

Report No. 45 of the Director of Audit — Chapter 4

MANAGEMENT OF HIGHWAY MAINTENANCE CONTRACTS

Summary

1. The Highways Department (HyD) is responsible for the maintenance of public roads, including road furniture and roadside slopes. There are about 1,900 kilometres of different types of roads under maintenance by the HyD. The HyD lets out term contracts through competitive tendering to carry out road maintenance works. These contracts usually last for three to eight years. Since April 2005, the HyD has been administering 14 term maintenance contracts. The expenditure under the 14 contracts is about \$800 million a year.

Follow-up action on substandard works

2. *Three cases of substandard works.* From 2001 to 2003, there were three cases of substandard works found in some highway maintenance contracts:

- (a) in 2001, the HyD internal audit found that a subcontractor used substandard soil nails for some slope works (Case 1);
- (b) in 2002, the Independent Commission Against Corruption (ICAC) found that there were fraudulent claims in the panel replacement works of the Aberdeen Tunnel. Instead of replacing the damaged panels as ordered, a subcontractor repainted/repaired some of the panels and claimed full payment for their replacement (Case 2); and
- (c) in 2003, the ICAC found that a subcontractor defrauded the Government by substituting samples for testing the quality of his road resurfacing works with falsified ones. In this way, substandard works were passed as being up to the standard to avoid rectification works or contract payment deduction (Case 3).

3. *Post-implementation review.* In response to the three cases of substandard works, the HyD tightened its control procedures over maintenance works from 2001 to 2005. These new control procedures, especially those relating to full time supervision of essential operations, would increase the supervisory staff's workload. How effective the supervisory staff have complied with the new control procedures and at the same time coped with the increased workload is an important management issue. *The Audit*

Commission (Audit) has recommended that the Director of Highways should conduct a post-implementation review of the new control procedures.

4. ***Recovery of cost.*** For Case 1, in 2001 the contractor carried out remedial slope works at his own cost. For Case 2, while the fraudulent claims in panel replacement works were found some three years ago in 2002, the assessment of the Government's losses and damages due to the fraud was still in progress. *Audit has recommended that the Director of Highways should speed up the action to recover the cost and damages from the contractor concerned.* As for Case 3, in view of the falsification of samples, in 2003 the HyD verified the test results of the subcontractor's road resurfacing works of the preceding 12 months. For verification purpose, the HyD took samples from the subcontractor's works irrespective of whether the works had passed or failed test results. However, it was the passed test results (rather than the failed test results) which were more likely to have been affected by the subcontractor's falsified samples. *Audit has recommended that in handling similar fraudulent cases in future, the Director of Highways should verify the test results with particular emphasis on those most likely to have been affected, with a view to recovering the relevant cost from the contractors concerned.*

Quality assurance and site supervision measures

5. ***Implementation of Subcontractor Management Plan.*** Since January 2003, the Environment, Transport and Works Bureau (ETWB) has required public works contractors to prepare Subcontractor Management Plans (SMPs) to strengthen control over the contractors' monitoring of subcontractors and their accountability to the Government. Audit has found that there is room for improvement in implementing the SMP arrangements and that the veracity of information reported in the SMPs should be regularly checked. Audit notes that the ETWB is considering measures to improve the implementation of the SMPs in three major areas, namely timely submission, quality and site verification. *Audit has recommended that the Secretary for the Environment, Transport and Works should take forward the proposed measures to improve the implementation of the SMPs.*

6. ***Subcontractor's qualification for specialist works.*** According to the contract provisions, if a contractor is not on the Government's approved list of specialist contractors for specialist works, he should enter into a subcontract with another contractor (i.e. his subcontractor) on the approved list. Audit found that some subcontractors named in the SMPs of three maintenance contracts for executing specialist works were not on the approved list. In one contract, the HyD had issued a works order for specialist works before the contractor confirmed the appointment of an approved subcontractor for the works. *Audit has recommended that the Director of Highways should request a contractor to confirm the appointment of approved specialist subcontractors before issuing a works order for specialist works.*

7. ***Laboratory test of bituminous materials.*** Bituminous materials used for road resurfacing have to be tested to see if they comply with the contract specification. The HyD internal instruction required test samples from bituminous works to be delivered for

laboratory testing as soon as practicable to prevent tampering. However, 49% of the samples took more than two weeks to be delivered for laboratory testing. *Audit has recommended that the Director of Highways should consider stipulating a time limit for the delivery of bituminous samples for laboratory testing.* For bituminous works with failed test samples, the HyD may order re-execution of the works or deduct payment in return for accepting the unremedied defects. Audit found that in some contract payment deduction cases, the defective area was more than one third of the area of the works. *To prevent the alternative of accepting unremedied defects from being abused, Audit has recommended that the Director of Highways should critically review the justification of a contractor's offer of contract payment deduction before accepting unremedied defects in the bituminous works.*

8. ***Hidden works.*** Hidden works are works the measurement of which cannot be verified after their completion. The HyD procedures require the Works Supervisors (WSs) to agree with the contractors on site the recorded measurement before the works are covered up or removed. The Inspectors of Works (IOWs) should check on site at least 25% of the hidden works records checked by the WSs. Audit found that, in some cases, the IOWs did not fully carry out the required 25% check on hidden works records. *Audit has recommended that the Director of Highways should require the IOWs to strictly follow the laid down requirements on supervisory check of hidden works records.*

9. ***Night works.*** To minimise disruption to traffic, a large proportion of maintenance works in urban roads are carried out at night. However, Audit found that the IOWs' night-time supervision was not commensurate with the frequency of night works. While Audit appreciates that there is important daytime supervision work for the IOWs to perform, they still need to carry out sufficient night-time supervision having regard to the nature and importance of the night works. *Audit has recommended that the Director of Highways should require the IOWs to carry out sufficient night-time supervision of night works having regard to their nature and importance.*

Administration of tender documents

10. In April 2004, the HyD found that there were errors in the units of measurement of two contract rates of a maintenance contract for high speed roads (Contract A). The erroneous rates would inflate the cost of lighting, signing and guarding equipment (LSG) for roadworks under Contract A. In August 2004, the HyD reached an initial agreement with the contractor on reduced rates for LSG. As at October 2005, further discussions between the HyD and the contractor were ongoing. Audit review of the case revealed that there were areas for improvement in the administration of tender documents. The major audit findings are summarised in paragraphs 11 to 13.

11. ***Control over new/non-standard items during tender preparation stage.*** The LSG composite rates in Contract A were new additions to the Schedule of Rates. The Schedule of Rates for a term maintenance contract typically contains more than 2,000 works items. Any new additions/amendments to the Schedule of Rates, if not properly highlighted by the initiating project Engineer, would easily escape the attention of the checkers. This

accounted for the failure to discover the typing errors in the LSG composite rates in Contract A. *Audit has recommended that the Director of Highways should issue an instruction requiring officers responsible for preparing tender documents of term maintenance contracts to highlight new/non-standard items in the Schedule of Rates (e.g. new composite items) for the attention of their supervisors and the Term Contracts Committee (TCC).*

12. ***Role of the TCC.*** During the tender preparation stage of Contract A, the TCC had not specifically checked the two erroneous composite rates for LSG. This was because the composite rates used in Contract A were non-standard items. According to its terms of reference, the TCC was not specifically required to check both the standard and non-standard items of tender documents before tender invitation. *Audit has recommended that the Director of Highways should amend the TCC's terms of reference to clearly spell out its checking duties, covering both the standard and non-standard items of the tender documents.*

13. ***Role of the Tender Assessment Panel (TAP).*** For term maintenance contracts, the units and rates of the works items were pre-printed in the Schedule of Rates. In their tender submissions, the tenderers needed only to fill in adjustment percentages against the trade sections. For tender analysis purpose, there was no need for the TAP to make reference to the pre-printed units and rates in the Schedule of Rates. Hence, the TAP could not be expected to detect errors in the Schedule of Rates in its tender assessment process. *Audit has recommended that the Director of Highways should strengthen the checking of the Schedule of Rates before tender invitation by using an independent body to perform this checking duty.*

Control over interim payments

14. Excessive interim payments for maintenance works, especially those not recovered in the same year, are not desirable. Audit found that the HyD had reduced the number of overpaid works orders in recent years. However, there is still scope for reducing the amount of overpayment. *Audit has recommended that the Director of Highways should remind his staff to review and update cost estimates of works orders before using them as a basis for making interim payments.*

Response from the Administration

15. The Administration has accepted the audit recommendations.

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