 2014 (see column titled: Actual balance on 31/03/2014). The column titled: Total on 31/03/2014, comprises the actual funds in the escrow accounts plus the sum invested in December 2013. The remaining columns of the table show the difference between the actual fund and the amount forecast by the LTC model. The negative amounts in Table 7 indicate that the actual fund or account balance lower than forecast. Table 8 shows the difference in the annuity value between using the actual and forecast escrow account balance. The difference may not be considered significant, however since the latest balance is now known this should be used to calculate the LTC model.

Table 7 – Escrow Accounts Balance: Actual vs. Forecast (31/03/14)

| Station | Actual balance on 31/03/2014 | Sum invested in Dec 2013 | Total on 31/03/2014 (Excluding ROI) | LTC Model forecast of closing balance 13/14 | Difference between actual balance and model forecast |
|------------|------------------------------|--------------------------|-------------------------------------|---|--|
| Stratford | £472,297.76 | £2,052,931.84 | £2,525,229.60 | £2,603,280.60 | -£78,051.00 |
| St Pancras | £3,547,199.66 | £6,345,236.01 | £9,892,435.67 | £10,550,915.45 | -£658,479.78 |
| Ebbsfleet | £634,929.00 | £2,367,019.03 | £3,001,948.03 | £3,090,412.74 | -£88,464.71 |
| Ashford | £1,932,260.21 | £928,433.22 | £2,860,693.43 | £2,584,480.37 | £276,213.06 |
| | £6,586,686.63 | £11,693,620.10 | £18,280,306.73 | £18,829,089.16 | -£548,782.43 |

Table 8 – Difference in annuity between actual and forecast escrow account balance

| Station | Annuity using forecast escrow balance of Mar 2014 (Real, 2013/14 prices, £k) | Annuity using actual escrow balance of Mar 2014 (Real, 2013/14 prices, £k) | Difference between actual and forecast annuity (£k) | |
|------------|--|--|---|----------------|
| Stratford | | £650.76 | £652.49 | -£1.73 |
| St Pancras | | £3,811.98 | £3,827.07 | -£15.09 |
| Ebbsfleet | | £685.52 | £687.48 | -£1.96 |
| Ashford | | £679.07 | £671.87 | £7.20 |
| | | | | -£11.58 |

Recommendation 7: The actual balance of the escrow accounts for FY 13/14 is now known and this should be used to calculate the LTC model.

3.10 Environment & Energy Initiatives

The AMS as well as the LCRs list a small number of common activities across all four stations, including forthcoming environment and energy initiatives, and specifically state the following:

“Environment and energy initiatives: These include (1) lamp exchange from conventional to LED, (2) upgrade of air conditioning fan units to direct drive, and (3) re-engineering of existing main air conditioning units to incorporate recirculation facility.”

Other than the above statement, no further details are provided with regards to this initiative and so it is unclear if or how it is included in evaluating the LCCs for each station. It is likely that implementation of this initiative would have an impact on both the LCC and LTC; however, due to the limited information, it was not possible to determine how significant (or not) this would be.

Recommendation 8: HS1 Ltd should provide the DfT with an explanation as to whether or not environment and energy initiatives have been considered and if so state the financial impact associated with their implementation.

3.11 Renewals Acceleration, Deferral, and Omissions

The obligations of the concession require the LCC and LTC models to be able to analyse the effect of *“any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station”*. The purpose of this analysis is to be able to model the implications of a spend variance in a given year on future years of the control period and/or life cycle period, by reforecasting spend. This will help to inform all parties on the amount of funds that will need to be withdrawn from the Escrow in future years. At present, neither the LCC nor the LTC models have the functionality to do this, i.e. use actuals to reforecast spend for the remainder of the control period or life cycle period.

It is considered possible to ‘manually’ calculate the impact of renewals accelerations, deferrals and omissions and even additions, although this may be somewhat cumbersome. The process for ‘manually’ calculating the variance should be described in the LCRs. In future, the models should be adapted to allow the user to input actuals for a given control period, and allow the reforecast of expenditure for subsequent years. This should also demonstrate the impact on the LTC and drawdowns required from the Escrow account and allow both HS1 Ltd and the DfT to have better visibility of the implications of *“any acceleration, deferral or permanent omission of any renewals and/or replacements”* on future years in order to budget more efficiently.

Note: This issue has been raised as non-compliance during the 2012 and 2013 reviews.

Recommendation 9: For the CP2 submission the process for ‘manually’ calculating the variance should be described in the LCRs. However, the LCC/LTC models should be revised in the near future (by the start of CP2) so as to undertake monitoring of acceleration / deferrals / omissions throughout control periods in a more automated way.

3.12 Retail Contribution to LTC

In an earlier version of the LTC model^[058], i.e. for CP1, the annuity calculation was based on the assumption that retailers would pay 11.8% of the annual lifecycle costs. **Figure 15**, extracted from earlier LCRs for St Pancras^[059, 060] summarises the CP1 LTC model outputs of and includes a line for retail contribution. Neither the 2013 nor the current versions of the LTC model include a contribution from retail.

| Schedule 10 Annex 1: 6 Financial Model of available lifecycle funds | | | | |
|---|--------------|--------------|---------------|---------------|
| | 11/12 | 12/13 | 13/14 | 14/15 |
| | £k | £k | £k | £k |
| Available Lifecycle funds b/f | - | 5,751 | 8,517 | 12,026 |
| Initial funding | 1,927 | - | - | - |
| LTC: | | | | |
| Receipt from TOCs | 4,050 | 4,259 | 4,376 | 4,496 |
| Less: reasonable costs (7.5%) | -283 | -297 | -305 | -314 |
| Retail contribution | 505 | 532 | 546 | 561 |
| | 4,273 | 4,493 | 4,617 | 4,744 |
| Lifecycle works costs | -551 | -1,918 | -1,384 | -1,468 |
| Income on escrow | 103 | 191 | 275 | 371 |
| Distribution of Lifecycle works savings | | | | |
| | | | | |
| Available Lifecycle funds c/f | 5,751 | 8,517 | 12,026 | 15,673 |

Table 4: High level outputs for the F&G financial model for St Pancras International for CP1

Figure 15 – Extract from Previous LCRs ^[059, 060] Showing a Line Item for Retail Contributions

An explanation as to why retail contribution was included in the CP1 LTC and excluded in the CP2 LTC has not been provided in the assumptions included in the documentation released in April 2014.

Note: This issue has also been queried in the 2013 review and also the one of the TOCs commented that contributions should be made by all parties that use the stations. It is appreciated that no contractual arrangements are in place with retailers for collecting LTC contributions.

Recommendation 10: An explanation as to why retail contribution was included in the CP1 LTC and excluded in the CP2 LTC should be provided.

4 Verification Review Findings and Recommendations

Note: This is a place holder for a section to be added in a future version of this report to cover the findings from a verification review that may be undertaken to confirm HS1 Ltd's completion of agreed actions.

5 Summary and Conclusions

5.1 Overview

This section provides a summary of the conclusions and recommendations from the review of the CP2 package. **Note:** May add further sections in a future version of the report to cover verification of agreed actions.

5.2 Review of CP2 Package

5.2.1 Summary and Conclusions

A review has been undertaken to assess the appropriateness of the assumptions, processes and tools used by HS1 Ltd for the development of the CP2 package released in April 2014 (see documents listed in [Appendix A](#)).

Over 100 specific comments and associated recommendations were collated as part of this review and these are included in [Appendix B](#), [C](#) and [D](#). A total of 10 key recommendations were identified in Section 3 and these are listed in Section 5.3.2 for ease of reference.

A number of inadequacies were identified against the obligations contained in the HS1 Concessions and Leases Agreement and these are summarised in Table 9 below. A more detailed compliance matrix is included in [Appendix B](#) where partial compliances and non-compliances are mapped against individual comments and associated recommendations.

Table 9 shows that HS1 Ltd has a total of 60 obligations that are applicable during the development of the CP2 package. HS1 Ltd is fully compliant to 15 and partially compliant to 29 of its obligations while 16 non-compliances were also identified.

Table 9 – Summary of Compliance to Obligations set out in Schedule 10: Clause 5 & Annex 1

| ID | Clause | Section Title | Jun-14 |
|----|-----------------|--|------------|
| 1 | 5.1 | Life Cycle Reports | Partially |
| 2 | 5.2.1 - a | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 3 | 5.2.1 - b | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 4 | 5.2.1 - c | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 5 | 5.2.1 - d | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 6 | 5.2.1 - e | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 7 | 5.2.1 - f | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 8 | 5.2.1 - g | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 9 | 5.2.1 - h | Life Cycle Reports: Works undertaken and costs incurred | Fully |
| 10 | 5.2.2 - a | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 11 | 5.2.2 - b | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 12 | 5.2.2 - c | Life Cycle Reports: Works undertaken and costs incurred | Partially |
| 13 | 5.2.4 - a | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 14 | 5.2.4 - b | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 15 | 5.2.4 - c | Life Cycle Reports: Forecast Life Cycle Works | Fully |
| 16 | 5.2.4 - d | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 17 | 5.2.5 - a | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 18 | 5.2.5 - b | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 19 | 5.2.5 - c | Life Cycle Reports: Forecast Life Cycle Works | Partially |
| 20 | 5.2.6 - a | Life Cycle Reports: Deferrals | Partially |
| 21 | 5.2.6 - b | Life Cycle Reports: Deferrals | Not at all |
| 22 | 5.2.6 - c (i) | Life Cycle Reports: Deferrals | Not at all |
| 23 | 5.2.6 - c (ii) | Life Cycle Reports: Deferrals | Not at all |
| 24 | 5.2.6 - d | Life Cycle Reports: Deferrals | Not at all |
| 25 | 5.2.6 - e | Life Cycle Reports: Deferrals | Not at all |
| 26 | 5.2.7 | Life Cycle Reports: Distribution of Life Cycle Works Savings | Not at all |
| 27 | 5.2.8 | Life Cycle Reports: Adjustments to Available Life Cycle Funds | Not at all |
| 28 | 5.2.9 | Life Cycle Reports: Long Term Charge | Partially |
| 29 | 5.2.10 - a | Life Cycle Reports: Long Term Charge | Partially |
| 30 | 5.2.10 - b | Life Cycle Reports: Long Term Charge | Fully |
| 31 | 5.2.11 - a | Life Cycle Reports: Long Term Charge | Fully |
| 32 | 5.2.11 - b | Life Cycle Reports: Long Term Charge | Partially |
| 33 | 5.2.12 | Life Cycle Reports: Modifications to the AMS and the Life Cycle Budget | Fully |
| 34 | 5.2.13 | Life Cycle Reports: General | Partially |
| 35 | 4.1 | Asset Management Strategy | Partially |
| 36 | Annex 1 - 1 | Scope | Fully |
| 37 | Annex 1 - 2 | Station Elements | Fully |
| 38 | Annex 1 - 3a | Life Cycle Works | Partially |
| 39 | Annex 1 - 3b | Life Cycle Works | Partially |
| 40 | Annex 1 - 4 | Performance Monitoring | Partially |
| 41 | Annex 1 - 5a | Life Cycle Budget: Expenditure | Partially |
| 42 | Annex 1 - 5b | Life Cycle Budget: Expenditure | Partially |
| 43 | Annex 1 - 5c | Life Cycle Budget: Expenditure | Partially |
| 44 | Annex 1 - 5a | Life Cycle Budget: Revenues | Partially |
| 45 | Annex 1 - 5b | Life Cycle Budget: Revenues | Partially |
| 46 | Annex 1 - 5c | Life Cycle Budget: Revenues | Partially |
| 47 | Annex 1 - 5 | Life Cycle Budget: Cashflow | Partially |
| 48 | Annex 1 - 6 | Financial Model | Fully |
| 49 | Annex 1 - 6a | Financial Model | Fully |
| 50 | Annex 1 - 6b | Financial Model | Not at all |
| 51 | Annex 1 - 6c | Financial Model | Not at all |
| 52 | Annex 1 - 6d | Financial Model | Not at all |
| 53 | Annex 1 - 6e | Financial Model | Not at all |
| 54 | Annex 1 - 7 | Long Term Charge | Fully |
| 55 | Annex 1 - 7a | Long Term Charge | Fully |
| 56 | Annex 1 - 7b | Long Term Charge | Not at all |
| 57 | Annex 1 - 7bi | Long Term Charge | Not at all |
| 58 | Annex 1 - 7bii | Long Term Charge | Not at all |
| 59 | Annex 1 - 7biii | Long Term Charge | Not at all |
| 60 | Annex 1 - 7biv | Long Term Charge | Not at all |

5.2.2 Key Recommendations

Comments were provided against each of HS1 Ltd.'s obligations along with proposed recommendations. The detailed comments and associated recommendations are included in [Appendix B](#), [C](#) and [D](#) while key recommendations are summarised in Table 10 below. A suggested timeframe for addressing this is also provided.

Table 10 – Summary of Key Recommendations

| No. | Key Recommendation | Section | When? |
|-----|---|---------|-------------------------|
| 1 | Investigate possible inconsistencies in the designation of elements with the same description and cycle summary and ensure they are allocated to the 'correct' activity (L/Q). | 3.2 | June 2014 |
| 2 | Ensure correct unit rates are applied in the LCC models. Enhance descriptions and provide a detailed explanation of how each of these rates has been derived. | 3.4 | June 2014 |
| 3 | Address any remaining errors that may still exist in the LCC models in relation to the application of on-costs. | 3.5 | June 2014 |
| 4 | Provide underlying source of the inflation forecasted values used. If this source is not deemed to be appropriate it may result to calculation changes being required in the LTC models. | 3.6 | June 2014 |
| 5 | More frequent informal reviews (e.g. annually) of the efficiency overlay may be more beneficial in capturing and assessing short term risks. | 3.7 | During CP2 |
| 6 | Consider adopting an alternative approach to smoothing expenditure profiles. | 3.8 | During CP2 |
| 7 | The actual balance of the escrow accounts for FY 13/14 is now known and this should be used to calculate the LTC model. | 3.9 | June 2014 |
| 8 | HS1 Ltd should provide the DfT with an explanation as to whether or not environment and energy initiatives have been considered and if so state the financial impact associated with their implementation. | 3.10 | June 2014 |
| 9 | For the CP2 submission the process for 'manually' calculating the variance should be described in the LCRs. However, the LCC/LTC models should be revised in the near future (by the start of CP2) so as to undertake monitoring of acceleration / deferrals / omissions throughout control periods in a more automated way. | 3.11 | June 2014 During CP2 |
| 10 | An explanation as to why retail contribution was included in the CP1 LTC and excluded in the CP2 LTC should be provided. | 3.12 | June 2014 |

5.2.3 Overarching Recommendations to the DfT

In mid June 2014, i.e. the point of completing the review of the CP2 package released in April 2014, given the specific inadequacies listed in **Appendix B** and key issues summarised in Table 9 the recommendations below were put forward to the DfT. It is noted that these recommendations do not take into account any changes that HS1 Ltd has or is in the process of undertaking to the CP2 package prior to its formal submission to the DfT which is anticipated at the end of June 2014. The final recommendation to DfT, taking into account verification of any agreed actions undertaken by HS1 Ltd, is included in Section 5.3.3.

Overarching Recommendation I: The Government Representative should not approve the CP2 Package released by HS1 Ltd in April 2014 because HS1 Ltd does not fully comply with all the requirements in the HS1 Concession and Leases Agreement.

Overarching Recommendation II: The Government Representative should provide HS1 Ltd with a copy of this report because it is considered that it contains the reasons for not approving the CP2 Package and request that HS1 Ltd revise the AMS, LCRs and LCC/LTC models using the key and other recommendations described here in.

5.3 Verification Review

Note: This is a place holder for a section to be added in a future version of this report to summarise the conclusions from a verification review that may be undertaken to confirm HS1 Ltd's completion of agreed actions.

5.3.1 Summary and Conclusions

5.3.2 Key Recommendations

5.3.3 Final Recommendation to the DfT

Note: This is place holder for a section to be added to cover a final recommendation to the DfT. It should be noted that this review has been undertaken in 2 stages: (1) Review of the CP2 Package released in April 2014, and (2) Verification of actions undertaken by HS1 Ltd for addressing inadequacies in the CP2 Package released in April 2014. Section 5.2.3 presents the recommendations from the first part of this review and does not take into account any actions undertaken by HS1 Ltd after mid June 2014. The DfT has given HS1 Ltd an early indication of the findings from the first part of this review and HS1 agreed to undertaking the [majority] of the actions listed in Appendix B. Any actions undertaken will be verified and the results from this verification will be presented in section 4 of this report with a summary, as necessary, in sections 5.2.1 and 5.2.2. A final recommendation to the DfT will then be added in the text below. As long as HS1 Ltd closes out the agreed actions listed in Appendix B/Table 9 or provides an explanation/proposal of how specific issues might be addressed in the near future, this recommendation may be for the DfT to approve the CP2 package.

Final Recommendation: This is a placeholder for a final recommendation to the DfT to be added once the verification of the actions agreed to be undertaken by HS1 Ltd is complete.

Appendices

Appendix A – List of Documents & Files

| ID | Title | File Name / Ref. | Version | Doc. Date | When Received |
|-----|--|--|---------|-------------|---------------------|
| 001 | Lifecycle Methodology and Assumptions International Stations | HS1 Lifecycle Methodology and Assumptions Halcrow Issue v1.1 12 Sept 2013.pdf | 1.1 | 12 Sep 2013 | 2013 Interim Review |
| 002 | HS1 LCC Ashford International Station Halcrow 12 Sept 2013 | HS1 LCC Ashford International Station Halcrow 12 Sept 2013.xlsb | 1 | 12 Sep 2013 | 2013 Interim Review |
| 003 | HS1 LCC Ebbsfleet International Station Halcrow 12 Sept 2013 | HS1 LCC Ebbsfleet International Station Halcrow 12 Sept 2013.xlsb | 1 | 12 Sep 2013 | 2013 Interim Review |
| 004 | HS1 LCC St Pancras International Station Halcrow 12 Sept 2013 | HS1 LCC St Pancras International Station Halcrow 12 Sept 2013.xlsb | 1 | 12 Sep 2013 | 2013 Interim Review |
| 005 | HS1 LCC Stratford International Station Halcrow 12 Sept 2013 | HS1 LCC Stratford International Station Halcrow 12 Sept 2013.xlsb | 1 | 12 Sep 2013 | 2013 Interim Review |
| 006 | HS1 LTC Halcrow 12 Sept 2013 | HS1 LTC Halcrow 12 Sept 2013.xlsm | 1 | 12 Sep 2013 | 2013 Interim Review |
| 007 | HS1 Asset Management Strategy International Stations | HS1 Asset Management Strategy - International Stations Halcrow Issue v1 9 18 Sept 2013 Final Clean.pdf | 1.5 | Sep 2013 | 2013 Interim Review |
| 008 | Lifecycle Report Ashford International Station | HS1 Lifecycle Report - Ashford International Station Halcrow Issue v0 11 18 Sept (Final).pdf | 0.9 | 18 Sep 2013 | 2013 Interim Review |
| 009 | Lifecycle Report Ebbsfleet International Station | HS1 Lifecycle Report - Ebbsfleet International Station Halcrow Issue v0 10 18 Sept (Final).pdf | 0.7 | 18 Sep 2013 | 2013 Interim Review |
| 010 | Lifecycle Report St Pancras International Station | HS1 Lifecycle Report - St Pancras International Station Halcrow Issue v0 8 18 Sept (Final).pdf | 0.5 | 18 Sep 2013 | 2013 Interim Review |
| 011 | Lifecycle Report Stratford International Station | HS1 Lifecycle Report - Stratford International Station Halcrow Issue v0 10 18 Sept (Final).pdf | 0.7 | 18 Sep 2013 | 2013 Interim Review |
| 012 | HS1 International Stations CP2 LTC Review | HS1 Slides Halcrow 12 Sept 2013.pdf | - | 12 Sep 2013 | 2013 Interim Review |
| 013 | How the DfT will consider the submission by HS1 Ltd regarding the LTC for the International Stations | 130701 DfT consideration of the CP2 documents submitted by HS1 Ltd.doc | - | - | 2013 Interim Review |

| ID | Title | File Name / Ref. | Version | Doc. Date | When Received |
|-----|--|--|---------------|-------------|--------------------------------------|
| 014 | The allocation of HS1 Ltd costs between route, stations and unregulated for CP2 | Outline of HS1 Ltd cost allocation approach for CP2 2013 09 10 version_FINAL_ORR COMMENTS.docx | - | 10 Sep 2013 | 2013 Interim Review |
| 015 | Lifecycle Cost and Long Term Charge Methodology and Assumptions International Stations | HS1 LCC and LTC Methodology and Assumptions Halcrow Issue v2.1 - 3rd Oct 2013.pdf | 2.1 | 03 Oct 2013 | 2013 Interim Review |
| 016 | HS1 LCC Ashford International Station Halcrow 03 Oct 2013 | HS1 LCC Ashford International Station Halcrow 03 Oct 2013.xlsb | 2 | 03 Oct 2013 | 2013 Interim Review |
| 017 | HS1 LCC Ebbsfleet International Station Halcrow 03 Oct 2013 | HS1 LCC Ebbsfleet International Station Halcrow 03 Oct 2013.xlsb | 2 | 03 Oct 2013 | 2013 Interim Review |
| 018 | HS1 LCC St Pancras International Station Halcrow 03 Oct 2013 | HS1 LCC St Pancras International Station Halcrow 03 Oct 2013.xlsb | 2 | 03 Oct 2013 | 2013 Interim Review |
| 019 | HS1 LCC Stratford International Station Halcrow 03 Oct 2013 | HS1 LCC Stratford International Station Halcrow 03 Oct 2013.xlsb | 2 | 03 Oct 2013 | 2013 Interim Review |
| 020 | HS1 LTC Halcrow 03 Oct 2013 | HS1 LTC Halcrow 03 Oct 2013.xlsm | 2.2 | 03 Oct 2013 | 2013 Interim Review |
| 021 | HS1 International Stations CP2 LTC Review | HS1 Slides Halcrow 3 Oct 2013 v2.4.pdf | 2.4 | 03 Oct 2013 | 2013 Interim Review |
| 022 | Schedule 10 - Provisions relating to Station Repair and Renewal | Schedule 10 for GR tender.doc | - | - | Applicable to all reviews |
| 023 | HS1 Asset Management Strategy International Stations | Stations Asset Management Strategy - Final 07082012.pdf | Draft J Final | 13 Jul 2012 | Document endorsed during 2012 Review |
| 024 | HS1 International Stations CP2 LTC Review | 1_Station_LTC_Review_-_7_April_2014.pdf | | 07 Apr 2014 | 2014 Review |
| 025 | 2a_SPI_-_LCC_Model | 2a_SPI_-_LCC_Model.xlsb | 12 | 14 Mar 2014 | 2014 Review |
| 026 | 2b_Stratford_-_LCC_Model | 2b_Stratford_-_LCC_Model.xlsb | 12 | 14 Mar 2014 | 2014 Review |
| 027 | 2c_Ebbsfleet_-_LCC_Model | 2c_Ebbsfleet_-_LCC_Model.xlsb | 12 | 14 Mar 2014 | 2014 Review |
| 028 | 2d_Ashford_-_LCC_Model.xlsb | 2d_Ashford_-_LCC_Model.xlsb | 12 | 14 Mar 2014 | 2014 Review |
| 029 | 2e_LTC_Annuity_Model.xlsm | 2e_LTC_Annuity_Model.xlsm | 12.3 | 28 Mar 2014 | 2014 Review |

| ID | Title | File Name / Ref. | Version | Doc. Date | When Received |
|-----|---|---|---------|-------------|---------------|
| 030 | HS1 Stations Life Cycle Cost and Long Term Charge Models User Guide | 2f_LCC.LTC_Model_User_Guide[1].docx | - | 31 Jan 2014 | 2014 Review |
| 031 | HS1 Ltd Asset Management Policy (Control Period 2) | 3_Asset_Policy.pdf | - | 07 Feb 2014 | 2014 Review |
| 032 | Asset Management Strategy International Stations (DRAFT) | 4_Asset_Management_Strategy[1].pptx | - | 07 Apr 2014 | 2014 Review |
| 033 | Asset Information Strategy International Stations (DRAFT) | 5_Asset_Information_Strategy.ppt | - | 07 Apr 2014 | 2014 Review |
| 034 | St Pancras International Station Lifecycle Report (DRAFT) | 6a_St_Pancras_LCR.ppt | - | 07 Apr 2014 | 2014 Review |
| 035 | Stratford International Station Lifecycle Report (DRAFT) | 6b_Stratford_-_LCR.ppt | - | 07 Apr 2014 | 2014 Review |
| 036 | Ebbsfleet International Station Lifecycle Report (DRAFT) | 6c_Ebbsfleet_-_LCR.ppt | - | 07 Apr 2014 | 2014 Review |
| 037 | Ashford International Station Lifecycle Report (DRAFT) | 6d_Ashford_-_LCR.ppt | - | 07 Apr 2014 | 2014 Review |
| 038 | St Pancras Ground Floor Station Plan | 7a(i)_SPI_-_Ground_Floor.pdf / 100-DQX-HISP1-00001-03 | - | 12 Feb 2014 | 2014 Review |
| 039 | St Pancras Mezzanine Floor Station Plan | 7a(ii)_SPI_-_Mezzanine_Level.pdf/100-DQX-HISP1-00002-01 | - | 24 Dec 2013 | 2014 Review |
| 040 | St Pancras Platform Level Station Plan | 7a(iii)_SPI_-_Platform_Level.pdf/100-DQX-HISP1-00003-01 | - | 24 Dec 2013 | 2014 Review |
| 041 | St Pancras Roof Level Station Plan | 7a(iv)_SPI_-_Roof_Level.pdf/100-DQX-HISP1-00005-01 | - | 24 Dec 2013 | 2014 Review |
| 042 | St Pancras Substructure Level Station Plan | 7a(v)_SPI_-_Sub_Structure.pdf/100-DQX-HISP1-00004-01 | - | 24 Dec 2013 | 2014 Review |
| 043 | Stratford Station Concourse Level Station | 7b(i)_Stratford_-_Concourse.pdf/230-DQX-HISP1- | - | 12 Feb 2014 | 2014 Review |

| ID | Title | File Name / Ref. | Version | Doc. Date | When Received |
|-----|---|--|---------|-------------|---------------|
| | Plan | 00002-02 | | | |
| 044 | Stratford Station Mezzanine Level Station Plan | 7b(ii)_Stratford_-_Mezzanine_Level.pdf/230-DQX-HISP1-00003-01 | - | 20 Dec 2013 | 2014 Review |
| 045 | Stratford Station Platform Level Station Plan | 7b(iii)_Stratford_-_Platform_Level.pdf/230-DQX-HISP1-00001-01 | - | 20 Dec 2013 | 2014 Review |
| 046 | Ebbsfleet International Station Concourse Level Station Plan | 7c(i)_Ebbsfleet_-_Concourse_Level.pdf/340-DQX-HISP1-00002-02 | - | 12 Feb 2014 | 2014 Review |
| 047 | Ebbsfleet International Station Mezzanine Level Station Plan | 7c(ii)_Ebbsfleet_-_Mezzanine_Level.pdf/340-DQX-HISP1-00003-02 | - | 12 Feb 2014 | 2014 Review |
| 048 | Ebbsfleet International Station Platform Level Station Plan | 7c(iii)_Ebbsfleet_-_Platform_Level.pdf/340-DQX-HISP1-00001-01 | - | 20 Dec 2013 | 2014 Review |
| 049 | Ashford Station Concourse Level Station Plan | 7d(i)_Ashford_-_Concourse_Level.pdf/430-DQX-HISP1-00002-02 | - | 12 Feb 2013 | 2014 Review |
| 050 | Ashford Station First Floor Level Station Plan | 7d(ii)_Ashford_-_First_Floor_level.pdf/430-DQX-HISP1-00003-02 | - | 12 Feb 2014 | 2014 Review |
| 051 | Ashford Station Service Floor Level Station Plan | 7d(iv)_Ashford_-_Service_Floor_Level.pdf/430-DQX-HISP1-00004-01 | - | 20 Dec 2013 | 2014 Review |
| 052 | HS1 Long Term Charges Model Audit | 8_Aecom_Model_Audit | - | 10 Feb 2014 | 2014 Review |
| 053 | EIL Response to HS1 - Stations CP2 LTC Review2 | 140402 CONFIDENTIAL - EIL Response to HS1 - Stations CP2 LTC Review2.pdf | - | 02 Apr 2014 | 2014 Review |
| 054 | 140402 EIL Annex 1 | 140402 EIL Annex 1.xls | - | - | 2014 Review |
| 055 | CK to GF HS1 re CP2 LTC Review 28Feb14 | CK to GF HS1 re CP2 LTC Review 28Feb14.pdf | - | 28 Feb 2014 | 2014 Review |
| 056 | 2012 Asset Management Annual Statement for HS1 International Stations - Network Rail (High Speed) Ltd | 2013 station AMAS B.PDF | DRAFT B | Apr 2013 | 2014 Review |
| 057 | 2012/13 Asset Management Annual Statement for Ashford International Station | Ashford - Asset Management Annual Statement (final) - 2012 2013.doc | Rev 1 | Apr 2013 | 2014 Review |

| ID | Title | File Name / Ref. | Version | Doc. Date | When Received |
|-----|--|--|------------------|-------------|---------------|
| 058 | LTC for DfTv2 | LTC for DfTv2.xlsx | | 05 Aug 2010 | 2012 Review |
| 059 | Stations Infrastructure St. Pancras Life Cycle Report | Life Cycle Report for HS1 St Pancras International Station 2012 Draft I 11052012.pdf | Draft I Final | 11 May 2012 | 2012 Review |
| 060 | Life Cycle Report St Pancras International Station | HS1 Lifecycle Report - St Pancras International Station Halcrow Issue v0 8 18 Sept (Final).pdf | Draft 0.5 | 18 Sep 2013 | 2013 Review |

Appendix B – Compliance Matrix

HS1 International Stations - Review of CP2 Proposal

Compliance to Obligations set out in Schedule 10 - Clause 5 and Annex 1

| Clause | Section Title | Detail | Period the clause refers to | Compliant? | EC Harris Review | | HS1 Ltd's Matrix | | Comments | Recommended Action | When | HS1 Ltd Confirmed Actions |
|---|--------------------|--|--|--|-------------------------|--|--------------------|---------------------|---|---|--------|---|
| | | | | | Doc. ID. | Section / Paragraph | Doc. ID. | Section / Paragraph | | | | |
| <p><i>Clauses as they appear in Schedule 10</i></p> <p><i>Relevant period at the time of the review</i></p> <p><i>Compliance level</i></p> <p><i>Documents for which no obligations are covered as confirmed by EC Harris</i></p> <p><i>Documents for which no obligations are covered as stated by HS1 Ltd</i></p> <p><i>Reasons for assigned compliance level</i></p> <p><i>Recommendations for achieving full compliance</i></p> | | | | | | | | | | | | |
| 5.1 | Life Cycle Reports | The Tenant shall submit a Life Cycle Report to the Government's Representative for each Station no later than nine (9) months prior to the end of each Review Period. | CP2 | Partially | 034, 035, 036, 037 | All LCRs | 034, 035, 036, 037 | Whole document(s) | Subject to all other comments. | Address recommendations below, as appropriate | 30-Jun | Comments addressed as set out below and reflected in documents to be submitted |
| 5.2 | Life Cycle Reports | Each Life Cycle Report shall, in respect of each Station, include: Works undertaken and costs incurred | CP1 | The current review period is CP1; the LCRs are assessed against clauses 5.2.1 a-h in respect of the works undertaken and costs incurred | | | | | | | | |
| 5.2.1 | Life Cycle Reports | a summary of the following in respect of the current Review Period : | | | | | | | | | | |
| 5.2.1 - a | Life Cycle Reports | the Life Cycle Works carried out by the Tenant (or that it is anticipated will have been carried out by the end of the current Review Period); | CP1 | Partially | 034, 035, 036, 037 | 3.1.2 | 034, 035, 036, 037 | 3.1.2 | Detailed description of works for Ashford but short summary for other three stations especially Ebbsfleet. | Provide more detailed description of the Life Cycle Works carried out during CP1 for all stations particularly Ebbsfleet. This should be similar to the descriptions provided for Ashford. | 30-Jun | Updated descriptions provided. However it is noted that it is appropriate that more detail is provided for Ashford as this is where the majority of the spend has occurred. At other stations both the forecast and actual spend is very low. |
| 5.2.1 - b | Life Cycle Reports | the Available Life Cycle Funds at the end of each Financial Year (or the anticipated Available Life Cycle Funds by the end of the last Financial Year in the current Review Period); | CP1 | Partially | 034, 035, 036, 037 | 3.2.1.5 | 034, 035, 036, 037 | 3.2.1.5 | All LCRs and LTC model include actual/predicted 'Available Lifecycle Funds' for CP1 and beyond. The actual balance, which is now known for 2013/14 was not used (because it was not known at the time of production); the differences do not appear to be significant and so may not impact the CP2 LTC value. | May consider re-running the LTC model with now known closing balance for 2013/14. [Also see separate EC Harris analysis] | 30-Jun | Addressed issue of forecast vs actual balance separately. Included statement in LCRs that these are both consistent and hence the forecast balance has been used in calculating LTC. |
| 5.2.1 - c | Life Cycle Reports | the Life Cycle Works Cost (or anticipated Life Cycle Works Cost by the end of the current Review Period); | CP1 | Fully | 034, 035, 036, 037 | Table 7 in 3.2.1.1, Table 15 in 4.1.2.1 and Appendix E | 034, 035, 036, 037 | 4.1.2.1 | Table 15 in 4.1.2.1 is for last two years of CP1; Table 7 for the first 3 years of CP1 and Appendix E for all years in CP1 | Add Table 7 in the Stratford LCR | | |
| 5.2.1 - d | Life Cycle Reports | the Deferred Life Cycle Works Savings (if any) approved in previous Life Cycle Reports ; | Period before CP1 (not valid) | Fully | 034, 035, 036, 037 | 5.1.3 | 034, 035, 036, 037 | 5.1.3 | Agree with difference between actuals vs. forecast in 5.1.3, however there was no previous review period prior to CP1 and so no Deferred Life Cycle Works Savings could have been approved in previous LCRs. | Could state that there was no review period prior to CP1 and so no Deferred Life Cycle Works Savings were (or could have been) approved in previous LCRs. | | |
| 5.2.1 - e | Life Cycle Reports | the Life Cycle Works Savings (if any) brought forward from previous Review Periods ; | Period before CP1 (not valid) | Fully | 034, 035, 036, 037 | | 034, 035, 036, 037 | 5.1 & 5.2 | 5.1 is titled deferrals & permanent omissions. This clause requires Life Cycle Works Savings brought forward from previous Review Periods. Savings means undertaking forecast work at a lower cost than planned. However, there was no review period prior to CP1. 5.2 is missing | Could state that there was no review period prior to CP1 and so no Life Cycle Works Savings were brought forward. | | |
| 5.2.1 - f | Life Cycle Reports | the effect of any Relevant Changes of Law that have occurred during the Review Period ; | CP1 | Fully | 034, 035, 036, 037 | 3.2.3, 3.2.3, 3.2.4, 3.2.3 | 034, 035, 036, 037 | 3.2.4 & 4.2.5 | 3.2.4 refers to changes in law during CP1; included in LCRs 3.2.3 apart from Ebbsfleet which is 3.2.4 (wrongly numbered); 4.2.5. for anticipated future changes in law (required under 5.2.4 - c below) within 4.2.5.2 at SPI but is 4.2.3.2 for the other three stations | Could amend report(s) matrix (Appendix A) to correct reference | | |
| 5.2.1 - g | Life Cycle Reports | an analysis of breakdown frequencies and the performance of the Elements of the Station which were identified in the Asset Management Strategy as being monitored by the Tenant; | CP1 | Partially | 034, 035, 036, 037 | 3.3 | 034, 035, 036, 037 | 3.3 | Statistics in 3.3.1 only for 2012/2013 (except Ashford) | Element performance trend analysis during CP1 required | Apr-15 | Note added to LCRs to say that this will be included by the start of CP2 as part of the Delivery Plan. This will form the baseline for future analysis. |
| 5.2.1 - h | Life Cycle Reports | the renewals and replacements (if any) undertaken by the Station Operator in order that it discharged its Safety Obligations in respect of the Station but which were not identified in the current Life Cycle Report (" Station Safety Works "); | CP1 | Fully | 034, 035, 036, 037 | 3.1.4, 3.1.3, 3.1.3 | 034, 035, 036, 037 | 3.1.4, 3.1.3, 3.1.3 | It is clearly stated in the LCRs that no such works were undertaken | | | |
| 5.2.2 | Life Cycle Reports | in respect of the current Review Period a progress report, comparison and reconciliation by reference to the Life Cycle Report approved for the current Review Period of: | CP1 | The current review period is CP1; the LCRs were assessed against clauses 5.2.2 a-c | | | | | | | | |
| 5.2.2 - a | Life Cycle Reports | the Life Cycle Works actually completed to date against those anticipated giving the reasons for any differences; | CP1 | Partially | 034, 035, 036, 037 | 3.1.2 & 3.2.1 | 034, 035, 036, 037 | 3.2.1 | Limited work descriptions provided with no reason for differences | Provide more detailed description of the Life Cycle Works carried out / will be carried out during CP1. Explain the reasons for the differences. Is the change in SAC to only reason for cost variation? | Apr-15 | Statement in section 5.1 around variance analysis - consistent with the separate note provided on this subject and associated discussions. Functionality to be in place for start of CP2 with a defined programme. |
| 5.2.2 - b | Life Cycle Reports | the Life Cycle Works Cost incurred to date against those anticipated giving the reasons for any differences; | CP1 | Partially | 034, 035, 036, 037 | 3.2.1.1, 3.2.1.2 and Appendix E | | 3.2.1 | Expenditure variance given at elemental or group level with generic reasons only | Explain the reasons for the differences | Apr-15 | Statement in section 5.1 around variance analysis - consistent with the separate note provided on this subject and associated discussions. Functionality to be in place for start of CP2 with a defined programme. |
| 5.2.2 - c | Life Cycle Reports | the Life Cycle Works Savings achieved to date against those anticipated; | CP1 | Partially | 034, 035, 036, 037 | 3.2.1.3 | 034, 035, 036, 037 | 3.2.1 | A table is included to the end of 2012/2013; but insufficient detail to determine if the stated amounts relate directly to Life Cycle Works Saving. This means the amount that represents the net saving to the Tenant from carrying out Life Cycle Works to the relevant Element of the Station for less than the corresponding amount identified for such Life Cycle Works; e.g. planned to replace a fire door for £200 but replaced it for £100, the net saving is £100. | A clear statement on savings (or no savings) to the end of CP1 is required. | Apr-15 | Clear statement in section 5.1 that no savings are being sought by HS1 Ltd. Consistent with separate discussions. |
| 5.2.3 | Life Cycle Reports | a summary of the following up to the end of the previous Review Period for each Element of the Station of: | | | | | | | | | | |
| 5.2.3 - a | Life Cycle Reports | the aggregate amount of the Life Cycle Works Cost; | Period before CP1 (not valid) | There was no Previous Review Period. This clause is not applicable during the first 2 control periods and hence the LCRs were not assessed against it; it will apply at CP3 when comparing CP1 vs. CP2 costs | | | | | | | | |
| 5.2.3 - b | Life Cycle Reports | the aggregate amount of the Deferred Life Cycle Works Savings (if any); and | | | | | | | | | | |
| 5.2.3 - c | Life Cycle Reports | the aggregate amount of the Life Cycle Works Savings (if any); | | | | | | | | | | |
| 5.2.4 | Life Cycle Reports | Forecast Life Cycle Works in respect of the next Review Period : | CP2 | The next review period is CP2; the LCRs were assessed against clauses 5.2.2 a-c | | | | | | | | |
| 5.2.4 - a | Life Cycle Reports | the Tenant's detailed proposals for the carrying out of the Forecast Life Cycle Works including any notices consents and approvals required in order to carry out and complete them; | CP2 | Partially | 034, 035, 036, 037 | 4.2.1 | 034, 035, 036, 037 | 4.2 | There is no description of how HS1 Ltd intends to carry out the work; no reference to any notices, consents, approvals, etc. | Further details required with regards to how HS1 Ltd intends to carry out the work in CP2 including required notices, consents, approvals, etc. Alternatively HS1 Ltd may choose to make a future promise to produce a detailed 5 year plan. | Apr-15 | New section 4.2.4 setting out general approach to securing consents etc and undertaking work. Reference to further detail in the CP2 delivery plan to be released before the commencement of CP2. |
| 5.2.4 - b | Life Cycle Reports | the Forecast Life Cycle Works Cost; | CP2 | Partially | 034, 035, 036, 037 | 4.2.2.1 | 034, 035, 036, 037 | 4.2 | Subject to cost verification | Further details required with regards to how HS1 Ltd intends to differentiate between elements including elements with same description but different cost rate. [Also see separate list of items this comment relates to provided by EC Harris on 12 June] | 31-Jul | As separately discussed, statement that by end of July we will add clarification detail to the line items that are similar that have spend in CP2. |
| 5.2.4 - c | Life Cycle Reports | the effect of any Relevant Changes of Law that will occur during the Review Period ; | CP2 | Fully | 034, 035, 036, 037 | 4.2.5.2, 4.2.3.2, 4.2.3, 4.2.3 | 034, 035, 036, 037 | 4.2 | | | | |
| 5.2.4 - d | Life Cycle Reports | the forecast amount of Available Life Cycle Funds at the end of each Financial Year; | CP2 | Partially | 034, 035, 036, 037, 029 | not found 4.2.2.3, 4.2.2.3, 4.2.2.3, LTC model | 034, 035, 036, 037 | 4.2 | Table 20 in the Ebbsfleet and Stratford reports; this is missing from the other two reports. Section 4.2.2.2 appears to be missing from all four reports. Section 4.2.2.3 is missing in SPI report | Add missing tables/sections in relevant LCRs | 30-Jun | We show this detail in section 4.1.2.3 (and 4.1.2.2 for Stratford). This was included in the 7 April versions. |
| 5.2.5 | Life Cycle Reports | in respect of the remainder of the Life Cycle Period a summary of any changes to: | 50 years | CP2 Package assessed against clauses 5.2.5 a - c | | | | | | | | |
| 5.2.5 - a | Life Cycle Reports | the Forecast Life Cycle Works to be undertaken in each subsequent Review Period and Overhang Period in respect of each Element of the Station; | CP3 onwards including 20 years after the end of the concession | Partially | 029 | LTC model | 034, 035, 036, 037 | 4.1 | This is not described in section 4.1 of the LCRs but the analysis is included in the LTC model. | Include a description of the life cycle <u>works</u> that will be undertaken from CP3 onwards | 30-Jun | New 4.3 showing works |
| 5.2.5 - b | Life Cycle Reports | the Forecast Life Cycle Works Cost in each subsequent Review Period and Overhang Period in respect of each Element of the Station; and | CP3 onwards including 20 years after the end of the concession | Partially | 029 | LTC model | 034, 035, 036, 037 | 4.1 | This is not described in section 4.1 of the LCRs but the analysis is included in the LTC model. | Include a table (or similar) summarising the life cycle <u>costs</u> that are forecast from CP3 onwards | 30-Jun | New 4.3 showing works |
| 5.2.5 - c | Life Cycle Reports | a forecast of the amount of Available Life Cycle Funds for each subsequent Review Period and Overhang Period ; | CP3 onwards including 20 years after the end of the concession | Partially | 029 | LTC model | 034, 035, 036, 037 | 4.1 | This is not described in section 4.1 of the LCRs but the analysis is included in the LTC model. | Include a table (or similar) summarising the <u>Available Life Cycle Funds</u> that are forecast from CP3 onwards | 30-Jun | Reference included to LTC model - difficult to include this level of detail in the LCRs themselves whereas it is set out neatly in the LTC as part of the annuity calculation. |
| 5.2.6 | Life Cycle Reports | Deferrals the Tenant's proposals (if any) for: | CP2 | CP2 Package assessed against clauses 5.2.6 a - e | | | | | | | | |
| 5.2.6 - a | Life Cycle Reports | the deferral to any later Review Period or Overhang Period or the permanent omission of any Life Cycle Works that are identified in the Asset Management Strategy as being required in the Review Periods and/or Overhang Periods following the Review Period in which the Life Cycle Report is produced; and/or | CP2 onwards | Partially | 034, 035, 036, 037 | 5.1 | 034, 035, 036, 037 | 5.1 | Changes in definitions of Qx/LTC resulting in the move of activities are not deferrals; duplicated assets, assets owned by 3rd parties and car park assets are not permanent omissions - they were 'errors'. A deferral should refer to a genuine LC activity which was previously planned but will be delayed. Similarly an omission is about genuine LC activity which was previously planned but will not take place. Cost variation due to erroneous definitions/records should be stated as such. Some of these were already and discussed in Ref. 024 (1_Station_LTC_Review_-_7_April_2014) | Revise Section 5.1 | 30-Jun | Covered as part of a revised section 5.1 |

HS1 International Stations - Review of CP2 Proposal

Compliance to Obligations set out in Schedule 10 - Clause 5 and Annex 1

| Clause | Section Title | Detail | Period the clause refers to | Compliant? | EC Harris Review | | HS1 Ltd's Matrix | | Comments | Recommended Action | When | HS1 Ltd Confirmed Actions |
|----------------|--------------------------------|--|-----------------------------|---|-------------------------|---|--------------------|--------------------------|--|---|--------|--|
| | | | | | Doc. ID. | Section / Paragraph | Doc. ID. | Section / Paragraph | | | | |
| 5.2.6 - b | Life Cycle Reports | the distribution of any Deferred Life Cycle Works Saving pursuant to paragraph 7.1; which shall include: | CP2 | Not at all | 034, 035, 036, 037 | 5.1.3 | 034, 035, 036, 037 | 5.2 | Sections 5.2 and 5.3 missing. NB: if lifts are deferral (as 5.1.1.1 or 5.1.1.2) there should be a lifecycle saving | Add missing Section 5.2 | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.6 - c | Life Cycle Reports | in respect of a proposal in relation to a proposed deferral or permanent omission: | CP2 | CP2 Package assessed against clauses 5.2.6 a - e | | | | | | | | |
| 5.2.6 - c (i) | Life Cycle Reports | confirmation by the Tenant that the proposed deferral or permanent omission will not result in the Tenant being unable to comply with its obligation under Clause 4.3.1 and 4.14 or the Life Cycle Purpose to be achieved; and | CP2 | Not at all | 034, 035, 036, 037 | not found | 034, 035, 036, 037 | 5.1.3 | Not stated | A clear statement such as that described by this obligation is required in all LCRs | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.6 - c (ii) | Life Cycle Reports | a report setting out the likely effect on performance arising out of or in connection with the proposed deferral or permanent omission; | CP2 | Not at all | 034, 035, 036, 037 | not found | 034, 035, 036, 037 | n.a. | Not stated | A description is required relating to the effect of the deferrals in 5.1.1.2 | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.6 - d | Life Cycle Reports | the forecast Deferred Life Cycle Works Saving arising from paragraph 5.2.6(a); and/or | CP2 | Not at all | 034, 035, 036, 037 | not found | 034, 035, 036, 037 | 5.2 | Sections 5.2 and 5.3 missing | Add missing Sections 5.2 & 5.3 | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.6 - e | Life Cycle Reports | the forecast reduction in the Long Term Charge, the LTC and the Tenant's Share arising from paragraph 5.2.6(b); | CP2 | Not at all | 034, 035, 036, 037 | not found | 034, 035, 036, 037 | 5.2 | Sections 5.2 and 5.3 missing but included in the analysis within the LTC model | Add missing Sections 5.2 & 5.3 | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.7 | Life Cycle Reports | Distribution of Life Cycle Works Savings the Tenant's proposals for any distribution of any Life Cycle Works Saving pursuant to paragraph 7.2, identifying the amount of the Life Cycle Works Saving, the reduction in the Long Term Charge, the LTC and the Tenant's Share, setting out the reasons why the Tenant considers such distribution should be made and providing all relevant supporting information; | CP2 | Not at all | 034, 035, 036, 038 | not found | 034, 035, 036, 037 | 5.2 | Sections 5.2 and 5.3 missing | Add missing Sections 5.2 & 5.3 | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.8 | Life Cycle Reports | Adjustments to Available Life Cycle Funds details of any Adjustment to the Available Life Cycle Funds made pursuant to paragraph 6.4.4 in the current Review Period (or anticipated to be made prior to the end of the current Review Period) and the arrangements (if any) which the Tenant has implemented and/or proposes to implement in order to mitigate the likelihood that any of the circumstances described in paragraph 5.4.7(a) to (c) will occur ("Adjustment Arrangements"); | CP2 | Not at all | 034, 035, 036, 039 | not found | 034, 035, 036, 037 | 5.3 | Sections 5.2 and 5.3 missing | Add missing Sections 5.2 & 5.3 | 30-Jun | Covered as part of a revised section 5.1 |
| 5.2.9 | Life Cycle Reports | Long Term Charge a description of any arrangements the Tenant has reached with Users pursuant to the terms of the Station Access Agreement to modify the LTC; | CP2 | Partially | 034, 035, 036, 039 | 5.4, 5.2, 5.2, 5.2 | 034, 035, 036, 037 | 5.4.2 and 5.4.3 | In section 5.4 for St P and 5.2 for other stations. Describes what the changes are but makes no statement on arrangements reached with users | A description is required relating to the arrangements reached with users | 30-Jun | Statement included in section 5.2.3 |
| 5.2.10 | Life Cycle Reports | any proposals by the Tenant for a modification to the LTC to recover: | CP2 | CP2 Package assessed against clauses 5.2.10 a - b | | | | | | | | |
| 5.2.10 - a | Life Cycle Reports | any Increased Life Cycle Costs which it has funded in accordance with paragraph 6.4; and/or | CP1 | Partially | 034, 035, 036, 039 | 5.4, 5.2, 5.2, 5.2 | 034, 035, 036, 037 | 5.4.2 and 5.4.3 | 5.4.2.3 for SPI and 5.2.2.4 for three other stations | Would be useful to clearly state whether any Increased Life Cycle Costs (in CP1) has been funded (or not) in accordance with paragraph 6.4 [of Schedule 10]. | 30-Jun | Statement included in section 5.2.2.4 |
| 5.2.10 - b | Life Cycle Reports | any costs which it has suffered or incurred in connection with the Station Operator carrying out Station Safety Works in the current Review Period; | CP1 | Fully | 034, 035, 036, 039 | 5.4, 5.2, 5.2, 5.2 | 034, 035, 036, 037 | 5.4.2 and 5.4.3 | No such costs incurred is clearly stated; in 5.4.2.3 for SPI and 5.2.2.4 for the other three stations | | | |
| 5.2.11 | Life Cycle Reports | any proposal by the Tenant for a modification to the LTC (other than pursuant to a proposal in paragraphs 5.2.6(b), 5.2.7, 5.2.9 or 5.2.10) to take effect from the beginning of the next Review Period; | CP2 | CP2 Package assessed against clauses 5.2.11 a - b | | | | | | | | |
| 5.2.11 - a | Life Cycle Reports | setting out the reasons why the Tenant considers that such modifications should be made and providing all relevant supporting information; and | CP2 | Fully | 034, 035, 036, 039 | 5.4, 5.2, 5.2, 5.2 | 034, 035, 036, 037 | 5.4.2 and 5.4.3 | | Suggest check all cross-references to paragraphs | | |
| 5.2.11 - b | Life Cycle Reports | in the case of a modification resulting from a Relevant Change of Law, confirming that the Tenant has notified each User of the Relevant Change of Law and of its assessment of the amount of the modification, and provided Users with such information as they shall reasonably require, in a form and amount of detail which is sufficient to enable Users to make a proper assessment of the effect of the Relevant Change of Law and of the Tenant's assessment; and | CP2 | Partially | 034, 035, 036, 039 | 5.4, 5.2, 5.2, 5.2 | 034, 035, 036, 037 | 5.4.2 and 5.4.3 | This is 5.2 in stations other than SPI. | It would be useful to have a statement even if it is to state that there are no modifications due to change in law. | 30-Jun | Statement included in section 5.2.2.5 |
| 5.2.12 | Life Cycle Reports | Modifications to the Asset Management Strategy and the Life Cycle Budget the Tenant's proposals for any modifications to the Asset Management Strategy (including the Life Cycle Budget) that are required to reflect its proposals in respect of the matters set out in paragraphs 5.2.1 to 5.2.11 above and/or to ensure that the Asset Management Strategy continues to satisfy the requirements set out in Annex 1 to this schedule; and | CP2 | Fully | 034, 035, 036, 039 | 5.5, 5.3, 5.3, 5.3 | 034, 035, 036, 037 | 5.5 | Other than St P this appears in section 5.3 of the LCRs | | | |
| 5.2.13 | Life Cycle Reports | General such further details in respect of the matters described in paragraphs 5.2.1 to 5.2.11 as may be reasonably required by the Government's Representative. | CP2 | Partially | 034, 035, 036, 039 | 5.6, 5.4, not found, not found | 034, 035, 036, 037 | 5.6 | 5.6 in SPI but 5.4 for Stratford and nothing for Ebbsfleet and Ashford | See all other comment above & below | 30-Jun | Consistent section 5.4 included in all LCRs |
| 4.1 | Asset Management Strategy | The Tenant shall prepare a Asset Management Strategy for each Station which, in each case, complies with the requirements set out in Annex 1 to this schedule | 50 years | Partially | 032 | Entire document | 032 | Whole document | Subject to all other comments above and below | Address recommendations below, as appropriate | | |
| Annex 1 - 1 | Scope | The Strategy shall consider only the renewals and replacement of the Station. Maintenance and repair activities shall be excluded. | 50 years | Fully | 032 | Various: including 1.4, 2.6, etc. | 032 | - | The LCC model includes activities that have been moved to Qx but these do not impact any of the proposed LCC/LTC levels. Qx analysis is undertaken using a different methodology. References appear in the document on Qx and non-Qx but these are for completeness. The main focus of the document is LC activities. | | | |
| Annex 1 - 2 | Station Elements | The Strategy shall identify each of the elements of the Station which will need to be renewed and/or replaced during the Life Cycle Period. Unless the parties agree otherwise the elements of the Station shall comprise: | 50 years | Fully | 032 | 1.5 & Appendix C | 032 | 1.5 & Appendix C | Asset quantities were not validated | | | |
| Annex 1 - 3 | Life Cycle Works | The Strategy shall describe, in reasonable detail: | 50 years | CP2 Package assessed against clauses 3 a - b of Annex 1 | | | | | | | | |
| Annex 1 - 3a | Life Cycle Works | the renewal and/or replacements works which will need to be undertaken in relation to each of the elements of the Station in order for the Tenant to comply with its obligations under clauses 4.3.1 and 4.14 and the Life Cycle Purpose to be achieved; and | 50 years | Partially | 032 | 4.2.3, 4.3.3, 4.4.3 and 4.5.3 and LCC Models | 032 | 3.3.2 | Section 3.3.2 provides as summary of the LCC costs by station and by asset category for the remainder of CP1 and section 3.3.3 for CP2. Sections 4.2.3, 4.3.3, 4.4.3 and 4.5.3 list elements that will receive LCC activities but do not explain what the work activities will be. Some descriptions included in the LCC but these are not sufficient. | Describe LC activities in a bit more detail | 30-Jun | As above |
| Annex 1 - 3b | Life Cycle Works | the anticipated year in the Life Cycle Period when such works should be undertaken in order for the Tenant to comply with its obligations under clauses 4.3.1 and 4.14 and the Life Cycle Purpose to be achieved. | 50 years | Partially | 032 | 4.2.4.1 | 032 | 3.3.2 | Table 14 includes annual CP2 forecast for St P but there is no annual breakdown for the other stations. However this is included in the LCC/LTC models. | Add similar Table for other stations | 30-Jun | Section 4.2.2.1 and reference to LCC models where the detail is shown. |
| Annex 1 - 4 | Performance Monitoring | The Strategy shall identify those elements of the Station for which the Tenant will monitor breakdown frequencies and gather performance data. | 50 years | Partially | 032 | 4.2.2, 4.3.2, 4.4.2, 4.5.2 | 032 | 3.1.3 & Appendices E & H | Section 3.1.3 summarises the Asset Stewardship Approach, Appendix E talks about the asset criticality framework and Appendix H about emergency response. Instead sections 4.2.2, 4.3.2, 4.4.2, 4.5.2 list assets that have their performance monitored but it is not clear if these are all the assets monitored or limited examples. | A full list of Station elements that will be monitored for faults, breakdown or other performance attributes, is required. Also see comments against clause 5.2.1 - f above. | 30-Jun | Section 3.3.1 of LCRs |
| Annex 1 - 5 | Life Cycle Budget: Expenditure | The Strategy shall for each of the works identified in paragraph 3 above, contain: | 50 years | CP2 Package assessed against clauses 5 a - c of Annex 1 | | | | | | | | |
| Annex 1 - 5a | Life Cycle Budget: Expenditure | an estimate of the costs of carrying out such works; | 50 years | Partially | 025, 026, 027, 028, 029 | Not in the AMS but fully covered in the LTC model | 032 | 3.3.2.1 & 3.3.3.1 | Life cycle budget means the amount to fund the Life Cycle Works during the Life Cycle Period. Life Cycle Period means the period of fifty (50) years commencing on 1 April 2011. Sections 3.3.2.1 & 3.3.3.1 of the Asset Management Strategy only cover CP1 and CP2. However, the LCC/LTC models cover the Life Cycle Period. | State the Life Cycle Budget | 30-Jun | Included in section 4.3 |
| Annex 1 - 5b | Life Cycle Budget: Expenditure | a statement of the assumptions, including those in respect of inflation and interest rates, which the Tenant has used in preparing the cost estimates; and | 50 years | Partially | 032 | various | 032 | 4.1.3 | 4.1.3 only covers some of the adopted assumptions; there are various other sections in the AMS covering assumptions, e.g. 2.2.2, 2.3.2, 2.3.5, etc. Also the LCC/LTC models and associated user guide have assumptions listed. | Assumptions should be listed in a single place for ease of reference; this may take the form of adding cross references to the Compliance matrix in Appendix A. A reference must be made to the underlying source of the inflation rate, e.g. has inflation been based on Oxford Economics RPI forecast? or similar source? | 30-Jun | Addressed as per discussion around inflation |

HS1 International Stations - Review of CP2 Proposal

Compliance to Obligations set out in Schedule 10 - Clause 5 and Annex 1

| Clause | Section Title | Detail | Period the clause refers to | Compliant? | EC Harris Review | | HS1 Ltd's Matrix | | Comments | Recommended Action | When | HS1 Ltd Confirmed Actions |
|--|---|---|--|---|---|---|---|---|---|---|--------|---|
| | | | | | Doc. ID. | Section / Paragraph | Doc. ID. | Section / Paragraph | | | | |
| <i>Clauses as they appear in Schedule 10</i> | <i>Titles as they appear in Schedule 10</i> | <i>Clause text as it appears in Schedule 10</i> | <i>Relevant period at the time of the review</i> | <i>Compliance level</i> | <i>Documents for which no section where specific obligations are covered as confirmed by EC Harris review</i> | <i>Documents for which no section where specific obligations are covered as confirmed by EC Harris review</i> | <i>Documents for which no section where specific obligations are covered as stated by HS1 Ltd</i> | <i>Documents for which no section where specific obligations are covered as stated by HS1 Ltd</i> | <i>Reasons for assigned compliance level</i> | <i>Recommendations for achieving full compliance</i> | | |
| Annex 1 - 5c | Life Cycle Budget: Expenditure | an explanation, in reasonable detail, of the principal components of the cost estimates (including any management fees or contingencies) and the factors on which the costs estimates are based. | 50 years | Partially | 032 033 | Appendix J Appendix 1 | 032 | Appendix J | Appendix J of the AMS only lists the on-cost but no explanation is provided. Appendix 1 of the user guide provides a more detailed description of the assumptions relating to on-costs. | Assumptions should be listed in a single place for ease of reference; this may take the form of adding cross references to the Compliance matrix in Appendix A. | 30-Jun | Included in summary slides and separate discussions / documents provided to EC Harris. |
| Annex 1 - 5 | Life Cycle Budget: Revenues | The Strategy shall contain for each Financial Year of the Life Cycle Period an estimate of: | 50 years | CP2 Package assessed against clauses 5 a - c of Annex 1 | | | | | | | | |
| Annex 1 - 5a | Life Cycle Budget: Revenues | the Long Term Charge which will be received by the Tenant in relation to the Station; | 50 years | Partially | 032 029 | 3.3.2.2 & 3.3.3.2 LTC Model | 032 | 3.3.2.2 & 3.3.3.2 | The AMS covers the LTC in CP2, but the LTC model contains the analysis over the Lifecycle Period | Required for each Financial Year of the Life Cycle Period | 30-Jun | The exec summary sets the LTC. The point of the LTC is that it is set to be the same for the remainder of the period. |
| Annex 1 - 5b | Life Cycle Budget: Revenues | any income which will be received by the Tenant pursuant to the escrow arrangements in relation to the Station; and | 50 years | Partially | 032 029 | Section 4, 3.3.2.3 & 3.3.3.3 LTC Model | 032 | 3.3.2.3 & 3.3.3.3 | Limited to CP1 and CP2 | Required for all period beyond CP2 | 30-Jun | Reference to LTC model included within section 4.3 |
| Annex 1 - 5c | Life Cycle Budget: Revenues | a statement of the assumptions, including those in respect of inflation and interest rates, which the Tenant has used in preparing the estimates of the Long Term Charge and investment income. | 50 years | Partially | 032 033 | various User guide | 032 | Appendix J | Appendix J only lists the on-costs but does not provide any assumptions there are various other sections in the AMS covering assumptions, e.g. 2.2.2, 2.3.2, 2.3.5, etc. Also the LCC/LTC models and associated user guide have assumptions listed. | Assumptions should be listed in a single place for ease of reference; this may take the form of adding cross references to the Compliance matrix in Appendix A. A reference must be made to the underlying source of the inflation rate, e.g. has inflation been based on Oxford Economics RPI forecast? or similar source? | 30-Jun | As above - set out in summary slides etc |
| Annex 1 - 5 | Life Cycle Budget: Cashflow | The Strategy shall include an analysis of the forecast cashflows of the revenues and expenditures described above and identify any potential shortfalls between forecast revenues and forecast expenditure. | 50 years | Partially | 029 | LTC Model | 032 | 3.3.2.3 & 3.3.3.3 | Fully covered in the LTC model but no statement made in the AMS, this statement | Statement required in the AMS to cover the entire evaluation period (45 years) | 30-Jun | Provided reference to the LTC model |
| Annex 1 - 6 | Financial Model | The Strategy shall include a financial model and supporting explanatory documentation which enables the parties to determine in relation to the Station: | 50 years | Fully | 029 | LTC Model | 029 | Financial Model | | | | |
| Annex 1 - 6a | Financial Model | the Available Life Cycle Funds in a Financial Year; | 50 years | Fully | 029 | LTC Model | 032 | 3.3.2.3 & 3.3.3.3 | | | | |
| Annex 1 - 6b | Financial Model | the financial effect of any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station; | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | Section 4.1.5 states the intention to enhance the models as part implementing a new asset management information system. | It is considered that this type of analysis can still be undertaken by changing the relevant parameters and 're-running' the current model(s). A brief description of the 'manual' process that can be employed would cover this obligation. | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 6c | Financial Model | the financial effect any new renewals and/or replacements at the Station not previously included in the Asset Management Strategy; | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 6d | Financial Model | the extent of any savings arising where the actual costs of undertaking certain renewals and/or replacements at the Station is less than the estimated cost of such renewals and replacement; and | 50 years | Not at all | 029 | LTC Model | 032 | 2.6.1.2 | See comment against Annex 1 - 6b above. Section 2.6.1.2 talks about the change in the apportionment of LTC and Qx. | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 6e | Financial Model | the financial effect of applying any savings to fund the costs of any renewals and/or replacements at the Station which are in excess of the cost estimate for such works. | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 7 | Long Term Charge | The Strategy shall include a financial model and supporting explanatory documentation which enables the parties to: | 50 years | Fully | 029 | LTC Model | 029 | Financial Model | | | | |
| Annex 1 - 7a | Long Term Charge | determine the level of the LTC for the Station which is necessary to fund the proposed station renewals and replacements at that Station; | 50 years | Fully | 029 | LTC Model | 029 | Financial Model | | | | |
| Annex 1 - 7b | Long Term Charge | determine the level of any changes to the LTC for a Station to reflect: | 50 years | Not at all | 029 | LTC Model | 032 | 3.3.2.3 & 3.3.3.3 and station specific | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 7bi | Long Term Charge | any changes in the estimated costs of the proposed renewals and/or replacements at the Station; | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 7bii | Long Term Charge | any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station; | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 7biii | Long Term Charge | any new renewals and/or replacements at the Station; not previously included in the Asset Management Strategy; | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |
| Annex 1 - 7biv | Long Term Charge | the application of any costs savings or changes in the expected levels of Income. | 50 years | Not at all | 029 | LTC Model | 032 | 4.1.5 | See comment against Annex 1 - 6b above | See recommendation against Annex 1 - 6b above | Apr-15 | As above, capability will be developed for CP2 as detailed in separate notes / discussions. |

| | |
|--------------|-----------|
| Fully | 15 |
| Partially | 29 |
| Not at all | 16 |
| Total | 60 |

Check -

Appendix C – Comments & Recommendations

HS1 International Stations - Review of CP2 Proposal

Comments and Recommendations

| Doc. ID. | Section (§) / Paragraph (§) | Comment No. | Observations and Comments | Recommendations |
|------------------------------------|---|-------------|--|--|
| <i>See list in 'Documents tab'</i> | | | | |
| 029 | §1.3, ¶ 3 LCC Models, Parameters tab LTC Model, Assumptions tab | 1 | The switching system is now considered obsolete as it is envisaged that the models remain in Asset Stewardship state. May lead to incorrect results in the LTC model if all the LCC models are not all switched to the same 'mode' either Asset Stewardship or Baseline. | Remove switching capability. |
| 024, 029 | §5, p 57 LTC Model, Assumptions tab | 2 | Impact of efficiency overlay can be challenged (e.g. technology breakthrough is expected to reach a limit during the length of the concession hence limited efficiency during this period) | Agree with DfT to revise efficiency overlay during the length of the concession |
| 025, 026, 027, 028 030 | §2.1, ¶ 4 | 3 | The number of items for St Pancras (largest station) and Ashford (oldest station) are lower (692 and 658 respectively) than for the newest stations Stratford and Ebbsfleet (774 and 751 respectively) | Check/confirm the number of items are correct for the 4 stations |
| 029 | LCC Input tabs | 4 | Historic records of what Halcrow had used for uplift (i.e. BMIC) not relevant for current models/calculations | Group the historical calculations so they only appear on a need-to-know basis |
| 025, 026, 027, 028 | Report tab | 5 | Smoothed LCC does not provide an accurate picture of the spend profile as it is unrealistic to expect high spend increase for particular years (e.g. year 37 for SPI) vs. and no spend for certain years (e.g. years 34 & 35 for SPI) | Reconsider the approach for smoothed LCC results |
| 029 030 | LCC Inputs tabs §2.1, ¶ 7 | 6 | Where is the statement behind the use of the RPI index? LCC model, notes tab states use of BCIS BMI All in maintenance cost index. | Clearly state assumption(s) |
| 029 | Assumptions tab Index tab LTC Calculations tab | 7 | What is the rationale for a 2.75% flat inflation throughout the concession period? | Please state the underlying official body source |
| 029 | LTC Calculations tab (cell E5) | 8 | Switching between F&G calculations and CP2 calculations is not relevant anymore as CP2 budget as been agreed | Consider removing the switching capability in the future, i.e. work with 'clean' model versions |
| 025, 026, 027, 028 | Elemental Inputs tab | 9 | A significant number of items were moved from L to Q category (compared with previous review) | DfT and/or HS1 Ltd to note |
| 024, 029 | §7, p 84 Assumptions tab | 10 | Interest earned on 50% of net movement invested' is not taken into account in the LTC model | Check if statement still right and if yes, include in LTC model |
| 024, 025, 026, 027, 028, 029 | §7, p 84 Assumptions tab LTC Calculations tab | 11 | Length of analysis period, i.e. 45 years, currently would reduce by 5 years in CP3 based on Schedule 10 requirements. | Consider adopting a rolling analysis period of 40 years for future evaluations. |
| 024 | §7, p 87, 89, 90, 91 & 92 | 12 | Two graphs may not be necessary as they describe the same scenario (i.e. CPA actual to CP2 asset stewardship) | Delete graph without CP2 baseline. Add key: Blue=LTC value, Red=Positive change in LTC value, Green=Negative change in LTC value |
| 024 | §7, p 96 | 13 | The escrow accounts are in deficit toward the end of the analysis period | DfT and/or HS1 Ltd to note |
| 029 | Assumptions tab | 14 | In the CP1 LTC Model, retailers made a contribution to the LTC (c. 11% for SPI). This has been removed for the CP2 model - why is this? | Please explain |
| 034, 035, 036, 037 | §4, p22/23 | 15 | Cost of capital and cost of equity are not used in the right context | Cost of debt, applies to projects where not enough money is available in ESCROW to fund the works, based on the HS1 Limited's current cost of capital. |
| 025, 026, 027, 028 | Elemental Inputs tab | 16 | Same BCIS element can have different rates (e.g. "2HR1.01 Fire Resistant Doors Ironmongery" @ SPI has 4 different rates £600, £900, £7,200 and £100 - rows 17, 18, 19 and 20) | Clarify rates used and add further description for activities undertaken |

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Comments and Recommendations

| Doc. ID. | Section (=§) / Paragraph (= ¶) | Comment No. | Observations and Comments | Recommendations |
|------------------------------------|----------------------------------|-------------|---|---|
| <i>See list in 'Documents tab'</i> | | | | |
| 025, 026, 027, 028 | Elemental Inputs tab | 17 | Some BCIS element can be replaced & repaired the same year (e.g. "Canopy to platform" @ Ashford is replaced & repaint the same years - row 106 & 108) | Explain replaced vs. repaired BCIS elements with the same time to intervention |
| 025, 026, 027, 028 | Elemental Inputs tab | 18 | Some BCIS elements deleted ("D" category) in 6th January model and subsequently added back to "L" category in 7th April model increased "L" costs (e.g. c. £6m of "D" to "L" items @ SPI) | DfT and/or HS1 Ltd to note |
| 029 | LTC Allocation to TOCs tab | 19 | Difficult to verify annuity allocation to TOCs based on footprint | DfT and/or HS1 Ltd to note |
| 025, 026, 027, 028 | Elemental Analysis tab | 20 | Hardwiring of threshold values | The threshold values for a number of on-costs (e.g. Safety / HSE, Procurement Management) are hardwired into the cells. Suggest put these into assumptions tab as inputs that can be amended |
| 025, 026, 027, 028 | Elemental Analysis tab | 21 | Management fee threshold formula | The LCC & LTC assumptions documents states that the HS1 Management Fee threshold is £500k. However, the formula has not been updated and shows differing rates for <£20k, <£500k and >£500k. The output is correct but the formula could remove the £20k rate for clarity |
| 025, 026, 027, 028 | Elemental Analysis tab | 22 | Design Fees | The LCC & LTC assumptions state that design fees are 10% on M&E and 5% on everything else. However, the model applies 10% to M&E and 5% to Roof and External Walls only. Which one is correct? Should the general design fees also be price dependent? i.e. for jobs under a certain threshold, unlikely that design work would be required |
| 025, 026, 027, 028 | Elemental Analysis tab | 23 | Access costs | Should be pointed out on assumptions tab that this applies to Roof & External Walls and that a minimum of £500 applies (as defined in the formula) |
| 025, 026, 027, 028 | Elemental Analysis tab | 24 | There is no satisfactory variance approach to meet Schedule 10 obligation to allow for modelling of acceleration / deferrals / omissions. For instance, if a specific renewal was delayed by a year due to good management, but the general forecast of that life was not amended, then the LCC or LTC model could not accommodate this | For the CP2 submission the process for 'manually' calculating the variance should be described in the LCRs. However, the LCC/LTC models should be revised in the future so as to undertake modelling of acceleration / deferrals / omissions in a more automated fashion. |
| 029 | LTC calculations tabs | 25 | Escrow balance actual vs. forecast | Consider replacing the forecast escrow opening balance by the actual escrow balance as of March 2014 to calculate the annuity |
| 032 034, 035, 036, 037 | Figure A | 26 | To meet obligations the AMS must cover the Life Cycle Period and Overhang Period (45/50 years, or such like as agreed between DfT and HS1 Ltd) | Delete '5 year' from the blue box in the figure. |
| 032 031 | General | 27 | The intention to move from time-based to condition and risk based approaches is welcomed and it is appreciated that this will evolve over time. This is a key principle and one that should be stated in the Asset Management Policy. | Consider revising the Asset Management Policy to reflect the intention to move towards risk based asset management practices |
| 032 | §1.1, 1st bullet point, 4th line | 28 |management obligations over the 50 year concession, including... | Is the intention to state a '30 year concession' or a '45/50 year evaluation period' (i.e. covering the Life Cycle Period and the Overhang period)? Suggest revise, as appropriate. |
| 031 032, | Fig 1 Fig 1 & Fig 2 | 29 | There are three different diagrams potentially depicting the asset management framework, two in the AMS and one in the policy | For consistency suggest use only one diagram for the Asset Management Framework throughout the documentation. |

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Comments and Recommendations

| Doc. ID. | Section (=§) / Paragraph (= ¶) | Comment No. | Observations and Comments | Recommendations |
|------------------------------------|---|-------------|--|--|
| <i>See list in 'Documents tab'</i> | | | | |
| 031 032 | § 4.1- 4.4 § 1.3.2, 1.3.3, 5, Appendix D, G & F | 30 | Is the hierarchy of asset management principles, objectives, targets, etc. correct? The asset policy is normally derived from the business plan and contains the key asset management principles the organisation intends to adopt. The asset management objectives are then derived from the policy taking the key principles into account. Targets can then be developed/assigned against each objective to ensure the policy/strategy are delivered and can be regularly monitored. This does not appear to be the adopted sequence presented in the AMS, i.e. Table 1 lists asset management objectives/targets which is then followed by the principles in section 1.3.3. In this section it is stated that the policy supports the asset management objectives, but actually it is the objectives that should support the delivery of the policy. How do the delivery considerations in section 5 map to the asset management objectives? | Review, and amend (as appropriate) the hierarchy of asset management principles, objectives, targets, etc. Any changes should be reflected in the supporting Appendices, i.e. G and F in particular. |
| 032 | Figure 3, §2.2.1, §2.2.2, §2.2.3 | 31 | The sections that follow Figure 3 do not appear to fully describe the steps and sub-steps in the diagram, especially §2.2.2, §2.2.3 | Consider expanding §2.2.2, §2.2.3 |
| 032 034, 035, 036, 037 | Figure 3 Figure 4 | 32 | Given the text that follows the asset management methodology diagram (especially in the LCRs) it is suggested that some of the terms in the diagram could be revised to better reflect the description provided as follows: - change 'Input-output relationship' to 'Decision-making' - change 'Developing our understanding of Input-Output relationships' to 'Understanding asset behaviour' | Revise text in diagram as appropriate |
| 032 | §2.3.1., 6th line §3.1.4, 5th bullet point, 1st line | 33 | The term 'integrated asset management system' is used to mean 'asset information system'. ISO55000 series uses the terms asset management system and asset information system. The asset management system is a set of tools, including policies, plans, business processes and information systems, which are integrated to give assurance that the asset management activities will be delivered. Asset information systems are a component of the asset management system and contain data and information about the asset base. | Suggest use the two different terms 'asset management system' or 'asset information system' to distinguish between the two, as appropriate where these appear in the document. |
| 032 | §2.4 | 34 | The summary of activities for Ashford is better articulated as compared to the other stations in that it states the element where works were undertaken and briefly describes the work activity. For the other stations the elements are listed where work has been undertaken but there is limited description of the work activities. | Revise §2.4.1, §2.4.2, §2.4.3 such that they briefly describe both the element where works were undertaken and the work activity. |
| 032 | Table 8 | 35 | Unclear how the expenditure to the end of CP1 was derived | Add text to explain how the expenditure to the end of CP1 was derived |
| 032 | Table 10 | 36 | The escrow accounts balance is now known for 13/14. | Consider recalculating available funds using the now known balance for 2013/14. Revise Table 10, as appropriate. |
| 032 | Table 11 | 37 | The total LCC values contained in Table 11 do not match with the calculated values in the LCC models, e.g. total LCC for St P circa £10m not £6.6 as shown in Table 11. | Amend Table 11 to show the correct values |

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Comments and Recommendations

| Doc. ID. | Section (=§) / Paragraph (= ¶) | Comment No. | Observations and Comments | Recommendations |
|------------------------------------|--|-------------|---|---|
| <i>See list in 'Documents tab'</i> | | | | |
| 032 | § 3.3.3.2 | 38 | It does not state that the values listed in Table 12 are in nominal terms | For clarity state that the values listed in Table 12 are in nominal terms |
| 032 034, 035, 036, 037 | § 4.1.2, 1st bullet point § 4.2.1, 1st bullet point | 39 | It is unclear if environment and energy initiatives, including work activities such as lamp exchange from conventional to LED, upgrade air conditioning units to direct drive, and re-engineering of existing main air conditioning units to incorporate recirculation facility, are reflected in the LCC analysis. | Explain if/how environment and energy initiatives are reflected in the LCC analysis. |
| 032 | § 4.1.2, 2nd bullet point, 2nd line | 40 | As comment no. 33 | Replace 'Asset Management System' with 'Asset Information System' |
| 032 | § 4.1.5, ¶ 3, 1st line | 41 | As comment no. 33 | Replace 'asset management system' with 'asset information system' |
| 032 | § 4.2.2, title | 42 | This section does not include 'performance targets' | Revise title/section to include/exclude 'performance targets' as appropriate. |
| 032 | § 4.2.2 | 43 | Annex 1 requires identifying elements of the Station for which HS1 Ltd will monitor breakdown frequencies and gather performance data. | A full list of Station elements that will be monitored for faults, breakdown or other performance attributes, is required. |
| 032 | § 4.2.3 § 4.3.3 § 4.4.3 § 4.5.3 | 44 | The LCC activities are not stated | State what the LCC activities are |
| 032 | § 4.2.4.1 & Table 14 | 45 | The stated forecast budget for CP2 does not match the value(s) in the LCC model(s), e.g. total of £6.645m is stated for St P in the AMS but it is circa £10m in the LCC model | Use correct value(s) |
| 032 | Appendix F, p.51, 1st row Appendix G, p.53, 1st row | 46 | As comment no. 33 | Replace 'Asset Management System' with 'Asset Information System' |
| 034, 035, 036 | Table 7 Appendix E | 47 | Breakdown of actuals during 2010/11 missing, i.e. only total provided | Provide break down of actual expenditure for 2010/11 as with the other two years or state why this is different. Add actuals for 13/14. |
| 035 | Table 7 | 48 | Table missing | Add table 7 |
| 034, 036 | Table 7 & Table 8 | 49 | Actual stated for 2010/11 in the two tables is not the same | Revise or state why this is |
| 034, 035, 036, 037 | § 4.2.3 | 50 | What is the impact of change in demand, e.g. increase in footfall, beyond CP2? Also the reduced use of Ashford has not been reflected in the LCC model. | Add statements to this effect |

Appendix D – Minor Observations & Suggested Amendments

HS1 International Stations - Review of CP2 Proposal

Minor Observations

| Doc. ID. | Section (=§) / Paragraph (= ¶) | Comment No. | Minor Observations | Suggested Amendments |
|------------------------------------|--|-------------|---|--|
| <i>See list in 'Documents tab'</i> | | | | |
| 029 030 | LTC Index tab § 2.2, Figure 2 | MOb1 | The 'Index' tab includes interest rate, cost of debt and efficiency overlay | Consider changing name to 'Financial Rates' |
| 030 | § 2.2, Figure 2 | MOb2 | Colour key missing | Add colour key: Blue=Inputs, Red=Processing, Green=Outputs |
| 030 | § 1.3, ¶ 5 | MOb3 | Typo | As with the Route model, HS1 Ltd first developed a Baseline set of costs associated with the initial investment programme, then developed a set of Asset Stewardship initiatives which allow for stretching of the intervention frequency, and therefore a reduction in costs compared to the Baseline. |
| 030 | § 2.1, ¶ 3 | MOb4 | Missing tables 2-1 and 2-2 to define 5 (not 7) elements descriptors | Add table with 5 elements descriptors (Superstructure, Internal Finishes, FF&E, Services, External Works). Change "elements descriptors" to other name (e.g. BCIS element level 1) |
| 030 | § 2.3, ¶ 4 | MOb5 | Typo | Select '2: Baseline' from the dropdown menu in cell C9 of sheet Parameters in each of the four LCC Models |
| 030 | § 3.1.3, ¶ 2 | MOb6 | Typo | St Pancras 692 ; Stratford 774 ; Ebbsfleet 751 ; Ashford 658) |
| 030 | § 3.1.3, ¶ 2 | MOb7 | Typo | Remove (col B,G,H,I) |
| 030 | § 3.1.3, ¶ 2 | MOb8 | Typo | [a concatenation is required to provide a unique identifier] |
| 030 | § 3.1.3, Table 1 | MOb9 | Typo | State accurate columns reference in Table 1 |
| 030 | § 3.2.1, ¶ 1 | MOb10 | Typo | St Pancras 692 ; Stratford 774 ; Ebbsfleet 751 ; Ashford 658) |
| 030 | § 3.2.1, ¶ 1 | MOb11 | Typo | Remove (col B,G,H,I) |
| 030 | § 3.2.1, ¶ 1 | MOb12 | Typo | [a concatenation is required to provide a unique identifier] |
| 030 | § 4.1.4, ¶ 1 | MOb13 | Typo | been changed in the subsequent development of the models.. |
| 024 | § 7, p 94, ¶ 1 | MOb14 | our current view is that it would a be an increase of less than c£2m pa average increase in Qx over the remaining 45 years | Remove "a" |
| 034 | § 2, p 10 | MOb15 | Typo | Rename Table 2 from Ashford to SPI |
| 035 | § 2, p 9 | MOb16 | Typo | Rename Table 2 from Ashford to Stratford |
| 025, 026, 027, 028 | Elemental Inputs tab | MOb17 | Units | Some elements have no unit |
| 025, 026, 027, 028 | Elemental Analysis tab | MOb18 | Base Element Costs | Could state what these include; i.e. labour & materials? |
| 032 | § 1.3.4, second bullet point, last sentence | MOb19 | The last sentence in the 'Service' bullet point [Develop whole life models..... reliability and performance] is repeated | Delete repeated sentence |
| 032 | § 1.5.4, second bullet point, 6th line § 2.1.1, second bullet point, 6th line | MOb20 | Typo | ... and maintain these assets . Also....' |
| 034 | | | | |
| 032 | § 2.3, last paragraph, 2nd line | MOb21 | Missing word | ... management objectives, the paragraphs below.... |
| 032 | § 2.6.1.3, 4th line | MOb22 | Typo | ...to different stations . As such... |
| 032 | § 3.2, ¶ 1, 3rd line | MOb23 | Typo | delete 'in' ; '...will remain key drivers of our approach in going forward.' |
| 032 | § 3.3.1, 2nd bullet point, 2nd line | MOb24 | Typo | Add 'we'; ' We will continue....' |
| 032 | § 4.1.5, ¶ 5, 2nd line | MOb25 | Formatting | Cis should read CIS |
| 032 | § 4.1.5, ¶ 5, 4th line | MOb26 | Typo | Delete 'A' in ['A similar argument ...] |
| 032 | Appendix I | MOb27 | Acronyms SFO and NRIL appear in the document but not listed | Could add SFO and NRIL |
| 032 | Appendix J | MOb28 | Only 6 of the on-costs have a non-zero value | To note |

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Minor Observations

| Doc. ID. | Section (=§) / Paragraph (= ¶) | Comment No. | Minor Observations | Suggested Amendments |
|------------------------------------|-----------------------------------|-------------|--|---|
| <i>See list in 'Documents tab'</i> | | | | |
| 032 034, 035, 036, 037 | Fig 1 | MOB29 | The AMS uses 'hierarchy of objectives' in the caption while the LCRs use 'hierarchy of documents' | Suggest revise caption, as appropriate |
| 034, 035 | Table 2 | MOB30 | The caption for Table 2 (in St P, Stratford LCR) refers to 'Ashford' | Revise caption |
| 036 | Table 2 | MOB31 | The caption for Table 2 is missing | Add caption |
| 034, 035, 036 | § 2.4.2.2, page 12/13 | MOB32 | Title appears twice | Delete |
| 034 | | MOB33 | Typo | Change to '...develop a more robust set of proposals.' |
| 034, 035, 36, 037 | § 2.5.1, 6th and 7th bullet point | MOB34 | Asset performance/condition should cover historical, current and predicted | add 'current' |
| 034, 035 | Table 14 | MOB35 | Status column reads 'Met'; may be changed to 'Exceeded' | Revise as appropriate |
| 036 | Table 14 | MOB36 | Status column reads 'Met'; but values below target - change to 'Not met' or are the scores incorrect? | Revise as appropriate |
| 034, 035, 036, 037 | § 4.2.1 | MOB37 | This section title is 'Forecast Life Cycle Works for CP2' however not all activities listed their in are Life Cycle Works, e.g. asset information and condition, contracting, etc. | Revise as appropriate |
| 035, 036 | § 5.2.2.1, 3rd line | MOB38 | Mentions St P in Stratford and Ebbsfleet LCRs | Revise as appropriate |
| 034, 035, 036, 037 | Appendix A | MOB39 | Corrected cross references provided in the EC Harris compliance matrix | Revise as appropriate |
| 034, 035, 036, 037 | Appendix A | MOB40 | Typo | Delete 'd' in 'Wholed document' |

Appendix E – Compliance Evolution

HS1 International Stations - Review of CP2 Proposal

Compliance to Obligations set out in Schedule 10 - Clause 5 and Annex 1

| Clause | Section Title | Detail | Period the clause refers to | Jun-12 | Aug-12 | Nov-13 | Jun-14 |
|--|--|---|--|-------------------|-------------------------|---------------------------|-------------------|
| <i>Clauses as they appear in Schedule 10</i> | <i>Titles as they appear in Schedule 10</i> | <i>Clause text as it appears in Schedule 10</i> | <i>Relevant period at the time of the review</i> | <i>AMS Review</i> | <i>AMS Verification</i> | <i>Interim CP2 Review</i> | <i>CP2 Review</i> |
| 5.1 | Life Cycle Reports | The Tenant shall submit a Life Cycle Report to the Government's Representative for each Station no later than nine (9) months prior to the end of each Review Period . | CP2 | | | Partially | Partially |
| 5.2.1 - a | Life Cycle Reports: Works undertaken and costs incurred | the Life Cycle Works carried out by the Tenant (or that it is anticipated will have been carried out by the end of the current Review Period); | CP1 | | | Partially | Partially |
| 5.2.1 - b | Life Cycle Reports: Works undertaken and costs incurred | the Available Life Cycle Funds at the end of each Financial Year (or the anticipated Available Life Cycle Funds by the end of the last Financial Year in the current Review Period); | CP1 | | | Partially | Partially |
| 5.2.1 - c | Life Cycle Reports: Works undertaken and costs incurred | the Life Cycle Works Cost (or anticipated Life Cycle Works Cost by the end of the current Review Period); | CP1 | | | Fully | Fully |
| 5.2.1 - d | Life Cycle Reports: Works undertaken and costs incurred | the Deferred Life Cycle Works Savings (if any) approved in previous Life Cycle Reports ; | Period before CP1 (not valid) | | | Not at all | Fully |
| 5.2.1 - e | Life Cycle Reports: Works undertaken and costs incurred | the Life Cycle Works Savings (if any) brought forward from previous Review Periods ; | Period before CP1 (not valid) | | | Partially | Fully |
| 5.2.1 - f | Life Cycle Reports: Works undertaken and costs incurred | the effect of any Relevant Changes of Law that have occurred during the Review Period ; | CP1 | | | Partially | Fully |
| 5.2.1 - g | Life Cycle Reports: Works undertaken and costs incurred | an analysis of breakdown frequencies and the performance of the Elements of the Station which were identified in the Asset Management Strategy as being monitored by the Tenant; | CP1 | | | Fully | Partially |
| 5.2.1 - h | Life Cycle Reports: Works undertaken and costs incurred | the renewals and replacements (if any) undertaken by the Station Operator in order that it discharged its Safety Obligations in respect of the Station but which were not identified in the current Life Cycle Report (" Station Safety Works "); | CP1 | | | Not at all | Fully |
| 5.2.2 - a | Life Cycle Reports: Works undertaken and costs incurred | the Life Cycle Works actually completed to date against those anticipated giving the reasons for any differences; | CP1 | | | Partially | Partially |
| 5.2.2 - b | Life Cycle Reports: Works undertaken and costs incurred | the Life Cycle Works Cost incurred to date against those anticipated giving the reasons for any differences; | CP1 | | | Partially | Partially |
| 5.2.2 - c | Life Cycle Reports: Works undertaken and costs incurred | the Life Cycle Works Savings achieved to date against those anticipated; | CP1 | | | Fully | Partially |
| 5.2.4 - a | Life Cycle Reports: Forecast Life Cycle Works | the Tenant's detailed proposals for the carrying out of the Forecast Life Cycle Works including any notices consents and approvals required in order to carry out and complete them; | CP2 | | | Partially | Partially |
| 5.2.4 - b | Life Cycle Reports: Forecast Life Cycle Works | the Forecast Life Cycle Works Cost; | CP2 | | | Partially | Partially |
| 5.2.4 - c | Life Cycle Reports: Forecast Life Cycle Works | the effect of any Relevant Changes of Law that will occur during the Review Period ; | CP2 | | | Partially | Fully |
| 5.2.4 - d | Life Cycle Reports: Forecast Life Cycle Works | the forecast amount of Available Life Cycle Funds at the end of each Financial Year; | CP2 | | | Partially | Partially |
| 5.2.5 - a | Life Cycle Reports: Forecast Life Cycle Works | the Forecast Life Cycle Works to be undertaken in each subsequent Review Period and Overhang Period in respect of each Element of the Station; | CP3 onwards including 20 years after the end of the concession | | | Not at all | Partially |
| 5.2.5 - b | Life Cycle Reports: Forecast Life Cycle Works | the Forecast Life Cycle Works Cost in each subsequent Review Period and Overhang Period in respect of each Element of the Station; and | CP3 onwards including 20 years after the end of the concession | | | Not at all | Partially |
| 5.2.5 - c | Life Cycle Reports: Forecast Life Cycle Works | a forecast of the amount of Available Life Cycle Funds for each subsequent Review Period and Overhang Period ; | CP3 onwards including 20 years after the end of the concession | | | Not at all | Partially |
| 5.2.6 - a | Life Cycle Reports: Deferrals | the deferral to any later Review Period or Overhang Period or the permanent omission of any Life Cycle Works that are identified in the Asset Management Strategy as being required in the Review Periods and/or Overhang Periods following the Review Period in which the Life Cycle Report is produced; and/or | CP2 onwards | | | Not at all | Partially |
| 5.2.6 - b | Life Cycle Reports: Deferrals | the distribution of any Deferred Life Cycle Works Saving pursuant to paragraph 7.1; which shall include: | CP2 | | | Not at all | Not at all |
| 5.2.6 - c (i) | Life Cycle Reports: Deferrals | confirmation by the Tenant that the proposed deferral or permanent omission will not result in the Tenant being unable to comply with its obligation under Clause 4.3.1 and 4.14 or the Life Cycle Purpose to be achieved; and | CP2 | | | Not at all | Not at all |
| 5.2.6 - c (ii) | Life Cycle Reports: Deferrals | a report setting out the likely effect on performance arising out of or in connection with the proposed deferral or permanent omission; | CP2 | | | Not at all | Not at all |
| 5.2.6 - d | Life Cycle Reports: Deferrals | the forecast Deferred Life Cycle Works Saving arising from paragraph 5.2.6(a); and/or | CP2 | | | Not at all | Not at all |
| 5.2.6 - e | Life Cycle Reports: Deferrals | the forecast reduction in the Long Term Charge, the LTC and the Tenant's Share arising from paragraph 5.2.6(b); | CP2 | | | Partially | Not at all |
| 5.2.7 | Life Cycle Reports: Distribution of Life Cycle Works Savings | Distribution of Life Cycle Works Savings the Tenant's proposals for any distribution of any Life Cycle Works Saving pursuant to paragraph 7.2, identifying the amount of the Life Cycle Works Saving, the reduction in the Long Term Charge, the LTC and the Tenant's Share, setting out the reasons why the Tenant considers such distribution should be made and providing all relevant supporting information; | CP2 | | | Partially | Not at all |
| 5.2.8 | Life Cycle Reports: Adjustments to Available Life Cycle Funds | Adjustments to Available Life Cycle Funds details of any Adjustment to the Available Life Cycle Funds made pursuant to paragraph 6.4.4 in the current Review Period (or anticipated to be made prior to the end of the current Review Period) and the arrangements (if any) which the Tenant has implemented and/or proposes to implement in order to mitigate the likelihood that any of the circumstances described in paragraph 5.4.7(a) to (c) will occur (" Adjustment Arrangements "); | CP2 | | | Partially | Not at all |
| 5.2.9 | Life Cycle Reports: Long Term Charge | Long Term Charge a description of any arrangements the Tenant has reached with Users pursuant to the terms of the Station Access Agreement to modify the LTC; | CP2 | | | Partially | Partially |
| 5.2.10 - a | Life Cycle Reports: Long Term Charge | any increased Life Cycle Costs which it has funded in accordance with paragraph 6.4; and/or | CP1 | | | Partially | Partially |
| 5.2.10 - b | Life Cycle Reports: Long Term Charge | any costs which it has suffered or incurred in connection with the Station Operator carrying out Station Safety Works in the current Review Period ; | CP1 | | | Partially | Fully |
| 5.2.11 - a | Life Cycle Reports: Long Term Charge | setting out the reasons why the Tenant considers that such modifications should be made and providing all relevant supporting information; and | CP2 | | | Partially | Fully |
| 5.2.11 - b | Life Cycle Reports: Long Term Charge | in the case of a modification resulting from a Relevant Change of Law, confirming that the Tenant has notified each User of the Relevant Change of Law and of its assessment of the amount of the modification, and provided Users with such information as they shall reasonably require, in a form and amount of detail which is sufficient to enable Users to make a proper assessment of the effect of the Relevant Change of Law and of the Tenant's assessment; and | CP2 | | | Partially | Partially |
| 5.2.12 | Life Cycle Reports: Modifications to the Asset Management Strategy and the Life Cycle Budget | Modifications to the Asset Management Strategy and the Life Cycle Budget the Tenant's proposals for any modifications to the Asset Management Strategy (including the Life Cycle Budget) that are required to reflect its proposals in respect of the matters set out in paragraphs 5.2.1 to 5.2.11 above and/or to ensure that the Asset Management Strategy continues to satisfy the requirements set out in Annex 1 to this schedule; and | CP2 | | | Partially | Fully |
| 5.2.13 | Life Cycle Reports: General | General such further details in respect of the matters described in paragraphs 5.2.1 to 5.2.11 as may be reasonably required by the Government's Representative. | CP2 | | | Partially | Partially |
| 4.1 | Asset Management Strategy | The Tenant shall prepare a Asset Management Strategy for each Station which, in each case, complies with the requirements set out in Annex 1 to this schedule | 50 years | Partially | Fully | Partially | Partially |
| Annex 1 - 1 | Scope | The Strategy shall consider only the renewals and replacement of the Station. Maintenance and repair activities shall be excluded. | 50 years | Partially | Fully | Partially | Fully |
| Annex 1 - 2 | Station Elements | The Strategy shall identify each of the elements of the Station which will need to be renewed and/or replaced during the Life Cycle Period . Unless the parties agree otherwise the elements of the Station shall comprise: | 50 years | Fully | Fully | Partially | Fully |
| Annex 1 - 3a | Life Cycle Works | the renewal and/or replacements works which will need to be undertaken in relation to each of the elements of the Station in order for the Tenant to comply with its obligations under clauses 4.3.1 and 4.14 and the Life Cycle Purpose to be achieved; and | 50 years | Partially | Fully | Partially | Partially |
| Annex 1 - 3b | Life Cycle Works | the anticipated year in the Life Cycle Period when such works should be undertaken in order for the Tenant to comply with its obligations under clauses 4.3.1 and 4.14 and the Life Cycle Purpose to be achieved. | 50 years | Partially | Partially | Partially | Partially |

HS1 International Stations - Review of CP2 Proposal

Compliance to Obligations set out in Schedule 10 - Clause 5 and Annex 1

| Clause | Section Title | Detail | Period the clause refers to | Jun-12 | Aug-12 | Nov-13 | Jun-14 |
|--|---|---|--|-------------------|-------------------------|---------------------------|-------------------|
| <i>Clauses as they appear in Schedule 10</i> | <i>Titles as they appear in Schedule 10</i> | <i>Clause text as it appears in Schedule 10</i> | <i>Relevant period at the time of the review</i> | <i>AMS Review</i> | <i>AMS Verification</i> | <i>Interim CP2 Review</i> | <i>CP2 Review</i> |
| Annex 1 - 4 | Performance Monitoring | The Strategy shall identify those elements of the Station for which the Tenant will monitor breakdown frequencies and gather performance data. | 50 years | Not at all | Fully | Fully | Partially |
| Annex 1 - 5a | Life Cycle Budget: Expenditure | an estimate of the costs of carrying out such works; | 50 years | Fully | Fully | Partially | Partially |
| Annex 1 - 5b | Life Cycle Budget: Expenditure | a statement of the assumptions, including those in respect of inflation and interest rates, which the Tenant has used in preparing the cost estimates; and | 50 years | Not at all | Fully | Partially | Partially |
| Annex 1 - 5c | Life Cycle Budget: Expenditure | an explanation, in reasonable detail, of the principal components of the cost estimates (including any management fees or contingencies) and the factors on which the costs estimates are based. | 50 years | Not at all | Fully | Partially | Partially |
| Annex 1 - 5a | Life Cycle Budget: Revenues | the Long Term Charge which will be received by the Tenant in relation to the Station; | 50 years | Fully | Fully | Partially | Partially |
| Annex 1 - 5b | Life Cycle Budget: Revenues | any income which will be received by the Tenant pursuant to the escrow arrangements in relation to the Station; and | 50 years | Fully | Fully | Partially | Partially |
| Annex 1 - 5c | Life Cycle Budget: Revenues | a statement of the assumptions, including those in respect of inflation and interest rates, which the Tenant has used in preparing the estimates of the Long Term Charge and investment income. | 50 years | Not at all | Fully | Fully | Partially |
| Annex 1 - 5 | Life Cycle Budget: Cashflow | The Strategy shall include an analysis of the forecast cashflows of the revenues and expenditures described above and identify any potential shortfalls between forecast revenues and forecast expenditure. | 50 years | Not at all | Fully | Fully | Partially |
| Annex 1 - 6 | Financial Model | The Strategy shall include a financial model and supporting explanatory documentation which enables the parties to determine in relation to the Station: | 50 years | Partially | Fully | Fully | Fully |
| Annex 1 - 6a | Financial Model | the Available Life Cycle Funds in a Financial Year; | 50 years | Fully | Fully | Partially | Fully |
| Annex 1 - 6b | Financial Model | the financial effect of any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station; | 50 years | Fully | Fully | Not at all | Not at all |
| Annex 1 - 6c | Financial Model | the financial effect any new renewals and/or replacements at the Station not previously included in the Asset Management Strategy; | 50 years | Fully | Fully | Not at all | Not at all |
| Annex 1 - 6d | Financial Model | the extent of any savings arising where the actual costs of undertaking certain renewals and/or replacements at the Station is less than the estimated cost of such renewals and replacement; and | 50 years | Partially | Partially | Not at all | Not at all |
| Annex 1 - 6e | Financial Model | the financial effect of applying any savings to fund the costs of any renewals and/or replacements at the Station which are in excess of the cost estimate for such works. | 50 years | Partially | Partially | Not at all | Not at all |
| Annex 1 - 7 | Long Term Charge | The Strategy shall include a financial model and supporting explanatory documentation which enables the parties to: | 50 years | Partially | Fully | Partially | Fully |
| Annex 1 - 7a | Long Term Charge | determine the level of the LTC for the Station which is necessary to fund the proposed station renewals and replacements at that Station; | 50 years | Fully | Fully | Partially | Fully |
| Annex 1 - 7b | Long Term Charge | determine the level of any changes to the LTC for a Station to reflect: | 50 years | Partially | Fully | Not at all | Not at all |
| Annex 1 - 7bi | Long Term Charge | any changes in the estimated costs of the proposed renewals and/or replacements at the Station; | 50 years | Partially | Partially | Not at all | Not at all |
| Annex 1 - 7bii | Long Term Charge | any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station; | 50 years | Partially | Partially | Not at all | Not at all |
| Annex 1 - 7biii | Long Term Charge | any new renewals and/or replacements at the Station; not previously included in the Asset Management Strategy; | 50 years | Partially | Partially | Not at all | Not at all |
| Annex 1 - 7biv | Long Term Charge | the application of any costs savings or changes in the expected levels of Income. | 50 years | Partially | Partially | Not at all | Not at all |

| AMS | Jun-12 | Aug-12 | Nov-13 | Jun-14 |
|--------------|-----------|-----------|-----------|-----------|
| Fully | 8 | 19 | 4 | 6 |
| Partially | 13 | 7 | 13 | 11 |
| Not at all | 5 | 0 | 9 | 9 |
| Total | 26 | 26 | 26 | 26 |

| LCRs | Jun-12 | Aug-12 | Nov-13 | Jun-14 |
|--------------|--------|--------|-----------|-----------|
| Fully | | | 3 | 9 |
| Partially | | | 21 | 18 |
| Not at all | | | 10 | 7 |
| Total | | | 34 | 34 |

| AMS & LCRs | Jun-12 | Aug-12 | Nov-13 | Jun-14 |
|--------------|-----------|-----------|-----------|-----------|
| Fully | 8 | 19 | 7 | 15 |
| Partially | 13 | 7 | 34 | 29 |
| Not at all | 5 | 0 | 19 | 16 |
| Total | 26 | 26 | 60 | 60 |

