

SCANNER Surveys for Local Roads

Specification Volume 1
Advice to Local Authorities

July 2005

Halcrow Group Limited

Halcrow

SCANNER Surveys for Local Roads

Specification Volume 1
Advice to Local Authorities

July 2005

Halcrow Group Limited



Halcrow Group Limited
Red Hill House 227 London Road Worcester WR5 2JG
Tel +44 (0)1905 361361 Fax +44 (0)1905 361362
www.halcrow.com

Halcrow Group Limited has prepared this report in accordance with the instructions of their client, , for their sole and specific use. Any other persons who use any information contained herein do so at their own risk.

© Halcrow Group Limited 2005

SCANNER Surveys for Local Roads

Specification Volume 1
Advice to Local Authorities

July 2005

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Signed
		DRAFT	20/05/05	P C King
1	-	FINAL	18/07/05	P C King

Acknowledgement

This specification is substantially based on the original "TRACS Type Surveys for the Principal Road Network- Specification and Advice Note" produced for the UK Roads Board by Chris Britton Consultancy and TRL. It incorporates many detailed changes based on experience of using the TTS specification in 2003/04 and 2004/05 and a wide range of comments from interested parties and includes the results of the initial research. In addition the style has been changed to be consistent with new styles of contract (i.e."the contractor carries out surveys", rather than, "the contractor shall survey").

Considerable assistance and support has been given by: TRL, UKPMS Development Support Consultant (Chris Britton Consultancy), Survey Contractors, UKPMS developers, and members of the SCANNER Implementation Advisory Group.

Contents

Acknowledgement

Foreword

1	Introduction	1
	1.1 <i>General</i>	1
2	Procurement	3
	2.1 <i>General Matters</i>	3
	2.2 <i>Forms of Contract</i>	4
	2.3 <i>Specific requirements</i>	5
	2.4 <i>Tender documents</i>	6
	2.5 <i>Item coverage</i>	6
	2.6 <i>Delivery</i>	7
	2.7 <i>Tender Assessment</i>	7
3	Mobilisation and Preparation	9
	3.1 <i>General matters</i>	9
	3.2 <i>Network referencing</i>	9
	3.3 <i>Preparation and calibration of equipment</i>	9
	3.4 <i>Preparation and mobilisation meetings</i>	9
4	Health and Safety	10
	4.1 <i>General matters</i>	10
5	Background and context	11
	5.1 <i>Introduction of TRACS Type Surveys (TTS) on local roads</i>	11
	5.2 <i>National Road Maintenance Condition Survey (NRMCS) and CHART</i>	13
	5.3 <i>UK Pavement Management System (UKPMS)</i>	14
	5.4 <i>Coarse Visual Inspection (CVI) and Detailed Visual Inspection (DVI)</i>	15
	5.5 <i>Best Value Performance Indicators (BVPI)</i>	15
	5.6 <i>TRACS Type Surveys</i>	17

Annex A Glossary of Terms

Annex B Model Contract Document

Foreword

This document is one of a series of five describing the complete process of carrying out SCANNER Surveys (Surface Condition Assessment of the National Network of Roads):

The five Volumes are:

1. Advice to Local Authorities
2. Specification for Services
3. Acceptance Testing and Accreditation
4. Quality Assurance and Audit
5. Further Technical Guidance

This Volume contains advice to Local Authorities about the Services to be provided under the SCANNER Specification and is to be read in conjunction with the other documents. It contains background information about the development of SCANNER surveys from TTS and TRACS. It includes advice on contact procurement and mobilisation. It includes a glossary of technical terms and a model contact document as annexes.

Volume 2, Specification for Services contains details of survey procedures, data processing, route fitting and calculations of derived parameters.

Volume 3, Acceptance Testing and Accreditation describes the requirements for testing survey vehicles to become accredited by site and network tests. It also describes the requirements for the reporting and delivery of survey data to carry out SCANNER accredited Surveys.

Volume 4, Quality Assurance and Audit contains details of the Quality Assurance procedures to ensure Services are consistent and reliable. The document includes audit processes, monitoring, calibration, and requirements for repeat surveys.

Volume 5, Further Technical Guidance explains the background to SCANNER Surveys and gives further guidance on the interpretation of processed SCANNER data.

1 Introduction

1.1 *General*

1.1.1 TRACS Type Surveys (TTS) were introduced in 2003 to provide a consistent method of measuring the condition of local authority principal roads in England for reporting the Best Value Performance Indicator BV(96).

1.1.2 SCANNER Surveys (Surface Condition Assessment for the National Network of Roads) are being introduced in 2005 to replace TTS and to provide data for reporting BV(223), which replaces BV(96) and BV(224)a which replaces BV(97)a, the condition of other classified roads in England.

1.1.3 This set of five documents is intended to provide local highway authorities with all the information they require to make well informed decisions about the procurement of SCANNER accredited surveys on their local road networks. They are also intended to provide survey machine developers and survey contractors with all the information they require to develop, accredit and operate automated road condition survey machines to the SCANNER specification.

- They provide a full technical specification for SCANNER accredited surveys (Volume 2).
- They provide a full technical specification for the acceptance and accreditation testing of survey equipment to the SCANNER specification. (Volume 3).
- They provide a full technical specification for the quality assurance and audit requirements for SCANNER accredited surveys. (Volume 4).
- They provide background technical information on the use and interpretation of SCANNER survey data for the management of maintenance on local roads. (Volume 5).

1.1.4 They do not provide detailed technical guidance on the use of automated road condition survey data within a UKPMS accredited pavement management system. Further information is available on the UKPMS website: <http://www.ukpms.com>

1.1.5

Neither do they provide detailed technical guidance on the preparation of reports for national road condition monitoring (NRMCS), on the preparation of best value performance indicator reports or local maintenance management reports.

2 Procurement

2.1 *General Matters*

2.1.1 The use of the Survey Specification in Volume 2 of this set of documents will ensure that accredited surveys provide valid data for use by highway engineers in network management, and for the production of national Performance Indicators. The Survey Specification will also provide a standard set of conditions for competitive tendering. If the Specification has widespread use, Contractors will be able to tender with a greater degree of certainty. It is recommended that the Specification is used without amendment or alteration. Where an Employer chooses to adapt the specification for local use care must be taken to ensure the integrity of the overall system is not compromised, particularly where the production of Performance Indicators may be affected.

2.1.2 Some Local Authorities may wish to group together in regional consortia. This would have a number of benefits:

- Economies of scale; individual Local Authorities are likely to have relatively small Principal Road Networks, and it is likely that, by grouping together in this way, savings may be achieved by reducing the Contractors' mobilisation and administrative costs, although there may be limits to the economies achieved.
- Aggregation into larger networks could facilitate more efficient route planning and hence more efficient programming and data delivery.
- The number of individual contracts required to cover all individual Local Authorities would impose a considerable burden on the current limited number of survey Contractors.

2.1.3 There are a number of issues that would need to be resolved if such a consortium approach is adopted:

- The total value of such a group contract may be such that more onerous procurement procedures, such as notification in the Official Journal of the European Union (OJEU), must be followed.

- The individual Local Authorities would need to agree on what services were needed so that all their requirements could be covered by a single contract.
- The Individual Local Authorities may wish to select one Local Authority as a “Lead Authority” to act as the main contact point for the Survey Contractor, and who would also be considered as the “Employer” in terms of the SCANNER Specification.
- The agreement of contractual Terms and Conditions may require extensive discussion and approval at a senior level within Local Authorities, which may introduce delays.
- All Local Authorities within the consortium would have to be able to meet any contractual requirements -for example, each Local Authority might be expected to provide similar network referencing information to the survey Contractor. Or the Contractor will have to accept cross-boundary changes in section definition.
- Authorities may have different data processing requirements.

2.1.4 It should be noted that there may be annual changes to the Specification until there is full implementation across the whole Principal, Classified, and Unclassified Road network in 2007. Therefore some flexibility should be built in to tendering and contractual arrangements, where contracts cover more than one year's surveys and/or more than one class of road. It may be that partnering and other similar arrangements may enable greater flexibility as future requirements change.

2.2 ***Forms of Contract***

2.2.1 There are a number of forms of contract available for this type of survey; in some cases the form of contract used may have to comply with an individual local authority's rules and guidelines.

2.2.2 The Institution of Civil Engineers Conditions of Contract (5th edition) has sometimes been used in the past but is probably not the best form of contract available for this type of survey at the present time. It is more complicated than necessary for this type of work, is less flexible than other forms, and has no facility for partnering, or for incorporation into larger contracts that incorporate partnering.

2.2.3 The NEC contract document, "the engineering and construction short contract" may be a more suitable form of contract. It requires basic

contract data, Works Information, and Site Information in a few standard forms.

- 2.2.4 Alternatively, given that the SCANNER process has a well defined Specification and the deliverables can be easily defined some authorities may find it acceptable to let a contract in the simple form of a letter of instruction.
- 2.3 ***Specific requirements***
- 2.3.1 The Employer (client) should specify in any contract for the provision of SCANNER accredited surveys that the surveys may only be carried out by Equipment which has passed an Acceptance test and has a currently valid Accreditation Certificate, as defined in Volume 3, Acceptance Testing and Accreditation.
- 2.3.2 The Employer (client) should specify in any contract for the provision of SCANNER accredited surveys that the surveys may only be carried out by Equipment which is included within a national QA and Audit process, as defined in Volume 4, Quality Assurance and Audit.
- 2.3.3 The Employer should specify in any contract for the provision of SCANNER accredited surveys that the Contractor is required to have and operate a Quality Assurance regime for carrying out surveys that includes driver/operator training and instruction.
- 2.3.4 The Employer should specify in any contract that the Contractor must provide the client (Employer) and any appointed Auditor with a copy of a currently valid Accreditation Certificate before commencing any SCANNER accredited surveys on the Employer's road network.
- 2.3.5 The Employer should specify in any contract for the provision of SCANNER accredited surveys that the Contractor is required to deliver the Quality Assurance tests and data required by the specification for SCANNER accredited surveys within the price agreed with the Employer for the surveys of the Employer's road network.
- 2.3.6 The Employer should specify in any contract that the Contractor is required to deliver any reports required by the specification for SCANNER accredited surveys to the Employer and to the Auditor promptly in

accordance with the timescales defined by the specification. This includes reporting any repairs or alterations carried out on the SCANNER accredited Survey Equipment.

2.4

Tender documents

2.4.1

There is no need for tender documents to be complicated for SCANNER operations.

2.4.2

All tender documents should incorporate by reference the SCANNER Specification, and the requirements for Accreditation and Acceptance, Quality Assurance and Audit. The work to be carried should be clearly scheduled to indicate:

- Requirement for compliance with the SCANNER Specification
- Requirement for compliance with Equipment Accreditation and Acceptance
- Requirement for compliance with Quality Assurance procedures
- The breakdown of the route network (possibly split between built up and non built up, and classification)
- Deliverables (form of processed data etc) and ownership of results
- Latest time of delivery
- Any special conditions (i.e. availability of road space etc)
- Item coverage (It should be clear that the rates quoted are for everything in connection with the Works. See below)

2.5

Item coverage

2.5.1

A suggested text would be: "The Contractor provides everything necessary to carry out the Works and deliver data, including but not limited to:

- All overhead costs
- Preparation and mobilisation meetings, where required.
- Provision of accredited Equipment and personnel,
- Necessary traffic control, including escort vehicles
- Compliance with Quality Assurance procedures and liaison with the appointed Auditor
- Computer hardware and software including licences
- Standing time
- Weather delays
- Liaison with highway Authority and Police

- Provision of data to the required accuracy in an approved format (usually HMDIF) for direct input to the Employer's UKPMS system

2.6

Delivery

2.6.1

The contract should state explicitly what deliverables are required, and by when. The Contractor should be required to aim to survey 100% of the specified survey length, and to give reasons for any lengths not surveyed. The contract should state the terms for payment, which should only be made for survey lengths with valid data coverage. "Penalties" are not permitted by contract, and liquidated damages for this type of work are rarely an effective means of guaranteeing timely delivery. An alternative to liquidated damages may be an incentive payment for delivery of acceptable valid data before a specified date.

2.6.2

However, there are few accredited machines and, Contractors do not have spare capacity. They need to be able to work flexibly to take advantage of weather condition across the country. Employers should bear this in mind when setting target dates for delivery of data, and that quoted survey rates are likely to reflect the Employer's stated requirements.

2.7

Tender Assessment

2.7.1

Most local authorities will have procedures for the procurement of services, including tender assessment or evaluation. Lowest cost may not always offer best value and some authorities will wish to evaluate tenders on the basis of quality and price. Where an assessment is to be made on the basis of quality and price, the quality aspects to be considered and any weighting or marking scheme should be determined before tenders are sought. The following are some aspects that an authority may wish to consider in compiling a quality schedule.

2.7.2

Quality: The quality of the SCANNER operation is rigorously controlled. The Equipment (survey vehicles) must be accredited for use, the operators must be included in the Contractor's own quality system, and the surveys should follow the published Specification. Provided the contract requires compliance with the Accreditation and Acceptance procedures, and the Specification in this set of documents, absolute quality should be a simple pass/fail test.

- 2.7.3 However local authorities may wish to consider other aspects of quality – such as performance demonstrated in previous year's surveys or other services provided to the authority, or in other services included with the performance of the SCANNER accredited surveys.
- 2.7.4 **Network Referencing, Route Fitting, and Data Processing** The Contractor should be able to demonstrate:
- an understanding of the Employer's network referencing system
 - how survey data will be fitted to the type of network chosen.
 - how route fitting, and adjustment of section lengths will be accomplished.
 - how field data, and survey notes are incorporated into processed data
 - how invalid data will be reported
- 2.7.5 **Delivery** Reasonable times for delivery of survey data should be included in contract documents. Any advantageous delivery times quoted by the Contractor may be taken into consideration.
- 2.7.6 **Added Value:** Some Contractors may be able to offer added value options such as:
- Video (forward facing, inventory)
 - Ground Penetrating Radar
 - Additional data processing (production of defect maps etc)
 - Determination of SCRIM categories
- 2.7.7 **Health and Safety:** Some Employers may wish to assess Contractors in terms of Health and Safety method statements and risk assessments, and previous safety record.
- 2.7.8 **Previous Performance:** The Contractor's performance on previous, or other contracts.
- 2.7.9 Although the aspects above could be used to assess tenders, many Employers, given the regulated conditions under which SCANNER operates may prefer to accept the lowest price.

3 Mobilisation and Preparation

3.1 *General matters*

3.1.1 At the start of each survey season there will be a period of Preparation and Mobilisation when detailed project programmes will be developed and resources allocated to deliver the Services required by the contract.

3.2 *Network referencing*

3.2.1 Preparation for surveys will include compilation of a network to be provided to the Contractor for locating surveys. The network may need revision as a result of feedback from the Contractor, and also as a result of works on the network (junction improvements etc). The importance of a robust network is essential for efficiency of surveys and accurate data fitting. Further guidance is given in Volume 2 Section 4.

3.2.2 Where the same Contractor is used for a number of years, in subsequent years, updates to the network will be passed to the Contractor in advance of the surveys to allow him to update the survey routes and the detailed programme of work.

3.3 *Preparation and calibration of equipment*

3.3.1 The Preparation and Mobilisation period will also include the preparation, calibration and validation of all equipment by the Contractor, who will carry out QA procedures on the Equipment to ensure it still complies with the original Accreditation and Acceptance criteria.

3.4 *Preparation and mobilisation meetings*

3.4.1 If the Contractor is expected to allow for additional preparation and mobilisation meetings that the Employer may reasonably require at the Employer's premises with the Employer's Agent and others during Preparation and Mobilisation periods then the Employer should specifically include this requirement in the contract documents.

4 Health and Safety

4.1 *General matters*

4.1.1 SCANNER operations will not usually be covered by CDM regulations. It is, therefore, not appropriate to appoint the survey Contractor as Principal Contractor.

4.1.2 However, Contractors may be expected to provide Health and Safety records, method statements and risk assessments as part of the tender information and to comply with any specific requirements of the Employer.

5 Background and context

- 5.1 ***Introduction of TRACS Type Surveys (TTS) on local roads***
- 5.1.1 In 2000 the Highways Agency introduced routine Traffic –speed Condition Surveys (TRACS) on trunk roads in England to minimise the disruption caused to road users by slow speed manual and machine surveys. These surveys are carried out by vehicles moving at traffic speed that measure a range of parameters.
- 5.1.2 As part of the introduction in England of a Best Value Performance Indicator for the condition of local roads in 1999/2000, local authorities could choose to determine the condition of principal roads from Deflectograph data; Coarse Visual Inspection (CVI) data or Detailed Visual Inspection (DVI) data converted to CVI for the purpose of reporting.
- 5.1.3 In 2000 a review of the National Road Maintenance Condition Survey (NRMCS) concluded that there should no longer be data collected specifically for NRMCS and that survey should use condition data collected by authorities for the local management of the road network. It also concluded that the data collection approach for the principal roads should be closely aligned with data collection on the trunk road network. At that time it was recommended that TRACS Type Surveys (TTS) be implemented on principal roads and CVI and DVI surveys should replace CHART surveys on the non principal roads. This approach was also reflected in the survey strategies included in the Code of Practice for Maintenance Management.
- 5.1.4 Scotland did not have an equivalent to the NRMCS and local authorities in Scotland, working with the Scottish Executive, decided to develop network wide data collection using automated survey vehicles, to produce data on the condition of the whole of the Scottish road network. This project, known as the Scottish Road Maintenance Condition Survey (SRMCS) commenced in 2002 and has been progressively extended to cover a greater percentage of the network and to measure more conditions. The survey has produced data to support a new Statutory Performance Indicator (SPI) in Scotland, introduced by Audit Scotland in financial year 2003/04.

- 5.1.5 The practical success with introducing TTS on roads in London and the developments in Scotland informed the decision in England to adopt TTS as the recommended survey method for BV(96) in 2003/04 and the only acceptable method for 2004/05. TTS collects a range of parameters and the BV(96) indicator was defined on the basis of the Highways Agency's experience with TRACS and the SRMCS experience as the percentage of the network which exceeds a threshold value of one or more of four parameters:
- Texture depth $\leq 0.6\text{mm}$
 - 3m longitudinal profile variance $\geq 4\text{mm}^2$
 - Left or right rut depth $\geq 11\text{mm}$
 - Whole carriageway cracking intensity $\geq 0.5\%$.
- 5.1.6 For 2003/04 TTS was the recommended survey for the collection of condition data for BV(96). From 2004/05, TTS became the only acceptable survey for collecting data for BV(96).
- 5.1.7 Following a proposal that TTS should be extended to the non principal road network, it was recognised that further research and development would be required to enhance TTS so that it could be a full replacement of the current CVI surveys. A scoping study was carried out by John Ekins and Les Hawker in 2003. This recommended a two phase approach, using the experience gained from surveys in London and Scotland, and on trunk roads, to introduce TTS with limited capabilities developed from the early research in 2005, whilst developing the full capabilities through a longer term research programme.
- 5.1.8 Research is currently being carried out to develop TTS for use on all local roads in England and to extend its capabilities to support the National Road Maintenance Condition Survey (NRMCS) in England and Wales, the Scottish Road Maintenance Condition Survey (SRMCS) in Scotland and similar initiatives in Northern Ireland.
- 5.1.9 The initial stages of research have moved the survey machines for local roads away from the TRACS specification and a new name, SCANNER (Surface Condition Assessment for the National Network of Roads) was chosen in 2004 for the new surveys starting in April 2005.

5.2 ***National Road Maintenance Condition Survey (NRMCS) and CHART***

5.2.1 The NRMCS reports on the condition of public roads, footways, kerbs and verges in England and Wales. Results are derived from surveys of surface condition and structural condition. The surface condition of roads is measured using a visual survey of defects (CHART) and a machine based survey of wet road skidding resistance (SCRIM). The structural survey uses Deflectograph machines to measure the deflection of the carriageway under a standard rolling load.

5.2.2 The visual survey is carried out using the CHART method on a random sample of over 11,000 sites, each 100 metre long. The survey includes sites on principal, classified and unclassified roads, both built-up and non built-up. Until 2002 all purpose trunk roads were included. Roads with a concrete running surface are excluded, but covered concrete roads are included.

5.2.3 The results are reported in total and broken down by:

- Geography: Total; England; Wales; English region (excepting London)
- Road classification: All local roads; Built-up/Non built-up; Principal, classified, unclassified.

5.2.4 The condition is established by recording the occurrence and extent of a range of pre-determined "defects", including:

- Wheel track rutting
- Wheel track cracking
- Whole carriageway major deterioration (e.g. cracking; coarse crazing; loss of aggregate; deformation or defective patching) measured as the percentage area affected.
- Whole carriageway minor deterioration (e.g. fine crazing, loss of chippings, fatting up) measured as the number of affected 20m subsections per 100m of road.
- Edge deterioration (e.g. disintegration along the edge, erosion of verges, filed patching) measured as the length of edge affected per 100m of road.

5.2.5 The condition of each section (site rating) is calculated from a notional cost of treating a given length of each defect, with one or more treatments associated with each defect and linear interpolation if the defect is below the first treatment level or between two treatments and a fixed rating if the defect is above the highest treatment level. Each site is rated on the highest cost treatment required and sites are combined using averages or length weighted averages.

5.3 ***UK Pavement Management System (UKPMS)***

5.3.1 The UK Pavement Management System (UKPMS) is the national standard for management systems for the assessment of local road network conditions and for the planning of investment and maintenance on paved areas of roads, kerbs, footways and cycle-tracks on local roads within the UK. Further information is available on the UKPMS website:
<http://www.ukpms.com>

5.3.2 It is endorsed and promoted by the Roads Board and its use is required by the Government for the production of Best Value Performance Indicators on local roads. It is also recommended best practice for local road maintenance in the 2001 Code of Good Practice for Maintenance Management, as well as being the basis for reporting on local road conditions and performance in the new National Road Maintenance Condition Survey (NRMCS) report.

5.3.3 The UKPMS Logical Design comprises a wide range of highway maintenance management functionality, including the following:

- Location and referencing of highways, including footways and cycle-tracks
- Recording of an inventory of maintainable assets within the highway
- Recording of condition data collected from various visual and machine surveys
- Projection of future condition based on historic deterioration, and on engineering models of deterioration for given designs, constructions types and pavement life profiles
- Selection of options and requirements for remedial works
- Costing of potential works
- Management of budgets
- Analysis of budgetary and maintenance needs for highway networks

- Prioritisation of potential works on a condition basis
- Prioritisation of potential schemes of work using econometric principles.

5.4 ***Coarse Visual Inspection (CVI) and Detailed Visual Inspection (DVI)***

5.4.1 The UKPMS Coarse Visual Inspection or CVI, is intended to be a coarse, rapid survey, usually carried out from a slow-moving vehicle, that allows a large part of a highways authority's road network to be assessed each year.

5.4.2 CVI is the standard survey used to produce the Best Value Performance Indicators on the condition of local authorities' roads as required by the government, and which allows comparisons to be made between authorities on the basis of the overall condition of their carriageways.

5.4.3 A CVI survey is normally undertaken from a slow moving vehicle, using the "simple" cross-section position method, where the carriageway is assessed as a whole, and kerbs, footways and cycle-tracks are separately inspected for the left and the right of the carriageway.

5.4.4 The UKPMS Detailed Visual Inspection or DVI, is a more comprehensive survey than the CVI, with defects identified by a larger number of more detailed classifications. The DVI is a walked survey, and is typically targeted at lengths already identified as defective and potentially in need of treatment either by the CVI, or from some other sources of information.

5.5 ***Best Value Performance Indicators (BVPI)***

5.5.1 A performance indicator for principal roads was introduced by the Audit Commission in 1999/2000, responsibility was subsequently transferred to the Office of the Deputy Prime Minister (2000/01). The BVPI for reporting in 2005 on the condition of roads in 204/05 are BV(96) for principal roads and BV(97) for non principal roads.

5.5.2 New numbers have been announced for reporting the condition of roads measured by SCANNER surveys, BV(223) for the condition of principal roads and BV(224) for the condition of other roads.

5.5.3 A separate statutory Performance Indicator (SPI), covering all road categories was introduced in Scotland by Audit Scotland, in financial year 2003/04.

- 5.5.4 The specification for the English BVPI has evolved over time with numerous changes. Some have been due to explicit changes in the definition of the indicator, whilst others have been a consequence of changes in the collection and processing of the data on which the BVPI was based.
- 5.5.5 Initially the indicator could be based on the results of either a Deflectograph survey or a CVI survey. In 2003/04 this was extended to include the results of a TTS survey. The methods of calculating the indicator in 2003/04 (for reporting in 2004) were:
- Based on the results of a Deflectograph survey using data collected since 1996 (i.e. up to 8 years old). All data before 31 March 2003 projected to 31 March 2004. At least 60% of the eligible network surveyed between 1996 and 2002 and at least 20% surveyed from 2001 onward. One direction only. The indicator is the percentage of the eligible length which has a negative residual life.
 - Based on the results of a CVI survey of 100% of the principal road network using data up to two years old. The indicator is the percentage that has a structural condition index calculated in UKPMS exceeding a threshold value of 70. Alternatively based on the results of a DVI survey converted to a CVI equivalent before processing in UKPMS.
 - Based on the results of a TTS survey of 100% of the principal road network using data up to two years old. The nearside lane is surveyed in each direction. The indicator is the percentage length of the network which exceeds any one threshold of a number of measured parameters.
- 5.5.6 Comparison of BV(96) reports from 25 authorities that submitted results for both Deflectograph and CVI surveys in 2002/03 showed there is apparently no correlation between BV(96) Deflectograph and BV(96) CVI. (Comparison from "TTS Defects Index Preliminary Analysis Final Report" by Chris Britton Consultancy)
- 5.5.7 There has been no extensive investigation of the correlation between BV(96) TTS and either BV(96) Deflectograph or BV(96) CVI. Some limited investigation of the correlation between the defects recorded by CVI and the parameters measured by TTS has been carried out ("TTS Initial

Review- Review of Survey Methods" TRL published project report PPR001). This concluded that TTS consistently recorded less extensive cracking than CVI. Whereas TTS was more sensitive to changes in rut depth than CVI and tended to record rut depth more accurately than CVI.

5.6

TRACS Type Surveys

5.6.1

TRACS Type Surveys were high speed road surface condition surveys, based on the Highways Agency's TRACS contract and adapted to be suitable for the local authority principal road network. TTS collect the following data:

- 3-dimensional spatial co-ordinates (OSGR Easting and Northing, altitude)
- Road geometry (gradient, cross-fall and curvature).
- Survey speed
- Longitudinal profile
- Wheel path rutting
- Texture profile
- Cracking

5.6.2

The raw survey data was converted into the Base Condition Data (BCD) either using a version of the Highways Agency's Machine Survey Pre-processor (MSP) software, or using the survey Contractor's equivalent software. The data was delivered as an HMDIF file, called a TTS Base Condition Data file (TTS BCD) that could be loaded into a local authority's UKPMS accredited system and used to calculate BV(96) and to assist in the development of highway maintenance programmes.

5.6.3

Before a TTS vehicle could be used to carry out surveys for Best Value Performance Indicators, the machine had to a stringent series of acceptance tests to assess the performance of the survey vehicle and lead to an acceptance certificate. To provide local authorities and central government with confidence that the TTS data was consistent, reliable and of sufficiently high quality, a detailed Quality Assurance procedure was developed and included in the TTS specification, which includes both Contractor's QA tests and independent third party QA and audit.

5.7

SCANNER Surveys

5.7.1

The Roads Board commissioned a research and development project to prepare TTS as a replacement for CVI and DVI surveys on all local roads, providing BV(97) as well as BV(96). This includes extending the capabilities of TTS to be more suitable for the full range of conditions and defects likely to be encountered on local roads.

5.7.2

To highlight the differences between TRACS on trunk roads and TTS on local roads, the Roads Board has decided to adopt a new name SCANNER (Surface Condition Assessment for the National NEtwork of Roads) for the new surveys that are being developed for 2005/06 on all local classified roads.

5.7.3

The main differences between SCANNER in 2005/06 and TTS in 2004/05 will be:

- A new method of analysing the transverse profile to provide a parameter in addition to the measurement of rut depth, which reflects all aspects of transverse unevenness
- A new method of analysing the transverse profile to provide three new parameters which are associated with presence of edge deterioration and defects and may give a reliable indication of edge condition
- A new method of weighting and combining the various measured parameters to give an overall indication of road surface condition that may be more consistent and reliable than the current TTS indicator based simply on threshold values.
- These changes will have only minor implications for the survey vehicles, so the survey Contractors should be able to implement them in time for surveys commencing 1st April 2005. These new parameters will not be included within BVPI reports until there is more experience of their use.

ANNEX A – Glossary of terms

Acceptance Tester The organisation appointed to carry out Acceptance Testing as described in Volume 3 of the SCANNER guidance documents.

Acceptance Tests or Testing Initial tests or testing of a survey machine to demonstrate that it can meet the SCANNER specification requirements under rigorously controlled test conditions. Successful testing leads to the award of an initial Accreditation Certificate.

Accreditation Re-testing Subsequent tests or testing of a survey machine to demonstrate that it still meets the SCANNER specification requirements under rigorously controlled test conditions. Successful testing leads to the award of a further Accreditation Certificate.

Accreditation Tester The organisation appointed to carry out Accreditation Re-testing as described in Volume 3 of the SCANNER guidance documents.

Audit of vehicle operation. The purpose of Audit is to ensure that Quality Assurance procedures are being operated effectively.

Auditor The organisation appointed to provide Quality Assurance and Audit functions on behalf of the Employer as described in Volume 4 of the SCANNER guidance documents.

BCD Base Condition Data. Processed survey data in a UKPMS HMDIF format that enables the results of a SCANNER survey to be loaded to a UKPMS compliant system.

Contractor The survey operator that has undertaken to carry out SCANNER accredited surveys on behalf of the Employer.

Cracking Intensity A measure of the percentage area containing cracks. The figure depends on the scale of the grid used to count cracks, in general the smaller the grid size, the smaller the reported cracking intensity.

Cross- fall. The difference in elevation between the two sides of a carriageway

Employer The client for the SCANNER accredited surveys, normally a local authority.

Equipment Accredited survey machine or vehicle used to carry out the surveys.

First Party QA Quality Assurance by the supplier of the product or service, in this case, the Contractor for SCANNER accredited surveys.

GPS = Global Positioning System. Location referencing system using data from earth orbiting satellites to define position in relation to a reference point.

Gradient. The difference in elevation between two points along the carriageway.

HARRIS Highways Agency Road Research Information System.

HMDIF = Highway Maintenance Data Interchange Format. Standard computer file format which enables data to be transferred into a UKPMS compliant pavement management system. Defined in the current version of UKPMS Technical note 3.

Longitudinal Profile. The "shape" of the carriageway in the direction of traffic movement.

MSP = Machine Survey Pre-processor. Bespoke software system for converting RCD to BCD to prepare SCANNER survey data for loading into UKPMS.

National Grid Co-ordinates. Positions in relation to a standard grid covering the United Kingdom.

Network Tests Part of Acceptance Testing and Accreditation Testing. The network tests assess the operational capabilities of the survey equipment when carrying out surveys under normal operating conditions on one or more routes selected by the Acceptance Tester and located on the public road network

OSGR = Ordnance Survey Grid Reference. Location referencing system defining position in relation to a standard grid covering the United Kingdom.

PMS = Pavement Management System.

Primary Reference Data Primary Reference Data forms the basis for initial assessment of the performance of the survey equipment.

Primary Reference Test Site The site chosen by a Contractor as the basis for checking the continuing accuracy of the Equipment.

Quality Assurance (QA) The purpose of Quality Assurance is to give the Employer confidence that the data and results being provided are reliably consistent and suitable for purpose.

Radius of curvature. The measure of the amount of curvature on a non straight section of road

RCD Raw Condition Data. Detailed survey data in a format that enables the Acceptance Tester, the Accreditation Tester and the Auditor to carry out detailed checks on the operation of the survey equipment

Reference Methods Standardised methods used by the Acceptance Tester and the Accreditation Tester to assess the accuracy of the Equipment in the Site Tests.

SCANNER Surface Condition Assessment of the National Network of Roads

SCANNER Accreditation Certificate Certificate provided by the Acceptance Tester or the Accreditation Re-tester to confirm that a survey vehicle has passed the Acceptance Tests (or Accreditation Re-tests) and is accredited to carry out SCANNER accredited surveys. Normally valid for 12 months.

SCANNER accredited surveys Surveys accredited to the SCANNER specification.

SCANNER BCD file BCD Base Condition Data. Contains processed survey data in a UKPMS HMDIF format that enables the results of a SCANNER survey to be loaded to a UKPMS compliant system.

SCANNER RCD file RCD Raw Condition Data. Contains detailed survey data in a format that enables the Acceptance Tester, the Accreditation Tester and the Auditor to carry out detailed checks on the operation of the survey equipment.

Secondary Reference Data Secondary Reference Data used to assess the sensitivity and accuracy of the survey equipment in relation to other examples of survey equipment (operated by other Contractors), for example that provide measurements of cracking.

Second Party QA Quality Assurance by the purchaser of the product or service, in this case, the Employer for SCANNER accredited surveys.

Site Tests Part of Acceptance Testing and Accreditation Testing. In the site tests the parameters measured by the survey equipment are compared with those measured by the Reference Methods on test sections located on sites selected by the Acceptance Tester

Survey Data Data measured by a SCANNER accredited survey before processing to produce RCD.

Third Party QA Quality Assurance by an independent third party which is neither the supplier nor the purchaser of the product or service, in this case, the Auditor for SCANNER accredited surveys.

UKPMS United Kingdom Pavement Management System. Provides a framework for combining the systematic collection of data with the decision making processes necessary to optimise resources for the maintenance and renewal of pavements, including the generation of programmes of works and corresponding budgets

Works Accredited surveys and data processing described in the contract

ANNEX B – Model Contract Document

Engineering and Construction

Short Contract

PROCUREMENT OF SCANNER SURVEYS: CONTRACT DOCUMENT

THIS PAGE DOES NOT FORM PART OF THE CONTRACT DOCUMENT: COMPILER'S NOTES ONLY

This contract document is the second Part of a Model Contract Document (MCD) for the procurement of SCANNER Surveys. The MCD also includes a model for Instructions for Tendering. The MCD should be used in conjunction with the Specification for SCANNER Surveys, which in Volume 1, contains further general advice.

In the following model, items in bold square brackets **[?????]** will require specific input by the compiler. The following notes refer to items referenced in the text.

Note 2.1 As much information as possible should be given at tender stage; routes, route length, directions of survey etc and most tenderers will find a network route plan, marked with survey lengths, useful for planning. It is only necessary to provide full network data to the successful Contractor (see "Works Information 6"). Where the contract is to be for more than one year it may not be possible to give full information at tender stage but a proposed breakdown of future work (possibly by classification and length) should be included to allow tenderers to price properly; a plan or description, indicating the limits of the network should be included.

Note 2.2 Completion dates should be reasonable, taking into account the time of tender, and that contractors have to operate nationally. Where the contract is for more than one year separate dates will be required.

Note 2.3 There should be no need for a long period before the Defects Date as once the data is loaded defects are likely to be obvious. Where the contract is for more than one year there will need to be more than one Defects Date. The Defects Date may be specified as ?? weeks after each year's Completion Date.

Note 2.4 The Defects Correction Period should be short enough to allow the Employer to have corrections made in a timely manner, but long enough for the Contractor to be able to respond, bearing in mind he will have left the site.

Note 2.5 Delay Damages are not easy to quantify but most Employers will require Delay Damages to be included, even if only as an "incentive". Delay Damages should reflect actual financial loss or expense; they should not be treated as a penalty. Many employers already have formulae for "liquidated damages" they may wish to use.

Note 2.6 Because of the nature of the work, and the requirement to deliver in the required format prior to payment, conventional monthly remeasure is not appropriate. In most cases the assessment date should be the date of delivery of compliant data. NB: where the contract covers more than one year, or several employers in consortium, separate dates will be required.

Note 2.7 Given the discrete and short term nature of the work most Employers will find Retention unnecessary.

Note 2.8 It is easier to leave the Adjudicator "to be agreed". There is no guarantee any nominated person will be available in the future.

Note 2.9 Enter an interest rate only if a rate of 0.5% per complete week of delay is less than current commercial interest rate.

Note 2.10 Separate rates may be required for different classes of route, or for different areas in a consortium. Where the contract is for more than one year some form of annual contract price fluctuation may be required, or the tenderer may be required to quote annual uplifts. Fixed costs for the period of the contract could be used, but the tenderers will have to price the risk and this may be counter-productive.

Note 2.11 Processed data will usually be required in HMDIF Format for loading into the Employer's PMS system. Whilst HMDIF should load to any UKPMS compliant system, where there is a consortium the different systems for each part of the networks should be quoted.

Note 2.12 As SCANNER Surveys are designed to operate at or near normal road speed, restrictions should be few. However, any restrictions on roadspace or timings of surveys should be quoted here (known closures, festivals, etc).

Note 2.13 It is unnecessary to request a rigid programme from the Contractor, who should be allowed to programme works in the most efficient manner to take account of traffic and weather conditions. The Contractor should always inform the Employer when he is trafficking the Employer's network.

Note 2.14 Providing the tenderers have been given adequate information for tendering it will only be necessary to provide full network data (nodes, links etc) to the successful tenderer (Contractor).

Note 2.15 If required Condition 90 of the Contract could be strengthened for multi-year contracts to cover termination where the Contractor fails to deliver in any one year.

Note 2.16 If required Z12 Conditions could be added where the Contractor will partner with the Employer, or will be commissioned by a partner under an existing partnering agreement.

- a new _____
- engineering contract _____
- document _____

Engineering and Construction

Short Contract

A contract between *[insert name of Local Authority]*

and *[insert name of Supplier]*

for SCANNER surveys

Contents

Contract forms;
Contract data
The *Contractor's* Offer
The *Employer's* Acceptance
Price List
Works Information
Site Information

Contract Data

The *Employer* is

Name

Address

Telephone

Employer's Delegate

Email address

The *works* are ***[SCANNER Surveys and data processing] as outlined in the specification included in the Works Information ("Specification").***

The *site* is ***[As shown on Drgs ?? and/or Schedule See Note***

The *starting date* is ***[..... 2005]***

The *completion date* is ***[..... 2005/????] [See Note 2.2]***

The *period for reply* is ***[??] weeks***

The *defects date* is ***[13] weeks after completion [See note 2.3]***

The *defects correction period* is ***[8] Weeks [See note 2.4]***

The *delay damages* are ***{Quote figure or give [See note 2.5]***

The *assessment day* is the ***[completion date] [See note 2.6]***

The *retention* is ***[Nil ?; Retention probably not appropriate. See Note 2.7.]***

The *Adjudicator* is ***[Either....to be agreed or the Employer may add a list for agreement by the Contractor. See note***

Name

Address

Telephone

Fax

E-mail address

Contract Data

The interest on late payment is *[??%....0.5% per complete week of delay See Note 2.9]*

The *Employer* provides this insurance None

The minimum amount of cover for

the third insurance stated in the Insurance Table is *[£ 2,000,000.00]*

The *tribunal* is Arbitration

If the *tribunal* is arbitration, the arbitration procedure is

The Institution of Civil Engineers Arbitration Procedure 1997 or any amendment or modification in force when the Arbitrator is appointed

The *conditions of contract* are the first edition (July 1999) of the NEC Engineering and Construction Short Contract, as amended and supplemented by the following conditions. In the event of any conflict between the Short Contract and the following conditions, the following conditions shall apply.

Z1	For the purposes of the Contract (Rights of Third Parties) Act 1999, nothing in this Contract confers or purports to confer on a third party any benefit or any right to enforce a term of this Contract.
Z2	Corrupt Gifts and Payments of Commission
Z2.1	The <i>Contractor</i> does not, and the <i>Contractor</i> procures that none of its employees, contractors and any other persons deployed by the <i>Contractor</i> in connection with the <i>works</i> (" <i>Employees</i> ");

	<p>(a) offer or give or agree to the giving to any person in the service of the <i>Employer</i> any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract with the <i>Employer</i> or for showing or forbearing to show favour or disfavour of any person in relation to this or any other Contract with the <i>Employer</i>; or</p> <p>(b) enter into this or any other Contract with the <i>Employer</i> in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the <i>Employer</i>.</p> <p>Z2.2 Any breach of the above prohibitions or the commission of any offence under the Prevention of Corruption Acts 1889 to 1916 or the giving of any fee or reward the receipt of which is an offence under sub-section (2) of Section 117 of the Local Government Act 1972 by the <i>Contractor</i> or any <i>Employee</i> (whether such breach or offence is with or without the knowledge of the <i>Contractor</i>) in relation to this or any other Contract with the <i>Employer</i> shall entitle the <i>Employer</i> to terminate in accordance with Condition 9. In that case the <i>Contractor</i> is not entitled to payments on the Contract or Contracts beyond those (if any) provided for by Condition 9.</p>
--	--

Z3	Intellectual Property Rights and Data
Z3.1	For the purposes of this Condition: (a) " <i>Data</i> " means all data, information, text, drawings, codes, diagrams, images or sounds which are embodied in any electronic or tangible medium and which are processed by, or generated by, the <i>Contractor</i> under this Contract or otherwise generated by or on behalf of the <i>Employer</i> , and (b) " <i>Intellectual Property Rights</i> " means any patents, trade secrets, trade marks, service marks, trade names, copyrights and other rights in works of authorship (including rights in computer software), moral and artists' rights, design rights, trade or business names, domain names, know-how, database rights and semi-conductor topography rights and whether any of the foregoing are registered or unregistered and all rights or forms of protection of a similar nature in any country.
Z3.2	Each Party acknowledges that all <i>Intellectual Property Rights</i> owned by the other Party at the date of this Contract remain the property of that Party. Each Party grants the other a licence to use such <i>Intellectual Property Rights</i> to the extent that, and for so long as, such use is necessary for the purposes of this Contract.
Z3.3	All <i>Intellectual Property Rights</i> created by the <i>Contractor</i> in connection with this Contract (" <i>Developed IPR</i> ") are vested in the <i>Employer</i> absolutely upon the creation of such <i>Developed IPR</i> .
Z3.4	The <i>Contractor</i> hereby assigns the <i>Developed IPR</i> so as to give effect to Condition Z3.3 and hereby agrees that such <i>Developed IPR</i> shall vest absolutely in the <i>Employer</i> immediately upon such rights coming into existence and to that end the <i>Supplier</i> hereby assigns by way of assignment of future copyright all such <i>Developed IPR</i> to the <i>Employer</i> absolutely. The <i>Contractor</i> hereby unconditionally and irrevocably waives in relation to the <i>Developed IPR</i> all moral rights conferred by Chapter IV of Part I of the Copyright, Designs and Patents Act 1988 and all author's rights of a similar kind conferred by the law of any jurisdiction and shall procure such a waiver from the <i>Employees</i> .
Z3.5	The <i>Employer</i> hereby grants to the <i>Contractor</i> a non-exclusive, non-transferable licence to use and copy the <i>Developed IPR</i> solely for the purposes of fulfilling its obligations under this Contract.
Z3.6	For the avoidance of doubt, all <i>Intellectual Property Rights</i> in the <i>Data</i> are vested in the <i>Employer</i> upon their creation absolutely and the <i>Contractor</i> obtains no rights, title and interest in the <i>Data</i> whatsoever, except that the <i>Contractor</i> is permitted to use the <i>Data</i> solely for the purposes of fulfilling its obligations under this Contract. For the avoidance of doubt, such licence terminates with immediate effect upon expiry or termination of this Contract.
Z3.7	<p>Without prejudice to the <i>Employer's</i> other rights and remedies under this Contract, if any <i>Data</i> are corrupted or lost as a result of any act or omission of the <i>Contractor</i>, the <i>Employer</i> is entitled, at its option:</p> <p>a) to require the <i>Contractor</i> at the <i>Contractor's</i> own expense to restore or procure the restoration of the <i>Data</i>; or</p> <p>b) to restore or procure the restoration of the <i>Data</i> itself and at its own cost, in which case the <i>Contractor</i> pays to the <i>Employer</i> immediately upon demand, all costs and expenses incurred by the <i>Employer</i> in respect of such restoration.</p>

Z6	Confidentiality and Freedom of Information Act
Z6.1	The Contractor does not during the term of this Contract or at any time thereafter make use of for its own purposes, or disclose to any person (except as may be required by any applicable laws and regulations), any information contained in any material provided to it by the Employer pursuant to the Contract or prepared by the Contractor pursuant to the Contract, all of which information shall be deemed to be confidential.
Z6.2	The <i>Contractor</i> does not mention the <i>Employer's</i> name in connection with the Contract or disclose the existence of the Contract in any publicity or other similar communication to third parties without the <i>Employer's</i> prior consent in writing.
Z6.3	The <i>Contractor</i> ensures that its Employees do not disclose any information seen, read or heard during the performance of the Contract to any third party and shall indemnify and keep the <i>Employer indemnified</i> against any losses or claims arising from any such disclosure, including any costs incurred in defending or settling any claim in respect thereof.
Z6.4	The <i>Contractor</i> procures the compliance of its Employees with the provisions of this Condition.
Z6.4	This Condition shall survive the termination or expiry of this Contract.
Z6.4	The <i>Contractor</i> co-operates with the <i>Employer</i> to ensure compliance with the Freedom of Information Act 2000 (“the Act”). In the event that the <i>Employer</i> is required to provide information to any person as a result of a request made to it under the Act: <ul style="list-style-type: none"> 1. the <i>Contractor</i> responds in a timely manner to a request from the <i>Employer</i> for such information; and 2. the <i>Employer</i> has the right to disclose information relating to this Contract and the <i>Contractor</i>. The <i>Employer</i> agrees that it will not without the prior written consent of the <i>Contractor</i> disclose information of the type set out in the [Schedule/Proposal etc].
Z7	Exit
Z7.1	On the expiry or termination of this Contract, the <i>Contractor</i> provides to the <i>Employer</i> , as soon as reasonably practicable, in accordance with the <i>Quality Procedures</i> , copies (in such format and number as the <i>Employer</i> may specify) of the <i>Data</i> then held by the <i>Contractor</i> .
Z7.2	The <i>Contractor</i> is entitled to receive payment due up to the date of expiry or termination of this Contract.
Z7.3	This Condition Z7 shall survive expiry or termination of this Contract.

Z8	IPR Indemnity
Z8.1	The <i>Contractor</i> ensures that it has all rights necessary to assign any <i>Intellectual Property Rights</i> in accordance with Condition Z3.4, that the provision of the <i>works</i> by the <i>Contractor</i> and/or the receipt and use of the <i>works</i> by the <i>Employer</i> in accordance with the terms of this Contract shall not constitute an infringement or misappropriation of any <i>Intellectual Property Rights</i> of any third party.
Z8.2	If any person claims that the assignment by the <i>Contractor</i> pursuant to Condition Z3.4, the provision of the <i>works</i> by the <i>Contractor</i> and/or the receipt or use of the <i>works</i> by the <i>Employer</i> in accordance with the terms of this Contract constitutes an infringement or misappropriation of any <i>Intellectual Property Rights</i> , the <i>Contractor</i> shall indemnify the <i>Employer</i> and keep the <i>Employer</i> indemnified against all claims, demands, actions, costs, expenses (including but not limited to legal costs and disbursements on a full indemnity basis), losses and damages arising from or incurred by reason of any such infringement or misappropriation or allegation of such infringement or misappropriation (including, but not limited to, the defence of such alleged infringement or misappropriation).
Z8.3	Where the <i>Employer</i> receives a claim in respect of which the <i>Contractor</i> has granted an indemnity to the <i>Employer</i> pursuant to Condition Z8.2: <p>a) the <i>Employer</i> shall promptly notify the <i>Contractor</i> of the claim;</p> <p>b) the <i>Employer</i> shall at its own cost and expense be entitled to control the defence of the claim and any related proceedings or settlement negotiations, except that the <i>Employer</i> shall be entitled to take any action which it deems necessary if the <i>Contractor</i> fails to take action, or delays taking action, in defending or settling any such claim, proceedings or negotiations and such failure or delay may, in the reasonable opinion of the <i>Employer</i>, prejudice the interests of the <i>Employer</i>; and</p> <p>c) at the cost and expense of the <i>Contractor</i>, the <i>Employer</i> shall take all reasonable steps to co-operate with the <i>Contractor</i> in the defence of such claim, proceedings or negotiations.</p>
Z9	Contractor Obligations
Z9.1	The <i>Contractor</i> warrants and represents that in carrying out the <i>works</i> nothing shall be introduced into any of the <i>Employer's</i> systems, including, without prejudice to the generality of the foregoing, any computer program code, computer virus, computer worm, Trojan Horse, authorisation key, licence control utility or software lock, which is intended by any person to, is likely to, or may impair the operation of the works or any of the <i>Employer's</i> systems, or that may cause loss of, or corruption or damage to, any program or data held on the <i>Employer's</i> systems.
Z10	General
Z10.1	The Parties shall, and shall use all reasonable endeavours to procure that, any necessary third party (including, but not limited to, the <i>Employees</i>) shall, do and execute and perform all such further deeds, documents, assurances, acts and things as may be reasonably required to give effect to this Contract.
Z10.2	The failure of either Party to insist upon strict performance of any provision of this Contract, or the failure of either Party to exercise any right or remedy to which it is entitled under this Contract, shall not constitute a waiver of such right or remedy and shall not cause a

	diminution of the obligations established by this Contract. A waiver of any breach of contract shall not constitute a waiver of any subsequent breach of contract. No waiver of any of the provisions of this Contract shall be effective unless it is expressly stated to be a waiver and communicated to the other party in writing.
Z11	Audit The <i>Contractor</i> grants to the <i>Employer</i> , to any auditors of the <i>Employer</i> and to their respective authorised agents the right of reasonable entry from time to time and at any time to all records, sites and/or materials of the <i>Contractor</i> relating to this Contract and shall provide all reasonable assistance to the <i>Employer</i> and its auditors and agents for the purposes of carrying out an audit of all confidentiality, activities, performance and security issues relating to this Contract.
Z12	Liability
Z12.1	Delete Conditions 80 (Limitation of liability) and 81 (Indemnities) of the <i>conditions of contract</i> and replace with Conditions Z12.1 to Z12.5 that follow:
Z12.2	Neither party excludes or limits its liability to the other party in respect of death or personal injury or any other liability which by law it cannot exclude or limit.
Z12.3	The <i>Contractor</i> does not exclude or limit its liability to the <i>Employer</i> in respect of liability pursuant to a breach of Conditions Z3 (Intellectual Property Rights and Data), Z6 (Confidentiality and Freedom of Information), and Z8 (IPR Indemnity).
Z12.4	Neither Party is liable to the other party for loss of or damage to the other's property in excess of [£ 2,000,000.00] for any one event.
Z12.5	In all other circumstances a Party may recover only direct loss and the liability of the other party in respect of any one event shall be limited to £[£ 2,000,000.00] .

The *Contractor's* Offer

The Contractor is

Name

Address

Telephone

Fax

E-mail address

The percentage for overheads and profit added to the Contractor's cost for people is

The percentage for overheads and profit added to other Contractor's costs is

The *Contractor* offers to Provide the Works in accordance with the *conditions of contract*.

The offered total of the Prices is

Signed on behalf of the *Contractor*

Name

Position

Signature

Date

The *Employer's* Acceptance

The *Employer* accepts the *Contractor's* Offer to Provide the Works

Signed on behalf of the *Employer*

Name

Position

Signature

Date

Price List

PREAMBLE TO THE PRICE LIST

The prices entered against each item in the Price List shall allow for all costs of performing or procuring all activities and obligations required and described in, or that can reasonably be inferred from, the *Contract*, other than any which are specifically described in the *Contract* as costs to be borne by the *Employer*, to include but not limited to:

- All overhead costs
- All accommodation costs (temporary and permanent)
- Provision of accredited Equipment and personnel,
- Necessary traffic control, including escort vehicles
- Compliance with Quality Assurance procedures and liaison with the appointed Auditor
- Computer hardware and software including licences
- Standing time
- Weather delays
- Liaison with Highway Authority and Police
- Preparation of data for acceptance by UKPMS accredited system (HMDIF/BCD)

Completion is delivery of processed data in the specified format

The Price List forms the basis for payment. The amount entered against an item shall be the sum due to the *Contractor* on completion of the item. The *Employer* will not make any payment for work other than against completed items in the Price List. Completion of an item is deemed to include supplying the *Employer* with any relevant data. The *Employer* is not obliged to pay more frequently than calendar monthly.

Every item in the Price List shall be legibly priced in ink.

Item Number	Description	Unit	Quantity	Rate	Price
<i>[See Note 2.10]</i>					
The total of the Prices					

Works Information

1 Description of the *works*

The *Contractor* shall carry out SCANNER Surveys on the routes listed below, in the directions shown and provide processed data in the form [*See note 2.11*]

[*Where the Contract is for more than one year it will be usual to give full details of year one with intentions for years two and onwards. See Note2.1*]

2 Drawings – [*Network drawing etc See Note 2.1*]

Works Information

3 Specification

Title	Date or revision	Tick if publicly available
SCANNER Surveys for Local Roads	[<i>March 2005</i>]	✓

4 Constraints on how the *Contractor* Provides the Works are as given in the *Specification*. [*Additional constraints are listed below. See Note 2.12*]

[Details of roads to be surveyed are included in drawings/schedules]

Halcrow Group Limited
Red Hill House 227 London Road Worcester WR5 2JG
Tel +44 (0)1905 361361 Fax +44 (0)1905 361362
www.halcrow.com