

TENDER NO. 110S/2025/26



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

SCM – 510

Approved by Branch Manager: 15/07/2024

Version: 6.4

Page 1 of 261

CONTRACT DOCUMENT

FOR THE

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

FRAMEWORK CONTRACT PERIOD: 36 MONTHS FROM DATE OF COMMENCEMENT

THE TENDER

NOTE:

- The Form of Offer and Acceptance (C1.1) is on page 19 of this document
- Table 1: Tender Preference Claim Form on page 56 of this document

ISSUED BY:

**DIRECTOR
URBAN MOBILITY
PUBLIC TRANSPORT SYSTEMS
CITY OF CAPE TOWN**
Tower Block, Civic Centre
12 Hertzog Boulevard
CAPE TOWN
8001

COMPILED BY:

**INNOVATIVE TRANSPORT
SOLUTIONS**
5th Floor, Imperial Terraces
Carl Cronje Drive
Tyger Waterfront
BELLVILLE
7530

FOR OFFICIAL USE.

Tender Serial No.:

Signatures of City Officials at Tender Opening

1.

2.

3.

OCTOBER 2025

NAME OF TENDERING ENTITY

EMAIL ADDRESS OF TENDERING ENTITY

FAX NUMBER OF TENDERING ENTITY

NATURE OF TENDER OFFER (please indicate below)

Main Offer (see clause C.2.12)

Alternative Offer (see clause C.2.12)

FILE REFERENCE NO:

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

General Tender Information

TENDER ADVERTISED	:	21 November 2025
ESTIMATED CIDB CONTRACTOR GRADING DESIGNATION	:	Not Applicable
SITE VISIT/CLARIFICATION MEETING	:	10h00 on 05 December 2025 (Compulsory Physical Site Meeting)
VENUE FOR SITE VISIT/CLARIFICATION MEETING	:	Transport Management Centre (TMC): Hugo Street & Smartt Street - Refer to Locality Plan – Site Visit/Clarification Meeting Venue overleaf
CLOSING DATE	:	26 January 2026
CLOSING TIME	:	10h00
TENDER BOX & ADDRESS	:	Tender Box 183 at the Tender & Quotation Box Office , 2 nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town.

The Tender Document (which includes the Form of Offer and Acceptance) completed in all respects, plus any additional supporting documentation required, must be submitted in a sealed envelope with the name and address of the tenderer, the tender No. and title, the tender box No. and the closing date indicated on the envelope. The sealed envelope must be inserted into the appropriate official tender box before closing time.

If the tender offer is too large to fit into the abovementioned box or the box is full, please enquire at the public counter (Tender Distribution Office) for alternative instructions. The onus remains with the tenderer to ensure that the tender is placed in either the original box or as alternatively instructed.

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADE MARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS 'OR EQUIVALENT'

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

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Part T1: Tendering procedures

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CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

T1.1 Tender Notice and Invitation to Tender

The CITY OF CAPE TOWN, URBAN MOBILITY PUBLIC TRANSPORT SYSTEMS, invites tenders for Tender No. 110S/2025/26: **MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS.**

Tenderers must be registered on Supplier Databases as described in the tender conditions.

Tenderers who are not registered on these Supplier Databases are not precluded from submitting tenders, but must however be registered upon being requested to do so in writing and within the period contained in such a request.

Preferences are offered to tenderers who tender in accordance with the Preferential Procurement Regulations and the City of Cape Town's Supply Chain Management Policy (SCM Policy). Furthermore, in terms of these Regulations and the SCM Policy, tenderers are required to meet the HDI and/or RDP specific goals

The physical address for collection of tender documents is:

Tender Distribution Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town.

Documents may be collected during working hours between 08:30 – 15:00 from **21 November 2025**.

A non-refundable tender fee of R200.00 payable by cash or Electronic Funds Transfer (EFT) in favour of the City of Cape Town, is required on collection of the tender documents.

The Employer's Information Officer who is responsible for overseeing questions in relation to data protection may be contacted at via email Popia@capetown.gov.za. Additional contact details are provided in clause C.1.6.5.6 of the Tender Data.

Queries relating to any issues in these documents may be addressed to SCM.Tenders15@capetown.gov.za.

A compulsory site visit/clarification meeting with representatives of the Employer will take place at the Transport Management Centre (TMC) (Refer to Locality Plan – Site Visit/Clarification Meeting Venue overleaf) on **05 December 2025** starting at 10:00. Tenderers are to indicate their attendance by email to SCM.Tenders15@capetown.gov.za at least 24 hours prior to the meeting in order to arrange parking. Alternatively, tenderers can park outside of the premises and enter on foot.

The closing time for receipt of tenders is **10:00 on 26 January 2026**.

Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted.

Tenders may only be submitted on the tender documentation that has been issued. Printed Schedules of Rates, in the same format (that is, layout, scheduled items and rates) as those issued electronically by the Employer upon request, may be submitted as stated in the Tender Data.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.



CITY OF CAPE TOWN
URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS
CONTRACT NO. 110S/2025/26
MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS
LOCALITY PLAN – SITE VISIT/CLARIFICATION MEETING VENUE

T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of Government Gazette No. 42622 of 8 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement (see www.cidb.org.za), which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

Clause Number	Tender Data
---------------	-------------

C.1 General

C.1.1 Actions

C.1.1.1 Add the following:

The parties agree that this tender, its evaluation and acceptance and any resulting contract shall also be subject to the Employer's Supply Chain Management Policy ('SCM Policy') that was applicable on the date the tender was advertised, save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender, such clause shall also be applicable to that contract. Please refer to this document contained on the Employer's website.

Abuse of the supply chain management system is not permitted and may result in the tender being rejected, cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other remedies available to it as described in the SCM Policy and / or applicable law.

The Employer is the City of Cape Town ("City" or "CCT"), represented by the [Director: URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS.]

C.1.2 Tender Documents

Add the following:

The documents issued by the employer for the purpose of this tender, is described in the **Contents** page preceding **Part T1: Tendering Procedures** of this document.

In addition to the above, the following further documents are part of the tender:

VOLUME 1: Not applicable to this tender

VOLUME 2: Not applicable to this tender.

VOLUME 3 The Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition 1999 (Yellow Book), published by the International Federation of Consulting Engineers (FIDIC).

This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering (SAICE) (tel 011 805 5947) or Consulting Engineers South Africa (CESA) (tel 011 463 2022).

VOLUME 4 : [The Works Project contract document (this is a separate document to be issued for each Works Project)]

The standard forms of contract and the applicable reference standards may also be reviewed, by appointment, at the offices of the Employer's agent during normal office hours.

C1.2.1 The employer will only issue tender documents through its Tender Distribution Office as described on **T1.1 Tender Notice and Invitation to Tender**. Bidders who obtain documents through any means other than described herein, will not be known to the employer and may thus not receive tender notices and addendums.

It is the responsibility of bidders who obtain documents through any means other than described herein to notify the employer in accordance with C1.4 of these tender conditions that they are participating in the tender. The employer accepts no liability for any tender notices or addendums not reaching any bidders who obtained documents through any means other than described herein.

C1.4 **Communication and employer's agent**

Delete the first sentence of the clause and replace with the following:

Verbal or any other form of communication, from the Employer, its employees, agents or advisors during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer, unless communicated by the Employer in writing to suppliers by its Director: Supply Chain Management or his nominee.

The Employer's contact details are:

Name: SCM Department
Address: City of Cape Town
..... Civic Centre
..... 12 Hertzog Boulevard
..... Cape Town 8001
Tel: 021 400 0000
E-mail: SCM.Tenders15@capetown.gov.za

C1.5 **Cancellation and Re-Invitation of Tenders**

Delete the full stop at the end of C.1.5.1 d) and replace with, or Add the following after C.1.5.1 d):

e) the parties are unable to negotiate market related pricing.

C1.6 Procurement Procedures

C1.6.1 **General**

Add the following to C.1.6.1:

The Employer intends to appoint one (1) tenderer as the Winner of this Framework Contract for the entire City of Cape Town Municipal Area (City-wide). The total scope of work shall be executed through allocated Works Projects (WPs) per Financial Year, corresponding to the phases outlined in C3.1. (3.1.3.4). The contract period shall be 36 months from date of commencement.

C1.6.2 **Competitive negotiation procedure**

Add the following to C.1.6.2.1:

A competitive negotiation procedure will not be followed.

C1.6.3 **Proposal procedure using the two-stage system**

Add the following to C.1.6.3 and C.1.6.3.1:

A two-stage system will not be followed.

Add the following after C.1.6.3.2.2

C1.6.4 **Nomination of Standby Supplier**

Standby Supplier means a bidder, identified at the time of awarding a bid, that will be considered for award should the contract be terminated for any reason whatsoever. In the event that a contract is terminated during the execution thereof, the CCT may consider the award of the contract, or non-award, to the standby supplier in terms of the procedures included its SCM Policy.

- C.1.6.5 **Objections, complaints, queries and disputes/ Appeals in terms of Section 62 of the Systems Act/ Access to court**
- C.1.6.5.1 **Disputes, objections, complaints and queries**
In terms of Regulations 49 and 50 of the Local Government: Municipal Finance Management Act, 56 of 2003 – Municipal Supply Chain Management Regulations (Board Notice 868 of 2005):
- a) Persons aggrieved by decisions or actions taken by the City of Cape Town in the implementation of its supply chain management system, may lodge within 14 days of the decision or action, a written objection or complaint or query or dispute against the decision or action.
- C.1.6.5.2 **Appeals**
- a) In terms of Section 62 of the Local Government: Municipal Systems Act, 32 of 2000 a person whose rights are affected by a decision taken by the City, may appeal against that decision by giving written notice of the appeal and reasons to the City Manager within 21 days of the date of the notification of the decision.
 - b) An appeal must contain the following:
 - i) Must be in writing
 - ii) It must set out the reasons for the appeal
 - iii) It must state in which way the Appellant's rights were affected by the decision;
 - iv) It must state the remedy sought; and
 - v) It must be accompanied with a copy of the notification advising the person of the decision
 - c) The relevant City appeal authority must consider the appeal and **may confirm, vary or revoke** the decision that has been appealed, but no such revocation of a decision may detract from any rights that may have accrued as a result of the decision.
- C.1.6.5.3 **Right to approach the courts and rights in terms of Promotion of Administrative Justice Act, 3 of 2000 and Promotion of Access to Information Act, 2 of 2000**
The sub- clauses above do not influence any affected person's rights to approach the High Court at any time or its rights in terms of the Promotion of Administrative Justice Act and Promotion of Access to Information Act.
- C.1.6.5.4 All requests referring to sub clauses C.1.6.5.1 and C.1.6.5.2 must be submitted in writing to:
- The City Manager** - C/o the Manager: Legal Compliance Unit, Legal Services Department, Corporate Services Directorate
- Via hand delivery at:** 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001
- Via post at:** Private Bag X918, Cape Town, 8000
- Via email at:** MSA.Appeals@capetown.gov.za
- C.1.6.5.5 All requests referring to clause C.1.6.5.3 must be submitted in writing to:
- The City Manager** - C/o the Manager: Access to Information Unit, Corporate Services Directorate
- Via hand delivery at:** 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001
- Via post at:** Private Bag X918, Cape Town, 8000
- Via email at:** Access2info.Act@capetown.gov.za
- C.1.6.5.6 **The minimum standards regarding accessing and 'processing' of any personal information belonging to another in terms of Protection of Personal Information Act, 2013 (POPIA).**
- For purposes of the contract and these Conditions of Tender, the terms "data subject", "Personal Information" and "Processing" shall have the meaning as set out in section 1 of POPIA, and "Process" shall have the corresponding meaning.
- The Employer, its employees, representatives and sub-contractors may, from time to time, process the tenderer's and/or its employees', representatives' and/or sub-contractors' personal information, for purposes of, and/or relating to, the tender, the contract and these conditions of tender, for research purposes, and/or as otherwise may be envisaged in the Employer's Privacy Notice and/or in relation to the Employer's Supply Chain Management Policy or as may be otherwise permitted by law. This includes the processing of the latter personal information by the Employer's due diligence assurance provider, professional advisors and the Appeal Authority as applicable. The Employer's justification for the processing of such aforesaid personal information is based on section 11(1)(b) of POPIA, i.e., in terms of which the Employer's processing

of the said personal information is necessary to carry out actions for the conclusion and/or performance of the contract, to which the applicable data subject (envisaged in this clause 2.1.6.6 above) is a party.

All requests relating to data protection must be submitted in writing to:

The City Manager - C/o the Information Officer, Corporate Services Directorate

Via hand delivery at: 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001

Via post at: Private Bag X918, Cape Town, 8000

Via fax at: 086 202 9982

Via email at: Popia@capetown.gov.za.

C.1.6.5.7 Compliance to the City's Appeals Policy.

In terms of the City's Appeals Policy, a fixed upfront administration fee will be charged. In addition, a surcharge may be imposed for vexatious and frivolous or otherwise manifestly inappropriate tender related appeals.

The current approved administration fee is R300.00 and may be paid at any of the Municipal Offices or at the Civic Centre in Cape Town using the GL Data Capture Receipt attached as annexure 'A' (see Schedule 26). Alternatively, via EFT into the City's **NEDBANK** Account: **CITY OF CAPE TOWN** and using Reference number: **198158966**. You are required to send proof of payment when lodging your appeal.

Should the payment of the administration fee of R300.00 or the surcharge not be received, such fee or surcharge will be added as a Sundry Tariff to the bidder's municipal account.

In the event where the bidder does not have a Municipal account with the City, the fee or surcharge may be recovered in terms of the City's Credit Control and Debt Collection By-law, 2006 (as amended) and its Credit Control and Debt Collection Policy.

C.1.7 City of Cape Town Supplier Database Registration

Tenderers are required to be registered on the CCT Supplier Database as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the City of Cape Town's Supplier Database may collect registration forms from the Supplier Management Unit located within the Tender Distribution Office, 2nd Floor (Concourse Level), Civic Centre, 12 Hertzog Boulevard, Cape Town (Tel 021 400 9242/3/4/5). Registration forms and related information are also available on the City of Cape Town's website www.capetown.gov.za (follow the Supply Chain Management link to Supplier registration).

C.1.8 National Treasury Web Based Central Supplier Database (CSD) Registration

Tenderers are required to be registered on the National Treasury Web Based Central Supplier Database (CSD) as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the National Treasury Web Based Central Supplier Database (CSD) may do so via the web address <https://secure.csd.gov.za>.

It is each tenderer's responsibility to keep all the information on the National Treasury Web Based Central Supplier Database (CSD) updated.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 Tenderers are obligated to submit a tender offer that complies in all aspects to the conditions as detailed in this tender document. An 'acceptable tender must "COMPLY IN ALL aspect with the tender conditions, specifications, pricing instructions and contract conditions.

Add the following after C.2.1.2:

C.2.1.3 Only those tender submissions from which it can be established that a clear and unambiguous offer has been made to Employer, by whom the offer has been made and what the offer constitutes, will be declared responsive.

C.2.1.4 Only those tenders that satisfy the following criteria will be declared responsive:

C.2.1.4.1 Construction Industry Development Board (CIDB) Registration

Not applicable to this tender.

C.2.1.4.2 Compliance with requirements of CCT SCM Policy and procedures

Only those tenders that are compliant with the requirements below will be declared responsive:

- a) A completed **Compulsory Enterprise Questionnaire** to be provided (applicable schedule to be completed);
- b) A completed **Certificate of Authority for Partnerships/ Joint Ventures/ Consortiums** to be provided authorising the tender to be made and the signatory to sign the tender on the partnership /joint venture/consortium's behalf (applicable schedule to be completed);
- c) A copy of the partnership / joint venture / consortium agreement to be provided;
- d) A completed **Declaration of Interest – State Employees** to be provided and which does not indicate any non-compliance with the legal requirements relating to state employees (applicable schedule to be completed);
- e) A completed **Declaration – Conflict of Interest** and **Declaration of Bidder's past Supply Chain Management Practices** to be provided and which does not indicate any conflict or past practices that renders the tender non-responsive based on the conditions contained thereon (applicable schedules to be completed);
- f) A completed **Certificate of Independent Bid Determination** to be provided and which does not indicate any non-compliance with the requirements of the schedule (applicable schedule to be completed);
- g) The tenderer (including any of its directors or members), has not been restricted in terms of abuse of the Supply Chain Management Policy;
- h) The tenderer's tax matters with SARS are in order, or the tenderer is a foreign supplier that is not required to be registered for tax compliance with SARS;
- i) The tenderer is not an advisor or consultant contracted with the Employer whose prior or current obligations creates any conflict of interest or unfair advantage;
- j) The tenderer is not a person, advisor, corporate entity or a director of such corporate entity, involved with the bid specification committee;
- k) A completed Authorisation for the Deduction of Outstanding Amounts Owed to the City of Cape Town to be provided and which does not indicate any details that renders the tender non-responsive based on the conditions contained thereon (applicable schedules to be completed);
- l) The tenderer (including any of its directors or members), has not been found guilty of contravening the Competition Act 89 of 1998, as amended from time to time;
- m) The tenderer (including any of its directors or members), has not been found guilty on any other basis listed in the Supply Chain Management Policy.

C.2.1.4.3 OEM Support Status

For interoperability and warranty reasons of current Phase 1 systems the tenderer must supply and maintain software and hardware from the Original Equipment Manufacturers (OEM's). Therefore, the following shall apply:

1. The tenderer must include letters of support from Mentz Datenverarbeitung (MDV) and Trapeze with the following detail.
 - The letters must state that the OEM offers their support to the tenderer to install and maintain their systems.
 - The letters must be on the OEM letterhead and signed by the OEM.
 - The letter must include a date for the current calendar year (2025).
 - The letters must be addressed to the main tendering entity or a JV partner within the tendering entity.

- The letters must be appended to Schedule 27: OEM Support Status.

Failure to comply with point 1 above will result in the tender being declared non-responsive.

2. Tenderers must offer on-board hardware fully integrated and compatible with the current systems from the OEM's Trapeze and Hikvision and the following shall apply:

- Tenderers must declare the make (manufacturer) and model of on-board hardware as part of their offer in Schedule 27 OEM Support Status.
- Should the tenderer offer a Vehicle Logic Unit (VLU) and / or Mobile Data Terminal (MDT) not from Trapeze and / or a Network Video Recorder (NVR) not from Hikvision a letter from the respective current OEM must be submitted.
- The letter from the current OEM (if applicable per previous point) must state that the proposed alternative hardware is fully integrated with the current installation and does not limit system functionality or performance.
- The letter must include a date for the current calendar year (2025).

Failure to comply with point 2 above will result in the tender being declared non-responsive.

C.2.1.4.4 PSIRA Registration

The Tenderer or his sub-contractor responsible for the installation of the on-board CCTV system must be registered with the Private Security Industry Regulatory Authority (PSIRA). Proof of valid PSIRA Registration or renewal of registration at time of tender closing with PSIRA shall be submitted with the tender as per the Private Security Industry Regulation Act (Act 56 of 2001) and shall be attached to Schedule 12: Confirmation of Contractor Registration / Accreditation.

Registration with PSIRA can be either in the name of the tendering entity, a JV partner within the tendering entity or a subcontractor responsible for the installation of the on-board CCTV system. In case of a subcontractor, the identical name of the subcontractor must be recorded in Schedule 19: Schedule of Sub-Contractors. Should PSIRA registration be that of a subcontractor and the name of the subcontractor is not recorded identical in Schedule 19 the tender will be declared non-responsive.

C.2.1.4.5 Minimum score for functionality

In order to be considered for a contract in terms of this tender, tenderers must achieve the minimum score for functionality as stated below.

The functionality criteria will be scored across two (2) categories. The categories and maximum possible score for each is shown in the table below. The total score achieved for functionality will be the sum of the scores of the different categories.

Item	Category of functionality criteria and applicable schedule	Maximum score
1	Relevant Experience of the Tendering Entity <u>(SCHEDULE 10: SCHEDULE OF WORK EXPERIENCE OF TENDERER)</u>	50
2	Key Resources <u>(SCHEDULE 13: DETAILS OF QUALIFICATIONS AND EXPERIENCE OF STAFF)</u>	50
Total Score		100
Score (Minimum = 70%)		70

The minimum score for functionality is **70**. Tenderers that fail to achieve the minimum score for functionality will be declared as non-responsive.

Where the entity tendering is a Joint Venture the tender must be accompanied by a statement describing exactly what aspects of the work will be undertaken by each party to the joint venture (appended to Schedule 3, Part C5.2: Returnable Schedules).

Tenderers shall ensure that all relevant information has been submitted with the tender offer in the prescribed format to ensure optimal scoring of functionality points for each Evaluation Criteria. Failure to provide all information **IN THIS TENDER SUBMISSION** could result in the tenderer not being able to achieve the specified minimum scoring.

1. Relevant Experience of the Tendering Entity		Max 50
	<p>Preamble to experience claimed for APTMS projects.</p> <ul style="list-style-type: none"> All amounts stated in this table excl. VAT. Where experience is claimed for work done as part of a Joint Venture (JV), consortium or partnership, the tenderer must indicate what proportion of the work was completed by him and multiply this with the APTMS project value. For example, if a tenderer implemented / maintained 50% of an APTMS project to the value of R 50 million, the value against which experience may be claimed is 50% * R 50 million = R 25 million. Experience from a project that included other systems (e.g. CCTV or AFC) only the value of the APTMS portion of the project may be used to claim points. For example: A tenderer was part of a JV on a combined APTMS/AFC project with total value of R150m. The value of the APTMS portion of the works was R70m. The tenderer implemented / maintained 50% of the APTMS component. The value against which experience may be claimed is 50% * R 70 million = R 35 million. The work experience presented must be that of the tendering entity or JV partner within the tendering entity and not of a subcontractor or key staff members. Tenderers must complete Schedule 10: Schedule of work experience of tenderer to demonstrate this experience. The sum of values of multiple projects (including capital works and maintenance projects) may be used to claim points. Experience can be claimed against on-going projects, only up to the value of the works completed. The tenderer must provide evidence of successful implementation / maintenance of the APTMS in the form of a final taking over certificate or a letter from the client indicating the value of works and that the system was successfully commissioned / maintained. Such evidence must be attached to Schedule 10: Schedule of work experience of tenderer. Only those projects for which evidence are provided will be used to determine the total value of works against which points may be claimed. 	
	Experience of Advanced Public Transport Management System (APTMS) projects (SCHEDULE 10: SCHEDULE OF WORK EXPERIENCE OF TENDERER). (Max. possible score: 50)	
#	Description of criteria	Points
a	No evidence or projects with accumulative value less than those stated per point b below.	0
b	Evidence of one or more projects, where the Tenderer has successfully commissioned and / or maintained one or more Advanced Public Transport Management Systems (APTMS) projects with accumulative values per below:	
	i. R25 million to R50 million excl. VAT	10

ii.	> R50 million to R75 million excl. VAT	20
iii.	> R75 million to R100 million excl. VAT	30
iv.	> R100 million to R150 million excl. VAT	40
v.	> R150 million excl. VAT	50
	Maximum possible score	50

2. Key Resources (SCHEDULE 13: DETAILS OF QUALIFICATIONS AND EXPERIENCE OF STAFF) (Max. possible score: 50)		Max. 50
	<p>Preamble to experience claimed for Key Resources</p> <ul style="list-style-type: none"> • Proof of qualification through a certified copy (for stipulated NQF level) and personnel CV must be submitted. • The CV must have sufficient information to validate the experience claimed. • Tenderers must complete Schedule 13: <i>Details of qualifications and experience of staff</i>. Proof of qualification through a certified copy and CV for each person must be submitted with this schedule. • The tenderer must provide only one specific person per key position. The same person may not be used for more than one position. • The Project Manager listed below shall assume the responsibilities of The Contractor's Representative as defined by the FIDIC Conditions of Contract, sub-clause 4.3. • The Project Manager shall be employed full-time on this project. • Key personnel may not be replaced during the tender process. Should it become necessary to replace any of the key personnel listed below after contract award, they may only be replaced by individuals with similar or better qualifications and experience, who satisfy the minimum requirements and then only with the prior written approval of the Employer. • <u>Qualifications from international institutions shall be SAQA approved.</u> 	
a)	Contract Manager	Max 10
i.	Qualification	Max 4
	➤ Lower than NQF 7 / bachelor's degree, B-Tech or Advanced Diploma in any field	0
	➤ NQF 7 / bachelor's degree, B-Tech or Advanced Diploma in any field	2
	➤ NQF 8 (or higher) / Honours Degree or Post Graduate Diploma in any field	4
ii.	Experience	Max 6
	➤ Less than and up to 5 years accumulated experience specifically as a contract or project manager in APTMS/AFC/ITS related projects	0
	➤ More than 5 years' up to 10 years accumulated experience specifically as a contract or project manager in APTMS/AFC/ITS related projects	4
	➤ More than 10 years accumulated experience specifically as a contract or project manager in APTMS/AFC/ITS related projects	6

b)	Project Manager (Contractor's Representative as per FIDIC Condition of Contract, sub-clause 4.3)	Max 12
i.	Qualification	Max 4
	➤ Lower than NQF 7 / bachelor's degree, B-Tech or Advanced Diploma in any field	0
	➤ NQF 7 / bachelor's degree, B-Tech or Advanced Diploma in any field	2
	➤ NQF 8 (or higher) / Honours Degree or Post Graduate Diploma in any field	4
ii.	Experience	Max 8
	➤ Less than and up to 5 years accumulated experience specifically as a contract or project manager in APTMS/AFC/ITS related projects	0
	➤ More than 5 years' up to 10 years accumulated experience specifically as a contract or project manager in APTMS/AFC/ITS related projects	4
	➤ More than 10 years accumulated experience specifically as a contract or project manager in APTMS/AFC/ITS related projects	8
c)	Technical/Maintenance Manager	Max 12
i.	Qualification	Max 4
	➤ Lower than NQF 6 / National Diploma or an Advanced Certificate in any technical field like engineering, IT, or similar	0
	➤ NQF 6 / National Diploma or an Advanced Certificate in any technical field like engineering, IT, or similar	2
	➤ NQF 7 (or higher) / bachelor's degree, B-Tech or Advanced Diploma in any technical field like engineering, IT, or similar	4
ii.	Experience	Max 8
	➤ Less than and up to 5 years accumulated experience specifically as a technical/maintenance manager in APTMS/AFC related projects	0
	➤ More than 5 years' up to 10 years accumulated experience specifically as a technical/maintenance manager in APTMS/AFC related projects	4
	➤ More than 10 years accumulated experience specifically as a technical/maintenance manager in APTMS/AFC related projects	8
d)	Senior Maintenance Technician	Max 8
i.	Qualification	Max 2
	➤ Lower than NQF 5 / Higher Certificate, Advanced National Vocational Certificate or an N4-6 National Qualification or better in a technical field like engineering, IT, or similar.	0
	➤ NQF 5 / Higher Certificate (or higher), Advanced National Vocational Certificate or an N4-6 National Qualification or better in a technical field like engineering, IT, or similar	2
ii.	Experience	Max 6
	➤ Less than and up to 4 years accumulated work experience as a technician in APTMS/ICT/CCTV/AFC related projects	0
	➤ More than 4 years' up to 8 years accumulated work experience as a technician in APTMS/ICT/CCTV/AFC related projects	3
	➤ More than 8 years accumulated work experience as a technician in APTMS/ICT/CCTV/AFC related projects	6
e)	Systems Administrator	Max 8
i.	Qualification	Max 2
	➤ Lower than NQF 6 / National Diploma or an Advanced Certificate in any technical field like engineering, IT, or similar.	0
	➤ NQF 6 / National Diploma or an Advanced Certificate in any technical field like engineering, IT, or similar	1

	➤ NQF 7 (or higher) / bachelor's degree, B-Tech or Advanced Diploma in any technical field like engineering, IT, or similar	2
ii.	Experience	Max 6
	➤ Less than and up to 5 years accumulated experience specifically as a systems administrator in APTMS/ICT/CCTV /AFC related projects	0
	➤ More than 5 years' up to 10 years accumulated experience specifically as a systems administrator in APTMS/ICT/CCTV /AFC related projects	3
	➤ More than 10 years accumulated experience specifically as a systems administrator in APTMS/ICT/CCTV /AFC related projects	6
	Maximum possible score	50

C.2.1.4.6 Compulsory clarification meeting

Tenderers are required to attend a compulsory clarification meeting at which they may familiarise themselves with aspects of the proposed work, services or supply and pose questions.

Details of the meeting(s) are stated in the General Tender Information.

Only those tenders submitted by tenderers whose attendance at this meeting have been recorded will be declared responsive.

C.2.1.4.7 Good standing with Bargaining Council

Not applicable to this tender.

C.2.3 Check documents

C.2.3 *Delete the clause and replace with the following:*

The Tenderer should check the tender documents on receipt for completeness, missing or duplicated pages, indistinct figures or writing and any obvious errors. The Tenderer must notify the Employer's agent at once of any such problems identified

C.2.7 Clarification meeting

Add the following after the second sentence:

The arrangements for the site visit/clarification meeting are as stated on the General Tender Information page and in the Responsiveness Criteria (if applicable).

Tenderers should be represented at the site visit/clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.

C.2.8 Seek Clarification

Add the following after the first sentence:

The tenderer warrants that it has:

- inspected the Specifications and read and fully understood the Conditions of Contract.
- read and fully understood the whole text of the Specifications and Price Schedule and thoroughly acquainted itself with the nature of the goods proposed and generally of all matters which may influence the Contract.
- visited the site(s) where delivery of the proposed works will take place, carefully examined existing conditions, the means of access to the site(s), the conditions under which the delivery is to be made, and acquainted itself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and equipment to and from the site(s) and made the necessary provisions for any additional costs involved thereby.
- requested the Employer to clarify the requirements contained in the Specifications and Price Schedule, the exact meaning or interpretation of which is not clearly intelligible to the tenderer.
- received any notices to the tender documents which have been issued in accordance with the Employer's SCM Policy.

The Employer will therefore not be liable for the payment of any extra costs resulting from any claim submitted by the tenderer arising from any alleged ambiguity or uncertainty contained in the tender document.

C.2.11 Alterations to documents

Delete the first sentence and replace with the following:

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer in writing, or necessary to correct errors made by the tenderer.

C.2.12 Alternative tender offers

C.2.12.1 *Add the following to C.2.12.1 at the end of the first sentence:*

If a tenderer wishes to submit an alternative tender offer, he shall do so as a separate offer on a separate set of tender documents. The alternative tender offer shall be submitted in a separate sealed envelope on a separate Form of Offer, both clearly marked "Alternative Tender" in order to distinguish it from the main tender offer.

While it is not necessary to duplicate all parts of the main tender offer, the alternative tender offer shall be supported by the following documents as applicable:

- a) the schedule that compares the alternative(s) offered with the requirements of the issued tender documents
- b) preliminary designs, calculations, drawings and all other pertinent technical information and characteristics must be submitted with the alternative tender offer, in order to enable the Employer to evaluate the efficacy of the alternatives proposed
- c) revised Bills of Quantities, or parts thereof, highlighting the changes made, together with a revised Summary, the total of which has been carried to the Form of Offer
- d) details of any proposed amendments to the Pricing Assumptions

An alternative of the highest ranked acceptable main tender offer that is priced higher than the main tender offer may be recommended for award, provided that the ranking of the alternative tender offer is higher than the ranking of the next ranked acceptable main tender offer.

The Employer's costs in confirming the acceptability of the alternative offer will be, *inter alia*, taken into account in considering the alternative offer.

The Employer will not be bound to consider alternative tenders and shall have sole discretion in this regard.

In the event that the alternative is accepted, the Contractor shall accept full responsibility that the alternative offer complies in all respects with the Employer's standards and requirements.

C.2.13 Submitting a tender offer

C.2.13.1 *Add the following to C.2.13.1 at the end of the first sentence:*

Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

C.2.13.5 *Delete the clause and replace with the following*

C.2.13.5 The tender submission details are all described on the General Tender Information page. If it is not possible to submit the original tender and the required copies (see C.2.13.3) in a single envelope, then seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY" in addition to the aforementioned tender submission details.

Add the following to C.2.13.6:

C.2.13.6 A two-envelope procedure will **not** be followed (C.3.5).

Add the following after C.2.13.9:

C.2.13.10 By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.

C.2.13.11 The Employer shall not formally issue tender documents in electronic format and shall only issue tender documents in hardcopy. An electronic version of the issued tender documents, or elements thereof, may be made available to the tenderer at the Employer's discretion, upon written request in terms of this clause, subject to the following:

- a) Electronic copies of the issued tender documents, or parts thereof, will only be provided to tenderers who have been issued with the tender documents as contemplated in C.1.2 in hardcopy.
- b) The electronic version shall not be regarded as a substitute for the issued tender documents.
- c) The Employer shall not accept tenders submitted in electronic format. Only those tenders that have been completed on the issued hard copy tender document shall be considered, provided that printed Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer, may be submitted with the tender as stated in C.2.13.2.
- d) Where Addenda have been issued which amend the Bills of Quantities, then the printed Schedule of Rates shall take these into account. The pages of the issued Schedule of Rates should not be removed from the tender document.
- e) The Employer accepts no responsibility or liability arising from any reliance on or use of the electronic version provided in terms of this clause. Tenderers are alerted to the fact that electronic versions of the tender documents may not reflect any notices or addenda that amend the tender document.

- f) Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in C.2.11, shall render the tender non-responsive. The Employer reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.
- g) In requesting the electronic version of the tender documents or parts thereof, the tenderer is deemed to have read, understood and accepted all of the above conditions.

[]

C.2.15 **Closing time**

Add the following to C.2.15.1 after the first sentence:

C.2.15.1 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

[]

C.2.16 **Tender offer validity**

Add the following to C.2.16.1 after the first sentence:

C.2.16.1 The tender offer validity period is **12 weeks (84 days)**.

[]

C.2.16.2 *Delete the clause and replace with the following:*

Notwithstanding the period stated above, bids shall remain valid for acceptance for a period of twelve (12) months after the expiry of the original validity period, unless the City is notified in writing of anything to the contrary by the bidder. The validity of bids may be further extended by a period of not more than six months subject to mutual agreement and administrative processes and upon approval by the City Manager, unless the required extension is as a result of an appeal process or court ruling.

In circumstances where the validity period of a tender has expired, and the tender has not been awarded, the tender process is considered "completed", despite there being no decision (award or cancellation) made. This anomaly does not fall under any of the listed grounds of cancellation and should be treated as a "non award". A "non award" is supported as a recommendation to the BAC for noting.

[]

C.2.17 **Clarification of tender offer after submission**

Add the following to C.2.17 at the end of the third sentence:

A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documents requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documents.

[]

C.2.18 **Provide other material**

Delete the following word in C.2.18.1:

C.2.18.1 notarized

[]

Add the following to C.2.18.1 at the end of the first paragraph:

Provide, on written request by the Employer, where the transaction value (tendered amount) inclusive of VAT **exceeds R 10 million:**

- a) audited annual financial statement for the past 3 years, or for the period since establishment if established during the past 3 years, if required by law to prepare annual financial statements for auditing;
- b) a certificate signed by the tenderer certifying that the tenderer has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days;
- c) particulars of any contracts awarded to the tenderer by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract;
- d) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard.

[]

Add the following after C.2.18.2:

C.2.18.3 Tenderers shall fully cooperate with the Employer's external service provider or internal official(s) appointed to perform a due diligence review and risk assessment upon receipt of such written instruction from the Employer.

Failure to fully cooperate could result in a tender being declared as non-responsive.

[]

C.2.18.4 **Compliance with Occupational Health and Safety Act, 85 of 1993**

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

[]

In this regard the Tenderer shall submit with his tender or upon request, appended to Schedule 20: Health and Safety Plan in C5.2: Returnable Schedules, a draft Health and Safety Plan in respect of the Works in sufficient detail to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act, Regulations and Health and Safety Specification in Part C3.5 Management in the Scope of Work.

[]

C.2.23

Certificates

Add the following after the first sentence:

The tenderer is required to submit the following:

C.2.23.1

Evidence of tax compliance

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant subject to the requirements of clause C.2.1.4.2.h. The tenderer must also provide its Tax Compliance Status PIN number on the **Compulsory Enterprise Questionnaire**

[]

Before making an award the City must verify the bidder's tax compliance status. Where the recommended bidder is not tax compliant, the bidder should be notified of the non-compliant status and be requested to submit to the City, within 7 working day, written proof from SARS that they have made arrangement to meet their outstanding tax obligations. The proof of tax compliance submitted by the bidder must be verified by the City via CSD or e-Filing. The City should reject a bid submitted by the bidder if such bidder fails to provide proof of tax compliance within the timeframe stated herein.

Only foreign suppliers who have answered "NO" to all the questions contained in the Questionnaire to Bidding Foreign Suppliers section on the **Details of Tenderer** pages of the tender submission, are not required to register for a tax compliance status with SARS.

C.2.23.2

Preference Points for Specific Goals

In order to qualify for preference points for HDI and/or Specific Goals, it is the responsibility of the tenderer to submit documentary proof, as either certificates, sworn affidavits or any other requirement prescribed in terms of the B-BBEE Act or any other legislation relevant for the points claimed for that specific goal.

[]

Tenderers are further referred to the content of the **Preference Schedule** for the full terms and conditions applicable to the awarding of preference points.

C.2.24

Deviations and Qualifications

Where the tenderer cannot tender in all respects in accordance with the provisions contained in the tender documents, all deviations therefrom shall be clearly and separately listed in the schedule titled **Deviations and Qualifications by Tenderer** in Part C5.2 Returnable Schedules, or in a tenderer's covering letter expressly referenced in this schedule.

[]

The tenderer accept that the Employer will examine such deviations in terms of clause C.3.8.2 and shall not be bound to accept any such deviations or qualifications.

[]

It must be clearly stated by the tenderer whether the sum tendered in the Tender Offer includes for all such deviations or qualifications listed or referred to in the schedule titled **Deviations and Qualifications by Tenderer** or not.

[]

C.3 The Employer's undertakings

C.3.2 Issue Addenda

Delete the first sentence and replace with:

If necessary, issue addenda in writing that may amend or amplify the tender documents to each tenderer during the period from the date the tender documents are available until one week before the tender closing time stated in the Tender Data. The Employer reserves its rights to issue addenda less than one week before the tender closing time in exceptional circumstances. The issuing of addenda is subject to C1.2.1.

Add the following to C.3.2 at the end of the paragraph:

Notwithstanding any requests for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.

C.3.4 Opening of tender submissions

Delete C.3.4.2 and replace with the following:

Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where possible, the amount of the bid and the preference indicated.

C.3.8 Test for responsiveness

C.3.8.2

Replace the final sentence of C.3.8.2 with the following:

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the material deviation.

Add the following after clause C.3.8.2

C.3.8.3 The Employer reserves the right to accept a tender offer which does not, in the Employer's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender documents.

C.3.9 Arithmetical errors, omissions and discrepancies

Add the following after clause C.3.9.2

C.3.9.3 In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are not priced, either excessively low or high, or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer in accordance with this clause.

Should the Tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may declare the tender as non-responsive.

C.3.10 Clarification of a tender offer

Delete the clause and replace with the following:

C.3.10 The Employer may, after the closing date, request additional information or clarification from tenderer, in writing on any matter affecting the evaluation of the tender offer or that could give rise to ambiguity in a contract arising from the tender offer, which written request and related response shall not change or affect their competitive position or the substance of the tenderer's offer. Such request may only be made in writing by the Director: Supply Chain Management using any means as appropriate.

C.3.11 Evaluation of tender offers

C.3.11.2 Where the scoring of functionality forms part of a bid process, each member of the Bid Evaluation Committee must individually score functionality. The individual scores must then be interrogated and calibrated if required where there are significant discrepancies. The individual scores must then be added together and averaged to determine the final score.

C.3.11.3 The tender will be evaluated in terms of the requirements of the Preferential Procurement Regulations and SCM Policy as follows:

C.3.11.3.1 The preference point system applicable to this tender is the 90/10 preference point system.

Preference points shall be based on the Specific Goal as per below:

Table B2: Awards ABOVE R50 mil (VAT Inclusive)

#	Specific goals allocated points	Preference Points (90/10) <i>Above R50 mil</i>	Evidence	Additional Guidance
	<i>Persons, or categories of persons, historically disadvantaged- (HDI) by unfair discrimination on the basis of</i>			
1	Gender are women (ownership)* >75% - 100% women ownership: 3 points >50% - 75% women ownership: 2 points >25% - 50% women ownership: 1 point >0% - 25% women ownership: 0.5 point 0% women ownership = 0 points	3	<ul style="list-style-type: none"> Company Registration Certification Central Supplier Database report 	<ul style="list-style-type: none"> Issued by the Companies and Intellectual Property Commission Report name: CSD Registration report
2	Race are black persons (ownership)* >75% - 100% black ownership: 3 points >50% - 75% black ownership: 2 points >25% - 50% black ownership: 1 point >0% - 25% black ownership: 0.5 point 0% black ownership = 0 points	3	<ul style="list-style-type: none"> B-BBEE certificate; Company Registration Certification Central Supplier Database report 	<ul style="list-style-type: none"> South African National Accreditation System approved certificate or commissioned sworn affidavit Issued by the Companies and Intellectual Property Commission Report name: CSD Registration report
3	Disability are disabled persons (ownership)* WHO disability guideline >2% ownership: 1 points >0% - 2% ownership: 0.5 point 0% ownership = 0 point	1	<ul style="list-style-type: none"> Proof of disability Company Registration Certification 	<ul style="list-style-type: none"> Medical certificate/ South African Revenue Services disability registration Issued by the Companies and Intellectual Property Commission
	<i>Reconstruction and Development Programme (RDP) as published in Government Gazette</i>			
4	Promotion of Micro and Small Enterprises <i>Micro with a turnover up to R20million and Small with a turnover up to R80 million as per National Small Enterprise Act, 1996 (Act No.102 of 1996)</i> <i>SME partnership, sub-contracting, joint venture or consortiums</i>	3	<ul style="list-style-type: none"> B-BBEE status level of contributor; South African owned enterprises; 	<ul style="list-style-type: none"> Specifically in line with the respective sector codes which the company operates, South African National Accreditation System approved certificate or commissioned sworn affidavit Certificate of incorporation or commissioned sworn affidavit

			<ul style="list-style-type: none"> Financial Statement to determine annual turnover 	<ul style="list-style-type: none"> Latest financial statements (1 Year)
	Total points	10		

*Ownership: main tendering entity]

C.3.11.3.2 Price, preference and functionality will be scored, as relevant, to two decimal places.

C.3.11.3.3 Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Points will be awarded to tenderers who are eligible for preferences in terms of the specific goals set out in the **Preference Schedule** which is included in C5.2 Returnable Schedules.

C.3.11.3.4 The Employer shall create, for tender evaluation purposes, a simulated (representative) project for the APTMS. This representative project shall be indicative of the nature of works required for this project and shall be developed based on previous contract data and reasonable estimates of the upcoming work. The simulated project shall represent the full scope of the contract over its entire duration and shall not isolate or exclude any component of the works. The Employer shall assign quantities to the items in the Schedules of Rates for the execution of the representative project. The assigned quantities shall be multiplied by the tendered rates submitted by the tenderers to obtain amounts that will be totalled to provide a financial offer for each tenderer for the representative project.

The financial offer required in terms of the Preferential Procurement Regulations shall be determined by the sum of the representative project for each tenderer. Based on the tender evaluation points scored in terms of the Preferential Procurement Regulations, the responsive tenderers will be considered.

[]

C.3.11.4

Risk Analysis

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the employer will perform a risk analysis in respect of the following:

- reasonableness of the financial offer
- reasonableness of unit rates and prices
- the tenderer's ability to fulfil its obligations in terms of the tender document, that is, that the tenderer can demonstrate that he/she possesses the necessary professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, capacity, experience, reputation, personnel to perform the contract, etc.; the Employer reserves the right to consider a tenderer's existing contracts with the Employer in this regard
- any other matter relating to the submitted bid, the tendering entity, matters of compliance, verification of submitted information and documents, etc.

[]

The conclusions drawn from this risk analysis will be used by the Employer in determining the acceptability of the tender offer in terms of C.3.13).

]]

C.3.13

Acceptance of tender offer

Delete C.3.13 and replace with the following):

Accept the tender offer, if in the opinion of the employer, it does not present any material risk and only if the tenderer:

[]

Delete C.3.13 a) and replace with the following):

- is not under restrictions, has any principals who are under restrictions, or is not currently a supplier to whom notice has been served for abuse of the supply chain management system., preventing participation in the employer's procurement,

[]

Add the following below C.3.13 f)

If an award cannot be made in terms of anything contained herein, the Employer reserves the right to consider the next ranked tenderer(s).

[]

C.3.13.1

The Employer reserves the right not to make an award, or revoke an award already made, where the implementation of the contract may result in reputational risk or harm to the City as a result of (inter alia):

- a) reports of poor governance or unethical behaviour, or both;
 - b) association with known notorious individuals and family of notorious individuals;
 - c) poor performance issues, known to the City;
 - d) negative media reports, including negative social media reports;
 - e) adverse assurance (e.g. due diligence) report outcomes;
 - f) where the contractor has been restricted from doing business with the Employer; and
 - g) circumstances where the relevant vendor has employed, or is directed by, anyone who was previously employed in the service of the state (as defined in clause 1.53 of the SCM Policy), where the person is or was negatively implicated in any SCM irregularity.
- C.3.13.2 The Employer reserves the right to nominate a standby supplier at the time when an award is made and in the event that a contract is terminated during the execution thereof, the CCT may consider the award of the contract, or non-award, to the standby supplier in terms of the procedures included its SCM Policy.
- C.3.13.3 The Employer shall notify the successful tenderer in writing of the decision of the Employer's Bid Adjudication Committee to award the tender to the successful tenderer. The successful bidder shall, in addition, be advised of the 21-day appeal period, and be notified that no rights accrue to him/her until the bid is formally accepted in writing.
- C.3.13.4 The Employer shall, at the same time as notifying the successful tenderer of the Bid Adjudication Committee's decision to award the tender to the successful tenderer, also give written notice to the other tenderers informing them that they have been unsuccessful.
- C.3.17 **Provide copies of the contract**
Add the following after the first sentence:
 The number of paper copies of the signed contract to be provided by the Employer is one.
- C.3.18 *Add the following after C.3.189*
- C.3.19 **Negotiations with preferred tenderers**
 The Employer may negotiate the final terms of a contract with tenderers identified through a competitive tendering process as preferred tenderers provided that such negotiation:
- a) does not allow any preferred tenderer a second or unfair opportunity;
 - b) is not to the detriment of any other tenderer; and
 - c) does not lead to a higher price than the tender as submitted.
- If negotiations fail to result in acceptable contract terms, the City Manager (or his delegated authority) may terminate the negotiations and cancel the tender, or invite the next ranked tenderer for negotiations. The original preferred tenderer should be informed of the reasons for termination of the negotiations. If the decision is to invite the next highest ranked tenderer for negotiations, the failed earlier negotiations may not be reopened by the CCT.
- Minutes of any such negotiations shall be kept for record purposes.
- The provisions of this clause will be equally applicable to any invitation to negotiate with any other tenderers.
- In terms of the SCM Policy, tenders must be cancelled in the event that negotiations fail to achieve a reasonable price with any of the three highest scoring tenderers.

Annex C

(normative)

Standard Conditions of Tender

C.1.1 Actions

C.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

C.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note:

1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*

2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

C.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

- i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her [duties impartially](#);
- ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
- iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;

C.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

Tender

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T1.2

Tender Data

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;
- b) funds are no longer available to cover the total envisaged expenditure; or
- c) no acceptable tenders are received.
- d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised

C.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2 Option 2

C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

C.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.

C.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

C.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

C.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary, apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

C.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10 Pricing the tender offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.

C.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

C.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

C.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

C.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

C.2.12 Alternative tender offers

C.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

C.2.12.2 Accept that an alternative tender offer must be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

C.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

C.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

C.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

C.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

C.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

C.2.15 Closing time

C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

C.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender offer validity

C.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: *Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment.

Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

C.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

C.2.20 Submit securities, bonds and policies

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

C.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

C.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.

C.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4 Opening of tender submissions

C.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

C.3.4.3 Make available the record outlined in C.3.4.2 to all interested persons upon request.

C.3.5 Two-envelope system

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

C.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

C.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

C.3.8 Test for responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

C.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

C.3.9 Arithmetical errors, omissions and discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate;
- b) omissions made in completing the pricing schedule or bills of quantities; or c) arithmetic errors in:
 - (i) line item totals resulting from the product of a unit rate and a quantity in Schedule of Rates or schedules of prices; or
 - (ii) the summation of the prices.

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

- a) If Schedule of Rates or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if Schedule of Rates apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal

Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

C.3.13 Acceptance of tender offer

Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;
- c) has the legal capacity to enter into the contract;
- d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
- e) complies with the legal requirements, if any, stated in the tender data; and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a) addenda issued during the tender period,
- b) inclusion of some of the returnable documents and
- c) other revisions agreed between the employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the cidb Register of Projects.

C.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

C.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

Annex G

(normative)

Alpha-numerics associated with the Contractor Grading Designations

In terms of Government Gazette 42561, dated 5 July 2019, the tender value range as set out in Table 8 in cidb Regulation 17 has been amended. Table G1 below reflects the amended values that come into effect on 07 October 2019

Table G1: Contractor grading designations and associated parameters applicable after 7 October 2019

Contractor Grading Designation	Tender Value Range designation	Maximum value of contract that a contractor is considered capable of performing (R)
1 (class of construction works)	1	500 000
2 (class of construction works)	2	1 000 000
3 (class of construction works)	3	3 000 000
4 (class of construction works)	4	6 000 000
5 (class of construction works)	5	10 000 000
6 (class of construction works)	6	20 000 000
7 (class of construction works)	7	60 000 000
8 (class of construction works)	8	200 000 000
9 (class of construction works)	9	No Limit

Table G2: Classes of construction work

Description	Designation	Definition	Work types	Examples
Civil engineering works	CE	Construction works that are primarily concerned with materials such as steel, concrete, earth and rock and their application in the development, extension, installation, maintenance, removal, renovation, alteration, or dismantling of building and engineering infrastructure	Water, sewerage, roads, railways, harbours and transport, urban development and municipal services	Structures such as a cooling tower, bridge, culvert, dam, grand stand, road, railway, reservoir, runway, swimming pool, silo or tunnel The results of operations such as dredging, earthworks and geotechnical processes. Township services, water treatment and supply, sewerage works, sanitation, soil conservation works, irrigation works, storm-water and drainage works, coastal works, ports, harbours, airports and pipelines.
Electrical engineering works (Infrastructure)	EP	Construction works that are primarily concerned with development, extension, installation, removal, renovation, alteration or dismantling of engineering infrastructure: a) relating to the generation, transmission and distribution of electricity; or	Electrical power generation, transmission, control and distribution equipment and systems.	Power generation Street and area lighting Substations and protection systems Township Reticulations Transmission Lines Supervisory control and data acquisition systems
Electrical engineering works (buildings)	EB	Construction works that are primarily concerned with the installation, extension, modification or repair of electrical installations in or on any premises used for the transmission of electricity from a point of control to a point of consumption, including any article forming part of such an installation	All electrical equipment forming an integral and permanent part of buildings and/or structures, including any wiring, cable jointing and laying and electrical overhead line construction	Electrical installations in buildings Electrical reticulations within a plot of land (erf) or building site Standby plant and uninterrupted power supply Verification and certification of electrical installations on premises
General building works	GB	Construction works that: a) are primarily concerned with the development, extension, installation, renewal, renovation, alteration, or dismantling of a permanent shelter for its occupants or contents; or b) cannot be categorised in terms of the definitions provided for civil engineering works, electrical engineering works, mechanical engineering works, or	Buildings and ancillary works other than those categorised as being: a) civil engineering works; b) electrical engineering works; c) mechanical engineering works; or d) specialist works.	Buildings for domestic, industrial, institutional or commercial occupancies Car ports Fences other than classified as SS Stores Walls

Description	Designation	Definition	Work types	Examples
Mechanical engineering works	ME	Construction works that are primarily concerned with the development, extension, installation, removal, alteration, renewal of engineering infrastructure for gas transmission and distribution, solid waste disposal, heating, ventilation and cooling, chemical works, metallurgical works, manufacturing, food processing and, materials handling	Machine systems including those relating to the environment of building interiors. a) gas transmission and distribution systems b) pipelines c) solid waste disposal d) materials handling, lifting machinery, heating, ventilation and cooling, pumps, e) continuous process systems f) chemical works, metallurgical works, manufacturing, food processing such as that in concentrator machinery and apparatus, oil and gas wells, smelters, cyanide plants, acid plants, metallurgical machinery, equipment and apparatus, and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances or other chemical processes.	Air-conditioning and mechanical ventilation Boiler installations and steam distribution Central heating Centralised hot water generation Cranes and hoists Dust and sawdust extraction Compressed air, gas and vacuum installations Conveyor and materials handling installations Continuous process systems involving chemical works, metallurgical works, oil and gas wells, acid plants, metallurgical machinery, equipment and apparatus, and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances and other chemical processes Kitchen equipment Laundry equipment Lift installations and escalators Refrigeration and cold rooms Waste handling systems (including compactors)
Specialist works	SB	A subset of construction works identified and defined by the Board that involves specialist capabilities for its execution	The extension, installation, repair, maintenance or renewal, or removal, of asphalt	
	SC		The development, extension, installation, removal, and dismantling, as relevant, associated with building excavations, shaft sinking and lateral earth support	
	SD		The development, extension, installation, repair, renewal, removal, or alteration of corrosion protection systems (cathodic, anodic and electrolytic)	
	SE		Demolition of buildings and engineering infrastructure and blasting	
	SF		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of fire prevention and protection infrastructure (drencher and sprinkler systems and fire installation)	
	SG		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of glazing, curtain walls and shop fronts	
	SH		The development, extension, installation, maintenance, renewal. removal, alteration or dismantling, as relevant, of landscaping, irrigation and horticultural works	
	SI		The development, extension, installation, repair, maintenance, renewal. removal, renovation, alteration or, dismantling of lifts, escalators, travellers and hoisting machinery	
	SJ		The development, installation, removal, or dismantling, as relevant, of piles and other specialized foundations for buildings and structures	

Description	Designation	Definition	Work types	Examples
	SK	A subset of construction works identified and defined by the Board that involves specialist capabilities for its execution	The installation, renewal, removal, alteration or dismantling, as relevant, road markings and signage	
	SL		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of structural steelwork and scaffolding	
	SM		Timber buildings and structures	
	SN		The extension, installation, repair, maintenance, renewal, removal, renovation or alteration, as relevant, of the waterproofing of basements, roofs and walls using specialist systems.	
	SO		The development, extension, installation, renewal, removal, alteration or dismantling or demolition of water installations and soil and waste water drainage associated with buildings (wet services, plumbing)	
	SQ		The development, extension, installation, repair, removal, alteration, dismantling or demolition of precast concrete or steel fencing	

CONTRACT NO. 110S/2025/26



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

SCM – 510

Approved by Branch Manager: 15/07/2024

Version: 6.4

Page 34 of 151

CONTRACT DOCUMENT

FOR THE

**MAINTENANCE AND EXTENSION OF THE MYCITI
ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM
(APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS**

**FRAMEWORK CONTRACT PERIOD: 36 MONTHS FROM DATE OF
COMMENCEMENT**

THE CONTRACT

ISSUED BY:

**DIRECTOR
URBAN MOBILITY
PUBLIC TRANSPORT
SYSTEMS
CITY OF CAPE TOWN**
Tower Block, Civic Centre
12 Hertzog Boulevard
CAPE TOWN
8001

COMPILED BY:

**INNOVATIVE
TRANSPORT
SOLUTIONS**
5th Floor, Imperial
Terraces
Carl Cronje Drive
Tyger Waterfront
BELLVILLE
7530

FOR OFFICIAL USE.

Tender Serial No.:

**Signatures of City Officials at Tender
Opening**

1.

2.

3.

APRIL 2025

**NAME OF
TENDERING ENTITY**

**EMAIL ADDRESS OF
TENDERING ENTITY**

**FAX NUMBER OF
TENDERING ENTITY**

NATURE OF TENDER OFFER (please indicate below)

**Main Offer (see clause
C.2.12)**

**Alternative Offer (see
clause C.2.12)**

FILE REFERENCE NO:

Part C1: Agreements and Contract Data

	Pages
Memorandum of Agreement.....	36 – 37
C1.1 Form of Offer and Acceptance	38 – 41
C1.2 Contract Data (data provided by the Employer).....	42 – 68
C1.2 Contract Data (provided by contractor)	69
C1.3 Form of Performance Guarantee.....	70 – 73
C1.4 Form of Advance Payment Guarantee.....	74 – 77
C1.5 Occupational Health and Safety Agreement.....	78
C1.6 Protection of the Environment Declaration.....	79
C1.7 Insurance Broker's Warranty	80
C1.8 Contract of Temporary Employment as Community Liaison Officer 81 - 82	

MEMORANDUM OF AGREEMENT

FOR

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

MADE AND ENTERED INTO BETWEEN

CITY OF CAPE TOWN METROPOLITAN MUNICIPALITY

And

CONTRACTOR	
NAME of Company/Close Corporation or Partnership / Joint Venture/ Consortium or Sole Proprietor /Individual (The "Contractor" / "tenderer")	
TRADING AS (if different from above)	
REGISTRATION NUMBER	
PHYSICAL ADDRESS / CHOSEN DOMICILIUM CITANI ET EXECTUANDI OF THE CONTRACTOR	
AUTHORISED REPRESENTATIVE	
CAPACITY OF AUTHORISED REPRESENTATIVE	

(HEREINAFTER COLLECTIVELY REFERRED TO AS "THE PARTIES" AND INDIVIDUALLY A "PARTY")

Preamble

WHEREAS the City of Cape Town is desirous to award this Tender to the successful Contractor;

AND WHEREAS the City of Cape Town will consider and evaluate the offer made by the Tenderer/Contractor;

AND WHEREAS the Parties agree that this Contract is subject to the terms and conditions as contained in the final award of the City's Bid Adjudication Committee (BAC);

AND WHEREAS the Tenderer/Contractor agrees that the terms and conditions of the award will become binding upon communication of the award made by the BAC, upon the expiration of the prescribed appeal period in terms of Section 62 of the Municipal Systems Act and the furnishing of a duly counter signed contract by the City to the Contractor reflecting the BAC award.

NOW THEREFORE, the Parties agree and confirm that the Contract contains the following:

- a) the Form of Offer and Acceptance,
- b) the Contract Specific Data within the Contract Data,
- c) the General Conditions which form part of the Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition 1999 (Yellow Book),
- d) the Drawings,
- e) the Scope of Work,
- f) the Pricing Data, and
- g) the conditions of tender, the tender data and tender schedules

SIGNED AT _____ (PLACE) ON THE _____ (DAY) OF _____ (MONTH AND YEAR)

For and on behalf of the Contractor
(Duly Authorised)
Name and Surname:

Witness 1 Signature
Name and Surname:

Witness 2 Signature
Name and Surname:

For and on behalf of the City of Cape Town
(Duly Authorised)
Name and Surname:

Witness 1 Signature
Name and Surname:

Witness 2 Signature

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.1 Form of Offer and Acceptance

Offer

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

CONTRACT NO. 110S/2025/26: MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

The completed Schedules of Rates (excluding VAT) , as contained in Part C2.2 Pricing Data, shall form the tender offer. These rates will be multiplied by quantities, as applicable, for the execution and completion of the Works in respect of relevant items to develop individual Works Projects to be allocated in accordance with the procedures described in Part C1.2 Contract Data in this Framework Contract document.

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Contractor	
Business Name	
Business Registration	
Tax number (VAT)	
Physical Address	
Signed – who by signature hereto warrants authority	
Name of signatory	
Signed: Date	
Signed: Location	
Signed: Witness	
Name of Witness	

For official use.		
INITIALS OF CITY OFFICIALS AT TENDER OPENING		
1.	2.	3.

Acceptance

By signing this part of this form of offer and acceptance, the City of Cape Town accepts the tenderer's (now Contractor's) offer. In consideration thereof, the City of Cape Town shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the contractor's offer shall form an agreement between the City of Cape Town and the contractor upon the terms and conditions contained in this document.

The terms of the contract are contained in:

- Part C1: Agreements and contract data (which includes this framework agreement)
- Part C2: Pricing data
- Part C3: Scope of work
- Part C4: Site information

and drawings and documents or parts thereof, which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the returnable schedules as well as any changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this form of offer and acceptance. No amendments to or deviations from said documents are valid unless contained in this schedule of deviations.

The contractor shall within two weeks after receiving a completed copy of the contract, including the schedule of deviations (if any), contact the City of Cape Town to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documents to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of the contract.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the contractor confirms receipt from the City of Cape Town of one complete, signed copy of this contract containing price schedule as awarded by the BAC, including the schedule of deviations (if any).

This agreement constitutes a framework contract for the purposes of developing individual Works Projects to be allocated in terms of the procedures described in the contract.

Employer	
Business Name	
Business Registration	
Tax number (VAT)	
Physical Address	
Accepted contract sum including tax	
Signed – who by signature hereto warrants authority	
Name of signatory	
Signed: Date	
Signed: Location	
Signed: Witness	
Name of Witness	

Schedule of Deviations

Notes:

- 1. The extent of deviations from the tender documents issued by the employer before the tender closing date is limited to those permitted in terms of the conditions of tender.
- 2. A tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
- 3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
- 4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1

Subject

Details

2

Subject

Details

3

Subject

Details

By the duly authorised representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

CONTRACT [NO. 110S/2025/26 MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS]

(TO BE FILLED IN BY THE CONTRACTOR)

Confirmation of Receipt

The contractor identified in the offer part of the Contract hereby confirms receipt from the City of Cape Town (identified in the acceptance part) of 1 (one) complete, signed copy of the Contract containing price schedule as awarded by the BAC, including the *Schedule of Deviations* (if any) on:

The..... (Day)

Of..... (Month)

20..... (year)

At..... (Place)

For the Supplier: Signature(s)

Name(s)

Capacity

Signature and name of witness:

Signature Name

**ONLY TO BE
COMPLETED AT
ACCEPTANCE STAGE**

C1.2 Contract Data

GENERAL CONDITIONS OF CONTRACT

The following standardised General Conditions of Contract:

General Conditions which form part of the **Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition 1999 (Yellow Book)** published by the International Federation of Consulting Engineers (FIDIC).

Copies of these Conditions of Contract (Yellow Book) may be obtained from the South African Institution of Civil Engineering (SAICE) (tel 011 805 5947) or Consulting Engineers South Africa (CESA) (tel 011 463 2022).

Copies of the Conditions of Contract (Yellow Book) are also available for inspection and scrutiny at the offices of the Employer.

The Annexes and Forms bound in the Conditions of Contract (Yellow Book) shall not apply to this Contract and shall be replaced with the documentation bound into this Contract Document.

The General Conditions make reference to the Appendix to Tender and Particular Conditions (contained in the Contract Data) which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract.

The General Conditions shall be read in conjunction with the variations, amendments and additions set out in the Appendix to Tender and Particular Conditions below. Each item of data given below is cross-referenced to the Clause or Sub-Clause in the General Conditions to which it mainly applies.

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the sequence as stated in sub-clause 1.5 as amended in the Particular Conditions.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction

The Foreword to the Conditions of Contract (Yellow Book) concludes with the following:

"In order to clarify the sequence of Contract activities, reference may be made to the charts on the next two pages and to the Sub-Clauses listed below (some Sub-Clause numbers are also stated in the charts). The charts are illustrative and must not be taken into consideration in the interpretation of the Conditions of Contract.

1.1.3.1	&	13.7	Base Date
1.1.3.2	&	8.1	Commencement Date
1.1.6.6	&	4.2	Performance Security
1.1.4.7	&	14.3	Interim Payment Certificate
1.1.3.3	&	8.2	Time for Completion (as extended under 8.4)
1.1.3.4	&	9.1	Tests on Completion
1.1.3.5	&	10.1	Taking-Over Certificate
1.1.3.6	&	12.1	Tests after Completion (if any)
1.1.3.7	&	11.1	Defects Notification Period (as extended under 11.3)
1.1.3.8	&	11.9	Performance Certificate
1.1.4.4	&	14.13	Final Payment Certificate"

The charts referred to above are reproduced on the following two pages, amended and amplified where necessary to conform to the Particular Conditions for this Contract. The charts are illustrative and must not be taken into consideration in the interpretation of the Conditions of Contract.

APPENDIX TO TENDER

Part 1: Contract Data completed by the Employer

Item	Sub-Clause	Entry
Employer's name and address	1.1.2.2 & 1.3(b)	CITY OF CAPE TOWN, represented by the Director: DIRECTORATE: DEPARTMENT, Tower Block, Civic Centre, 12 Hertzog Boulevard, Cape Town, 8001 and/or such other person or persons duly authorised thereto by the Employer in writing; the Employer is referred to in this Contract Document by the terms "Employer", "City of Cape Town" or "Council" as the context provides.
Engineer's name and address	1.1.2.4 & 1.3(b)	TBC
Time for Completion of the Works	1.1.3.3 & 8.2	The Works Project shall be completed within the Time for Completion stated in the Works Project Document
Defects Notification Period	1.1.3.7	365 days
Electronic transmission systems	1.3(a)	e-mail or facsimile
Governing Law	1.4	Republic of South Africa
Ruling language	1.4	English
Language for communications	1.4	English
Time for access to, and possession of, the Site	2.1*	0 Days from the Commencement Date, subject to the Particular Conditions of Contract, Sub-Clause 2.1.

APPENDIX TO TENDER (CONTD)

Item	Sub-Clause	Entry
Amount of Performance Security .	4.2	[R15 000 000 excl. VAT]
Period for notifying unforeseeable errors, faults and defects in the Employer's Requirements	5.1	Within 21 days
Normal working hours.....	6.5	<p>Existing infrastructure</p> <p><u>TMC, Depots and buses:</u></p> <p>24 hours of the day, 7 days of the week; Subject to the relevant approval applications.</p> <p><u>Stations:</u></p> <p>Monday to Saturday from 05:00 to 22:00; Subject to the relevant approval applications.</p> <p>New infrastructure</p> <p><u>Stations, depots, and buses:</u></p> <p>Mondays to Fridays: 08:00 to 17:00</p> <p>Subject to the relevant approval applications]</p>
Delay penalties for the Works	8.7* & 14.15(b)..... *	<p>[Refer to Sections defined at the end of the Appendix to Tender.</p> <p>Refer to Key Performance Indicators and Service Level in the Employer's Requirements]</p>
Maximum amount of Delay penalties	8.7	[No limit]
Adjustments for Changes in Cost	13.8	This Contract shall be subject to Contract Price Adjustment in strict accordance with Sub-Clause 13.8 of the Particular Conditions. Variations in Rates of Exchange shall be for the Employer's account in accordance with Sub-Clause 13.8 of the Particular Conditions.

APPENDIX TO TENDER (CONTD)

Item	Sub-Clause	Entry
Total advance payment.....	14.2.....	0 % deposit
Percentage of retention	14.3(c)*	Capital Works: 5% reducing to 2.5% upon the issue of a Taking-Over Certificate. Maintenance Works: 2.5%
Limit of Retention Money.....	14.3(c)*	No limit
Plant and Materials Intended for the Works	14.5(b)	No payment for plant and materials upon shipment
Plant and materials for payment when delivered to the Site	14.5(c)	All plant and materials delivered to site will be subject to payment in terms of this clause
Minimum amount of Interim Payment Certificates.....	14.6	No minimum
Currency/currencies of payment.....	14.15	South African Rand, as named in that section of the Form of Offer and Acceptance called "Offer"
Periods for submission of insurance:		
(a) evidence of insurance	18.1*	14 days
(b) relevant policies	18.1	14 days
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d).....	R10'000.00
Minimum amount of third party insurance	18.3	R20 000 000,00
The DAB shall be	20.2	One sole Member / adjudicator
Appointment (if not agreed) to be made by....	20.3	President of the South African Institution of Civil Engineers
Amicable Settlement will be conducted as....	20.5	Mediation
Appointment (if not agreed) to be made by....	20.5	President of the South African Institution of Civil Engineers
Litigation will be conducted in.....	20.6*	Applicable Court of Jurisdiction in Cape Town

* See Particular Conditions

Definitions of Sections:			
	Description (Sub-clause 1.1.5.6)	Time for Completion (Sub-clause 1.1.3.3)	Delay Penalties (Sub-Clause 8.7)
1.	Replacement of back-office hardware & migration of associated systems to new hardware (Refer to C3.4.4.2).	180 days from contract commencement date	R5,000.00 per day
2.1	Phase 2A Bus equipment. (Refer to C3.4.4.5) Batch 1: 20 buses	TBC	R5,000.00 per day

2.2	Phase 2A Bus equipment. (Refer to C3.4.4.5) Batch 2: 20 buses	TBC	R5,000.00 per day
2.3	Phase 2A Bus equipment. (Refer to C3.4.4.5) Batch 3: 20 buses	TBC	R5,000.00 per day
2.4	Phase 2A Bus equipment. (Refer to C3.4.4.5) Batch 4: 20 buses	TBC	R5,000.00 per day
3.	Phase 2A Station equipment. (Refer to C3.4.4.3)		
3.1	Mitchells Plain	TBC	R5,000.00 per day
3.2	Hanover Park	TBC	R5,000.00 per day
3.3	Sesame	TBC	R5,000.00 per day
3.4	Don Castor / Kenilworth	TBC	R5,000.00 per day
3.5	Claremont	TBC	R5,000.00 per day
3.6	Emms	TBC	R5,000.00 per day
3.7	Stock North	TBC	R5,000.00 per day
3.8	Link	TBC	R5,000.00 per day
3.9	Crossroads/New Eisleben	TBC	R5,000.00 per day
3.10	Khayelitsha	TBC	R5,000.00 per day
3.11	Nolungile	TBC	R5,000.00 per day
4.	Phase 2A Depots and staging areas. (Refer to C3.4.4.4)	TBC	R5,000.00 per day

Refer to Part C3.1.3.3 for **tentative dates**. Details to be finalised at Works Package stage described in **C3.1.3.4**

APPENDIX TO TENDER (CONTD)

Part 2 : Contract Data completed by the Contractor

Item	Sub-Clause	Entry
Contractor's name and address	1.1.2.3 & 1.3(b)	<hr/> <hr/> <hr/>
 <u>Name of Key Persons</u>		
Contractor's Representative's name (This must be the same person as the Project Manager per T1.2 Tender Data, Clause C2.1.4.5 Key Resources)	4.3	<hr/>
Contract Manager name.....	Particular Conditions 6.9	<hr/>
Technical / Maintenance Manager name.....	Particular Conditions 6.9 Particular Conditions 6.9	<hr/>
Senior Maintenance Technician name		<hr/>
Systems Administrator name.....	Particular Conditions 6.9	<hr/>

The Tenderer shall complete the above Part 2 of the Appendix to Tender.

SIGNED ON BEHALF OF TENDERER.....

PARTICULAR CONDITIONS

The Particular Conditions are:

1 General Provisions

Sub-Clause 1.1 Definitions

1.1.1 The Contract

1.1.1.1 is deleted and replaced by:

“Contract” also referred to as Framework Contract or term tender contract, means the Form of Offer and Acceptance, Contract Data, these General Conditions, the Employer’s Requirements, the Drawings, the Schedules, and the further documents (if any) which are listed in the Form of Offer and Acceptance, and further includes drawings and documents or parts thereof which any of the aforesaid documents incorporate by reference.

1.1.1.2 is deleted and replaced by:

“Contract Agreement” means the document called “Form of Offer and Acceptance” as contained in the Contor the Works Project Contract Document, as the context requires.

1.1.1.3 is deleted and replaced by:

“Letter of Acceptance” means that section of the Form of Offer and Acceptance called “Acceptance”.

1.1.1.4 is deleted and replaced by:

“Letter of Tender” means that section of the Form of Offer and Acceptance called “Offer”.

1.1.1.5 is deleted and replaced by:

“Employer’s Requirements” means the document titled “Part C3: Scope of Work”, as included in the Contract, and any additions and modifications to such document in accordance with the Contract. Such document specifies the purpose, scope, and/or design and/or other technical criteria, for the Works, and includes the Specifications.

1.1.1.6 is deleted and replaced by:

“Schedules” means the document(s) entitled schedules, completed by the Contractor and submitted with his tender offer, as included in the Contract. Such document(s) shall include the Returnable Schedules and the Schedules of Rates, and may include data, lists and schedules of rates and/or prices.

1.1.1.7 is deleted and replaced by:

“Contractor’s Proposal” means the information which the Contractor submitted with the Form of Offer and Acceptance, as included in the Contract. Such information shall include the information listed in Schedule 18 in Part C5.2 Returnable Schedules and may also include the Contractor’s preliminary design.

1.1.1.8 is deleted and replaced by:

“Tender” means that section of the Form of Offer and Acceptance called “Offer” and all other documents which the Contractor submitted as Returnable Documents, as included in the Contract.

1.1.1.9 is deleted and replaced by:

[]

“Appendix to Tender” means the completed section entitled appendix to tender included in the Contract Data.

Add the following Sub-Clause after Sub-Clause 1.1.1.10:

[]

1.1.1.11

“Works Project (WP)” means a clearly defined package of work (WP 1, WP 2, or WP 3) incorporating the required design, maintenance, and capital construction activities, sequentially issued by the Employer during the Contract Period of which the specific terms, conditions, and scope is specified in a works project contract document.

1.1.1.12

“Returnable Schedules” means the Schedules contained in Part C5.2 and **“Schedules of Rates”** means the document entitled schedules of rates contained in Part C2.2 in the Pricing Data.

1.1.1.13

“Framework Contract” means the Contract as defined in Clause 1.1.1 signed by the Parties and all documents referenced therein that together forms the framework contract between the parties. and further means the Contract as defined herein; and and further means a contract for construction works, goods and services, between the City and one or more suppliers for the provision of construction works, goods or services, which are of an ad-hoc or repetitive nature on an “as instructed” or “as and when required” basis where the terms, conditions, specifications, rates, prices, and works order allocation processes are awarded for use over a predetermined period without guaranteeing any quantum of expenditure utilising the contract

1.1.1.14

“Purchase Order” means the official purchase order created and released on the City of Cape Town’s SAP System.

1.1.1.15

Ad Hoc Nature means with reference to a framework contract means where there are no fixed monthly financial commitments

1.1.1.16

Works Project Allocation Process means the process through which task(s) are determined and allocated in a framework agreement tender in accordance with the terms and conditions of the relevant contract

1.1.1.17

Works Project Contract Document means the documents that formally reflects the scope, quantum, value, delivery period, delivery details, and all other relevant terms and conditions impacting the execution of the works order

1.1.1.18

“Works Order Acceptance/Refusal Notice” formal notification, signed by the supplier in accordance with the framework agreement, which was sent to the City, informed of its decision to accept or refuse the opportunity afforded to it, to further participate in the supplier appointment procedure for a works order.

1.1.2 Parties and Persons

1.1.2.3 is deleted and replaced by:

“Contractor” means the person(s) named as Contractor in that section of the Form of Offer called “Offer” accepted by the Employer and the legal successors in title to this person(s).

1.1.2.9 is deleted and replaced by:

“Mediator” means the person appointed under Sub-Clause 20.2 [*Mediation*] in the Contract Data.

1.1.3 Dates, Tests, Periods and Completion

1.1.3.1 is deleted and replaced by:

“Base Date” means the date 7 days prior to the closing date for the submission of the Tender.

1.1.3.2 is deleted and replaced by:

“Commencement Date” of the Framework Contract means the date the Contractor receives one fully completed original copy of the document, and of each Works Project means the date date specified in the Works Project contract for commencement with Works execution

1.1.4 Money and Payments

1.1.4.1 is deleted and replaced by:

“Accepted Contract Amount” means the amount accepted in that section of the Form of Offer and Acceptance of a Works Project Contract, for the execution and completion of the Works and the remedying of any defects.

1.1.4.6 is deleted and replaced by:

“Foreign Currency” means a currency in which part (if any) of the Contract Price is payable, but not the Local Currency.

Add the following Sub-Clause after Sub-Clause 1.1.4.12:

1.1.4.13 **"Contract Price Adjustment"** means the adjustment to be included in the Contract Price for fluctuations in the Cost of Plant and Materials, Site Installation, General Items (comprising General Requirements and Conditions, Health and Safety, Environmental Management, Sundries, etc.), and Variations in Rates of Exchange, Customs Surcharge and Customs Duty, all as provided for in Sub-Clause 13.8 [Adjustments for Changes in Cost] in the Contract Data.

1.1.4.14 **"Reasonable Profit"** means an amount not exceeding 10% of the Cost of any item or activity

1.1.5 Works and Goods

1.1.5.6 is deleted and replaced by:

"Section" means a part of the Works specified in the Appendix to Tender as a Section (if any), or a part of the Works specified as a Section during the course of the Contract by the Employer (such Section may be an item of Plant).

1.1.6 Other Definitions

Add the following Sub-Clause after Sub-Clause 1.1.6.9:

1.1.6.10 **"Letter of Notification"** means the letter of formal notification, signed by the Employer, of the decision of the Supply Chain Management Bid Adjudication Committee sent to all tenderers. The notification of the decision does not form part of the Employer's Acceptance of the successful tenderer's Form of Offer and no rights shall accrue.

1.1.6.11 **"Intellectual Property"** means any and all intellectual property rights of any nature anywhere in the world whether registered, registerable or otherwise, including patents, trademarks, registered designs and domain names, applications for any of the foregoing, trade or business names, copyright and rights in the nature of copyright, design rights, rights in databases, know-how, trade secrets and any other intellectual property rights which subsist in computer software, computer programs, websites, documents, information, techniques, business methods, drawings, logos, instruction manuals, lists and procedures and particulars of customers, marketing methods and procedures and advertising literature, including the "look and feel" of any websites

Sub-Clause 1.5 Priority of Documents

Deleted and replaced by:

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- (a) the Form of Offer and Acceptance,
- (b) the Appendix to Tender within the Contract Data,
- (c) the Particular Conditions within the Contract Data,
- (d) these General Conditions,
- (e) the Employer's Requirements,
- (f) the Drawings, and
- (g) the Schedules.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

Sub-Clause 1.6 Contract Agreement

Deleted and replaced by:

The Parties shall enter into a Contract Agreement after the Contractor is called upon to do so by the Employer. The Agreement shall be the fully completed Form of Offer and Acceptance contained in the Contract Document.

Sub-Clause 1.8 Care and Supply of Documents

Delete "six copies" in the second sentence of the first paragraph and replace with "three copies".

Sub-Clause 1.10 Employer's Use of Contractor's Documents

Deleted and replaced by:

Intellectual Property

The Contractor acknowledges that it shall not acquire any right, title or interest in or to the Intellectual Property of the Employer.

The Contractor hereby assigns to the Employer, all Intellectual Property created, developed or otherwise brought into existence by it for the purposes of the contract, unless the Parties expressly agree otherwise in writing.

The Contractor shall, and warrants that it shall:

- (a) not be entitled to use the Employer's Intellectual Property for any purpose other than as contemplated in this contract;
- (b) not modify, add to, change or alter the Employer's Intellectual Property, or any information or data related thereto, nor may the Contractor produce any product as a result of, including and/or arising from any such information, data and Intellectual Property, and in the event that it does produce any such product, the product shall be, and be deemed in law to be, owned by the Employer;
- (c) not apply for or obtain registration of any domain name, trademark or design which is similar to any Intellectual Property of the Employer;
- (d) comply with all reasonable directions or instructions given to it by the Employer in relation to the form and manner of use of the Employer Intellectual Property, including without limitation, any brand guidelines which the Employer may provide to the Contractor from time to time;
- (e) procure that its employees, directors, members and Contractors comply strictly with the provisions of clauses 1.10 (a) to 1.10 (c) above;

unless the Employer expressly agrees thereto in writing after obtaining due internal authority.

The Contractor represents and warrants to the Employer that, in providing goods, services or both, as the case may be, for the duration of the contract, it will not infringe or make unauthorised use of the Intellectual Property rights of any third party and hereby indemnifies the Employer from any claims, liability, loss, damages, costs, and expenses arising from the infringement or unauthorised use by the Contractor of any third party's Intellectual Property rights.

In the event that the contract is cancelled, terminated, ended or is declared void, any and all of the Employer's Intellectual Property, and any and all information and data related thereto, shall be immediately handed over to the Employer by the Contractor and no copies thereof shall be retained by the Contractor unless the Employer expressly and in writing, after obtaining due internal authority, agrees otherwise.

Sub-Clause 1.11 Contractor's Use of Employer's Documents

Deleted this Sub-Clause.

[]

Sub-Clause 1.12 Confidential details

Insert the following after the first paragraph:

The Parties shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the other Party.

[]

Sub-Clause 1.13 Compliance with Laws

Insert "deposits" after "taxes" in 1.13 b).

Add the following paragraph after 1.13 (b):

- (c) Where the Employer is required to apply to the Provincial Director of the Department of Labour for a construction work permit to perform the intended construction work, the employer shall do so as soon as possible after the appointment of the contractor has been finalised and the contractor has been appointed as principal contractor in terms of Regulation 5(1)(k) of the Construction Regulations (2014) and upon receipt of relevant documents as stated in clause 5.3.1.

[]

Sub-clause 1.14 General Provisions

The parties agree that this contract shall also be subject to the Employer's Supply Chain Management Policy that was applicable on the date the tender was advertised, **save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender, such clause shall also be applicable to that contract.** Please refer to this document contained on the CCT's website.

Abuse of the supply chain management system is not permitted and may result in cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other rights and remedies available to it as described in the SCM Policy.

Sub-clause 1.15 Protection of Personal Information Act of 2013

- 1.15.1 By submitting a tender to the Employer, (and by concluding any ensuing related agreement with the City of Cape Town, if applicable), the Contractor thereby acknowledges and unconditionally agrees:
- 1.15.1.a that the Contractor has been informed of the purpose of the collection and processing of its personal information as defined in the Protection of Personal Information Act of 2013 ("POPIA"), which, for the avoidance of doubt is for, and in relation to, the tender process and the negotiation, conclusion, performance and enforcement of the ensuing agreement, if applicable, as well as for the Employer's reporting purposes;
- 1.15.1.c to the collection and processing of the Contractor's personal information by the Employer and agrees to make available to the Employer, all information reasonably required by the Employer for the above purposes;
- 1.15.1.d that the personal information the Employer collects from the Contractor or about the Contractor may be further processed for other activities and/or purposes which are lawful, reasonable, relevant and not excessive in relation to the purposes set out above, for which it was originally collected;
- 1.15.1.e that, the Contractor indemnifies the Employer and its officials, employees, and directors and undertakes to keep the Employer and its officials, employees, and directors indemnified in respect of any claim, loss, demands, liability, costs and expenses of whatsoever nature which may be made against the Employer (including the costs incurred in defending or contesting any such claim) in relation to the Contractor or the Contractor's employees', representatives' and/or sub-Suppliers' non-compliance with POPIA and/or the Employer's failure to obtain the Contractor's consent or to notify the Contractor of the reason for the processing of the Contractor's personal information;
- 1.15.1.f to the disclosure of the Contractor's personal information by the Employer to any third party, where the Employer has a legal or contractual obligation to disclose such personal information to the third party (or a legitimate interest exists therein);
- 1.15.1.g that, under POPIA, the Contractor may request to access, confirm, request the correction, destruction, or deletion of, or request a description of, personal information held by the Employer in relation to you, subject to applicable law; and
- 1.15.1.h that under POPIA, subject to applicable law, the Contractor also has the right to be notified of a personal information breach and the right to object to, or restrict, the Employer's processing of its personal information.
- 1.15.i All requests relating to data protection must be submitted in writing to:
The City Manager - C/o the Information Officer, Corporate Services Directorate
Via hand delivery at: 20th Floor, Tower Block, 12 Hertzog Boulevard, Cape Town 8001
Via post at: Private Bag X918, Cape Town, 8000
Via fax at: 086 202 9982**Via email at:** Popia@capetown.gov.za.

2 The Employer

Sub-Clause 2.1 Right of Access to the Site

Add the following after the first sentence of the first paragraph:

Access to, and possession of the Site shall not take place until the issuing, by the Provincial Director of the Department of Labour, of a construction work permit to perform the intended construction work in terms of Clause 1.13 [Compliance with Laws].

Replace the second paragraph with the following:

[The Contractor will not be given access to, and possession of the Site, until the following documentation has been submitted and approved by the Engineer:

- (a) Health and Safety Plan (refer to Clause G8.3 in the Health and Safety Specification C3.5 Management, 3.5.6.
- (b) Method Statements (refer to Clause H5.1.1 in the Environmental Management Specification in C3.5 Management, 3.5.5 (a).)
- (c) Performance Security
- (d) Evidence of Insurance and relevant policies
- (e) Permissions / permits for access to the different parts of the site

Add the following paragraph after 2.1 (b):

Should the issuing of a construction work permit delay the Engineer's instruction to commence executing the Works and this in turn causes a delay to Practical Completion by more than 60days, then the Contractor shall be entitled to make a claim in accordance with the contract. Should, however, the issuing of a construction work permit be delayed by the submission of a unacceptable draft Health and Safety Plan, in the opinion of either the Employer's Health and Safety Agent, or the Provincial Director of the Department of Labour, no claim for an extension of time will be entertained.

Sub-Clause 2.4 Employer's Financial Arrangements

Delete this Sub-Clause.

Sub-Clause 2.5 Employer's Claims

Insert "or by law" after "Contract" in the first sentence of the first paragraph.

Add the following paragraph after 2.5:

Sub-Clause 2.6 Performance Monitoring

As required by section 116(2)(b) of the Local Government: Municipal Financial Management Act 56 of 2003, the CCT shall monitor the performance of the Contractor on at least a monthly basis, and the Contractor agrees to provide the CCT with its full cooperation in this regard.

This shall include but not be limited to the requirements of the Maintenance Service Level and Key Performance Indicators As specified in Part C3.4 Section 3.4.5.5 Maintenance Service Level (SL).

3 The Engineer

Sub-Clause 3.1 Engineer's Duties and Authority

Add the following at the end of the third paragraph:

If, in exercising any discretion, the result of such decision would be to utilise the contingency allowance, increase the contract value or granting of time for practical completion, the Engineer must obtain approval from the Employer that such funding or time is available and granted by the Employer to be awarded prior to finalising such a decision.

The requirements for the Engineer to obtain the approval of the Employer before exercising a specified authority are:

- (a) Clause 3.2: The delegation of duties to others
- (b) Clause 4.24: The issuing of instructions for dealing with fossils and the like.
- (c) Clause 6.5 (b) : Giving consent for work to be carried out on days of rest or outside normal working hours.
- (d) Clause 8.4: Extension of Time for Completion
- (e) Clause 8.6: The approval of a revised programme and supporting report in order to expedite progress.
- (f) Clause 8.8: Instruction to suspend the works
- (g) Clause 10.1: Issuing of the Taking Over Certificate
- (h) Clause 11.9: Issuing of the Performance Certificate
- (i) Clause 13.1: All actions in terms of this clause that would result in the utilisation of the contingency allowance, increasing the contract value or awarding any additional time.
- (j) Clause 13.3 Variation Procedure
- (k) Clause 14.2: Agreeing to advance payment for deposits for items not listed in the Advance Payment Schedule.
- (l) Clause 20.1 Contractor's Claims

Sub-Clause 3.4 Replacement of the Engineer

Deleted and replaced by:

The Employer shall have the right to replace the Engineer.

4 The Contractor

Sub-Clause 4.2 Performance Security

Delete the first sentence of the second paragraph and replace with:

The Contractor shall deliver the Performance Security to the Employer within 14 days from the Commencement Date.

Add the following at the end of the second paragraph:

The form of Performance Security to be provided by the Contractor shall be a blanket performance guarantee and shall contain the precise wording of the document included in Part C1.3 of the Contract Data: **Form of Performance Guarantee**, and it shall be issued by a financial institution approved by the Employer at the date when the guarantee is issued. The list of approved financial institutions current at the date of tender is attached to the **Form of Performance Guarantee**.

Sub-Clause 4.3 Contractor's Representative

Delete "prior to the Commencement Date" in the first sentence of the second paragraph and replace with "within 14 days from the Commencement Date".

Add the following sentence at the beginning of the 4th paragraph:

The Contractor's Representative shall be permanently based within the City of Cape Town Metropolitan Area for the duration of the Contract.

Sub-Clause 4.4 Subcontractors

Delete "28 days' notice" in sub-paragraph (c) and replace with "14 days' notice".

Add the following clause:

d) The Contractor shall supply the Employer with proof of all orders placed with sub-contractors upon request by the Engineer. Information is to be given on each sub-order sufficient to identify the material or equipment to which the sub-order relates and to notify the sub-contractor that the conditions of the Specification apply.

Sub-Clause 4.8 Safety Procedures

Add the following:

The Contractor's attention is also drawn to the Health and Safety Specification in the Employer's Requirements.

The Employer and the Contractor shall enter into an agreement to complete the work required for the construction of the Works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 promulgated thereunder.

An agreement is included in the Contract Document (Part C1.5 in Agreements and Contract Data) and shall be completed and submitted to the Employer together with a letter of good standing from the Compensation Commissioner (if not insured with a licenced compensation insurer) within fourteen (14) days after the Commencement Date. The Contractor shall ensure that any letter of good standing shall be timeously renewed in order that it remains in full force for the duration of the Contract.

Sub-Clause 4.9 Quality Assurance

Add the following after the first sentence of the first paragraph:

Quality Assurance shall apply to all of system maintenance as defined in the Employer's Requirements.

Sub-Clause 4.10 Site Data

Add the following at the end of the first sentence:

"as contained in the Employer's Requirements, if applicable."

Sub-Clause 4.16 Transport of Goods

Delete “and” after sub-paragraph (b) and add the following to sub-paragraph(c):

In this regard the Contractor’s attention is also drawn to Sub-Clause 18.2(f)(i) in the Particular Conditions; and

Add the following sub-paragraph:

(d) the Contractor shall provide all lifting facilities [unless specified otherwise in the Detailed Mechanical Specification in the Employer’s Requirements].

Sub-Clause 4.17 Contractor’s Equipment

Add the following:

The Contractor shall provide all necessary storage facilities on Site.

Sub-Clause 4.18 Protection of the Environment

Add the following:

The Contractor’s attention is also drawn to the Environmental Management Specification in the Employer’s Requirements.

Sub-Clause 4.21 Progress Reports

Delete “ in six copies” in the first sentence and replace with “electronically and one hard copy”.

Sub-Clause 4.22 Security of the Site

Delete sub-paragraph (a) and renumber (b) as (a).

Add the following sub-paragraph:

(b) The Contractor shall in connection with the Works provide and maintain at his own cost all lights, guards, fencing, watching and other appropriate security measures when and where necessary or required by the Engineer or by any competent statutory or other authority for the protection and security of the Works and the Contractor’s Equipment, or for the safety and convenience of the public and for the protection of life and property.

Sub-Clause 4.23 Contractor’s Operations on Site

Add the following:

The Contractor shall protect and cover up all works as may be required and take all other precautions necessary to avoid causing damage or soiling of new and existing plant, equipment, buildings and structures. This shall inter alia apply when activities such as abrasive blasting, painting, welding, grinding, sealing, lagging and so forth, must be performed on the Site. The Contractor shall, on completion, remove all covers and shall at his cost rectify all soiling and damage to finishes to the satisfaction of the Engineer.

6 Staff and Labour

Sub-Clause 6.9 Contractor’s Personnel

Add the following:

The Contractor shall provide the key personnel as indicated the Appendix to Tender Part 2: Contract Data completed by the Contractor.

Where the key personnel are no longer available to undertake the necessary work after the award of the contract, the Contractor shall within a period of 14 working days replace the key personnel stated in the Appendix to Tender with personnel with equivalent competencies and subject to approval by the Employer.

Sub-Clause 6.10 Records of Contractor’s Personnel and Equipment

Add the following:

The Contractor shall also submit the monthly returns as described in the Scope of Work, Part C3.5 Management, Clause 8.

8 Commencement, Delays and Suspension

Sub-Clause 8.1 Commencement of Work

Replace the first paragraph with the following:

Where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), and a construction work permit from the Provincial Director of the Department of Labour is required, commencement of the Works shall not be deemed to take place until such construction work permit has been issued by the Provincial Director in terms of Clause 1.13 [Compliance with Laws].

Delete the words “the design and execution of the Works as soon as is reasonably practicable after” in the second paragraph and replace with “executing the Works within 14 days from”.

Sub-Clause 8.2 Time for Completion

Amend the paragraph as follows:

Delete the word “and” at the end of point (a).

Replace the full-stop at the end of point (b) with the word “and”.

Insert the following:

(c) perform all maintenance works according to the Service Level and Key Performance Indicators as specified in Part C3: Scope of Works, Section 3.4.5.

Sub-Clause 8.3 Programme

Delete the first sentence of the first paragraph and replace with:

The Contractor shall submit a detailed time programme to the Engineer within 14 days from the Commencement Date in native electronic and pdf format using industry standard project planning software.

Replace the word “and” with a comma in subparagraph (a) and add the following at the end of the subparagraph:

preventive maintenance programme / planning and personnel capacity schedules for all system elements,

Insert the following after the first paragraph:

The Contractor shall incorporate any programming restrictions that may be specified in Sub-Clause 2.1 in the Particular Conditions into the programme.

Sub-Clause 8.7 Delay Damages

Wherever the phrase “Delay Damages” occur in the Contract it should be replaced with the phrase “Delay Penalties”.

Insert the following at the end of the second sentence in the first paragraph:

....or, in the event of termination by the Employer under Sub-Clause 15.2 [Termination by Employer], the actual date of termination.

Insert the following at the end of the second paragraph:

The Employer further has the right to deduct any other fines or penalties that become due under the Contract, including but not limited to Maintenance Key Performance Indicator penalties as specified in Part C3: Scope or Works, Part C3.4 Section 3.4.5.5 Maintenance Service Level (SL).

Sub-Clause 8.10 Payment for Plant and Materials in Event of Suspension

Replace sub-paragraph (b) with the following:

(b) the Contractor has provided an advance payment guarantee in accordance with Sub-Clause 14.2 in the Particular Conditions.

9 Tests on Completion

Sub-Clause 9.1 Contractor's Obligations

Delete “21 days” in the first sentence of the second paragraph and replace with “14 days”.

[]

10 Employer’s Taking Over

Sub-Clause 10.1 Taking Over of the Works and Sections

Delete 28 days in the 3rd and final paragraph and replace with 14 days

[]

Sub-Clause 10.2 Taking Over of Parts of the Works

Delete the 2nd paragraph.

Between the 3rd and 4th paragraphs insert the following paragraph:

“The Employer may make use of any part of the Permanent Works prior to the issue of a Taking Over-Certificate.”

11 Defects Liability

Sub Clause 11.3 Extension of Defects Notification Period

Delete the first paragraph and replace with:

The Employer shall be entitled subject to Sub-Clause 2.5 [*Employer’s Claims*] to an extension of the relevant Defects Notification Period for the Works or a Section if and to the extent that the Works or Section (as the case may be, and after taking-over) cannot be used for the purposes for which they are intended by reason of a defect or damage. However, a Defects Notification Period shall not be extended by more than five years.

[]

13 Variations and Adjustments

Sub-Clause 13.3 Variation Procedure

Delete “and the Schedule of Payments” in the last paragraph.

[]

Sub-Clause 13.5 Provisional Sums

Add the following to the last paragraph:

The number of quotations shall be three (3). Quotations shall include full technical descriptions as well as a breakdown of prices.

[]

Sub-Clause 13.7 Adjustments for Changes in Legislation

Add the following to the first paragraph:

Any increase or decrease in the amount of Value Added Tax due to a change in the percentage rates applicable shall be the subject of adjustment under this Sub-Clause.

Sub-Clause 13.8 Adjustments for Changes in Cost

Deleted and replaced by:

13.8.1 General

The Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of all other rises and falls in costs not covered by the provisions of this or other Clauses.

If provision has been made in the Appendix to Tender for prices to be subject to adjustment, such adjustments claimed by the Contractor shall be made in accordance with the Sub-Clauses referred to therein.

The following general provisions shall apply in all cases:

- (a) The Base Date shall be as defined in Sub-Clause 1.1.3.1 in the Particular Conditions.
- (b) Adjustments for changes in cost shall be calculated as if the Works are executed within the time for completion and no additional costs due to any work being executed outside the time for completion shall be payable unless the Engineer allows an extension of time in accordance with Sub-Clause 8.4 [*Extension of Time for Completion*] and Sub-Clause 8.4 in the Particular Conditions.

- (c) Claims for adjustments for changes in cost shall be supported by such documentary evidence that may be required by the Engineer. Failure to render this information may result in the rejection of claims for price adjustment.
- (d) The value of imported Plant and Materials shall be as defined in the sub-clause below.
- (e) No claims for adjustments for changes in cost will be accepted which are submitted later than 28 days after the date of issue of the Taking-Over Certificate.
- (f) No adjustments shall be applied to work based on Cost or current prices.

13.8.2 Plant and Materials Manufactured in South Africa

13.8.2.1 Permissible Adjustments

Adjustment to the Contract Price for the design, manufacture, painting, testing, supply, delivery, offloading and storage of Plant and Materials manufactured in the Republic of South Africa, shall be allowed **only** for variations in the cost of labour and material based on the indices published by the Steel and Engineering Industries Federation of South Africa (SEIFSA) using the method described in Sub-Clause 13.8.2.2.

The following SEIFSA tables shall be regarded as relevant to Mechanical and Electrical Works in this Contract:

Table C3 Index of actual labour cost

Table G Statistics SA - production price index, Mechanical and Electrical Engineering Materials, as applicable

Table E - **EX** Merchant Steel Price Index, Hot Rolled Sheets

Table Q - **(A)** Index of stainless steel flat products (excluding imports), Hot rolled steel

Table Q - **1 (A)** Corrosion resisting steel 3CR12, Hot rolled plate

Table N Ruling price of certain electrical cable manufacturing materials, Copper rod 7,90 mm

13.8.2.2 Method of Price Adjustment

Adjustment of the rates inserted in the Schedules of Rates for the design, manufacture, painting, testing, supply, delivery, offloading and storage of Plant and Materials manufactured in the Republic of South Africa shall be based on the following:

(a) The estimated proportions (represented by the coefficients “b”, “c”, “d” and “e” in the formulae in sub-paragraph (b) below) of the total values shall be adjusted on the basis of the increase or decrease between the indices in the relevant tables at the Base Date and these indices at a date 42 days prior to the valuation date, for each month in which the Plant and Materials are contractually delivered to Site, by multiplying the monthly values certified by the relevant Adjustment Factor in the formulae in sub-paragraph (b) below.

(b) the applicable formulae are:

Mechanical Plant and Materials

$$A = a + b \frac{L_n}{L_o} + c \frac{M_n}{M_o} + d \frac{S_n}{S_o} + e \frac{SS_n}{SS_o} - 1$$

where

A	=	Adjustment Factor rounded off to the sixth decimal place
a	=	0.10 Fixed coefficient (non-adjustable portion)
b	=	0.15)
c	=	0.35) Coefficients (sum of these coefficients shall be 0,90)
d	=	0.25)
e	=	0.15)
L_n	=	Current labour index in Table C3
L_o	=	Base labour index in Table C3
M_n	=	Current mechanical engineering materials index in Table G
M_o	=	Base mechanical engineering materials index in Table G
S_n	=	Current steel price index in Table E-EX
S_o	=	Base steel price index in Table E-EX
SS_n	=	Current stainless steel index type 316 in Table Q-(A)
SS_o	=	Base stainless steel index type 316 in Table Q-(A)

"Current" indices are those applicable 42 days prior to date of claim, as stated in sub-paragraph (a) above

"Base" indices are those applicable at Base Date, as stated in sub-paragraph (a) above

Electrical Plant and Materials

$$A = a + b \frac{L_n}{L_o} + c \frac{E_n}{E_o} + d \frac{CR_n}{CR_o} + e \frac{C_n}{C_o} - 1$$

where	A	=	Adjustment Factor rounded off to the sixth decimal place
	a	=	0.10 Fixed coefficient (non-adjustable portion)
	b	=	0.10)
	c	=	0.30) Coefficients (sum of these coefficients shall be 0,90)
	d	=	0.20)
	e	=	0.30)
	L_n	=	Current labour index in Table C3
	L_o	=	Base labour index in Table C3
	E_n	=	Current electrical engineering materials index in Table G
	E_o	=	Base electrical engineering materials index in Table G
	CR_n	=	Current 3CR12 steel index in Table Q -1 (A)
	CR_o	=	Base 3CR12 steel index in Table Q -1 (A)
	C_n	=	Current copper rod index in Table N
	C_o	=	Base copper rod index in Table N

"Current" indices are those applicable 42 days prior to date of claim, as stated in sub-paragraph (a) above

"Base" indices are those applicable at Base Date, as stated in sub-paragraph (a) above

(c) The value of any resources (Plant, Material, Labour) imported from outside South Africa inserted on the schedule titled "**Price Basis for Imported Resources**" (Schedule 23) shall not be subject to Sub-Clause 13.8.2.2(a) & (b). Any resources not inserted in Schedule 23 shall be deemed to be manufactured or sourced locally in South Africa for the purposes of Contract Price Adjustment.

13.8.3 Plant and Materials Imported from Outside South Africa

13.8.3.1 If price adjustment for variations in the cost of plant, materials or labour imported from outside of South Africa is required, such adjustment shall be based on the information contained on the schedule titled "**Price Basis for Imported Resources**" and as below. For the purposes of this clause the Rand value of imported resources inserted on the schedule titled "**Price Basis for Imported Resources**" (column (F)) shall be the value in foreign currency (column (A)) converted to South African Rand (column (C)) by using the closing spot selling rate quoted by **Employer's** main banker, NEDBANK, on the Base Date (seven calendar days before tender closing date) rounded to the second decimal place (column(B)), to which shall be added any Customs Surcharge and Customs Duty applicable at that date (columns (D) and (E)).

13.8.3.1.1 Adjustment for variations in rates of exchange:

(a) The value in foreign currency inserted in column (A) shall be subject to clause (h) below when recalculating the Rand value.

(b) The rate of exchange inserted in column (B) shall be the closing spot selling rate quoted by Council's main banker, NEDBANK, on the Base Date, rounded to the second decimal place, subject to sub-paragraph (c) below.

(c) If the rate of exchange inserted by the Tenderer differs from the NEDBANK rate referred to above, then the NEDBANK rate shall apply and the Rand value in columns (C) and (F) shall be recalculated accordingly, without altering the price in the Schedules of Rates for the relevant items.

(d) If a tender from a supplier or sub-contractor provides for variations in rates of exchange, the Contractor may **only** claim for variations in rates of exchange if he binds the supplier or sub-contractor to the same provision to take out forward cover as described in sub-paragraph (e) below.

(e) The Contractor (or supplier or sub-contractor) shall within five working days from the date of placing a firm order on an overseas supplier, cover or recover forward by way of a contract with a bank which is an authorised foreign exchange dealer, the foreign exchange component of the cost of any imported Plant and Materials inserted by the Tenderer on the schedule titled "**Price Basis for Imported Resources**".

(f) When the Contractor (or supplier or sub-contractor) so obtains forward cover, the Contractor shall immediately notify the Employer of the rate obtained and furnish the Employer with a copy of the foreign exchange contract note.

(g) Based on the evidence provided in sub-paragraph (f) above, the value in Rand inserted in column (C) of the schedule titled "**Price Basis for Imported Resources**" shall be recalculated using the forward cover rate obtained, and any increase or decrease in the Rand value defined in this clause shall be adjusted accordingly, subject to sub-paragraph (h) below. Failure to provide such evidence shall result in no such recalculation shall be considered by the Employer.

(h) The adjustments shall be calculated upon the value in foreign currency in the Contractor's (or supplier's or sub-contractor's) **forward cover contract**, provided that, should this value exceed the value in foreign currency inserted in column (A) of the schedule titled "**Price Basis for Imported Resources**", then the value in column (A) shall be used.

13.8.3.1.2 Adjustment for variations in customs surcharge and customs duty

(a) Any increase or decrease in the Rand value between the amounts of Customs Surcharge and Customs Duty inserted on the schedule titled "**Price Basis for Imported Resources**" and those amounts actually paid to the Customs and Excise Authorities, which are due to changes in the percentage rates applicable or to the foreign exchange rate used by the authorities, shall be adjusted accordingly.

(b) The Tenderer shall state the Customs Duty Tariff Reference applicable to each item and the Contractor shall advise the Employer's Agent of any changes which occur.

13.8.3.1.3 Adjustment for variation in labour and material Costs

If the prices for imported Plant and Materials are not fixed, the Contractor shall in his Tender specify the formula for calculating Contract Price Adjustments normally used in the country of manufacture and the indices and relative proportions of labour and material on which his Tender prices are based. Evidence of the indices applicable shall be provided with each claim. The indices applicable 42 days before contractual dispatch date from the factory will be used for the purposes of Contract Price Adjustment.

Failure to specify a formula in the Tender shall mean that the prices are fixed or shall be deemed to be fixed.

13.8.4 Site Installation and General Items

For the purpose of this Sub-Clause, General Items (defined below) are included with Site Installation for the sake of convenience, and which otherwise have no relationship with each other.

General Items shall comprise General Requirements (also known as Preliminary & General) and Conditions, Health and Safety, Environmental Management, Sundries, and any other items so described or implied in the Schedules of Rates to be adjusted under this Sub-Clause.

Adjustment of the total values inserted in the Schedules of Rates for Site Installation and General Items, shall be based on the following:

(a) No Contract Price Adjustment shall be applied to the total values in respect of providing the Performance Security and Insurances.

(b) The estimated proportion (represented by the 0.90 coefficient in the formula in sub-paragraph (c) below) of the total values shall be adjusted on the basis of the increase or decrease between SEIFSA **Table C3(A)** Index of actual labour cost (field force) where subsistence allowance is paid, at the Base Date and this index at the valuation date, for each month in which the work is contractually executed, by multiplying the monthly values certified by the Adjustment Factor in the formula in sub-paragraph (c) below.

(c) the applicable formula is:

Site Installation and General Items

$$A = 0.10 + 0.90 \frac{L_n}{L_o} - 1$$

where	A	=	Adjustment Factor rounded off to the sixth decimal place
	0.10	=	Fixed coefficient (non-adjustable portion)
	0.90	=	Coefficient
	L_n	=	Current labour index in Table C3(A)
	L_o	=	Base labour index in Table C3(A)

"Current" index is that applicable at the valuation date, as stated in sub-paragraph (b) above

"Base" index is that applicable at Base Date, as stated in sub-paragraph (b) above

14 Contract Price and Payment

Sub-Clause 14.1 The Contract Price

Delete sub-paragraph (a) and replace with:

- (a) The Contract Price shall be an amount determined by using the rates and amounts submitted by the Contractor, priced at the Base Date, and due to be paid to the Contractor in accordance with the Contract together with any adjustments as provided for under Clause 13 [Variations and Adjustments] or arising as a result of claims under Clause 20 [Claims, Disputes and Arbitration].

Delete sub-paragraph (c) and replace with:

- (c) Quantities shall be determined and adjusted as applicable during the Contract for the execution and completion of the Works.

Delete sub-paragraph (d) and replace with:

- (d) Price data in any Schedule, will be used for calculating the value of completed works for the purpose of interim payments or for determining the value of changes, omissions and additions for variation instructions when in the opinion of the Engineer such prices are applicable.

Add the following at the end of the Sub-clause:

- (e) Except as otherwise stated in the Contract all parts of the Works are to be measured and the value agreed or determined, in accordance with Sub-Clause 3.5. Measurement shall be made of the net actual quantities of those parts, notwithstanding local practice.

Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:

- (i) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and
- (ii) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

- (f) Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured by records, they shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend to examine and agree, these records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall notify the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them. If the Contractor does not so notify the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

- (g) All measurements of quantity, length and mass for the purpose of payment shall be to the nearest standard unit for which rates are given in the Schedules of Rates or have been agreed by the Engineer and shall be taken from the actual work on Site.

- (h) Surplus or waste material will not be taken over or paid for by the Employer except where at the time when it was reasonable for the material to be provided or manufacture to be put in hand it was not possible to determine the quantity of material required. The route lengths determined by the Contractor in accordance with the specification shall be used for the purposes of manufacture in place of the estimated route lengths and any surplus after completion arising therefrom will not be taken over or paid for by the Employer unless the Employer so decides.

Sub-Clause 14.2 Advance Payment

Deleted and replaced by:

Subject to sub-paragraphs (a) and (e) of Sub-Clause 14.3 and the Advance Payment Schedule, the Employer shall make an advance payment for Plant and Materials stored at places other than the Site, or in respect of which a deposit with order is required, only once the Contractor has submitted an advance payment guarantee in accordance with this Sub-Clause, the authenticity of which has been verified by the City's Treasury Department.

Unless and until the Employer receives this guarantee, the following paragraphs shall not apply.

The Engineer shall issue an Interim Payment Certificate for, or including, advance payment after receiving a Statement under Sub-Clause 14.3 [*Application for Interim Payment Certificates*] and after the Employer has received a guarantee in an amount equal to the advance payment requested. This guarantee shall be issued by a financial institution approved by the Employer, as listed in the Annexure in Part C1.3 of the Contract Data, and shall be in the form of and shall contain the precise wording of the document included in Part C1.4: **Form of Advance Payment Guarantee** and shall come into force, be administered and expire in terms thereof.

The Employer shall return the guarantee to the Contractor within 14 days after the expiry date.

The provision of the Advanced Payment Guarantee shall be at the Contractor's cost.

The term "deposit" or "deposit with order" used in the context of this Sub-Clause and elsewhere by reference to this Sub-Clause, means a sum payable by the Contractor to a manufacturer/supplier prior to the manufacture of an item of Plant or Material, required at the time of placing an order, the balance of the value of the item being payable later.

Sub-Clause 14.3 Application for Interim Payment Certificates

Delete "in six copies" in the first line of the first paragraph.

Add the following at the end of this Sub-Clause:

Each application shall be accompanied by a cash flow statement, showing actual and planned spending.

Sub-Clause 14.5 Plant and Materials intended for the Works

Add to (c)(ii):

or are ready to be delivered to site and the Engineer has instructed the Contractor to store the Plant and Materials until the site can accommodate their delivery, and are properly stored at the Contractor's or the sub-Contractor's Works, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract. and for which an advance payment guarantee has been provided in accordance with Sub-Clause 14.2 in the Particular Conditions. The advance payment guarantee shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration.

Sub-Clause 14.6 Issue of Interim Payment Certificates

Delete "within 28 days" in the second sentence of the first paragraph and replace with "within 21 days".

Sub-Clause 14.7 Payment

Delete sub-paragraphs (a) to (c) and replace with:

(a) the amount certified in each Interim Payment Certificate within 35 days after the Engineer receives the Statement and supporting documents; and

(b) the amount certified in the Final Payment Certificate within 28 days after the Employer receives this Payment Certificate.

Add the following paragraph:

Notwithstanding the above, the Engineer shall be empowered to withhold the delivery of a payment certificate until the Contractor has complied with his obligations to submit the monthly returns in terms of Sub-Clause 6.10 in the Particular Conditions and as described in the Employer's Requirements.

The Contractor may submit a fully motivated application regarding more frequent payment to the Engineer to be submitted to the Employer for consideration. Requests for more frequent payments will be considered at the sole discretion of the Employer and is not a right in terms of this contract.

Sub-Clause 14.9 Payment of Retention Money

Delete the last paragraph and replace with:

The relevant contract value for each Section shall be determined by the Engineer, based on the Schedules of Rates and any variations and adjustments thereto.

Sub-Clause 14.10 Statement at Completion

Delete "Within 84 days" in the first paragraph and replace with "Within 28 days,".

Delete "six copies of" in the first paragraph.

Sub-Clause 14.11 Application for Final Payment Certificate

Delete "Within 56 days" in the first paragraph and replace with "Within 14 days".

Delete "six copies of" in the first paragraph.

Add the following new Sub-Clause after Sub-Clause 14.5:

Sub-Clause 14.16 Tax Invoices

Section 20(1) of the Value Added Tax Act, 89 of 1991 requires that a supplier (person supplying goods or services) who is registered as a VAT vendor issue to the recipient a tax invoice within 21 days of the date of a supply whether requested or not.

The Contractor shall provide a tax invoice (VAT invoice) which shall be included with each Payment Certificate and a Final Payment Certificate delivered to the Employer by the Engineer in terms of Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] and Sub-Clause 14.6 in the Particular Conditions, and Sub-Clause 14.13 [*Issue of Final Payment Certificate*], respectively. Failure by the Contractor to provide a tax invoice (VAT invoice) timeously may delay delivery of the payment certificate by the Engineer and no interest shall accrue.

Tax invoices may only be dated on or after the date of the relevant Payment Certificate as issued by the Engineer.

15 Termination By Employer

Sub-Clause 15.2 Termination by Employer

Add the following after (c) (ii)

(iii) to comply with of the Maintenance Service Levels and Key Performance Indicators as described in C3.4 Construction, paragraph 3.4.5.5 Maintenance Service Level (SL).

Add the following additional Sub-Clause after Sub-Clause (f)

who was a Sole Proprietor, or a sole member of a Close Corporation dies

Insert the following after paragraph three:

The Employer may terminate the contract if a material irregularity vitiates the procurement process leading to the conclusion of the contract, rendering the procurement process and the conclusion of the resulting contract unfair, inequitable, non-transparent, uncompetitive or not cost-effective, provided the Employer follows the processes as described in its SCM Policy.

The Employer, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Contractor, may terminate the contract if the implementation of the contract may result in reputational risk or harm to the City as a result of (inter alia):

- (a) reports of poor governance and/or unethical behaviour;
- (b) association with known notorious individuals and family of notorious individuals;
- (c) poor performance issues, known to the Employer;
- (d) negative social media reports;
- (e) adverse assurance (e.g. due diligence) report outcomes;
- (f) where the contractor has been restricted from doing business with the Employer; or
- (g) circumstances where the relevant vendor has employed, or is directed by, anyone who was previously employed in the service of the state (as defined in clause 1.53), where the person is or was negatively implicated in any SCM irregularity..

In addition to anything else contained in this contract, the Employer may make either of the following elections to ensure its rights are protected and any negative impact on service delivery is mitigated in the case of the insolvency of the Contractor:

at any time, terminate the Contract by giving written notice to the Contractor; or accept a contractor's proposal (via the trustee / liquidator) to render delivery utilising the appropriate contractual mechanisms or takes steps to ensure its rights are protected and any negative impact on service delivery is mitigated.

[]

16 Suspension and Termination by Contractor

Sub-Clause 16.1 Contractor's Entitlement to Suspend Work

Delete "Sub-Clause 2.4 [*Employer's Financial Arrangements*] or" in the first paragraph.

[]

Sub-Clause 16.2 Termination by Contractor

Delete the content of sub-paragraph (a)

17 Risk and Responsibility

Sub-Clause 17.3 Employer's Risks

Add the following after sub-clause (h):

- (i) defects in the materials supplied by the Employer for incorporation in the Works,
- (j) the confiscation, commandeering, nationalisation, requisition or destruction of or damage to property by an order of government, or any public or local authority, and
- (k) the amounts by which the replacement value of free issue materials exceeds the values as specified in the tender document by the Employer.

[]

18 Insurance

Sub-Clause 18.1 General Requirements for Insurances

Add the following at the end of the first paragraph:

Save as otherwise provided in the Contract, nothing herein contained shall oblige the Insuring Party to effect any insurance which is not generally obtainable from a registered insurer in South Africa.

[]

Add the following at the end of the second last paragraph:

[]

The Insuring Party shall be liable for the payment of all deductibles.

[]

Add the following at the end of Sub-Clause (a) before the comma:

[]

"or an insurance broker's warranty worded precisely as given in Part C1.7 Insurance Broker's Warranty".

Sub-Clause 18.2 Insurance for Works and Contractor's Equipment

Add the following at the end of the first paragraph:

In addition to and in terms of the same conditions as the rest of this clause, the Insuring Party shall further provide special risks / supplementary insurance issued by the South African Special Risks Insurance Association (SASRIA) in respect of civil commotion, riot and strike in the same value as the works insurance.

[]

Delete "Sub-Clause 18.2 [(e) (i) and (ii)].

[]

Sub-clause 18.3 Insurance against Injury to Persons and Damage to Property

Add the following at the end of the first paragraph:

In addition to and in terms of the same conditions as the rest of this clause, the Insuring Party shall provide Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity.

[]

Sub-Clause 18.4 Insurance of Contractor's Personnel

Add the following at the end of the first paragraph:

This insurance shall be in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

20 Claims, Disputes And Arbitration

Sub-Clause 20.5 Amicable Settlement

Add the following after the first paragraph:

Any amicable settlement conducted in terms of this clause will be done by mediation in accordance with rules determined by the mediator. Where the parties fail to agree on a mediator, the mediator shall be appointed by the entity or official named in the Appendix to Tender.

Mediation shall be conducted without legal representation with the costs being borne equally by the parties.

The parties shall record any agreement reached in writing and thereafter they shall be bound by such agreement.

The mediator shall be authorized to end the mediation process whenever, in his opinion, further efforts at mediation would not contribute to a resolution of the dispute between the parties.

If the mediation fails, then either party may require that the dispute be settled by litigation.

Delete all references to "Arbitration" in the conditions and replace it with "Litigation"

Delete Sub-Clause 20.6 and replace with the following:

Sub-Clause 20.6 Litigation

Any unresolved dispute shall be finally determined by court proceedings in the Court as stated in the Appendix to Tender.

PROCEDURES FOR THE ALLOCATION OF WORKS PROJECTS

The procedures for the allocation of Works Projects, given below, are to be read in conjunction with Part T1.2 Tender Data and Clause 2.6 in the Contract Data. These procedures include the development of a Works Project contract document, applying the tendered rates in order to arrive at a financial offer, receiving the contractor's Works Project contract document, and allocating the Works Project to the contractor, on a "winner-takes-all" basis as follows: "whereby the work will always be offered and, if accepted, allocated to, the highest ranked tenderer ("the winner") in the framework contracts, and only if he refuses (or if his offer is non-responsive) will the work be offered to the next highest ranked tenderer".

In terms of the foregoing, "the contractor" in the procedures below is the contractor under consideration (starting with "the winner") for allocation of the Works Project.

The procedures are summarised under the stages below, wherein the Employer (acting through his agent) shall

Stage 1: Employer prepares Works Project contract document and prices Schedule of Rates using the contractor's rates.

- a) prepare a Works Project contract document, including Schedule of rates and Scope Work therein; and
- b) compile priced Schedule of Rates for the contractor appointed, using his framework contract rates;

Stage 2: Contractor collects copy of Works Project contract document and attends a Works Project meeting

- c) make available to the contractor a copy of the Works Project contract document with the Schedule of Rates priced by the Employer;
- d) simultaneously, invite the contractor to attend a compulsory Works Project meeting;
- e) conduct the Works Project meeting, including discussing any issues the contractor may have (this may result in changes being made to the Works Project contract document and it being re-issued); and
- f) receive any Refusal Notice from the contractor timeously after the meeting;

Stage 3: Contractor submits completed Works Project contract document and Employer allocates Works Project

- g) if the contractor did not submit a refusal notice, request him to complete the Returnable Schedules, Form of Offer, Works Project Acceptance/Refusal Notice, etc. in the Works Project contract document and submit the completed document to the Employer.

Further details of the procedures under the above stages are given below.

Stage 1

As and when the Employer requires work to be executed in a Works Project under the framework contract, the Employer shall specify, *inter alia*, the nature, location(s), extent, scope of work, proposed programme and contract period for the work required, in a **Works Project contract document** comprising, as relevant, Work Allocation Procedures, Returnable Schedules, Agreements and Contract Data, Schedule of Rates and Scope of Work.

In the Schedule of Rates the Employer shall assign quantities to the work items relating to the specific Scope of Work in the Works Project. The assigned quantities shall be multiplied by the framework contract rates to constitute amounts that will be totalled to provide a **financial offer** for the contractor for this specific Works Project.

Stage 2

The Employer shall invite the contractor to attend a compulsory **Works Project meeting** at a time and venue disclosed in writing by the Employer.

The Employer shall issue the invitation **three (3)** working days prior to the meeting date, and simultaneously make available to the contractor his individually priced Works Project contract document.

The Employer shall conduct the compulsory Works Project meeting on the date specified. The purpose of this meeting is to inform the contractor of the Scope of Work required in the Works Project. The meeting shall furthermore serve to answer any queries the contractor may have in respect of the required work, billed items and

quantities, etc. (this may result in changes being made to the Works Project contract document and its being re-issued as in g) above).

Included in the Works Project contract document is a Works Project **Acceptance/Refusal Notice** requesting the contractor to state in writing whether he accepts/refuses the opportunity afforded to participate further in the work allocation procedure (i.e. that he is willing/not willing to undertake the work specified in the Scope of Work and Schedule of Rates and has/has not the necessary resources, available to complete the work within the required Works Project contract period should he be allocated the work). If the contractor **refuses**, **they** will be required to complete and return the Works Project Acceptance/Refusal Notice, either by fax or email, to the Employer within **five (5)** working days after the compulsory Works Project meeting.

Stage 3

The Works Project contract document shall be completed, signed and returned by the contractor to the Employer's agent's offices no later than **five (5)** working days after the date of the compulsory Works Project meeting or after receipt thereof if changes thereto were required (refer to f) above).

The Employer will specify the proposed Works Project construction time period (time from the date specified for commencement with Works execution to Due Completion Date) for completing the specified Works in the Scope of Work in the Works Project contract document.

The submission of a fully completed and signed Works Project contract document is mandatory for the contractor who accepts, and the contractor may be requested by the Employer to complete and/or sign his submission, if necessary, should he have not already done so..

Acceptance of the contractor's offer takes place on the date the contractor (now Contractor in terms of the Contract) receives the City of Cape Town's official **purchase order**, such date being the Commencement Date of the Works Project contract.

ADVANCE PAYMENT SCHEDULE (NOT APPLICABLE)	
<p>This Advance Payment Schedule is to be read in conjunction with Sub-Clauses 14.2 and 14.3 (sub-paragraphs (a) and (e)) in the Particular Conditions. The purpose of this schedule is to itemise specific Plant and Materials not yet brought on to the Site for building into the Permanent Works and for which the Employer is prepared to make advance payments to the Contractor, subject to the conditions below.</p> <p>The items of Plant and Materials which have been identified by the Employer as being suitable for advance payment in terms of the Contract are listed in the table below. Should an item or items be added to the list at tender stage by a tenderer, such item(s) will not be binding on the Employer.</p>	
Plant and Materials which have been manufactured and are stored at places other than the Site:	Plant and Materials yet to be manufactured and for which a deposit with order is required from the Contractor by a manufacturer/supplier, and which may be stored at places other than the Site after manufacture:
Not applicable	Not applicable
<p>Conditions:</p> <p>The Contractor can only rely on advance payment being permitted by the Employer in respect of the Plant and Materials listed in the table above, and in respect of condition 5) below. The Employer may, however, permit advance payment for other Plant and Materials in exceptional circumstances and at its sole discretion, during the course of the Contract, and upon reasonable request from the Contractor.</p> <p>Advance payment for the purposes of deposits will only be provided up to a limit of 20% of the value of any one item being claimed.</p> <p>The Contractor shall provide the Employer with documentary evidence of the terms and conditions for which a deposit with order is required by a manufacturer/supplier, together with the advance payment guarantee.</p> <p>The Contractor will also be permitted to obtain advance payment for the balance of the value of the Plant and Materials in respect of which he has paid a deposit, for an item which after manufacture is stored at a place other than the Site. The Contractor shall, in respect of such payment, provide an advance payment guarantee, either for such balance or, if the advance payment guarantee in respect of the deposit is to be returned by the Employer upon request, for the whole value of the item.</p> <p>In the event of suspension in terms of Sub-Clause 8.10 in the General and Particular Conditions, as referred to in sub-paragraph (a) in Sub-Clause 14.3 in the Particular Conditions, the Employer shall also permit advance payment for Plant and Materials which have not been delivered to Site, subject also to the terms of Sub-Clause 14.2 in the Particular Conditions.</p>	

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.2 Contract Data

Data provided by the Contractor (Continued)

The name of the Contractor is

The address of the Contractor is

Physical : Postal :
Address Address

.....
.....
.....
.....

Telephone : Fax:

email :

CONTRACTOR'S ANNUAL HOLIDAY PERIODS DURING CONSTRUCTION PERIOD

Year 1 contractor's annual holiday period	Start date		End date
Year 1 contractor's annual holiday period	Start date		End date
Year 1 contractor's annual holiday period	Start date		End date

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

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MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.3 Form of Performance Guarantee

PERFORMANCE GUARANTEE

For use with the Conditions of Contract as described in C1.2: Contract Data Part 1: Contract Data provided by the Employer.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

"Physical address:

"Employer" means: The City of Cape Town, Urban Mobility: Public Transport Systems.

"Contractor" means:

"Engineer" means:

"Works" means: Contract No. 110S/2025/26 MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEM

"Site" means: The site as defined in the Contract Data.

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words:

"Expiry Date" means: The date of issue by the Engineer of the Performance Certificate.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Performance Certificate as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Performance Certificate has been issued.

3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 9.9. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
10. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
11. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, whereafter no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
12. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

13. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

[

]

ANNEXURE

LIST OF APPROVED FINANCIAL INSTITUTIONS

The following financial institutions are currently (as at 13 August 2025) approved for issue of contract guarantees to the City:

1.1 National Banks

ABSA Bank Limited
Firststrand Bank Limited
Investec Bank Limited
Nedbank Limited
Standard Bank of South Africa Limited

1.2 International Banks (with branches in South Africa)

Barclays Bank PLC
Citibank NA
Credit Agricole Corporate and Investment Bank
HSBC Bank PLC
JPMorgan Chase Bank
Societe Generale
Standard Chartered Bank

1.3 Insurance Companies

American International Group Inc (AIG)
Bryte Insurance Company Limited
Coface SA
Compass Insurance Company Limited
Credit Guarantee Insurance Corporation of Africa Limited
Guardrisk Insurance Company Limited
Hollard Insurance Company Limited
Infiniti Insurance Limited
Lombard Insurance Company Limited
Old Mutual Alternative Risk Transfer Insure Limited (OMART Insure) (previously Mutual and Federal)
New National Assurance Company Limited
PSG Konsult Ltd (previously Absa Insurance)
Regent Insurance Company Limited
Renasa Insurance Company Limited
Santam Limited

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.4 Form of Advance Payment Guarantee

ADVANCE PAYMENT GUARANTEE

For use with the Conditions of Contract as described in C1.2: Contract Data Part 1: Contract Data provided by the Employer

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

"Physical address:

"Employer" means: The City of Cape Town, Urban Mobility: Public Transport Systems.

"Contractor" means:

"Engineer" means:

"Works" means: Contract No. 110S/2025/26 MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEM

"Site" means: The site as defined in the Contract Data.

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Plant and Materials" means: The Plant and Materials stored at places other than the Site, or in respect of which an advance payment prior to manufacture is required, which the Employer has agreed may be subject to advance payment, such Plant and Materials being listed in the Schedule of Plant and Materials.

"Schedule of Plant and Materials" means: A list of Plant and Materials which shows the value thereof to be included in the Guaranteed Advance Payment Sum.

"Guaranteed Advance Payment Sum" means: The maximum aggregate amount of R.....

Amount in words:

"Expiry Date" means: The date of the payment certificate wherein the Plant and Materials have been certified by the Engineer as having been built into the Permanent Works.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates and Final Payment Certificate.

ADVANCE PAYMENT GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Advance Payment Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Advance Payment Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Advanced Payment Sum, whichever occurs first.
3. The Guarantor hereby acknowledges that:

- 3.1 any reference in this Advance Payment Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
- 3.2 its obligation under this Advance Payment Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Advance Payment Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Advance Payment Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Advance Payment Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Advance Payment Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
8. 8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Advance Payment Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
10. This Advance Payment Guarantee is neither negotiable nor transferable and shall expire in terms of 2, whereafter no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
11. This Advance Payment Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

12. Where this Advance Payment Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

Schedule of Plant and Materials

For use with Advance Payment Guarantees on contracts using the General Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition, 1999 (Yellow Book) published by the International Federation of Consulting Engineers (FIDIC).

Employer The City of Cape Town, [URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS]

Contractor

Works [Contract No. 110S/2025/26 MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEM.....]

Payment Certificate No.

Advance payment is requested in respect of the following items of Plant and Materials, which have been manufactured and are stored at places other than the Site, or in respect of which a deposit with order is required from the Contractor by a manufacturer/supplier:

Schedule of Rates item no.	Description of Plant and Materials	Deposit with order required (Y/N)	Place of storage (or manufacture, if deposit with order is required)	Unit	Quantity	Unit price R c	Total Price R c
Total Value of Plant and Materials to be included in Guaranteed Advance Payment Sum R							

Signed at on theday of.....20.....

.....
for the Contractor

.....
As witness

.....
Approved by Engineer

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

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MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.5 Occupational Health and Safety Agreement

AGREEMENT MADE AND ENTERED INTO BETWEEN THE CITY OF CAPE TOWN (HEREINAFTER CALLED THE "EMPLOYER") AND

..... ,
(Contractor/Mandatory/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 AS AMENDED.

I, , representing

..... , as an employer
in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number:

OR Compensation Insurer: Policy No.:

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the Occupational Health and Safety Specifications contained in this tender and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan submitted and approved in terms thereof.

Signed at on the day of 20

Witness

Mandatory

Signed at on the day of 20

Witness

for and on behalf of
City of Cape Town

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

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MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.6 Protection of the Environment Declaration

PROTECTION OF THE ENVIRONMENT DECLARATION

The Contractor will not be given right of access to the Site until this form has been signed

CONTRACT NO.: 110S/2025/26

CONTRACT TITLE: MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

I/ we,.....{Contractor} record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.
2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.
3. I/ we declare that I/ we have read and understood the contents of the Environmental Management Programme (which is comprised of the Environmental Management Specification and its Annexures) for this Contract, and that I/ we understand my/our responsibilities in terms of enforcing and implementing the Environmental Management Programme. I/ we also declare that I/ we have made appropriate provision in my/ our pricing of the Schedules of Rates items for the Environmental Management Programme.
4. I/ we acknowledge and accept the right of the Employer to deduct, should he so wish, from any amounts due to me/ us, such amounts (hereinafter referred to as fines) as the Engineer shall certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:
 - 4.1 The Engineer, in determining the amount of such fine, shall take into account, *inter alia*, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences
 - 4.2 The Engineer shall, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Engineer has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed
CONTRACTOR

Date.....

CITY OF CAPE TOWN

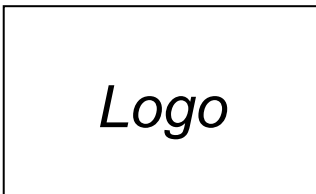
URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.7 Insurance Broker's Warranty

Pro Forma



Letterhead of Contractor's Insurance Broker

Date _____

CITY OF CAPE TOWN
City Manager
Civic Centre
12 Hertzog Boulevard
Cape Town
8001

Dear Sir

CONTRACT NO.: 110S/2025/26

CONTRACT TITLE: MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

NAME OF CONTRACTOR: _____

I, the undersigned, do hereby confirm and warrant that all the insurances required in terms of the abovementioned contract have been issued and/or in the case of blanket/umbrella policies, have been endorsed to reflect the interests of the CITY OF CAPE TOWN with regard to the abovementioned contract, and that all the insurances and endorsements, etc., are all in accordance with the requirements of the contract.

I furthermore confirm that all premiums in the above regard have been paid.

Yours faithfully

Signed: _____

For: _____

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C1.8 Contract of Temporary Employment as Community Liaison Officer

Construction Contract No.: 110S/2025/26.

PROJECT MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

AGREEMENT made between the CONTRACTOR and the Community Liaison Officer....., hereafter referred to as the CLO, for the appointment and employment of a CLO for the duration of the work in respect of the above named construction contract.

1. THE PARTIES HAVE AGREED THAT

The CLO will be employed by the CONTRACTOR on a temporary basis for the duration of the work from the date of signing this agreement to the date of practical completion as defined in the Contract, subject to all the conditions set out below.

2. THE DUTIES OF THE COMMUNITY LIAISON OFFICER SHALL BE:

1. to keep the community informed on the progress of the project;
2. to keep the Contractor informed on relevant Community affairs and possible grievances;
3. to manage the recruitment of workers from the Sub-Council Job-Seekers Database;
4. to assist the Contractor's supervisory staff in the management of the workers.

3. THE FOLLOWING CONDITIONS OF EMPLOYMENT SHALL APPLY:

The Conditions of Temporary Employment as applicable on this Contract for the workers recruited from the Community shall apply equally to the CLO, except that the rate of remuneration shall be R..... per working day. These conditions that apply are listed below as they appear in the Contract of Temporary Employment:

3.1 If required to work on a statutory public holiday or Sunday the payment will be double the amount stated in the previous paragraph.

3.2 Maximum hours of work:

- (i) 9¼ hours per day
- (ii) 45 hours per week;
- (iii) 5 days per week;
- (iv) 5 hours without an interval, whereupon there shall be an interval of at least 30 minutes;
- (v) A spread-over period of 12 hours.

3.3 The CLO shall be entitled to payment where he is prevented from working by reasons which are within the control of the Contractor.

3.4 On days when it is raining the Contractor may, before 9 a.m., decide not to open the site and there will be no pay.

If the Contractor closes the site between 9 a.m. and 1 p.m., the CLO will be paid half the daily wage.

If the site works later than 1 p.m., the CLO will be paid the full daily wage.

- 3.5 Workers and the CLO will not be permitted to work under conditions of:
- (i) undisciplined or unruly behaviour;
 - (ii) insubordination to Team Leader, Supervisors or Management;
 - (iii) abuse of intoxicating substances;
 - (iv) criminal actions by the employee;
 - (v) strike action or political stayaways.
- 3.6 Workers, including the CLO, may be dismissed after two official written warnings for the following behaviour:
- (i) undisciplined or unruly behaviour;
 - (ii) insubordination to Team Leader, Supervisors or Management;
 - (iii) abuse of intoxicating substances;
 - (iv) wilful or negligent damage to or loss of machines or equipment.
- The Contractor shall ensure that he has statements from at least two witnesses concerning any of the above situations.
- The Contractor shall inform the CLO within 24 hours of any warning issued to workers employed from the Job-Seekers Database.
- 3.7 The CLO will be paid on a Friday afternoon every two weeks, one week in arrears.
- 3.8 The CLO shall be given a statement with each payment on which is recorded:
- (i) the name of the Contractor;
 - (ii) the CLO's name;
 - (iii) the number of days worked by the CLO;
 - (iv) the rate per day;
 - (v) the details of any deductions made;
 - (vi) the actual amount paid to the CLO.
- 3.9 No deduction shall be made from the remuneration except where the CLO consents in writing or unless the Contractor is permitted or required to do so by law or the order of any competent court.
- 3.10 The CLO shall be supplied free of charge with all health and safety equipment required by the Occupation Health and Safety Act. The equipment shall remain the property of the Contractor.
- 3.11 The Contractor must give the CLO at least one week's notice of the termination of the Contract of Temporary Employment. If this is not done, the CLO must be paid earnings for five days. This condition does not apply if the CLO is dismissed.
- 3.12 At the end of the period of temporary employment, the Contractor shall provide a Certificate of Service recording the Contractor's name, the CLO's name and address, the period of service, the type of work on which the CLO was engaged and the rate of remuneration on termination.

4. **TERMINATION OF AGREEMENT**

- 4.1 If the CLO can no longer perform and execute his/her duties as detailed in this agreement, this agreement will be terminated without prejudice to any rights under this agreement.

5. **THE CONDITIONS OF THIS AGREEMENT**

- 5.1 The parties expressly declare that this agreement contains all the conditions negotiated between them, and no condition or stipulation not contained herein shall be binding upon the parties.

6. **THUS AGREED AND SIGNED BY THE PARTIES:**

Contractor:

Community Liaison officer:

Date:

Part C2: Pricing Data

Pages

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C2.2 Schedules of Rates	88 – 120
C2.3 Schedules for Electrical Variations.....	121

C2.1 Pricing Assumptions

Pricing Assumptions mean the criteria as set out below, read together with all Parts of this contract document, which it will be assumed in the contract, that the tenderer has taken into account when developing his prices.

1. The rates (excl. VAT) to be inserted in the Schedules of Rates are to be the full inclusive prices for the work described under the several items. Such rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.
2. No quantities are set out in the Schedules of Rates and the Contractor will be required to undertake whatever quantities may be directed by the Engineer from time to time for the execution of the Works. The final Contract Price shall be computed from the actual quantities of work done, valued at the relevant rates.
3. Include in the prices and rates all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in T1.1 Tender Notice and Invitation to Tender.
4. Unless otherwise stated, items are measured net, and no allowance is made for waste.
5. A price or rate should be entered against each item in the Schedules of Rates. An item against which no rate is/are entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word "included" or abbreviations thereof) is entered against an item, it will also be regarded as a nil rate having been entered against that item, i.e. that there is no charge for that item. The Tenderer may be requested to clarify nil rates, or items regarded as having nil rates; and the Employer may also perform a risk analysis with regard to the reasonableness of such rates.
6. If items have been provided where any further items considered necessary by the Tenderer can be priced. The Tenderer must provide full details of what has been allowed for with his Tender under these items.
7. The units of measurement described in the Schedules of Rates are metric units. Abbreviations which may be used in these Schedules of Rates are as follows:

m	=	metre	km	=	kilometre
Bus	=	Bus	No.	=	number
Station	=	Station	sum	=	lump sum
Depot	=	Depot	Prov sum	=	Provisional sum
Back Office	=	Back Office	%	=	per cent
Depot Month*	=	Depot Month	hr	=	hour
Bus Month*	=	Bus Month	Month	=	Calendar month
MBT Month*	=	Minibus Taxi Month	MBT	=	Minibus Taxi
Platform Month*	=	Station Platform Month			
Days	=	"Day" as defined in the Conditions of Contract			
Route	=	MyCiti trunk or feeder route, e.g. T01, etc.			

* Used in context of maintaining all APTMS equipment on a bus, MBT or infrastructure per unit over a period of a month, i.e. to maintain all APTMS equipment on / in a bus / MBT / Depot / Station Platform for the period of a month.

8. The Tenderer is referred to C.2.24 in Part T1.2 Tender Data regarding the pricing of Deviations and/or Qualifications.

9. Clause C.2.13.11 c) in Part T1.2 Tender Data shall be applicable to the submission of Schedules of Rates which have been priced electronically, and which the Tenderer wishes to submit as a printed version with his/her tender in the place of handwritten priced Schedules of Rates.

If there is found to be any variance between the printed version and the original issued document, the original shall stand. However, where Addenda have been issued which amend the Schedules of Rates, then the printed Schedules of Rates shall take these into account.

The pages of the issued Schedules of Rates should not be removed from the tender document.

10. Tenderers are referred to Clause 8 Measurement and Payment in the Environmental Management (EM) Specification in Part C3.5 in the Scope of Work for the basic principles of measurement and pricing of the EM Specification.
11. All descriptions or clauses where trade names or proprietary products are specified, are deemed to include the phrase "or equal approved"
12. Tenderers are referred to Sub-Clause 13.8 in the Appendix to Tender in Part C1.2 Contract Data regarding contract price adjustment.
13. The following schedules in Part C2.2 Schedules of Rates are deemed applicable to the following categories for the purposes of Contract Price Adjustment:

NO.	SCHEDULE	CPA CATEGORY
	Returnable Schedule 23 shall include items as identified by the Contractor subject to ROE Variation. (Note, this Schedule must be completed at Tender stage in order to claim for ROE Variation.)	ROE Variation
	Notwithstanding the below: All items listed in Schedule 23 shall be excluded from any other CPA Categories / adjustments, even if these items are included in one of the schedules listed below.	
	Notwithstanding the below: Current rates, e.g. as claimed against Prov. Sums.	No CPA applicable.
A.	Preliminary and General Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.4 Site Installation and General Items;
B.	Design Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.4 Site Installation and General Items
C.	Systems Hardware and Software Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials
D.	On-board Systems Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials
E.	Depots Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials
F.	Stations Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials

NO.	SCHEDULE	CPA CATEGORY
G.	Testing and Commissioning Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials
H.	Maintenance Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials
I.	Training Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.2.2(b) Electrical Plant and Materials
J.	Dayworks Excl. items subject to ROE Variation.	Particular Conditions of Contract SCI. 13.8.4 Site Installation and General Items

14. Design of the Works, Contractor's Documents (including "as built" drawings and Manual), and design for the manufacture and installation of materials and equipment, must be priced and will be paid for as follows:

- a) Schedule B Design: This item includes *inter alia* the Contractor's obligations under Part C3.2 Engineering.
- b) Items are provided in Schedule G Testing & Commissioning for Providing "as built" documentation, and draft and final copies of the Operation and Maintenance Manuals – these items cover the Contractor's obligations under Part C3.2 Engineering.

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Bid specifications may not make any reference to any particular trademark, name, patent, design, type, specific origin or producer, unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words “or equivalent”.

CONTRACTORS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADE MARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS ‘OR EQUIVALENT’

C2.2 Schedules of Rates

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SCHEDULE I: TRAINING.....	117
SCHEDULE J: DAYWORKS	118

SCHEDULE A: PRELIMINARY AND GENERAL				
NOTES: 1. Rates shall include liaison and on-site co-ordination with all stakeholders in the tendered rates. 2. Rates shall include any costs for attendance upon and managing subcontractors. Any costs associated with the implementation of the QA Plan shall be deemed part of tendered rates for the various items to which it applies. No separate payment will be made for implementation of the QA Plan. 3. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification. 4. The Sum amounts under Fixed Obligations shall be paid in 3 instalments: <div style="margin-left: 40px;"> I. 50% with the 1st Payment Certificate. II. 35% when the Framework Contract duration reaches 50%. III. 15% upon issue of the last and final Taking Over Certificate. </div>				
Item	Spec. Ref.	Description	Unit	Rate
A.1	C3.4.3	Fixed obligations		
A.1.1		Site Taking-over assessments and assessment report	Sum	
A.1.2		Health and Safety Plan	Sum	
A.1.3		Quality Assurance Plan	Sum	
A.1.4		Support by previous Contractor during handover period	Prov Sum	R 300 000.00
A.1.5		Contractor's handling cost, profit and all other charges in respect of item A.1.4 above	%	
A.1.6		Any other <u>Fixed-Costs</u> to meet the general obligations not covered elsewhere, including , travel, taxes, communications costs.	Sum	
A.2	C3.4.3	Time Related obligations		
A.2.1		Insurance: Design Build	Month	
A.2.2		Insurance: Maintenance	Month	
A.2.3		Performance Security	Month	
A.2.4		Project and Contract Management	Month	
A.2.5		Health and Safety Obligations	Month	
A.2.6		Office, workshop & spares storage	Month	
A.2.7		Any other <u>Time-Related Costs</u> to meet the general obligations not covered elsewhere, including travel, fuel, human resources, taxes, communications costs. (Excl. travel and fuel as part of maintenance - included under Schedule H).	Month	

SCHEDULE B: DESIGN				
NOTES: 1. Payment of all items in Schedule B shall be subject to approval of the relevant documents by the Engineer. 2. Rates for design items shall include attendance of design meetings and generation of all design documentation. 3. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
B.1	C3.2	Replacement of back-office hardware and Phase 1 software migration		
B.1.1		Preliminary Design	Sum	
B.1.2		Review	Sum	
B.1.3		Detail Design	Sum	
B.2	C3.2	Station Systems Design, per station type: Including all APTMS aspects related to PID's, local network, kiosks, intercoms and intruder alarms.		
B.2.1		Preliminary Design	No	
B.2.2		Review	No	
B.2.3		Detail Design	No	
B.3	C3.2	On-board Systems design per vehicle type		
B.3.1		Preliminary Design	No	
B.3.2		Review	No	
B.3.3		Detail Design	No	
B.4	C3.2	Depot/Staging Area Systems Design per depot/staging area type, including local network design.		
B.4.1		Preliminary Design	No	
B.4.2		Review	No	
B.4.3		Detail Design	No	
B.5	C3.2	Systems Integration Design: TSP and AVL/CAD and traffic signal controller (Optional)		
B.5.1		Preliminary Design	Sum	

SCHEDULE B: DESIGN**NOTES:**

1. Payment of all items in Schedule B shall be subject to approval of the relevant documents by the Engineer.
2. Rates for design items shall include attendance of design meetings and generation of all design documentation.
3. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.

ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
B.5.2		Review	Sum	
B.5.3		Detail Design	Sum	

SCHEDULE C: SYSTEMS HARDWARE AND SOFTWARE				
NOTES: 1. All new TMC and DR site hardware shall include OEM support from date of commissioning until the end of the Contract. 2. OEM support shall be on-site, and to such a level in order for the Contractor to meet his SLA obligations. 3. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
C.1	C3.4.4.2	TMC & DR SITE CONTROL SYSTEMS		
C.1.1	C3.4.4.2	New routes & schedules deployment		
C.1.1.1		Update and configuration of all modules of the APTMS, per route	Route	
C.1.1.2		Route Survey	Route	
C.1.2	C3.4.4.2	Base Version Rollouts		
C.1.2.1		Preparing and running rollout package from route data, deployed to all buses and depots, priced per Base Version Rollout. All inclusive.	No	
C.1.3	C3.4.4.2	Virtual server environment		
C.1.3.1		High Availability Virtual Server Cluster, incl. OEM support	Prov Sum	R 5 000 000.00
C.1.3.2		Contractor's handling cost, profit and all other charges in respect of item C.1.3.1 above	%	
C.1.3.3		Migration of all back-office software applications and databases to new hardware	Sum	
C.1.4	C3.4.4.2	BI Reporting		
C.1.4.1		Custom BI reports	No	
C.1.5	C3.4.4.2	Phase 1 System upgrades, fully inclusive of labour and software		
C.1.5.1		Upgrade back-office to use GPS as primary positioning system	Sum	
C.1.5.2		Upgrade back-office to migrate from GSM to VOIP calls	Sum	
C.1.5.3		Upgrade back-office to upload SAF files via GSM/UMTS	Sum	
C.1.5.4		Upgrade back-office for Battery Electric Bus Operations	Sum	
C.1.6	C3.4.4.7	Phase 2A APTMS nominated subcontractor (if triggered by the Employer)	Prov. Sum	R 31 000 000.00
C.1.6.1		Contractor's handling cost, profit and all other charges in respect of item above	%	

SCHEDULE C: SYSTEMS HARDWARE AND SOFTWARE				
NOTES: 1. All new TMC and DR site hardware shall include OEM support from date of commissioning until the end of the Contract. 2. OEM support shall be on-site, and to such a level in order for the Contractor to meet his SLA obligations. 3. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
C.2	C3.4.4.4	DEPOT CONTROL SYSTEMS		
C.2.1	C3.4.4.4	Automatic Vehicle Location (AVL) / Computer Aided Dispatch (CAD) Front-End at depots		
C.2.1.1		Hardware: Front- end server per depot, complete with all utility software.	No	
C.2.1.2		Hardware: Install, setup and configure, per depot	No	
C.2.1.3		Software: Depot front end AVL/CAD with perpetual licence per depot.	No	
C.2.1.4		Software Install, setup and configure per depot	No	
C.2.2	C3.4.4.4	On-board Video Surveillance System, Front-End at depots		
C.2.2.1		Hardware: Front- end server per depot, complete with all utility software.	No	
C.2.2.2		Hardware: Install, setup and configure, per depot	No	
C.2.2.3		Software: Depot front end video system with perpetual licence per depot.	No	
C.2.2.4		Software Install, setup and configure per depot	No	
C.3		NETWORK & RELATED QUIPMENT		
C.3.1	C3.4.4.3 C3.4.4.4	STATION / DEPOT NETWORK EQUIPMENT (incl. OEM support per Notes above.)		
C.3.1.1	C3.4.4.3 C3.4.4.4	Network switch: 1GbE, 19", 24 port, POE, incl. 4 x FX ports with transceivers		
a		Supply	No	
b		Install, setup and configure	No	
C.3.1.2	C3.4.4.3 C3.4.4.4	Network switch: 1GbE, 19", 48 port, POE, incl. 4 x FX ports with transceivers		
a		Supply	No	
b		Install, setup and configure	No	

SCHEDULE C: SYSTEMS HARDWARE AND SOFTWARE				
NOTES: 1. All new TMC and DR site hardware shall include OEM support from date of commissioning until the end of the Contract. 2. OEM support shall be on-site, and to such a level in order for the Contractor to meet his SLA obligations. 3. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
C.3.1.3	C3.4.4.3C3.4.4.4	Industrial type network switch: 1GbE, Managed miniature, Layer 2, 3 x FX & 7 x TX ports, including transceivers.		
a		Supply	No	
b		Install, setup and configure	No	
C.3.1.4	C3.4.4.3 C3.4.4.4	Industrial type network switch: 1GbE, Unmanaged miniature, 1 x FX & 5 x TX ports, including transceivers.		
a		Supply	No	
b		Install, setup and configure	No	
C.3.2	C3.4.4.2	TMC / DR SITE NETWORK EQUIPMENT (incl. OEM support per Notes above.)		
C.3.2.1	C3.4.4.2	Xtreme X620 10GbE network switch or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.2.2	C3.4.4.2	Xtreme X440-G2 48-port 1GbE network switch or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.3.3	C3.4.4.2	Alcatel-Lucent OmniSwitch 9600 network switch or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.3.4	C3.4.4.2	Alcatel-Lucent OmniSwitch 6400-P24 network switch or compatible replacement		
a		Supply	No	

SCHEDULE C: SYSTEMS HARDWARE AND SOFTWARE				
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ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
b		Install, setup and configure	No	
C.3.3.5	C3.4.4.2	SonicWALL NSA 2700 firewall or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.3.6	C3.4.4.2	Cisco Catalyst 9800-40 Wireless Controller or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.3.7	C3.4.4.2	Microsemi SyncServer S600 Network Time Server with antennas or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.3.8	C3.4.4.2	PBX Yeastar S300 or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.3.3.9	C3.4.4.2	SFP 10GbE, SM FO, LC/ACP or LC/PC, 1km		
a		Supply	No	
b		Install	No	
C.3.3.10	C3.4.4.2	SFP 1GbE, SM FO, LC/ACP or LC/PC, 1km		
a		Supply	No	

SCHEDULE C: SYSTEMS HARDWARE AND SOFTWARE				
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ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
b		Install	No	
C.3.3.11	C3.4.4.2	SFP 10GbE, SM FO, LC/ACP or LC/PC, 10km		
a		Supply	No	
b		Install	No	
C.3.3.12	C3.4.4.2	SFP 1GbE, SM FO, LC/ACP or LC/PC, 10km		
a		Supply	No	
b		Install	No	
C.4	C3.4.4.2	STORAGE (incl. OEM support per Notes above)		
C.4.1	C3.4.4.2	DELL PowerVault MD3200i SAN or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.4.2	C3.4.4.2	DELL PowerVault MD1200 DAS or compatible replacement		
a		Supply	No	
b		Install, setup and configure	No	
C.4.3	C3.4.4.2	SAS drive 8TB compatible with SAN or DAS		
a		Supply	No	
b		Install, setup and configure	No	

SCHEDULE D: ON-BOARD SYSTEMS				
<p>NOTES:</p> <p>1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.</p> <p>2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles.</p> <p>3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.</p> <p>4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.</p>				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.1		Advance Public Transport Management System (APTMS)		
D.1.1		Phase 1 system: Hardware loaded with application Items below shall be fully integrated and compatible with the current Phase 1 system.		
D.1.1.1	C3.4.4.5	Vehicle Logic Unit (VLU)		
a		Supply	No	
b		Install, setup and configure	No	
D.1.1.2	C3.4.4.5	VLU Bracket		
a		Supply	No	
b		Install	No	
D.1.1.3	C3.4.4.5	Mobile Driver Terminal (MDT)		
a		Supply	No	
b		Install, setup and configure	No	
D.1.1.4	C3.4.4.5	MDT Bracket		
a		Supply	No	
b		Install	No	
D.1.1.5	C3.4.4.5	Ruggedized Tablet: Integrated VLU & MDT		
a		Supply	No	
b		Install, setup and configure	No	

SCHEDULE D: ON-BOARD SYSTEMS				
<p>NOTES:</p> <p>1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.</p> <p>2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles.</p> <p>3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.</p> <p>4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.</p>				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.1.1.6	C3.4.4.5	Ruggedized Tablet Bracket		
a		Supply	No	
b		Install	No	
D.1.1.7	C3.4.4.5	Internal next stop display		
a		Supply	No	
b		Install	No	
D.1.1.8	C3.4.4.5	External (Front) destination display, Route number and name		
a		Supply	No	
b		Install	No	
D.1.1.9	C3.4.4.5	External (Side) destination display, Route number and name		
a		Supply	No	
b		Install	No	
D.1.1.10	C3.4.4.5	Side EDD Route number display only (5 Characters)		
a		Supply	No	
b		Install	No	
D.1.1.11	C3.4.4.5	Controller: Internal/external display controller (with VDV300 or VDV301 interface)		
a		Supply	No	

SCHEDULE D: ON-BOARD SYSTEMS				
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ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
b		Install	No	
D.1.1.12	C3.4.4.5	Driver/Saloon speaker; 4ohm, 80W; woofer with integrated tweeter		
a		Supply	No	
b		Install	No	
D.1.1.13	C3.4.4.5	Driver duress button - 2 wire		
a		Supply	No	
b		Install	No	
D.1.1.14	C3.4.4.5	Bus door open/close status sensor (n/o n/c magnetic contacts)		
a		Supply	No	
b		Install	No	
D.1.2	C3.4.4.7	Phase 2A system - Hardware only (if triggered by the Employer) Phase 2A APTMS application to be procured through separate process.		
D.1.2.1	C3.4.4.7	Ruggedized Tablet: Integrated VLU & MDT		
a		Supply	No	
b		Install only	No	
D.1.2.2	C3.4.4.7	Ruggedized Tablet Bracket		
a		Supply	No	

SCHEDULE D: ON-BOARD SYSTEMS				
<p>NOTES:</p> <p>1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.</p> <p>2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles.</p> <p>3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.</p> <p>4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.</p>				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
b		Install only	No	
D.1.2.3	C3.4.4.7	On-board ruggedized VOIP BOX: with Ethernet interface and min. 2 Ch. Audio output		
a		Supply	No	
b		Install only	No	
D.1.2.4	C3.4.4.7	On-board ruggedized POE Ethernet network switch, 8 Port, Cu, 100Mb/s		
a		Supply	No	
b		Install only	No	
D.1.2.5	C3.4.4.7	EDD ITxPT controller (VDV 301)		
a		Supply	No	
b		Install only	No	
D.2	C3.4.4.5	VIDEO SURVEILLANCE SYSTEM Items below shall be fully integrated and compatible with the current Phase 1 system		
D.2.1	C3.4.4.5	Network Video Recorder (NVR) with IP interface to min. 8 cameras, 1TB SSD		
a		Supply	No	
b		Install, setup and configure	No	
D.2.2	C3.4.4.5	NVR Bracket with dampers		
a		Supply	No	

SCHEDULE D: ON-BOARD SYSTEMS				
<p>NOTES:</p> <p>1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.</p> <p>2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles.</p> <p>3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.</p> <p>4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.</p>				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
b		Install	No	
D.2.3	C3.4.4.5	Standard Channel Licence per device		
a		Supply	No	
b		Install, setup and configure	No	
D.2.4	C3.4.4.5	NVR replacement SSD 1TB		
a		Supply	No	
b		Install, setup and configure	No	
D.2.5	C3.4.4.5	NVR replacement SSD 2TB		
a		Supply	No	
b		Install, setup and configure	No	
D.3	C3.4.4.5	Ruggedized dome fixed IP camera for on-board use complying with EN50155:2017 Class OT2/ST2, WDR		
D.3.1	C3.4.4.5	Fixed dome, 2MP, 16:9		
a		Supply	No	
b		Install, setup and configure	No	
D.3.2	C3.4.4.5	Fixed dome, 4MP or 5 MP, 16:9		
a		Supply	No	
b		Install, setup and configure	No	

SCHEDULE D: ON-BOARD SYSTEMS				
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ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.3.3	C3.4.4.5	Driver CCTV display, min. 10" VGA & HDMI		
a		Supply	No	
b		Install, setup and configure	No	
D.3.4	C3.4.4.5	Driver CCTV display bracket		
a		Supply	No	
b		Install, setup and configure	No	
D.4	C3.4.4.6	TRAFFIC SIGNAL PRIORITY		
D.4.1	C3.4.4.6	On-board V2X TSP OBU		
a		Supply	No	
b		Install, incl. interface/integration with VLU	No	
D.4.2	C3.4.4.6	Traffic signal V2X TSP receiver		
a		Supply	No	
b		Install, incl. interface/integration with traffic signal controller	No	
D.4.3		Setup and configuration of traffic signal controller for TSP	Prov Sum	R 300 000.00
D.4.4		Contractor's handling cost, profit and all other charges in respect of item D.4.3 above	%	
D.4.5	C3.4.4.6	TSP integration with AVL / CAD	Sum	
D.5		OTHER		

SCHEDULE D: ON-BOARD SYSTEMS				
NOTES: 1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs. 2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles. 3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations. 4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.5.1	C3.4.4.5	3 in 1 combination Wi-Fi, GSM/UMTS and GPS antenna (IP67), incl. cabling and connectors: Roof mount		
a		Supply	No	
b		Install	No	
D.5.2	C3.4.4.5	Driver ruggedized gooseneck type microphone, without key button, of type TOA DM-524B		
a		Supply	No	
b		Install	No	
D.6.	C3.4.3.4 C3.4.4.5	ON-BOARD SUPPORTING SYSTEMS		
D.6.1	C3.4.3.4 C3.4.4.5	TERMINAL BLOCK Spring blade, push-in connection, lever and cage clamp, for wire sizes of up to 4mm ² . Suitable for automotive use. Rates shall include supply and installation of mounting rail.		
D.6.1.1	C3.4.3.4 C3.4.4.5	Through terminal block: Unit of 10		
a		Supply	No	
b		Install	No	
D.6.1.2	C3.4.3.4 C3.4.4.5	Ground terminal block: Unit of 2		
a		Supply	No	
b		Install	No	

SCHEDULE D: ON-BOARD SYSTEMS				
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ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.6.1.3	C3.4.3.4 C3.4.4.5	Plug in bridge: 2, 3, 4 or 5 pin		
a		Supply	No	
b		Install	No	
D.6.1.4	C3.4.3.4 C3.4.4.5	2-Conductor fuse terminal block, push-in cage clamp		
a		Supply	No	
b		Install	No	
D.6.1.5	C3.4.3.4 C3.4.4.5	Terminal block with Miniature relay, input 24DC		
a		Supply	No	
b		Install	No	
D.7	C3.4.3.4 C3.4.4.5	CABLING & CONNECTORS All data and network cabling shall be shielded for protection against RFI.		
D.7.1	C3.4.3.4 C3.4.4.5	Between VLU and power supply terminals		
D.7.1.1		Cable: Supply	m	
D.7.1.2		Cable: Install, per vehicle	No	
D.7.1.3		Connector: Supply	No	
D.7.1.4		Connector: Install	No	

SCHEDULE D: ON-BOARD SYSTEMS				
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ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.7.2	C3.4.3.4C3.4.4.5	Between VLU and MDT interface		
D.7.2.1		Cable: Supply	m	
D.7.2.2		Cable: Install, per vehicle	No	
D.7.2.3		Connector: Supply	No	
D.7.2.4		Connector: Install	No	
D.7.3	C3.4.3.4 C3.4.4.5	Between VLU / NVR and combination antenna		
D.7.3.1		Cable: Supply	m	
D.7.3.2		Cable: Install, per vehicle	No	
D.7.3.3		Connector: Supply	No	
D.7.3.4		Connector: Install	No	
D.7.4	C3.4.3.4 C3.4.4.5	Between VLU and driver microphone		
D.7.4.1		Cable: Supply	m	
D.7.4.2		Cable: Install, per vehicle	No	
D.7.4.3		Connector: Supply	No	
D.7.4.4		Connector: Install	No	

SCHEDULE D: ON-BOARD SYSTEMS				
NOTES: 1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs. 2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles. 3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations. 4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.7.5	C3.4.3.4C3.4.4.5	Between VLU / NVR and onboard vehicle signals (door, reverse, emergency button, stop request , ignition, odometer, etc.)		
D.7.5.1		Cable: Supply	m	
D.7.5.2		Cable: Install, per vehicle	No	
D.7.5.3		Connector: Supply	No	
D.7.5.4		Connector: Install	No	
D.7.6	C3.4.3.4 C3.4.4.5	Between VLU and onboard EDD controller		
D.7.6.1		Cable: Supply	m	
D.7.6.2		Cable: Install, per vehicle	No	
D.7.6.3		Connector: Supply	No	
D.7.6.4		Connector: Install	No	
D.7.7	C3.4.3.4 C3.4.4.5	Between NVR and power supply terminals		
D.7.7.1		Cable: Supply	m	
D.7.7.2		Cable: Install, per vehicle	No	
D.7.7.3		Connector: Supply	No	
D.7.7.4		Connector: Install	No	
D.7.8	C3.4.4.5	Between NVR and Driver CCTV Display		

SCHEDULE D: ON-BOARD SYSTEMS				
<p>NOTES:</p> <p>1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.</p> <p>2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles.</p> <p>3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.</p> <p>4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.</p>				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.7.8.1		Cable: Supply	m	
D.7.8.2		Cable: Install, per vehicle	No	
D.7.8.3		Connector: Supply	No	
D.7.8.4		Connector: Install	No	
D.7.9	C3.4.3.4C3.4.4.5	Between NVR and CCTV cameras, CAT6A full copper.Cable and connectors may also be used at other infrastructure such as control centre, stations and depots, etc.		
D.7.9.1		Cable: Supply	m	
D.7.9.2		Cable: Install, per vehicle, per camera	No	
D.7.9.3		Connector M12: Supply	No	
D.7.9.4		Connector M12: Install	No	
D.7.9.5		Connector RJ45: Supply	No	
D.7.9.6		Connector RJ45: Install	No	
D.7.10	C3.4.3.4 C3.4.4.5	Between Driver CCTV Display and power supply terminals		
D.7.10.1		Cable: Supply	m	
D.7.10.2		Cable: Install, per vehicle	No	
D.7.10.3		Connector: Supply	No	
D.7.10.4		Connector: Install	No	

SCHEDULE D: ON-BOARD SYSTEMS				
<p>NOTES:</p> <p>1. The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.</p> <p>2. Phase 1 systems may be installed on Phase 2 vehicles and Phase 2 systems may be installed on Phase 1 vehicles.</p> <p>3. The rates shall include installations of materials on new Phase 2A buses at the premises of the bus manufacturer located within the wider Gauteng area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.</p> <p>4. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.</p>				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
D.7.11	C3.4.3.4 C3.4.4.5	Between MDT interface and power supply terminals		
D.7.11.1		Cable: Supply	m	
D.7.11.2		Cable: Install, per vehicle	No	
D.7.11.3		Connector: Supply	No	
D.7.11.4		Connector: Install	No	

SCHEDULE E: DEPOTS				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
E.1	C3.4.4.4	Depot Wi-Fi Access Points		
E.1.1	C3.4.4.4	Cisco Wireless 802.11ac outdoor Access Point (AP)		
a		Supply	No	
b		Install, setup and configure	No	
E.1.2	C3.4.4.4	Cisco AP 2.4 GHz 8 dBi/5 GHz 8 dBi directional panel antenna		
a		Supply	No	
b		Install, setup and configure	No	
E.2	C3.4.4.4	Hot Dip Galvanized (to SANS121) steel poles (for mounting of Wireless equipment).		
E.2.1	C3.4.4.4	6m Pole		
a		Supply	No	
b		Install, planted 1.2m deep	No	
E.2.2	C3.4.4.4	8m Pole		
a		Supply	No	
b		Install, planted 1.5m deep	No	
E.2.3	C3.4.4.4	10m Pole		
a		Supply	No	
b		Install, planted 1.7m deep	No	
E.2.4	C3.4.4.4	Pole mounted enclosure, double skinned, 1.2mm, 3CR12, powder coated, incl. backplate, wiring, circuit breakers, surge protection.		
a		Supply	No	
b		Install	No	
E.3	C3.4.4.4	Network cabling CAT6A cabling for depots to be procured at same rates tendered under Schedule D. On-Board systems.		

SCHEDULE E: DEPOTS				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
E.3.1	C3.4.4.4	FO patch lead, SM, 1m, with LC/APC or LC/PC connectors		
a		Supply	No	
b		Install	No	
E.3.2	C3.4.4.4	FO patch lead, SM, 1m, with ST or SC connectors		
a		Supply	No	
b		Install	No	
E.3.3	C3.4.4.4	FO patch lead, SM, 2m, with LC/APC or LC/PC connectors		
a		Supply	No	
b		Install	No	
E.3.4	C3.4.4.4	FO patch lead, SM, 2m, with ST or SC connectors		
a		Supply	No	
b		Install	No	

SCHEDULE F: STATIONS				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
F.1	C3.4.4.3	Station Alarm system		
F.1.1	C3.4.4.3	Control panel with IP communications		
a		Supply	No	
b		Install, setup and configure	No	
F.1.2	C3.4.4.3	Ethernet module		
a		Supply	No	
b		Install, setup and configure	No	
F.1.3	C3.4.4.3	Keypad		
a		Supply	No	
b		Install	No	
F.1.4	C3.4.4.3	Magnetic door contacts		
a		Supply	No	
b		Install	No	
F.1.5	C3.4.4.3	PIR intruder detectors		
a		Supply	No	
b		Install	No	
F.1.6	C3.4.4.3	Battery 12VDC min. 7Ah		
a		Supply	No	
b		Install	No	
F.2	C3.4.4.3	Passenger Information Displays (PID's)		
F.2.1	C3.4.4.3	40" to 43" PID, 24/7 operations, outdoor ready to IP65, 700nit, including PC controller and network interface		
a		Supply	No	
b		Install, setup and configure	No	

SCHEDULE F: STATIONS				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
F.2.2	C3.4.4.3	40" to 43" PID, 24/7 operations, indoor ready to IP55, 700nit, including PC controller and network interface		
a		Supply	No	
b		Install, setup and configure	No	
F.2.3	C3.4.4.3	VESA Bracket for 40" to 43"PID		
a		Supply	No	
b		Install	No	
F.2.4	C3.4.4.3	55" PID, 24/7 operations, outdoor ready to IP65, 700nit, including PC controller and network interface		
a		Supply	No	
b		Install, setup and configure	No	
F.2.5	C3.4.4.3	55" PID, 24/7 operations, indoor ready to IP55, 700nit, including PC controller and network interface		
a		Supply	No	
b		Install, setup and configure	No	
F.2.6	C3.4.4.3	VESA Bracket for 55" PID		
a		Supply	No	
b		Install	No	
F.3	C3.4.4.3	Station Intercom System		
F.3.1	C3.4.4.3	Kiosk intercom: SIP based and vandal resistant		
a		Supply	No	
b		Install, setup and configure	No	
F.3.2	C3.4.4.3	Platform intercom: SIP based and vandal resistant		

SCHEDULE F: STATIONS				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
a		Supply	No	
b		Install, setup and configure	No	
F.3.3	C3.4.4.3	Kiosk panic button connected to intercom		
a		Supply	No	
b		Install	No	

SCHEDULE G: TESTING & COMMISSIONING				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
G.1	C3.4.4.8	Site Acceptance Testing (SAT), Functional Testing and Commissioning Rates below to include test reports.		
G.1.1		Test documentation, procedures, proposed equipment	Sum	
G.1.2		Bus Site Acceptance Test (SAT)	Bus	
G.1.3		Station Site Acceptance Test (SAT)	Station	
G.1.4		Depot Site Acceptance Test (SAT)	Depot	
G.1.5		TMC, Back Office Site Acceptance Test (SAT)	Back Office	
G.1.6		DR Site, Back Office Site Acceptance Test (SAT)	Back Office	
G.1.7		Bus Functional Testing and Commissioning	Bus	
G.1.8		Station Functional Testing and Commissioning	Station	
G.1.9		Depot Functional Testing and Commissioning	Depot	
G.1.10		TMC, Back Office Functional Testing and Commissioning	Back Office	
G.1.11		DR Site, Back Office Functional Testing and Commissioning	Back Office	
G.2	C3.4.4.8	AS-BUILT DOCUMENTATION		
G.2.1		Systems Back-Office and DR Site	Sum	
G.2.2		Supply on-board equipment documentation	Sum	
G.2.3		Supply depot/staging area network documentation	Sum	
G.2.4		Supply station equipment documentation	Sum	
G.3		Operations and Maintenance Manuals. Draft and final copies	Sum	

SCHEDULE H: MAINTENANCE				
NOTES: 1. The maintenance rates shall be for complete system maintenance to meet service level obligations and KPI's. 2. Rates to be fully inclusive of the following: a) All small materials, sundries, consumables, tools and instruments as required. b) All maintenance related travel and transportation costs. c) Labour: Total labour costs for Preventive and Responsive Maintenance, incl. technical and administrative staff. 3. Device replacement to be at the tendered rate for the relevant device per other schedules. 4. Rates shall include continuous Forcelink interaction and data capturing, i.e. update of asset databases, spares tracking, etc. 5. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
H.1	C3.4.5	Maintenance plan		
H.1.1		Preparation of complete maintenance plan incl. any revisions up to approval	Sum	
H.2	C3.4.5	Maintenance: TMC and DR Site		
H.2.1		Back-office systems maintenance	Month	
H.2.2	C3.4.5	OEM support		
H.2.2.1	C3.4.5	OEM Hardware support for existing servers, network equipment and storage.		
H.2.2.1.1		Warranty extensions and onsite support: Servers	Prov. Sum	R 300 000.00
H.2.2.1.2		Contractor's handling cost, profit and all other charges in respect of item H.2.2.1.1 above	%	
H.2.2.1.3		Warranty extensions and onsite support: Storage	Prov. Sum	R 300 000.00
H.2.2.1.4		Contractor's handling cost, profit and all other charges in respect of item H.2.2.1.3 above	%	
H.2.2.1.5		Warranty extensions and onsite support: Network equipment	Prov. Sum	R 300 000.00
H.2.2.1.6		Contractor's handling cost, profit and all other charges in respect of item H.2.2.1.5 above	%	
H.2.2.2	C3.4.5	OEM Software licencing and support renewals		
H.2.2.2.1		Phase 1: AVL/CAD system OEM software licencing and support renewals	Month	
H.2.2.2.3		Phase 1 Scheduling system OEM software licencing and support renewals	Month	
H.3	C3.4.5	On-board systems		
H.3.1		Maintenance per Bus	Bus Month	

SCHEDULE H: MAINTENANCE				
NOTES: 1. The maintenance rates shall be for complete system maintenance to meet service level obligations and KPI's. 2. Rates to be fully inclusive of the following: a) All small materials, sundries, consumables, tools and instruments as required. b) All maintenance related travel and transportation costs. c) Labour: Total labour costs for Preventive and Responsive Maintenance, incl. technical and administrative staff. 3. Device replacement to be at the tendered rate for the relevant device per other schedules. 4. Rates shall include continuous Forcelink interaction and data capturing, i.e. update of asset databases, spares tracking, etc. 5. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
H.3.2		Maintenance per Minibus Taxi (if triggered by the Employer)	MBT Month	
H.4	C3.4.5	Station systems		
H.4.1		Maintenance per Station Platform	Platform Month	
H.5	C3.4.5	Depot/staging area system		
H.5.1		Maintenance per Depot or staging area	Depot Month	
H.6	C3.4.5	CCT Forcelink Maintenance Management system		
H.6.1		CCT Master Schema, licencing and support.	Month	
H.6.2		CCT APTMS Schema, licencing and support.	Month	
H.6.3		Review and adjust maintenance procedures, SLA and KPI's in Forcelink	Sum	
H.6.4		Ad-hoc maintenance reports	No	
H.6.5		Training form the OEM on the use of the CMMS (if required)	Sum	
H.7	C3.4.5	System Decommissioning (as and when instructed by the Engineer), incl. disposal of assets per CCT processes		
H.7.1		On-board systems decommissioning per bus	Bus	
H.7.2		Stations systems decommissioning	Platform	
H.7.3		System decommissioning per depot	Depot	
H.7.4		Back-office / Failover Site decommissioning	Sum	

SCHEDULE H: MAINTENANCE				
NOTES: 1. The maintenance rates shall be for complete system maintenance to meet service level obligations and KPI's. 2. Rates to be fully inclusive of the following: a) All small materials, sundries, consumables, tools and instruments as required. b) All maintenance related travel and transportation costs. c) Labour: Total labour costs for Preventive and Responsive Maintenance, incl. technical and administrative staff. 3. Device replacement to be at the tendered rate for the relevant device per other schedules. 4. Rates shall include continuous Forcelink interaction and data capturing, i.e. update of asset databases, spares tracking, etc. 5. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
H.8	C3.4.5	Re-commissioning (if required, as and when instructed by the Engineer)		
H.8.1		On-board systems re-commissioning per bus	Bus	
H.8.2		Stations systems re-commissioning	Platform	
H.8.3		System re-commissioning per depot	Depot	
H.8.4		Back-office / Failover Site re-commissioning	Sum	
H.9	C3.4.5	Bus rectification: Cabling looms and Power supplies (Material, installation, configuration, sign-off)The below rates shall include Labour and Material. Material required shall include all consumables specifically split tubing, cable ties, saddles, sealants, heat shrink, screws, bolts, washers, nuts, labels.		
H.9.1		Optare Solo	No	
H.9.2		Volvo B7R and B7RM (Rigid)	No	
H.9.3		Volvo B12MA (Articulated)	No	
H.9.4		Scania K250 and Volvo B9L (Rigid)	No	
H.9.5		Scania K310 and Volvo B9LA (Articulated)	No	
H.9.6		Victron Energy Orion-Tr Smart Charger Isolated 24/24-17 (400W) or equivalent	No	
H.9.7		24V 65A Smart Battery Protect	No	

SCHEDULE I: TRAINING				
NOTES: 1. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
I.1	C3.4.6	Schedule Planning System training, local resource	Day	
I.2	C3.4.6	Schedule Planning System training, OEM overseas resource	Day	
I.3	C3.4.6	CAD / AVL training, local resource	Day	
I.4	C3.4.6	CAD / AVL training, OEM overseas resource	Day	
I.5	C3.4.6	On-board training (OBU & MDT), local resource	Day	
I.6	C3.4.6	Business intelligence, local resource	Day	
I.7	C3.4.6	On-board Video Surveillance System, local resource	Day	

SCHEDULE J: DAYWORKS				
NOTES: 1. These amounts will only be expended on specific Instruction by the Engineer to the Contractor for additional tasks that may be required. 2. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
J.1	FIDIC SCI. 13.6	Dayworks - Labour (normal working hours)		
J.1.1		Unskilled labour	Hr	
J.1.2		Electrical technician	Hr	
J.1.3		Electronic technician	Hr	
J.1.4		Systems engineer	Hr	
J.1.5		Systems integrator	Hr	
J.1.6		Software developer	Hr	
J.1.7		Communications-network engineer	Hr	
J.1.8		Administration	Hr	
J.1.9		Project Manager	Hr	
J.1.10		Schedule adherence and bus tracking system specialist	Hr	
J.1.11		Schedule planning system specialist	Hr	
J.2	FIDIC SCI.13.6	Dayworks - Labour (outside normal working hours)		
J.2.1		Unskilled labour	Hr	
J.2.2		Electrical technician	Hr	
J.2.3		Electronic technician	Hr	
J.2.4		Systems engineer	Hr	
J.2.5		Systems integrator	Hr	
J.2.6		Software developer	Hr	
J.2.7		Communications-network engineer	Hr	

SCHEDULE J: DAYWORKS				
NOTES: 1. These amounts will only be expended on specific Instruction by the Engineer to the Contractor for additional tasks that may be required. 2. The Specification Reference (Spec. Ref.) is not exhaustive and shall include all other clauses and requirements as applicable in the specification.				
ITEM	SPEC REF	DESCRIPTION OF ITEM	UNIT	RATE R-c
J.2.8		Administration	Hr	
J.2.9		Project Manager	Hr	
J.2.10		Schedule adherence and bus tracking system specialist	Hr	
J.2.11		Schedule planning system specialist	Hr	
J.3	FIDIC SCI.13.6	Daywork - Material (optional on Instruction from the ER)		
J.3.1		Daywork - Material	Prov Sum	R 300 000.00
J.3.2		Contractor's handling cost, profit and all other charges in respect of item J3.1 above	%	
J.3.3		Daywork - Local material repairs	Prov Sum	R 300 000.00
J.3.4		Contractor's handling cost, profit and all other charges in respect of item J.3.3 above	%	
J.4	C3.4.6.3	Travel and accommodation costs (overseas personnel for training & operational support by OEM only)		
J.4.1		International return flight ticket in economy class	No	
J.4.2		Accommodation per person per night	No	
J.4.3		Car rental	Day	

DECLARATION (In respect of completeness of Tender)

City of Cape Town
Tower Block, Civic Centre
12 Hertzog Boulevard
CAPE TOWN

I I/we, the undersigned, do hereby declare that these are the properly priced Schedules of Rates forming Part C2.2 of this Contract Document containing 156 pages in consecutive order upon which my/our tender for **TENDER NO. 110S/2025/26: MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS** has been based. If I/we have submitted a printed version of the Schedules of Rates, I/we warrant that no amendments have been made to it from the original, other than amendments issued in any Addenda in terms of Clause C.3.2 in Part T1.2 Tender Data.

SIGNED ON BEHALF OF TENDERER:

DATE:

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C2.3 Schedule of Rates for Electrical Variations

Not applicable to this tender.

Part C3: Scope of Work

Pages

C3.1 Description of the Works 123

C3.2 Engineering..... 136 – 139

C3.3 Procurement 140 – 141

C3.4 Construction 142– 209

C3.5 Management..... 210 – 238

C3.6 Annexes (see Volume 1) 239 - 245

Status

Should any requirement or provision in the parts of the Scope of Work conflict with any requirement of any Standardised Specification, particular specification or any drawings, the order of precedence, unless otherwise specified, is:

Drawings
Scope of Work (Parts C3.1, C3.4, C3.5 and C3.6)

Particular Specifications
Standardised Specifications

C3.1 Description of the Works

CONTENTS

- 3.1.1 EMPLOYER'S OBJECTIVES
- 3.1.2 OVERVIEW OF THE WORKS
- 3.1.3 EXTENT OF THE WORKS
- 3.1.4 LOCATION OF THE WORKS
- 3.1.5 CO-ORDINATION WITH OTHERS AND STAKEHOLDER ENGAGEMENT

3.1.1 EMPLOYER'S OBJECTIVES

The Employer's objectives are to maintain and expand the current MyCiti Advanced Public Transport Management System (APTMS) to deliver reliable, efficient and safe public transport along the current Phase 1 and new Phase 2A (Metro Southeast, MSE) corridors.

3.1.2 OVERVIEW OF THE WORKS

MyCiti is a Bus Rapid Transit (BRT) service provided by the City of Cape Town. It includes high-speed trunk routes with dedicated bus lanes, intersection priority and enclosed stations for rapid passenger on- and off boarding. It also includes feeder routes to the trunk routes where vehicles run in mixed traffic. Access to the feeder route buses is through kerb-side stops.

An integral part of the MyCiti service is the Advanced Public Transport Management System (APTMS), on-board CCTV and associated systems as described in the Scope of Works.

The service commenced in 2010 with Phase 1, which features bus services operating north to south and vice versa along the west coastline of the City. Phase 1 is currently fully operational with existing Advanced Public Transport Management Systems (APTMS), and on-board CCTV and associated systems.

The MyCiti Phase 2A corridor, also referred to as the Lansdown – Wetton, or Metro Southeast (MSE) corridor, is currently under construction. This aims to facilitate the movement of people between the Metro Southeast and Claremont and Wynberg, and provide access to destinations along the corridor via the BRT system. As part of the wider MyCiti Phase 2A project, new routes, stations, stops and depots / lay-overs will be constructed, and new buses procured to expand the MyCiti service to this corridor.

The Scope of Works describe and specify the requirements for the Advanced Public Transport Management Systems (APTMS), and on-board CCTV and associated systems and can be categorized into two main parts:

1. Maintenance to the specified SLA and KPI's:
 - a. Maintenance of existing Phase 1 systems.
 - b. Maintenance of new Phase 2A systems after commissioning.
2. Capital works:
 - a. Supply, install and configure APTMS equipment on new Phase 2A infrastructure, buses and minibus taxis and integration with the existing back-office systems.
 - b. Setup and configure back-office systems to integrate all Phase 2A equipment and update systems planning and operational information and reporting.
 - c. Replacement and upgrade of certain Phase 1 equipment.

Phasing in of the Phase 2A APTMS shall be strictly aligned with the CCT Phase 2A MSE Master Schedule.

As an optional requirement the Contractor will be required to implement an alternative APTMS for phase 2A including an integration platform where different APTMS systems can integrate and exchange information to allow interoperability between different systems vendors.

Further enhancements to the MyCiTi APTMS & on-board CCTV systems shall be included as may be required by the Employer during the contract.

3.1.3 EXTENT OF THE WORKS

3.1.3.1 High level summary

The existing Phase 1 Advanced Public Transport Management System shall be maintained and expanded onto the new Phase 2A buses, Minibus Taxis (MBT) and other infrastructure as required.

The APTMS and on-board video surveillance systems which are currently installed and shall be replaced and / or maintained throughout this Contract includes but are not limited to the following:

1. Central control system at the TMC and DR site (Civic Centre)

1.1 AVL/CAD: Trapeze LIO system

- a. LIO Data
- b. LIO IDS (Integrated Data Sheet)
- c. LIO Clients
- d. Depot Data Manager (DDM)
- e. Business Intelligence (BI)
- f. Passenger Information (PI)
- g. Public Announcements (PA)
- h. Incident Management (IM)
- i. LIO Geo Editor
- j. Route Survey tool

1.2 Schedule planning system: MDV DIVA

- a. Schedule planning system
- b. Duty scheduling
- c. Duty schedule optimisation
- d. Vehicle scheduling
- e. Vehicle schedule optimisation
- f. Duty and vehicle despatch module
- g. Timetable publication and printing

1.3 Various workstation PC's with Trapeze LIO and DIVA functionality.

1.4 On-board video surveillance system back-end: Hikvision HikCentral

1.5 Associated server hardware with VM cluster

1.6 Storage SAN & DAS: Dell PowerVault

1.7 PBX: Yeastar

1.8 Network switches: Alcatel Lucent, XtremeX

1.9 Firewall: SonicWALL

1.10 Wireless controller: Cisco Catalyst

1.11 Network Time Server: Microsemi SyncSever

1.12 Computerized Maintenance Management System (CMMS) - Forcelink

2. On-board equipment:

2.1 Vehicle Logic Unit (VLU): Trapeze IDR-f & IDR-i

2.2 Mobile Driver Terminal (MDT): Trapeze IPT

2.3 Ruggedized Tablet: Integrated VLU & IPT, Trapeze PC7108

2.4 Various antennas

2.5 Internal Next Stop Displays

2.6 External Destination Displays (EDD) front and side

- 2.7 Controller for internal and external displays
- 2.8 Network Video Recorder (NVR): Hikvision
- 2.9 CCTV cameras
- 2.10 Driver CCTV display
- 2.11 Driver panic button
- 2.12 Driver Microphone
- 2.13 On-board speakers
- 2.14 Cabling and terminal blocks with fuses
- 2.15 Bus door open/close status sensor

3. Depot equipment:

- 3.1 Depot Data Manager front end server, including software application
- 3.2 HikCentral depot front-end server, including software application
- 3.3 LAN, including WLAN / Wi-Fi: Cisco WiFi
- 3.4 Various workstation PC's with Trapeze LIO and CCTV viewing functionality.

4. Station equipment

- 4.1 Passenger Information Displays (PID's): Hantarex Airtank
- 4.2 Platform information intercoms
- 4.3 Kiosk intercom
- 4.4 Network switches
- 4.5 Alarm system
- 4.6 Kiosk Panic button

Other systems and/or integration which may be installed / developed in the future on new and/or existing vehicles/infrastructure at the sole discretion of the Employer are:

- 5. Traffic Signal Priority (TSP) (Optional)
- 6. Driver behaviour monitoring system (Optional)
- 7. Integration with AFC systems
- 8. APTMS vendor agnostic Integration Management Interface
- 9. On-board TFT displays for commercial information

For interoperability and warranty reasons hardware and software supplied under this Contract must fully integrate with the current hardware and software.

Specifically, should the Contractor offer any Vehicle Logic Unit (VLU), Mobile Driver Terminal (MDT), on-board Network Video Recorder (NVR) or related software not from the OEM a letter from the OEM shall be submitted stating that the OEM supports the proposed hardware (make and model) and / or software (name, version and developer) to be used with their system. Such hardware and/or software shall be fully integrated and compatible with the current system at the time of offering and not limit or impair system functionality, reliability or performance in any way.

Each of the above systems include hardware and software components installed / to be installed and maintained across different system elements including buses, minibus taxis, stations, depots, lay-overs, Transport Management Centre (TMC, back-office systems) and Civic Centre (DR Site). The different quantities are summarized in the table below.

Table 1: Summary of Phase 1 and Phase 2A quantities (subject to change).

Phase	MyCiti Status	Scope of APTMS & on-board CCTV	Buses	MBT	Stations	Station Platforms**	Depots	Staging Areas
1* (incl. N2 Express)	Fully operational	Maintenance & Selected capital works	345	0	42	82	5	2
2A	New	Capital works & Maintenance after system commissioning.	80	TBC	11	24	2	1
		TOTAL	425	TBC	53	106	7	3

* Refer to Part C4 Site Information for further detail about existing systems.

**A typical MyCiti trunk station consists of one or more linked platforms. A platform is an enclosed, raised space with a bus stopping point on one or both sides.

3.1.3.2 Description of operations (By others)

The MyCiti Control Centre Operations are located at the Transport Management Centre (TMC) of the Employer and are operated by Employer appointed operators also known as **System Controllers**. The APTMS and on-board CCTV systems play a crucial role in ensuring that the buses operating within the MyCiti transport network adhere to their planned route schedules, schedule adherence and according to Standard Operating Procedures as agreed with the VOCs.

Buses are currently operated across four (4) Vehicle Operator Companies (VOC's) from seven (7) different depots and staging areas. CCT have separate contracts with the VOC's to provide the bus operations. The current MyCiti operating times are 04:00 to 22:00; Monday to Saturday and 04:30 – 20:30 Sundays and public holidays.

Additional buses, including electric buses and a Mini-Bus Taxi (MBT) operator are to be included under the Phase 2A operations.

A. Automatic Vehicle Location (AVL) / Computer Aided Dispatch (CAD) Operations

The MyCiti Control Centre Operations team consisting of 7 System Controllers and 3 Senior System Controllers who monitor the buses in real-time, actively assessing their progress and taking appropriate actions to maintain route and schedule adherence and provide reliable transportation services to passengers.

The Senior System Controllers supervise and manage the team on behalf on the Control Centre Manager. The team works 20 hours a day from 04:30 to 23:30 with overlapping shift system.

The Trapeze AVL system, Vicos Lio is the primary operations interface used by the system controllers. The team's responsibilities include:

1. Monitoring and Tracking:
 - a. Continuous monitoring of bus locations and movements.
 - b. Tracking the buses' progress along their designated routes to identify any deviations or delays.
 - c. Active communications with bus drivers via voice and text messaging.
2. Incident Management:
 - a. Acting as a central point of contact for receiving reports of bus incidents from the VOC or bus drivers.
 - b. Logging and documenting incidents in customized MyCiti Operation Reporting System (Mors), such as breakdowns, accidents, or service disruptions, to facilitate timely resolution.
 - c. Coordinating with relevant teams, such as maintenance, dispatch, or emergency response, to mitigate the impact of incidents and ensure service continuity.
 - d. Alternative route assignments during incident management.

3. Schedule Adherence Enforcement:
 - a. Monitoring bus performance against the planned routes and schedules to identify deviations, early or late departures, or missed timing points.
 - b. Notifying bus drivers and relevant personnel of schedule discrepancies or deviations.
 - c. Taking necessary actions, such as adjusting the timetable, informing passengers about changes, or coordinating with dispatch to maintain schedule adherence.
4. Communication and Coordination:
 - a. Maintaining effective communication channels with bus drivers, VOC staff, and other stakeholders involved in bus operations.
 - b. Providing timely updates to bus drivers on any changes in routes, schedules, or operational requirements.
 - c. Collaborating with the Schedule Planning team to address route planning issues, optimise schedules, and improve overall service efficiency.
5. CCTV and Reversible Bus Lane Monitoring:
 - a. Use live CCTV information to make informed decision on possible interventions as and when required.
 - b. Incident detection / monitoring using onboard video footage, either live and/or historical.
 - c. Monitoring and managing the Reversible Bus Lane via custom made dashboard and CCTV cameras.
6. Stakeholder engagement and reporting:
 - a. Generating system reports.
 - b. Extracting CCTV footage of incidents from on-board CCTV system.

B. Schedule Planning System

The DIVA schedule planning system is used by the City.

The schedule planning team consist of two scheduler and one Assistant Professional Officer, using the Bus Schedule Planning System DIVA and are responsible for the following:

1. Route Planning and Timetable Creation:
 - a. Analysing existing routes and designing optimal bus routes.
 - b. Developing accurate and effective timetables, considering factors such as passenger demand and operational constraints.
2. Schedule Optimization and Maintenance:
 - a. Continuously reviewing and optimizing bus schedules for improved efficiency.
 - b. Create Duty Schedules and Driver Rosters.
 - c. Managing updates and changes to schedules based on operational requirements.

The above operations process is shown in the following high level flow diagram.

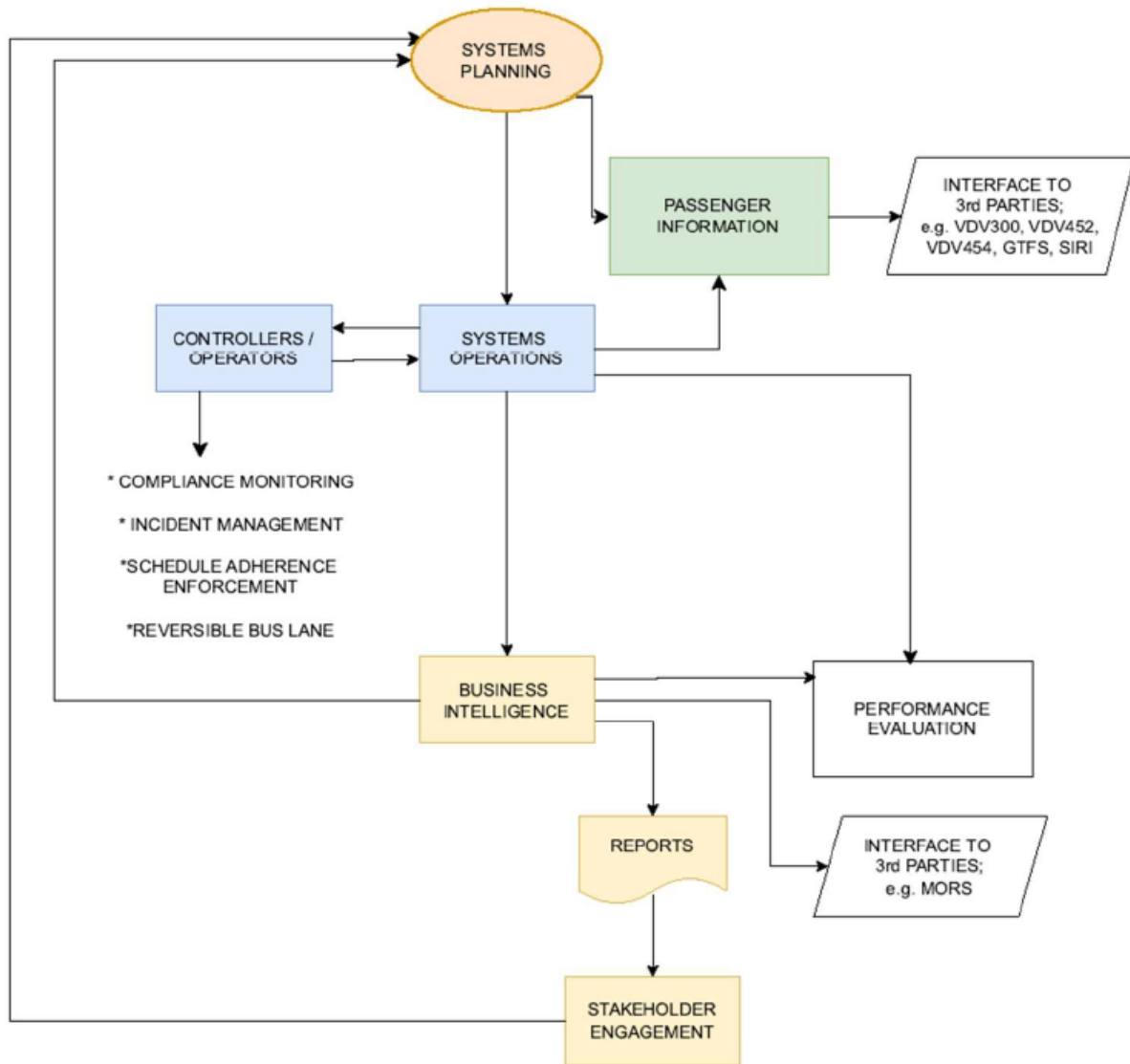


Figure 1: APTMS Operations process flow diagram.

3.1.3.3 Preliminary Project Programme

A high-level preliminary project programme is provided here for information and is subject to change. The dates provided here are tentative and forms part of the larger CCT Phase 2A Master Schedule. Revised programmes will be communicated as applicable during the Contract.

Table 2: Phase 2A Stations and Depots tentative milestone dates

Type	Name/location	APTMS Equipment operational
Station	Mitchells Plain Closed Station (1pod/2pods)	21 May 27
Station	Hanover Park Closed Median Station (2 pods)	02 Jun 27
Station	Sesame Closed Median Station (2 pods)	23 Jul 27
Station	Doncaster Closed (Kenilworth) Median Station (2 pods)	30 Aug 27
Station	Claremont	10 Nov 27
Station	Emms Closed Median Station	26 Nov 27
Station	Stock Closed Median Station (2 pods)	24 Feb 28
Station	Link Closed Median Station (2 pods)	04 May 28
Station	Crossroads / New Eisleben Closed Median Station (2 pods)	17 Jul 28
Station	Khayelitsha Closed Median Station (1 pod)	20 Nov 28
Station	Nolungile Closed Median Station (2 pods)	30 Nov 28

Depot	Spine Rd West	TBC
Depot	Spine Rd East	TBC
Staging Area	Wetton Rd	TBC
Staging Area	TBC	TBC
Staging Area	TBC	TBC
Staging Area	TBC	TBC
Staging Area	TBC	TBC

Table 3: Phase 2A Buses indicative milestone dates

Number of busses to be fitted with APTMS equipment	COMMENT	BUS APTMS EQUIPMENT COMMISSIONED	
		Month	Year
80	Battery Electric buses	Staggered with 5 to 8 buses per month from March 2027 to March 2028.	

For the installation of on-board equipment as part of the system expansion, it is important to note that vehicles will not necessarily be available at the same time or even on consecutive days. For example, 2 (or more) vehicles might be available on a given day, and then no vehicles for a few days before more vehicles are available again. This programme will be finalised together with the applicable stakeholders.

Table 4: Phase 2A Operational milestone dates

Milestone	Operational rollout date
A	TBC
B	TBC
C	TBC
D	TBC

3.1.3.4 Works Allocation Procedure

The Works shall be partitioned into sequential Works Projects aligned with the operational phases of the 36-month contract period.

The allocation, partitioning, sequencing, and prioritisation of all Work Packages shall be determined solely at the discretion of the Employer, based on operational requirements, asset condition, and available budget. Once a Work Package has been identified, the Contractor shall be formally requested to develop and submit a comprehensive Work Plan and Programme for the Employer's review. This submission shall include, at a minimum, anticipated start and completion dates, projected duration, expenditure forecasts, resource allocations, and any associated risks or dependencies.

Following submission, the Employer shall review, comment on, and approve the Work Plan and Programme. No Works under any Work Package may commence without explicit written approval from the Employer. Upon approval, a formal Work Package Contract Document shall be issued by the Employer, which shall be signed by both Parties prior to commencement of any related activities. All approved Work Packages shall include the maintenance activities described in C3.4 and must be integrated holistically into the Contractor's planning to ensure continuity, asset serviceability, and compliance with maintenance standards. Once approved, the execution of the Work Package shall be governed by the conditions and obligations set out in

Clause C1, including performance requirements, documentation, reporting, safety, environmental considerations, and any quality assurance measures prescribed therein. Any variation to the approved programme, duration, scope, or cost projections shall be subject to further review and written approval by the Employer prior to implementation.

The Employer reserves the right to amend priorities, reissue Work Packages, or suspend activities where operational circumstances require, and the Contractor shall adjust programmes accordingly at no additional cost

unless otherwise agreed in writing.

The following is an indicative Work Package allocation over the period of the Contract for information and planning purposes.

Table 5: Work Package allocation

Work Package	Primary Scope Objective	Key Deliverables & Activities (Capital, Maintenance, Upgrade)
WP 1	Mobilisation and Central System Overhaul	1. Core Infrastructure Capital Works: Completion of TMC back-office hardware replacement, virtual machine cluster setup, network installation, storage implementation, and subsequent migration of existing back-office software applications and databases. This work has a critical 180-day completion timeline.
		2. Foundational Work & Design: Submission and approval of all Preliminary and Detail Design documents for Phase 2A. Commencement of procurement activities for long-lead Phase 2A equipment.
		3. Ongoing Maintenance & Rectification: Full maintenance of all existing Phase 1 systems (Bus, Station, Depot). Commencement and execution of the Bus Rectification Works (cabling looms and power supplies) on existing Phase 1 fleet.
WP 2	Bulk Deployment & Phase 2A Commissioning	1. Phase 2A Implementation (Bulk Installation): Design, supply, and installation of On-board Systems for the new 80 electric buses, primarily occurring between March 2027 and March 2028. Installation and commissioning of equipment at new Phase 2A Depots (2) and Staging Areas (5). Completion and commissioning of early Phase 2A Stations (e.g., Hanover, scheduled for June 2027 operational readiness).
		2. Ongoing Maintenance & Upgrades: Continued Phase 1 Maintenance. Transition of maintenance responsibility for newly commissioned Phase 2A systems (commencement of 12-month Defects Liability period). Execution of remaining Phase 1 System Upgrades (e.g., GPS positioning, GSM to VOIP migration).
		3. Testing: Execution of Site Acceptance Testing (SAT) and Functional Testing on newly commissioned fleet and infrastructure.
WP 3	Final Capital Completion & Full Handover	1. Final Phase 2A Completion: Final installation, commissioning, and integration of the remaining Phase 2A Stations (e.g., Claremont, Nolungile, with operational dates stretching into early FY 2028). Completion of all associated Capital Works and system integration activities (including optional TSP integration if triggered).
		2. Maintenance and Performance: Execution of full city-wide maintenance (Phase 1 and Phase 2A) at peak Service Level (SL) performance. Conclusion of any outstanding Phase 1 equipment replacement as instructed by the Engineer.
		3. Final Documentation and Closeout: Submission of all final documentation, including As-Built Documentation, final Operation and Maintenance Manuals, and final project performance reports (C3.5 Management). Handover of all maintenance spares inventor

3.1.4 LOCATION OF THE WORKS

The site is located across the City of Cape Town Metropolitan area and includes all existing and new MyCiTi bus routes, stations, depots, lay-over areas, buses, the Transport Management Centre, and the Civic Centre, located in Cape Town, Western Cape.

Further Site information is provided in Part C4.

3.1.5 CO-ORDINATION WITH OTHERS AND STAKEHOLDER ENGAGEMENT

Work to an existing and in-use system requires extensive coordination with all parties. The Contractor shall be responsible for the on-site co-ordination with sub-contractors, other contractors and stakeholder engagements. The various stakeholders are shown in the figure below.

The top row represents different CCT Directorates. The lower levels represent different service providers / contracts under the different directorates.

Access to the Site shall be provided by the Employer and or another contractor employed by the Employer. The performance and execution of the Works on the Site shall be subject to control of the site by the Employer and or another contractor employed by the Employer. Access to the site might require the application for a specific pass or permit to the Employer and or another contractor employed by the Employer.

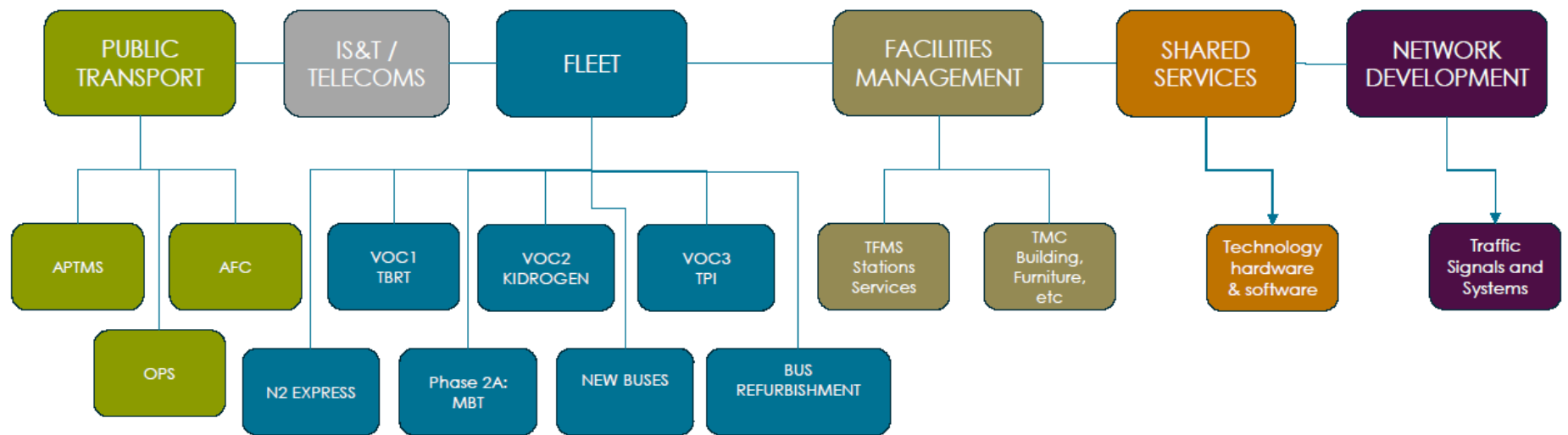


Figure 2: Illustration of various APTMS stakeholders.

Dependencies of the different stakeholders are summarized below and is not intended to be exhaustive.

Table 5: APTMS stakeholders and dependencies.

Directorate	Contractor/supplier	Dependencies
Public Transport	APTMS	This Contract
	AFC	Coordination for base version releases, route information, timing points, etc.
	Operations	Support to generate reports on system performance. Address system operations queries
IS&T / Telecoms	N.A.	Field network from stations and depot to TMC. Interface to network switches at stations and depots. Provision of APN.
Fleet	Vehicle Operating Companies	Various, refer to separate table below.
	Bus manufacturers, new and refurbishment.	Device layout and space allocation on buses. Installation of cabling looms and APTMS equipment.
Facilities Management	TFMS	Access to stations Coordination of all works on stations
	TMC Facilities Management	Access to TMC.
Shared services	Technology suppliers	Provision of certain hardware and software for use under this contract.
Network development	Traffic signals and systems suppliers	Interface to Traffic Signal Priority (TSP) (Optional).

Table 6: On-board equipment roles and responsibilities.

ITS and associated equipment	Equipment Supplier	Installation	Commissioning	Warranty	Maintenance outside of Warranty Period
Bus Systems (as part of the Standard bus)					
External Destination Display (EDD)	Bus manufacturer	Bus manufacturer	Bus manufacturer/ APTMS	Bus Manufacturer	APTMS
Internal LED next stop display	Bus manufacturer	Bus manufacturer	Bus manufacturer/ APTMS	Bus Manufacturer	APTMS
Internal/External display controller	Bus manufacturer	Bus manufacturer	Bus manufacturer/ APTMS	Bus Manufacturer	APTMS
Saloon speakers	Bus manufacturer	Bus manufacturer	Bus manufacturer/ APTMS	Bus Manufacturer	APTMS
Driver speaker	Bus manufacturer	Bus manufacturer	Bus manufacturer/ APTMS	Bus Manufacturer	APTMS
Driver microphone	Bus manufacturer (to spec of APTMS Contractor)	Bus manufacturer/ APTMS	Bus manufacturer/ APTMS	Bus manufacturer	APTMS
Driver panic alarm button / Emergency Alarm button	Bus manufacturer	Bus manufacturer	Bus manufacturer/ APTMS	Bus Manufacturer	APTMS
Stop request system	Bus manufacturer	Bus manufacturer	Bus manufacturer	Bus Manufacturer	VOC

ITS and associated equipment	Equipment Supplier	Installation	Commissioning	Warranty	Maintenance outside of Warranty Period
Auxiliary battery smart charger	Bus manufacturer	Bus manufacturer	Bus manufacturer / APTMS	Bus Manufacturer	VOC
Auxiliary battery	Bus manufacturer	Bus manufacturer	Bus manufacturer	Bus manufacturer	VOC
Main vehicle battery	Bus manufacturer	Bus manufacturer	Bus manufacturer	Bus Manufacturer	VOC
BUS-PSD (Door) Control System					
Bus door and ramp controller and station door controller and synchronization unit	Bus-PSD Contractor	Bus-PSD Contractor	Bus-PSD Contractor	Bus-PSD Contractor	Facilities Management Contractor
Advanced Public Transport Management Systems (APTMS) and CCTV equipment.					
IP cameras and PoE switches	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS
CCTV camera display(s)	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS
Network Video Recorder (NVR)	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS
Multiband antenna(s)	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS
Vehicle Logic Unit (VLU)	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS
Mobile Driver Terminal (MDT)	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS
Terminal blocks incl. fuses	APTMS	APTMS	APTMS (with VOC in attendance)	APTMS	APTMS

ITS and associated equipment	Equipment Supplier	Installation	Commissioning	Warranty	Maintenance outside of Warranty Period
Automated Fare Collection (AFC)					
Fare validator unit(s)	AFC	AFC	AFC (with attendance) VOC in	AFC	AFC
On Board Unit	AFC	AFC	AFC (with attendance) VOC in	AFC	AFC
Multiband antenna	AFC	AFC	AFC (with attendance) VOC in	AFC	AFC
Terminal blocks incl. fuses	AFC	AFC	AFC (with attendance) VOC in	AFC	AFC
Other (optional / if applicable)					
Vehicle performance monitoring (telematics), including Drive Cam	Bus manufacturer	Bus manufacturer	Bus manufacturer	Bus Manufacturer	VOC
Public On-board Wi-Fi modem and antenna	Bus manufacturer	Bus manufacturer	Bus manufacturer	Bus Manufacturer	VOC
On-board public USB charging ports	Bus manufacturer	Bus manufacturer	Bus manufacturer	Bus Manufacturer	VOC

C3.2 Engineering

CONTENTS

- 3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX
- 3.2.2 EMPLOYER'S DESIGN
- 3.2.3 DESIGN BRIEF
- 3.2.4 DRAWINGS
- 3.2.5 DESIGN PROCEDURES

3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

Refer to the next sections.

3.2.2 EMPLOYER'S DESIGN

The following information is / will be provided by CCT and / or others.

- Equipment layout on new vehicles: Approximate positions as per CCT, VOC and / or bus manufacturer requirements.
- Equipment layout on new stations: Approximate positions as per CCT and / or facilities operator requirements.
- Interface onto CCT network at stations and depots as per CCT Telecoms and/or SSU.
- Route and schedule planning information requirements.
- Existing back-office systems: All new planning information and reporting requirements are to be integrated with the existing back-office systems.
- Report format and layout requirements where applicable.
- User interface requirements where applicable.
- Architects' drawings of new stations, depots and staging areas.

3.2.3 DESIGN BRIEF

Design shall be applicable to all capital works.

The Contractor shall allow time in his program and provide for all design activities.

The design deliverables shall include diagrams, equipment schedules, drawings, flow charts, design reports, etc., submitted to the Engineer in native electronic format as well as PDF and / or other formats as required.

3.2.3.1 Preliminary Design

The Preliminary Design shall include as a minimum the following:

1. Attend design meetings, design reviews, site visits and coordination meetings with stakeholders.
2. The meetings shall serve for the Employer to confirm his requirements and preferences, assess available options, and to establish and agree the project priorities, constraints and design principles. It will provide the Contractor opportunity to give feedback on his site assessments, ask clarification questions and make specific design proposals and agree to design concepts.
3. The Contractor shall investigate, and cost alternative designs as required to assist the Employer in decision making.
4. Provide a list of all design documentation that will form part of the design process.
5. Provide a full compliance traceability matrix showing the extent to which the offered system and design complies with each and every requirement of this specification.

6. An overall system architecture identifying functional blocks and data and information flows.
7. Flowcharts, diagrams, and supporting text describing major system processes.
8. Functional and physical descriptions of all proposed hardware elements.
9. Description of all system security features.
10. Preliminary equipment mounting arrangements, dimensions and installation requirements.
11. Hardware and software interfaces between systems, including documentation describing the different hardware and software interfaces.
12. Listing of special tools and software requirements.
13. System backup and recovery procedures.
14. Advise the Engineer of any further inspections and investigations that may be required.
15. Ensure conformity with all regulatory requirements.
16. Outlines of all manuals, training materials and other system and operational documentation.
17. Design deliverables: Preliminary design report including all applicable design documentation, including but not limited to that specified in this subsection.

All preliminary design deliverables shall be subject to approval by the Engineer.

Full payment of the preliminary design shall be subject to submission and approval of all preliminary design deliverables.

3.2.3.2 Detail Design

The detail design shall develop the approved concept designs and shall include the following minimum requirements:

1. Attend design meetings.
2. Incorporate the Employer's and Engineer detailed requirements.
3. Back-office systems hardware replacement design including:
 - a. back-office server-client architecture
 - b. minimum hardware specification requirements
 - c. Virtual Machine environment
 - d. storage capacity requirements
 - e. backup system and procedures
 - f. clients and local area network
 - g. LAN design including floor plan drawings with detailed cable routing
 - h. cabinet layouts, including a patching schedule
 - i. migration plan of existing software to new hardware
4. On-board systems, including cable looms, bus wiring diagram and cable schedule with cable type, length, connector type, device bracket designs.
5. Station systems including:
 - a. station cable schedule with cable type, length, connector type
 - b. network design
 - c. bracket designs
 - d. detailed drawings in plan and Section format with dimensions of Equipment.
 - e. new stations need to be added to the existing network diagram
6. Depots and staging areas including:
 - a. wiring diagram
 - b. cable schedule with cable type, length, connector type
 - c. pole top enclosure design
 - d. network design

- e. pole mount bucket designs
- 7. Methods statements on how the Contractor plans to execute work elements.
- 8. Network designs shall include as a minimum the following detail:
 - a. Physical layer and interfaces
 - b. Allocation and list of device IP addresses
 - c. VLAN configurations
 - d. Network routing tables
 - e. Wi-Fi access point configuration detail
- 9. Design deliverables: Detail design report including all applicable design documentation, including but not limited to that specified in this subsection.

All detail design deliverables shall be subject to approval by the Engineer.

3.2.4 DRAWINGS & CONTRACTOR'S DOCUMENTS

The Contractor shall prepare the following drawings and documents.

Table 7: Drawings & documents to be submitted by the Contractor.

#	Drawings and documents
1	On-board systems per bus type, incl. taxi
1.1	Device layout with cable routing
1.2	Cable loom and wiring diagram including cable and connector schedule
1.3	Device brackets
2	Stations
2.1	Device layout with cable routing (per station type)
2.3	PID bracket (generic)
2.4	Network design (per station type)
3.	Depots & Staging areas
3.1	Device layout with cable routing (per site)
3.2	Wiring diagram including cable and connector schedule (per site)
3.3	Device brackets (generic)
3.4	Network incl. WLAN/Wi-Fi design (per site)
3.5	Pole top enclosure design (generic)
3.6	Certificate of Compliance (CoC)
4	TMC Back-office systems and network
4.1	Back-office hardware, server-client architecture incl. Virtual Machine environment, storage, backup and server rack layout.
4.2	Network design
5	Maintenance

#	Drawings and documents
5.1	Method statements with check sheets for all system elements.
6	General
6.1	Compliance traceability matrix.
6.2	Preliminary and detail design reports.

Design documentation shall be revised to as-built status and where necessary new as-built documents shall be generated if required.

All changes to layouts and/or systems/subsystems, equipment, configuration, etc. as part of maintenance shall be updated on the existing as-builts to reflect the changes.

As-Built Documents shall be in accordance with the FIDIC Conditions of Contract Clause 5.6, including any amendments if applicable.

3.2.5 DESIGN PROCEDURES

3.2.5.1 Required Submissions

The Contractor shall submit the following designs and documents for approval within 42 days from the Commencement Date:

- a. Back-office systems and network design
- b. Maintenance documentation
- c. Compliance traceability matrix

Other design submissions shall be aligned with the Employers Phase 2A Master Schedule to meet the operational milestone dates.

C3.3 Procurement

CONTENTS

- 3.3.1 PREFERENTIAL PROCUREMENT
- 3.3.2 SUB-CONTRACTING PROCEDURES

3.3.1. PREFERENTIAL PROCUREMENT

The Works shall be executed in accordance with the conditions associated with the granting of preferences detailed in the **Preference Schedule** where preferences are granted in respect of B-BBEE contribution.

Financial penalties, as described in the **Preference Schedule**, shall be applied in the event that the Contractor is found to have breached any of the conditions contained in the **Preference Schedule** (unless proven to be beyond the control of the Contractor).

Notwithstanding the application of penalties, the Contractor's attention is drawn to other sanctions that may be applied by the Employer (listed in the **Preference Schedule**) with due consideration to the circumstances.

3.3.2. SUB-CONTRACTING PROCEDURES

3.3.2.1 Monitoring the use of sub-contractors

Notwithstanding the restriction on sub-contracting as described on the **Preference Schedule**, it is recognised that sub-contracting is an integral part of construction, which the conditions of contract make provision for.

In order, however, to comply with the requirements of the **Preference Schedule**, the Contractor shall submit to the Employer's Agent, on a monthly basis, a **B-BBEE Sub-Contract Expenditure Report**. The format of this report is provided in Annex 2 attached.

The Contractor shall submit to the Employer's Agent documentary evidence in accordance with the applicable codes of good practice, of the B-BBEE status level of every sub-contractor employed by the Contractor. Until such time as documentary evidence as described above has been submitted to the Employer's Agent, a sub-contractor shall be deemed to be a non-compliant contributor.

The Contractor shall furthermore, on the written request of the Employer's Agent, provide documentary evidence showing the value of work sub-contracted to any or all of the sub-contractors employed by the Contractor.

3.3.2.2 Procedure for the selection of sub-contractors/suppliers

Where monetary allowances for provisional sums or prime costs items have been provided in the Schedules of Rates, and where the work or items to which the allowances relate are to be executed/supplied by sub-contractors/suppliers, then the following selection process shall be followed in respect of the required sub-contractors/suppliers:

Where the monetary allowance is less than or equal to R300 000, the Contractor shall invite three quotations from suitably qualified sub-contractors/suppliers for the required work or items. The selection of the three sub-contractors/suppliers shall be in consultation with, and to the approval of the Employer's Agent. The evaluation of the quotations received must include a preference points system as described in C.3.11 of the Tender Data.

Where the monetary allowance is in excess of R300 000, an open competitive tender process shall be followed in respect of the selection of a sub-contractor/supplier for the required work or items. In such circumstances, tender documentation will be prepared by the Employer's Agent in consultation with and

to the approval of the Contractor, invitations to tender will be advertised in the media by the Employer's Agent on behalf of the Contractor, and a sub-contractor/supplier will be selected from the responses received, by the Contractor and Employer's Agent in consultation. The evaluation of the offers received must include a preference points system as described in C.3.11 of the Tender Data. The Contractor must satisfy itself that the selected sub-contractor/supplier can meet the requirements of the sub-contract /supply agreement and may, on reasonable grounds, elect not to employ a particular sub-contractor/supplier.

In both instances above (less than or equal to R300 000 or in excess of R300 000), the contractual relationship between the Contractor and sub-contractor/supplier shall be as described in the conditions of contract.

C3.4 Construction

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- 3.4.1 TRADE NAMES OR PROPRIETARY PRODUCTS
- 3.4.2 APPLICABLE STANDARDS
- 3.4.3 GENERAL SPECIFICATIONS
- 3.4.4 PARTICULAR/PROJECT SPECIFICATIONS
- 3.4.5 MAINTENANCE: APTMS, ON-BOARD CCTV AND ASSOCIATED SYSTEMS
- 3.4.6 TRAINING AND OPERATIONAL SUPPORT
- 3.4.7 WAYLEAVES, PERMISSIONS AND PERMITS
- 3.4.8 LOCAL PRODUCTION AND CONTENT
- 3.4.9 EMPLOYMENT OF SECURITY PERSONNEL
- 3.4.10 UNIVERSAL ACCESS

3.4.1. TRADE NAMES OR PROPRIETARY PRODUCTS

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Bid specifications may not make any reference to any particular trademark, name, patent, design, type, specific origin or producer, unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words “or equivalent”.

CONTRACTORS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADEMARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS ‘OR EQUIVALENT’

3.4.2. APPLICABLE STANDARDS

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The latest edition of the following standards shall be applicable to and read in conjunction with the Scope of Works.

Table 8: Summary of Standards applicable to the scope of Works (not exhaustive).

Reference	Description
IEEE 802.1	LAN/MAN Network Management
IEEE 802.3	Ethernet LAN
IEEE 802.11	Wireless LAN & Mesh
ISO/IEC 9075	IT - Database languages -- SQL
ISO/IEC 14763	IT - Implementation and Operation of Customer Premises Cabling
ISO/IEC 14882	Programming languages -- C++
ISO/IEC 15018	IT - Generic cabling for homes
ISO/IEC 17799	IT - Code of practice for information security management
ISO/IEC 18010	IT - Pathways and spaces for customer premises cabling
ISO/IEC 23270	Programming languages -- C#
ISO/IEC 23271	Common Language Infrastructure (CLI) Partitions I to VI
ISO/IEC 26300	OASIS Open Document Format for Office Applications
ISO/IEC 27001	IT - Information security management systems - Requirements
ISO/IEC 29500	Office Open XML file formats
ISO/IEC 32000	Portable document format -- PDF 1.7
ISO16750-3	Road vehicles — Environmental conditions and testing for electrical and electronic equipmentPart 3: Mechanical loads
IEC60068-2	Environmental testing
ANSI/TIA/EIA-606-A	Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
TIA/EIA-310-D	Cabinets, Racks, Panels, and Associated Equipment

TIA/EIA-568-B	Commercial Building Telecommunications Cabling Standard
TIA/EIA-569-B	Spaces Commercial Building Standards for Telecommunications Pathways
SANS/ISO/IEC 11801	IT - Generic cabling for customer premises
SANS 1017	Electric cables for motor vehicles
SANS 10142	The wiring of premises
EN50155	Electrical, electronic and electromechanical material on board rolling stock.
SANS 60947-2	Low-voltage switchgear and control gear - Part 2: Circuit-breakers
SAE J1908_201302	Electrical Grounding Practice
ITIL	Information Technology Infrastructure Library Framework

The table above is not exhaustive and any other Standards and / or Codes referenced throughout this document shall apply.

3.4.3 GENERAL SPECIFICATION

3.4.3.1 Preliminary and General items

3.4.3.1.1 Site Assessment: Phase 1 Operations and Maintenance

The Contractor shall arrange visits to the various sites to familiarize himself with the same. This shall include as a minimum: TMC Operations and server room, Disaster Recover (DR) site, one each of different bus types, all depots, Civic station and at least two other stations. The Contractor shall be responsible to identify whether additional visits are required to familiarize himself with the sit.

Before the site visits the Contractor shall study the as-built documents to be prepared and identify the objectives of each site visit as to what detailed information the Contractor would like to gain.

The purpose of site visit is for the Contractor to familiarise himself with the site, it's operations and maintenance. The Contractor shall submit a baseline assessment report of the site. The first draft of the report shall be submitted to the Engineer within 14 days and shall be finalized within 28 days after the Commencement Date.

3.4.3.1.2 Project and Contract Management

Project and Contract management shall be provided and shall include as a minimum at least the following:

- a) Performing all tasks and meeting all obligations assigned to the Contractor's Representative as per the FIDIC General and Particular Conditions of Contract, Sub-Clause. 4.3 *Contractor's Representative*.
- b) All project management related activities specified or implied in this Contract, including but not limited to submission and update of a programme as per the General and Particular Conditions of Contract Clause 8.3.
- c) Project and Contract management shall be an on-going and continuous service provided by the Contractor to ensure that all requirements within this Contract are met within program and budget.
- d) The Contractor shall compile and maintain an organogram which outlines the roles and responsibilities of his personnel for both capital and maintenance works.
- e) Attendance of various meetings at locations to be advised by the Employer including but not limited to the following:
 - i. Monthly contract / project meetings.
 - ii. Monthly maintenance meetings
 - iii. Coordination meetings as required.
 - iv. Ad hoc meetings as may be necessary.
- f) The Contractor shall have adequate representation at all meetings in order for decisions to be taken.
- g) Technical personnel shall attend meetings as and when required.
- h) Coordination and cooperation with all stake holders, including 3rd party service providers, contractors and other interested parties as may be advised by the Employer.
- i) Submit monthly progress and maintenance reports during the maintenance period.
- j) Submit monthly Payment Certificates and all supporting documentation as per the General and Particular Conditions of Contract Clause 14 in a format to be advised by the Employer and / or Engineer. This shall include a cash flow forecast.

- k) Coordination within his Project team, including any Consortium or JV partner and subcontractors and manage tasks ensuring persons with the rights skills are assigned to tasks as required to ensure the Contractor meets his Contractual obligations.
- l) All other obligations specified under the FIDIC General and Particular Conditions of Contract Clause 4 which are not dealt with elsewhere in the Employer's Requirements.
- m) Implementation and management of the Contractor's Quality Assurance Plan.

3.4.3.1.3 Quality Assurance

The Contractor shall develop a comprehensive Quality Assurance (QA) plan and methodology to be submitted to the Employer for approval. The Contractor shall submit his QA plan to the Engineer within 14 days after the Commencement Date.

The approved QA Plan shall be implemented and applied to all parts of the Works on an on-going basis.

The following minimum specifications shall apply:

- a. The quality assurance obligations shall apply to the Contractor (including all Joint Venture or Consortium partners) and all subcontractors.
- b. It is the Contractors responsibility to ensure all his sub-contractors complies with quality management procedures.
- c. The QA plan shall be continuously reviewed, improved and updated on and ad hoc basis as required throughout the Contract duration.
- d. The QA plan shall include detailed procedures, schedules and checklists used by the Contractor and his personnel. This shall include sign off and holding points as required.
- e. The QA plan shall address all aspects of the work, including:
 - a. Administrative obligations incl.
 - 1. record keeping
 - 2. document management
 - 3. document naming structure and version control
 - 4. register of documents submitted to CCT
 - 5. register of as-built documentation, updated as and when required
 - 6. register of training and attendance registers
 - 7. other as required
 - b. version control of software, firmware and any other items as applicable
 - c. Change control, as specified.
 - d. financial management, costs breakdown, payment certificates, cash flow forecasts
 - e. internal processes, procurement procedures, internal pre-commissioning and commissioning procedures with sign off points
 - f. Test and commissioning procedures
 - g. Spares stock management
 - h. Training and documentation
- f. No self-tapping screws shall be used unless specifically approved in writing.
- g. Double sided tape shall not be used to fix equipment or any part thereof.
- h. Equipment and sub-components shall be identified by a part number and/or serial number, permanently and legibly affixed directly to the surface of the unit.
- i. Wherever the Contractor is required to label cabling, components or any other device, numbering schemes shall be consistent with that already in place or as agreed with the Employer.
- j. All work shall be of the highest standard and shall include provision and installation of any sundry material to make work neat, e.g. cable management systems and labelling where required.

- k. The Contractor shall make neat any maintenance or installation work and ensure the work site is clean. The Contractor shall remove any packaging or debris from site which shall be disposed in an environmentally friendly manner.
- l. The Contractor shall not stand on bus seats to gain access to a bulkhead or any device or part of the bus. A step ladder or alternative shall be used if safe.
- m. Where no other practical means are possible, the Contractor shall use protective covering over bus seats to be approved by the VOC in writing.
- n. The Contractor shall close all bus windows once his work is completed.
- o. The Contractor shall not alter, modify, adjust or do any type of work on another Contractors' equipment without prior written permission to do so and with the third party in attendance.
- p. Measurement instrumentation shall be calibrated by a recognised certified calibration laboratory (e.g. SANAS). Certification of calibration shall be provided upon request without delay.
- q. The Employer and / or the Engineer or one of their representatives may attend any maintenance activity from time to time. If it is found that maintenance is not performed to acceptable quality standards, the Contractor shall promptly rectify, include any procedures as required and / or employ more personnel of relevant skills level at his own cost.
- r. Finishing, cleaning and tidying of Works shall be done on a daily basis.
- s. On no account shall soil, rubble, materials, equipment, or unfinished works be allowed to accumulate anywhere on the Site. In the event of this occurring the Employer will have the right to withhold payment for as long as may be necessary in respect of the relevant Works in the area(s) concerned, without thereby prejudicing the rights of others to institute claims against the Contractor on the ground of unnecessary obstruction.
- t. As part of Quality Assurance a change control process shall be implemented.

3.4.3.1.4 Change Control

A formal Change Control methodology subject to the Employer's approval shall be followed. A change control request form shall be submitted, and approval obtained before changes to the APTMS and other systems can take place. The purpose of the change control procedure is for the Employer to ensure that all internal parties are adequately informed of the change before the change occurs.

The following timelines apply to the change control request approvals. This may be amended after written approval from the Employer:

- a. Major planned change, service affecting or potentially service affecting:
 - At least two weeks, i.e., 14 days
 - Example: Maintenance Releases
- b. Intermediate planned change, service affecting or potentially service affecting:
 - At least one week, i.e., 7 days
 - Example: Replacement of CCTV camera.
- c. Minor planned change, non-service affecting or minimal localized service affecting:
 - At least 48 hours
 - Example: Cabling clean-up
- d. Emergency unplanned change:
 - Approval subject to "no objections" period, e.g., "if we do not hear back with any objection within two hours, we will proceed".
 - Example: Back Office releases

3.4.3.1.5 Material Storage and Management

The Contractor shall be responsible to store spares in a separate enclosed lockable room or area, for exclusive use of this Contract. The Contractor shall prepare and keep up to date a spares inventory. The Contractor shall control and manage access to and issue and return of spares to the store.

3.4.3.1.6 Supervision

Works shall be subject to full time supervision by qualified and experienced staff as appropriate for the discipline in which they work. These representatives shall be authorised and competent to receive instructions on behalf of the Contractor.

The Contractor shall notify the Engineer and Employer of the names of these employees. These employees shall be indicated on the Contractor's organogram.

3.4.3.1.7 Other General Obligations

Other general obligations that shall include travel, fuel, human resources, taxes, workshop facilities, spares storage, communications costs etc.

3.4.3.2 Quality of materials and replacement of end-of-life products.

All materials supplied and/or utilised under this Contract shall be new, unused, fit for purpose and used to manufacturers recommendations. Only materials of first-class quality and finish shall be utilised. All materials will be subject to prior approval by the Engineer.

All replacement materials shall be the same or improved model from the same OEM, as approved by the Engineer. Products that have reached end of life shall be replaced by the newer model of the same OEM. Should such not be available, the Contractor shall submit a letter from the OEM to confirm the same. The Engineer shall be notified and Instruct the Contractor on how to proceed.

During maintenance, repaired equipment may be re-used after approval by the Engineer. Should a repaired item breakdown or fail more than twice it shall be replaced per above paragraph.

The asset database and asset management shall be updated continuously during the Contract as specified and shall include tracking of spares with status for new, repaired, end-of-life, disposed, etc.

3.4.3.3 Environmental requirements

The following shall apply:

- a. All server room equipment shall meet the environmental specification ranges of the server room provided by the Employer.
- b. All on-board equipment shall meet the following minimum specifications
 - i. Operating Temperature: -5°C to +50°C
 - ii. Storage temperature: -20°C to +70°C
 - iii. Humidity: 5-90% relative humidity (non-condensing)
 - iv. Mechanical, Shock and vibration: To EN50155, ISO16750-3 & IEC60068-2
 - v. Solid object and moisture protection indoors inside plant rooms: IP 4X
 - vi. Solid object and moisture protection outdoors: IP 54 to IP 67 as necessary.
 - vii. Surge Protection: The Contractor shall provide surge protection for all equipment.
- c. Equipment shall be resilient to the effects of water spray on equipment as result of cleaning activities.
- d. Certain outdoor equipment, e.g. antennas on buses, may come into contact with rain, mud, hail, snow and slush, all of which may contain salts. Such devices shall be resistant to its effects and shall not allow ingress of liquids or dust.
- e. Further environmental requirements are specified elsewhere for specific devices as required. In the event of any contradiction with the above, the device specific requirements shall apply.
- f. On-bus conditions are harsh with dust and high temperatures. In summer months ambient temperatures of above 40 degrees Celsius may be experienced. Equipment operating temperatures shall be at least 50 degrees Celsius.
- g. Devices/components shall comply with the following standards:
 - i. Electrical disturbances: ISO 7637-2
 - ii. Environmental conditions and testing – Electrical loads: ISO 16750-2
 - iii. Climatic: ISO 16750-4
 - iv. Chemical: ISO 16750-5

- v. Electrostatic discharge: ISO 10605
- vi. Ingress protection: IP53
- vii. Mechanical and vibration: ISO16750-3 & IEC60068-2
- viii. Electromagnetic Compatibility (EMC): 2009/19/EC(72/245/E/C) & EE R10
- ix. Electromagnetic Interference (EMI): CISPR25 & 2010/368/EC
- h. Other equivalent international standards may be considered at the discretion of the Employer who reserves the right to make the final decision if these are acceptable or not.
- i. All equipment exposed to the sun shall have coating that is UV resistant.
- j. All equipment surfaces shall be made of durable materials to provide consistency of appearance throughout the service life of the equipment.
- k. All metallic materials including poles, brackets, conduits, racks shall be made of corrosion-resistant materials such as stainless steel or composites to minimize deterioration. All materials that are not inherently corrosion resistant shall be protected with corrosion-resistant coatings.
- l. All contact areas of dissimilar metals where there is a potential for galvanic corrosion shall be protected against such.
- m. All cable joints, including network cable connections, shall be protected against moisture and corrosion.
- n. All network equipment installed in exterior surroundings shall be installed in suitable weather-proof enclosures to protect the equipment against rain, moisture and corrosion.
- o. All cable connections into the enclosure shall be water and corrosion proof.

3.4.3.4 ELECTRICAL, WIRING AND CONNECTOR REQUIREMENTS

3.4.3.4.1 Electrical, Cabling, Wiring and Connectors

The following shall apply.

- i. Except on vehicles, installations are 230V, AC.
- ii. On vehicles, electrical installations are < 100V, typically 12 or 24V
- iii. Electrical installations shall be to SANS 10142-1: Latest revision (The wiring of premises Part 1: Low-voltage installations) where applicable.
- iv. Electrical cables on buses shall be to SANS 1017: Latest revision.
- v. Only qualified electricians and auto-electricians shall be used as required and in compliance with the OHS Act.
- vi. Any electrical component and wiring used on vehicles shall be designed and intended for use in the automotive environment and shall be used to manufacturer specifications.
- vii. Overvoltage: The Contractor shall provide overvoltage protection for all equipment installed.
- viii. If miniature circuit breakers are required as part of any work, these shall comply with SANS 60947-2 with thermal magnetic operation.
- ix. All devices shall be suitably protected through earth connections.
- x. In bus installations earth/ground connections shall be connected to the chassis and according to SAE J1908_201302.
- xi. Wire and cable ties shall not be so tight as to cause indentation and damage to the insulation.
- xii. Adhesive-mounted bases shall not be used to support wire ties or cable supports.

- xiii. Cable routing shall be done to keep conductors free from metal edges, bolt heads or sharp interfering points which could damage cable insulation.
- xiv. Cable routing shall be done to keep conductors separated from strong magnetic fields, e.g. speakers on buses.
- xv. All conductors providing connections between components shall be provided with strain-relief and be clear of moving objects that could damage either the conductor or the object.
- xvi. All terminations and cables shall be clearly indexed, labelled and schematically identifiable to the CCT's specifications.
- xvii. All wire labels shall be non-metallic and shall resist standard lubricants and cleaning solvents.
- xviii. When components must be connected to each other through individual wires, the wiring shall be incorporated into a wiring "harness," where each branch of each circuit can be separated from others for troubleshooting.
- xix. Where required cabling shall be shielded to protect against Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) emission sources, as well as internal conductive or inductive emissions, e.g. antenna cables of class RG-58, RG-142, e.g. LMR195 or similar.
- xx. Cable Sprague shall be used wherever required to neaten cable installations.
- xxi. Spring-loaded blade terminals shall comply with the following minimum requirements:
 - a. shall be of type WAGO / PxC or equivalent approved for automotive use
 - b. shall be used to manufacturer specifications
 - c. terminals shall be sized correctly for type of wiring used. Any wire size which is smaller than that specified for use with the terminals shall be fitted with a ferule, crimped onto the cable to ensure proper connection.
 - d. as far as possible it shall be avoided for 2 wires to share the same terminal, unless the terminal is designed for this purpose
 - e. close to the terminal, cables shall be secured onto the bus body/bulkhead to prevent vibration of the cable in proximity to the terminal block.
- xxii. Items installed on buses operate in environmentally harsh conditions. Any replacements parts or components shall be designed and manufactured to be used in this environment.

3.4.3.4.2 Electrical Installation

All installations performed by the Contractor shall comply with the following requirements:

- a) All electrical work performed by the Contractor shall be done by suitable qualified personnel.
- b) The Contractor's rate for payment for work that include electrical aspects shall include for all the necessary certifications as required by applicable laws.
- c) All electrical installation work shall comply with South African (SANS) and International (ISO/IEC) Standards and Specifications including but not limited to SANS-10142-1: The Wiring of Premises.
- d) The Contractor shall provide a detailed method statement detailing the extent of the work to be performed which shall be reviewed and approved with all Employer stakeholders prior to commencement of work.
- e) All electrical installations shall include an easily accessible master circuit breaker that will isolate power from the equipment when tripped.
- f) All enclosures, racks and equipment chassis powered from mains power shall be earthed.
- g) 230V AC Power cables shall not be bundled with lower voltage or data cables.
- h) All equipment shall be protected against radio frequency and electromagnetic interference and the Contractor shall provide proof of such certification as part of the tender response.

- i) All Communication equipment shall be ICASA approved.
- j) All data communication networks shall be in accordance with nationally recognized interface standard and regulations such as those published or adopted by SANS and ICASA, including ISO, IEC, IEEE SAE standards where applicable.

3.4.4 PARTICULAR / PROJECT SPECIFIC SPECIFICATIONS

3.4.4.1 Functional description: APTMS, On-Board CCTV and associated systems

The figures below show the high-level functional architecture and subsystem block and interface diagram.

The APTMS and on-board CCTV systems and sub-systems are implemented throughout the MyCiti infrastructure as follows:

1. Transport Management Centre (TMC)
2. Vehicles (trunk & feeders, diesel buses, electric buses(future) and minibus taxis (future))
3. Trunk stations
4. Bus depots and staging areas

A Vehicle Logic Unit (VLU) also known as an On-Board Unit (OBU) in every vehicle allows tracking of the vehicle and provides an interface to other bus systems. Continuous communications to the control centre is via an Access Point Name (APN) and updates the bus location in real-time (every 30 seconds). Operators can see the bus location measured against a schedule. The operators can communicate with the bus driver using voice or text messages. All system real-time operating information is logged and available in a database and used for reporting purposes.

On-board IP CCTV cameras record video footage on a local Network Video Recorder. Live video can be accessed remotely or at the depot. Bulk transfer of video from the NVR takes place at the depots and staging areas via WiFi.

Inside trunk stations Passenger Information Displays (PID's) provide real-time information about the departures of the next buses, including route information, time of departure and platform (or gate) number. Voice communications to the station supervisor is possible via an Internet Protocol (IP) telephone network. Passenger information is also disseminated to users to a mobile phone Application (App).

At the bus depots and staging areas a Wi-Fi network is installed and used to upload / download bulk information to or from the control centre. A remote viewing station with limited user rights allows the Vehicle Operating Company (VOC) to view bus schedule adherence. This is the same information as seen in the control centre, but with limited system interaction possible from the depot.

Other on-board systems interface with the OBU. Optional is the implementation of Traffic Signal Priority.

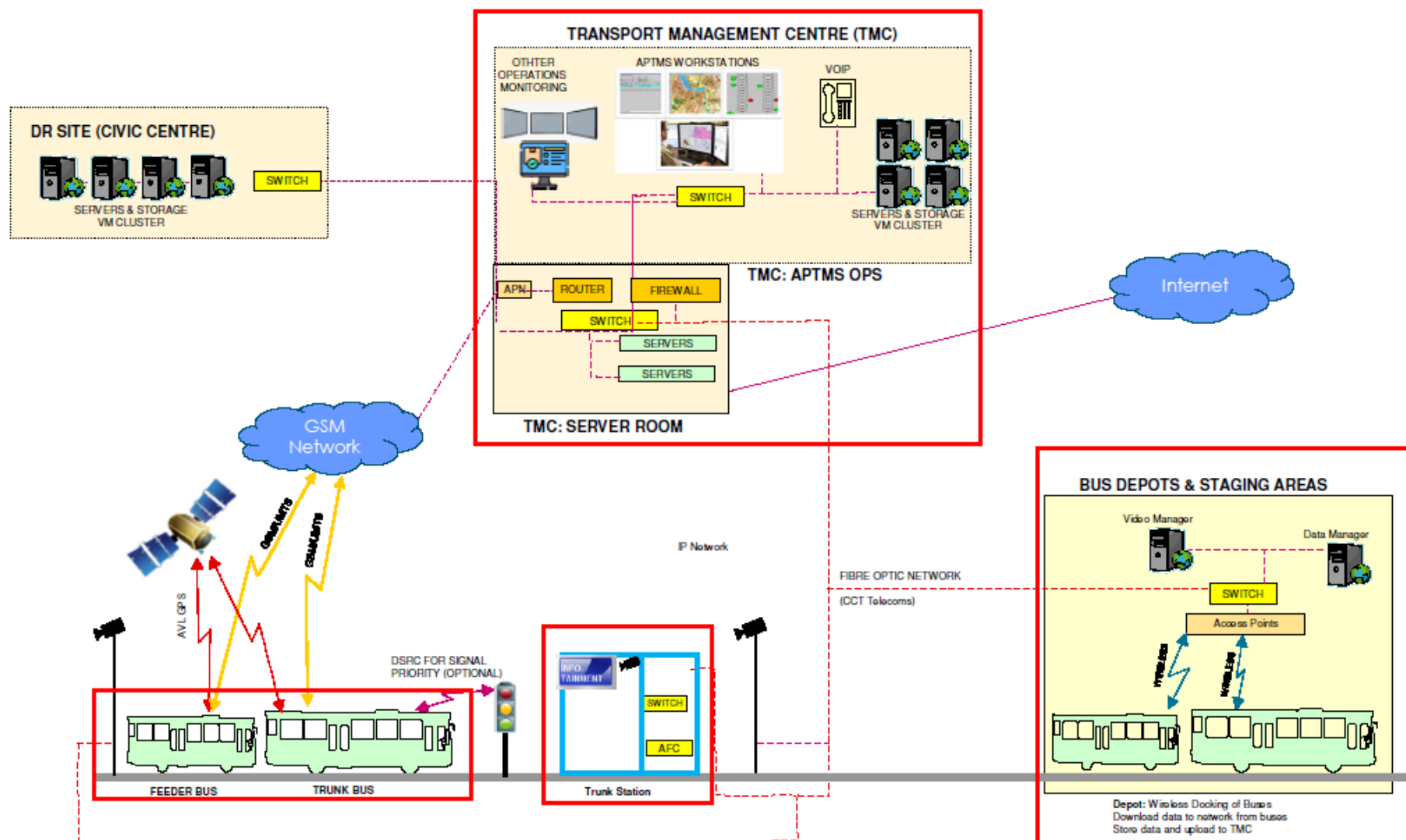


Figure 3: APTMS High level functional architecture.

High level systems block diagram and sub-system interface

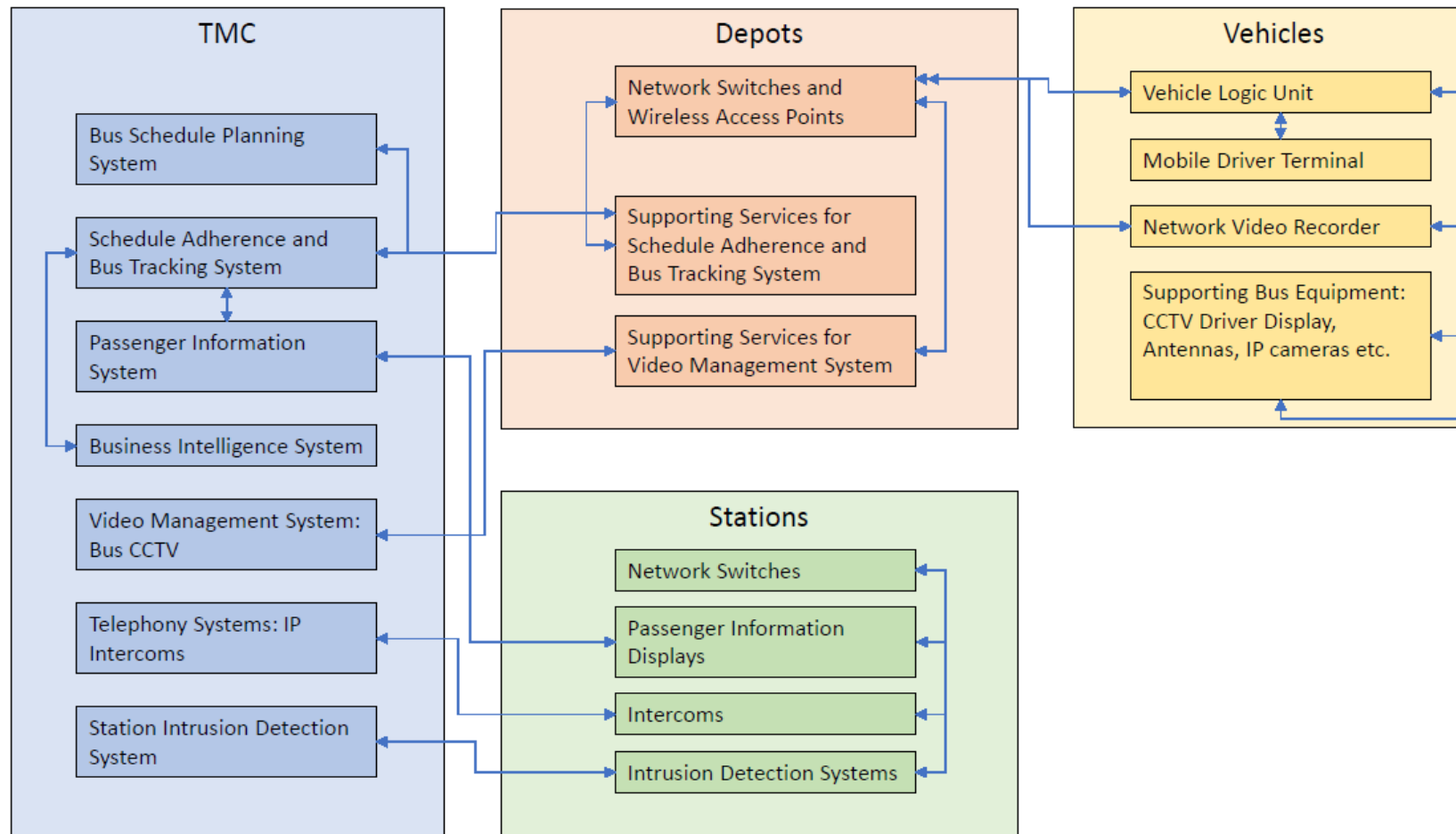


Figure 4: Subsystems block diagram

3.4.4.2 CAPITAL WORKS: CONTROL CENTRE

The following control centre capital works are included:

1. Replacement of TMC back-office hardware incl. VM server cluster, network, storage, PBX as shown in the high level architecture in Figure 5.
2. Migrate all back-office systems applications to new hardware that were replaced under point 1 above.
3. Setup and configure all back-office systems to include new routes and schedules.
4. Provide customized BI reports after discussion with the Employer and/or Engineer on the details of the reports.
5. Configure new route and schedule information in schedule planning and AVL/CAD systems as and when required.
6. Add and / or remove buses, stations, depots or staging areas to / from all backoffice systems including the Schedule Planning system, AVL/CAD, Passenger Information systems and associated databases as required.
7. Roll-out of new base versions across depots to the whole fleet of vehicles, including quality control of all information and confirmation of the deployment to all vehicles.
8. Other works as may be identified by the employer during the Contract.
9. New systems shall as a minimum meet the specifications of the existing systems, unless otherwise Instructed by the Engineer.

Back-office hardware supplied and installed under this Contract shall include OEM support (on-site) for at least up to the end on the Contract period. The level of support shall be adequate for the Contractor to meet his SLA obligations.

The current back-office architecture shall form the basis for replacement and is described below. The Contractor shall prepare a design in consultation with the ATPMS and on-board CCTV systems OEMs.

3.4.4.2.1 Control centre current infrastructure

1. The networking layout at the Control Centre consists of a high availability cluster of 2 x Xtreme X620 10Gb and 2 x Xtreme X440-G2 48-port GbE network switches as part of the Phase 1 VM network.
2. The APTMS network expands further to the stations and depots with a core cluster of 2 x Alcatel-Lucent OmniSwitch 9600.
3. Network access to the other areas of the TMC is extended with 2 x Alcatel-Lucent OmniSwitch 6400-P24 network switches.
4. The firewall is configured with a cluster of 2 x DELL SonicWALL NSA 3600 which acts as the gateway to the internet and MTN APN network.
5. A pair of SyncServer S600 network time servers are installed to deliver hardware-based Network Time Protocol (NTP) services for the APTMS network.
6. A high availability pair of Cisco Catalyst 9800-40 wireless controllers are installed to control and manage the Cisco Wi-Fi access points at the depots.
7. A pair of the Yeastar S300 PBX systems are installed for SIP based communications to the station intercoms and voice communications with the buses.
8. The networking equipment located at the TMC includes, but is not limited to the list as provided below.
9. The storage architecture consists of a DELL PowerVault MD3200i SAN and 2 x iSCSI daisy chained DELL PowerVault MD1200 DAS expansion units for a total storage capacity of 100TB.
10. The installed specification of the DELL PowerVault MD3200i SAN: 12 x 4TB = 48TB Raid 5
11. The installed specification of the DELL PowerVault MD1200 DAS: 12 x 4TB = 48TB Raid 5
12. A DELL PowerVault TL400 Tape Library is installed at the Control Centre for long term backups. SAS LTO 7 tape drives are used.
13. The storage systems located at the TMC includes, but is not limited to the list as provided below.
14. A virtual machine cluster.

Table 9: Control Centre equipment

#	Description	Quantity
1	Xtreme X620 10Gb network switch	2
2	Xtreme X440-G2 48-port GbE network switch	2
3	Alcatel-Lucent OmniSwitch 9600 network switch	2
4	Alcatel-Lucent OmniSwitch 6400-P24 network switch	2
5	DELL SonicWALL NSA 3600 firewall	2
6	Microsemi SyncServer S600 Network Time Server	2
7	Cisco Catalyst 9800-40 Wireless Controller	2
8	Yeastar S300 PBX	2
9	DELL PowerVault MD3200i SAN	1
10	DELL PowerVault MD1200 DAS	2
11	DELL PowerVault TL4000 Tape Library	1
12	VM Servers	2
13	Operator PC's with displays	5

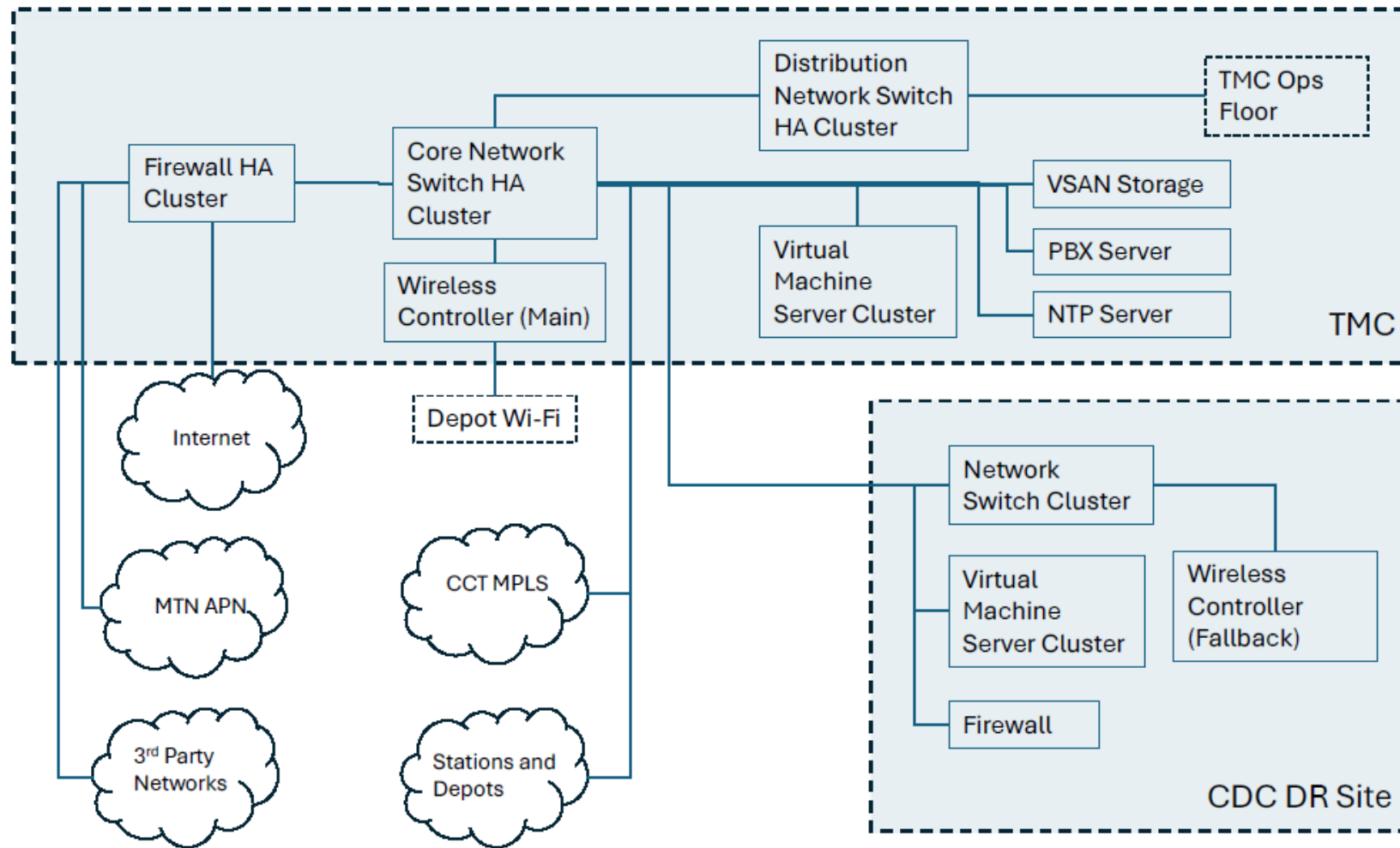


Figure 5: APTMS High level back-office architecture.

3.4.4.3 CAPITAL WORKS: STATIONS

The following station capital works are included as part of this contract:

1. 11 x new Phase 2A stations with a total of 24 platforms: Supply, install and configure all APTMS equipment
2. 42 x Phase 1 stations with a total of 82 platforms: Replacement of certain equipment as and when Instructed by the Engineer.
3. Other works as may be identified by the employer during the Contract.
4. New systems shall as a minimum meet the specifications of the existing systems, unless otherwise Instructed by the Engineer.

In terms of the APTMS, the main purpose of the infrastructure installed at the stations can be categorised into two main sections.

- a. To provide system information via Passenger Information Displays and platform intercoms.
- b. Provide certain safety and security functions through an alarm system and intercom and panic button in the station kiosk.

The typical architecture of the existing stations can be used as the basis for design of APTMS equipment on new stations, noting that layouts may differ.

3.4.4.3.1 Existing Stations typical infrastructure

A diagram of a typical phase 1 station with the relevant equipment is shown below.

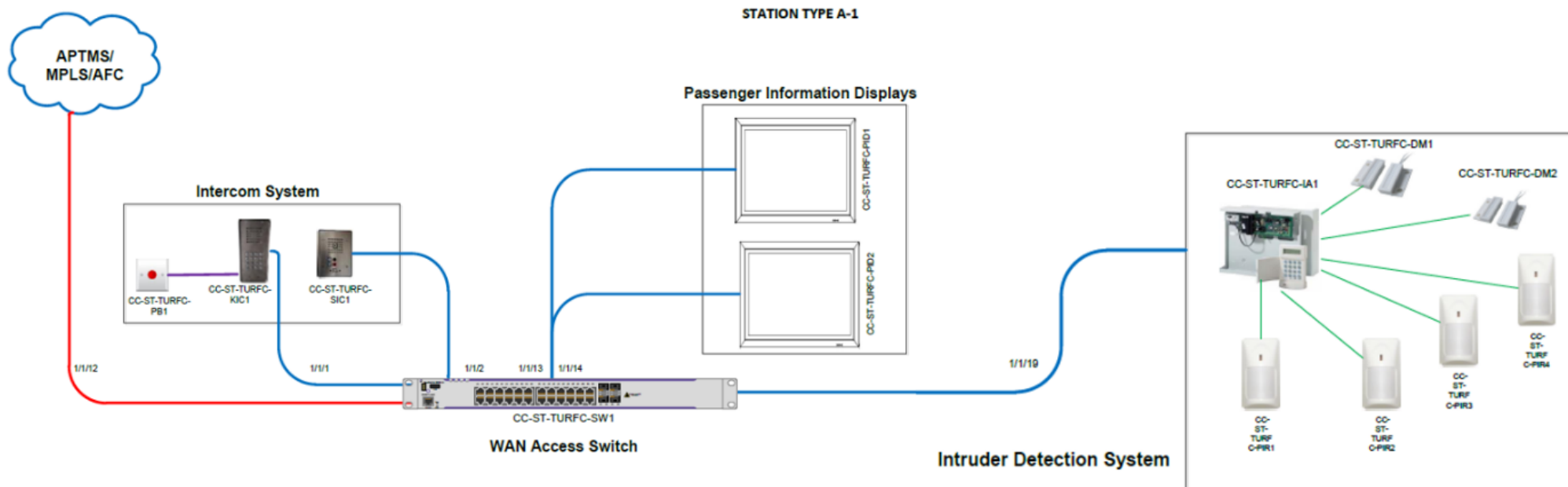


Figure 6: Typical station equipment, single platform.

The existing Phase 1 station equipment types and estimate quantities consists of, but is not limited to, the list as provided below.

Table 10: Existing station equipment types and estimate quantities.

#	Description	Quantity
1	Alcatel-Lucent 6850E-24	19
2	Alcatel-Lucent 6860E-24	10
3	Alcatel-Lucent 6360-24	2
4	Dell N1524P network switch	8
5	MOXA EDS 1GT2SFP	5
6	MOXA EDS 518A	1
7	MOXA EDS G509	1
8	Hantarex Airtank 32 inch LCD displays	125
9	Galaxy Dimension GD-48 control panel including Galaxy Ethernet module, Galaxy MK7 LCD keypad	38
10	Kiosk intercom - Stentofon SB 401	47
11	Platform intercom - Stentofon SB 442	78

3.4.4.3.2 Wiring and cabling

1. Ethernet cabling installed from the network switch inside the station server room to each PID. A power outlet will be available within 10m of each PID.
2. PoE Ethernet cabling installed from the network switch inside the server room to each platform intercom.
3. PoE Ethernet cabling installed from the network switch inside the server room to the kiosk intercom.
4. 4-core unshielded cabling installed from the alarm panel to each PIR (Passive Infrared) sensor.
5. Multi-mode optical fibre installed from the network switch in the server room to a secondary equipment panel at larger stations.

3.4.4.3.3 Station Network Communications

- a. Most of the existing stations are connected to the TMC via the fibre optic backbone already installed by CCT Telecoms. All new stations will be connected to the TMC via the CCT Multiprotocol Label Switching (MPLS) network, provided by CCT Telecoms. All existing stations will be converted to also connect over the CCT MPLS network.
- b. The following will be made available by others:
 - c. A 19" equipment rack
 - d. FO patch panel
 - e. Layer 3 network switch connected to the CCT MPLS network.
- f. At new stations the APTMS contractor shall supply, install and configure an additional Layer 3 network switch which will be connected to the CCT MPLS network switch through designated copper ports provided by CCT.
- g. This APTMS switch shall support PoE and the APTMS Contractor shall be responsible to ensure there is sufficient port count and that any specific required network configuration or design is taken into consideration.
- h. The APTMS Contractor shall supply and install copper and fibre patch leads as required.
- i. The APTMS Contractor shall design a station communications plan including IP address plan, VLAN plan, routing table and integration with existing communications network and coordination with CCT Telecoms for MPLS connectivity

3.4.4.3.4 Fibre Optic Links

The Contractor shall be responsible for the design of the internal communications network for the station APTMS equipment subject to the final approval by the Engineer and the CCT. Where the distance from the kiosk server room to the furthest station platform does not allow for the use of Ethernet cabling, the following fibre optic specifications shall apply using multimode fibre optic.

1. All the fibres of an optical fibre cable shall be spliced to fibre tails in a Patch Panel. Only fusion splicing shall be used to splicing in the fibre panel.
2. Every fibre optic cabling link in the installation shall be tested using Fluke or Equivalent testing equipment in accordance with the field test Specifications defined by the CENELEC (Comité Européen de Normalisation Electro technique), Standard ISO/IEC 11801 or as determined by the CCT or the appropriate network application standard(s) whichever is more demanding.
3. Bi-directional OTDR of all fibre strands shall be performed.
4. All testing shall be documented and reported to the CCT.
5. Any failing link shall be documented, diagnosed and corrected. The corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements.
6. The final and passing result of the tests for all links shall be provided in the test results documentation.

3.4.4.3.5 Passenger Information Display (PID) requirements

A Passenger Information Display (PID) shall be installed at all station platforms to provide passengers with real-time information on bus schedules, delays, and other relevant information. The system shall be designed to be easy to use, intuitive, and accessible to all passengers.

The Contractor shall be responsible for the installation and configuration of PID's at existing and new stations. For new stations, suitable brackets to mount the PIDs will be installed by the station Contractor as part of the station construction.

The PID shall meet the following requirements:

1. Ruggedized outdoor display suitable for installation in harsh outdoor environments exposed to the elements with a rating of at least IP65.
2. For certain locations indoor display units may also be considered with a rating of at least IP55.
3. Shall be vandal resistant.
4. Include embedded computer and storage with controller and internal clock.
5. The PID sizes required shall be 40" and 55" with at least 1920 x 1080 LED screen resolution.
6. Depending on PID location, shall have standard brightness (at least 700 cd/sqm) or high brightness (at least 1500 cd/sqm).
7. Shall have the ability to automatically adjust brightness and other display settings based on ambient lighting conditions.
8. The PID shall be designed to operate 24/7 in a wide range of environmental conditions, including temperature, humidity, and other factors that may affect system performance.
9. The PID shall be designed to be compliant with relevant safety and security standards, including those related to electromagnetic interference (EMI), electrical safety, and other relevant factors.
10. Anti-glare protective display.
11. Automatic temperature/fan control.
12. Can be used in both horizontal and vertical orientations.
13. Shall be possible to use for both bus scheduling and other related bus information and infotainment such as general information provided by the City.
14. Depending on the station size and location in the station, different combinations of screens may be installed, e.g. as a single display, two back-to-back displays, row of screens, rows of screens back-to-back.
15. The Contractor shall provide the required brackets and mounting equipment for all possible combinations after approval from the City.
16. The rear of the PID shall include VESA standard mounting points.
17. The PID shall include functionality to display pre-set messages and/or real-time dynamic information including next bus departure times.
18. Screen layout shall be configurable. It shall be possible to define at least various sub areas on the screen with different fonts, different background colours, and display different objects in different areas. It shall

be possible to page between different screens at a configurable pre-set time period (for e.g. every 10 seconds). Screen configuration shall not be limited to only that listed here.

19. Screen configuration with minimum options as described in the point above shall be possible from the TMC to a selected user group with designated privileges.
20. The PID shall display information in a clear and easy-to-read format, with appropriate colour coding and other visual cues to help passengers understand the information being presented. Final screen layout/design shall be agreed upon with the City.
21. The PID's shall receive as input from the central system on an as-required basis:
 - i. System management commands (e.g. system status requests, etc.)
 - ii. Static display information (e.g. hours of operation, bus routes, schedule, etc.)
 - iii. Real-time display information (e.g. schedule, next bus, etc.)
 - iv. Ad hoc information (e.g. time clock or advertisements, etc.)
 - v. Screen configuration and layout updates (only available to user groups with relevant privileges).
22. It shall be possible to display freeform alert messages entered by operators in the TMC (or, potentially, automatically generated by the APTMS System) to advise passengers of service disruptions or reroutes. Such messages shall alternate or otherwise be displayed in concert with predicted departure times, and shall not pre-empt the departure time display unless there has been a complete disruption in service to the specific station.
23. It shall be possible to display scrolling messages at the bottom of the screen.
24. The system shall have capacity to store static messages.
25. It shall be possible to display the predicted times of the next bus on each route serving the station based on information transmitted from the central system. The display shall indicate from which platform the bus will depart.
26. Clock functionality shall be synchronized to the central system time, and shall be updated on a daily basis (minimum). Between update cycles, the clock shall have a cumulative drift of no more than 10 seconds.
27. It shall be possible to display next bus departure time for at least the next three buses. Bus departures due in less than 10 minutes shall be shown, but it shall be possible to configure the departure threshold if required.
28. The display shall be updated within 10 seconds when a bus departs to clear the old information.
29. Static information or a clock display shall be shown if the communication link is lost.
30. The PID shall be designed to be reliable, with a mean time between failures (MTBF) of at least 50,000 hours.
31. The PID shall be regularly maintained to ensure that it remains in good working condition. Maintenance shall include testing and replacement of components as necessary and shall be carried out in accordance with the manufacturer's recommendations.
32. The PID shall be monitored remotely to ensure that it is functioning correctly. This shall involve monitoring of system metrics, such as display brightness, temperature, and other factors, to ensure that the system is meeting performance requirements.
33. The final layout of different displays shall be designed and agreed with input from the Employer.

3.4.4.3.6 Platform Intercom

On the station platforms, a publicly accessible intercom shall be installed for use by the public. This intercom shall provide passengers with a means of requesting information and reporting emergencies.

The intercom shall meet the following requirements:

1. On every station platform a passenger intercom shall be installed. The intercoms shall be placed at intervals that ensure that they are easily accessible to passengers.
2. The intercom shall be clearly identifiable as such, using a design and colour scheme agreed with the City. The intercoms shall be easily recognisable by passengers and visitors to the station.
3. The intercom shall be IP based and vandal resistant and be able to withstand attempts at damage or tampering.
4. The intercom shall be compatible with the SIP communications protocol.

5. The intercom shall have built-in active noise reduction, to ensure that callers can be heard clearly even in noisy environments.
6. The platform intercom shall have two buttons: one for MyCiTi related information requests and a second button for emergencies. The buttons shall be clearly labelled and positioned to make them easily accessible to users.
7. Pressing the information button shall initiate a voice call to the TIC located at the TMC. The TIC shall be staffed by knowledgeable personnel who can provide accurate and timely information to callers.
8. Pressing the emergency button shall initiate a call to the relevant enforcement call centre. The call centre shall be staffed by trained personnel who can respond quickly to emergency situations.
9. The intercoms shall be regularly maintained to ensure that they remain in good working condition. Maintenance shall include cleaning, testing, and replacement of components as necessary.
10. The intercoms shall be monitored remotely to ensure that they are functioning correctly. This shall involve monitoring of call quality, response times, and other metrics to ensure that the intercoms are meeting performance requirements.
11. The intercoms shall be connected to a centralised management system that allows for remote monitoring and control. This will enable operators to respond quickly to issues and ensure that the intercoms are functioning as intended.

3.4.4.3.7 Kiosk Intercom

A kiosk IP intercom shall be installed in all MyCiTi operational kiosks for use by the kiosk attendant. This intercom shall provide kiosk attendants with a means of communicating with other personnel and responding to passenger requests.

The intercom shall meet the following requirements:

1. An intercom shall be installed in every station kiosk. The intercom shall be positioned in a location that provides easy access for the kiosk attendant.
2. The intercom shall have a numeric keypad to enable the kiosk attendant to quickly dial phone numbers and access menu options.
3. The intercom shall be IP based and vandal resistant and be able withstand attempts at damage or tampering.
4. The intercom shall be compatible with the SIP communications protocol.
5. The intercom shall be programmable with speed dial numbers. This shall enable the kiosk attendant to quickly access frequently used phone numbers, such as other kiosks, the TIC, or the relevant enforcement call centre.
6. The intercom shall have built-in active noise reduction, to ensure that callers can be heard clearly even in noisy environments.
7. The intercoms shall be regularly maintained to ensure that they remain in good working condition. Maintenance shall include cleaning, testing, and replacement of components as necessary.
8. The intercoms shall be monitored remotely to ensure that they are functioning correctly. This will involve monitoring of call quality, response times, and other metrics to ensure that the intercoms are meeting performance requirements.
9. The intercoms shall be connected to a centralised management system that allows for remote monitoring and control. This will enable operators to respond quickly to issues and ensure that the intercoms are functioning as intended.

3.4.4.3.8 Intrusion Detection System

The Contractor shall supply and install an infrared intruder detection system covering all the station platforms. The system shall provide effective and reliable detection of unauthorized access to the station platforms, ensuring the safety and security of passengers and staff.

The system shall meet the following requirements:

1. The Contractor shall install an infrared intruder detection system covering all the station platforms. The system shall be designed to detect the presence of unauthorized individuals on the platform and shall include the necessary sensors and components to achieve this objective.

2. The infrared detectors at each station platform shall be wired to an IP based alarm panel. The system shall provide real-time alerts to security providers in the event of an intrusion.
3. The alarm system shall include a keypad to enable and disable the alarm system. This will allow authorized personnel to arm and disarm the system as needed, ensuring that the system does not generate false alarms or interfere with normal operations.
4. The alarm panel shall be connected to the network switch located in the kiosk server room to enable remote monitoring and control of the system.
5. The Contractor shall be responsible for designing a fully working intruder detection system for all the different station types. This shall require careful consideration of factors such as station layout, lighting, and other environmental factors that may affect system performance.
6. Final design of the intrusion alarm system for new stations shall be approved by the Engineer before implementation.
7. The intruder detection system shall be regularly maintained to ensure that it remains in good working condition. Maintenance shall include testing and replacement of components as necessary and shall be carried out in accordance with the manufacturer's recommendations.
8. The system shall be monitored remotely to ensure that it is functioning correctly. This shall involve monitoring of sensor readings, alarm events, and other metrics to ensure that the system is meeting performance requirements.
9. The system shall be connected to a centralised management system that allows for remote monitoring and control. This shall enable operators to respond quickly to security threats and ensure that the system is functioning as intended.

3.4.4.4 CAPITAL WORKS: DEPOTS

The following depot capital works are included as part of this contract:

1. 2 x new Phase 2A depots: Supply, install and configure all APTMS equipment
2. 5 x new Phase 2A Staging areas: Supply, install and configure all APTMS equipment
3. 5 x existing Phase 1 depots: Replacement of certain equipment as and when Instructed by the Engineer.
4. 2 x existing Phase 1 staging areas: Replacement of certain equipment as and when Instructed by the Engineer.
5. Other works as may be identified by the employer during the Contract.
6. New systems shall as a minimum meet the specifications of the existing systems, unless otherwise Instructed by the Engineer

Refer to Parc C4 Site information for locality plans.

In terms of the APTMS, the main purpose of the infrastructure installed at the depots can be categorised into two main sections.

- c. The transfer of data to and from the vehicle OBU via the 2.4 GHz Wi-Fi network. This data includes route and schedule information required by the OBU to enable schedule adherence and tracking. Data logged during normal operations is also captured and uploaded to the TMC.
- d. The on-board CCTV NVR uploads recorded events to the TMC for further analysis. This is the bulk of data transferred over the 5 GHz Wi-Fi network.

The APTMS infrastructure at a typical depot primarily consists of a network switch, front-end servers and wireless access points and supporting networking equipment depending on the size of the depot.

The typical architecture of the existing depots can be used as the basis for design of APTMS equipment on new depots, noting that layouts may differ.

3.4.4.4.1 Typical Equipment for Existing Depots

A diagram of a typical phase 1 depot with the relevant equipment is shown below.

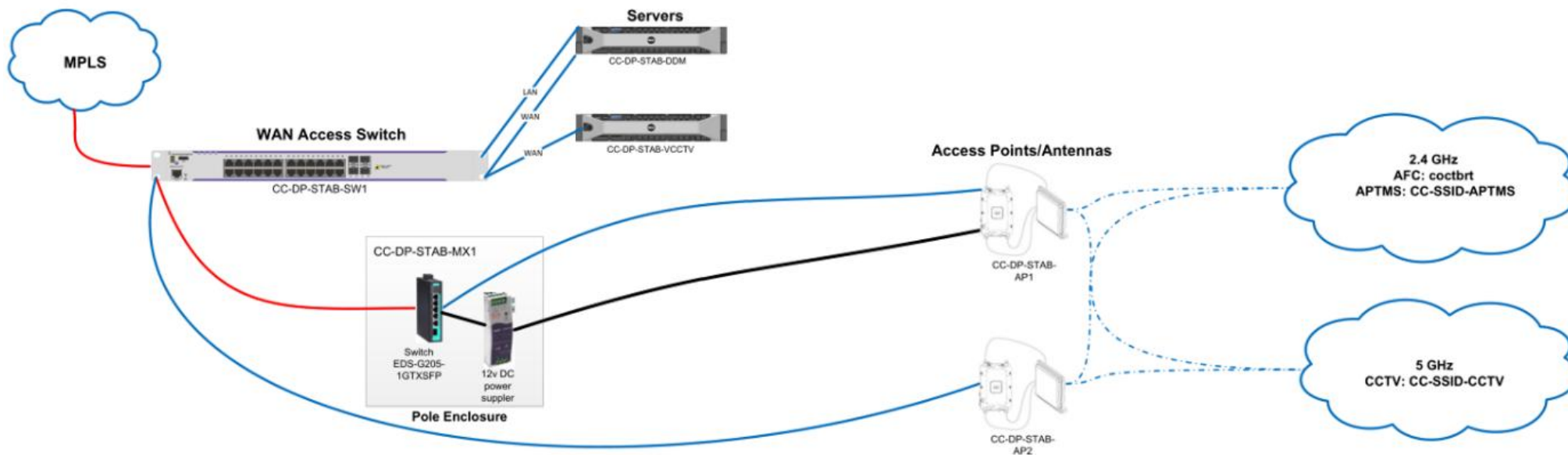


Figure 7: Typical depot equipment

3.4.4.4.2 Existing Installations

The existing depot infrastructure is listed below:

1. Cisco Wi-Fi Access Points operating on the 2.4GHz and 5.8GHz bands.
2. Existing poles with equipment enclosure used for the mounting of the Wi-Fi Access Points.
3. Electrical connection point at each of the existing Wi-Fi Access Points.
4. Single-mode optical fibre and/or Ether cabling installed from the network switch located in the depot server room.

The Cisco APs are connected to the local network using CAT6 PoE and for longer runs fibre is used to provide network connectivity back to the Alcatel network switch.

Where fibre is used, an enclosure is installed at the Cisco AP to provide local power for the AP and Moxa network switch.

The Cisco Aironet AP1572EAC is used as Wireless Aps at all depots with the Cisco Aironet 2.4-GHz/5-GHz 8-dBi directional antenna (AIR-ANT2588P3M-N).

The existing Phase 1 depot wireless equipment is summarised below.

Table 11: Depot wireless access points

#	Depot	Number of Cisco Wireless APs (PoE/Fibre)
1	Atlantis	1 x PoE, 1 x Fibre
2	Dunoon	1 x PoE, 2 x Fibre
3	Blackheath	2 x Fibre
4	Prestwich	1 x PoE, 2 x Fibre
5	Foreshore	1 x PoE
6	Woodstock	1 x PoE, 1 x Fibre
7	Hout Bay	1 x PoE

Network connectivity from the TMC to the APTMS networks at the depots is provided by the City in all cases using either the City's MPLS network, wireless backhaul link or ADSL.

Connectivity to the MPLS network at the station is established with a copper port connection between the APTMS network switch and the MPLS network switch. Both are located in the same server rack.

The network switch installed at each depot is either an Alcatel-Lucent 6850E-P24 or Alcatel-Lucent 6860E-P24 24 port.

Wi-Fi coverage at the larger depots requires the use of Moxa network switches to provide network connectivity to the Cisco Access Points at the furthest points of the depots.

Connectivity to these Wi-Fi Access Points are provided with single-mode fibre between the Alcatel and Moxa network switches. Atlantis, Prestwich, Stables and Woodstock are the depots with additional Moxa network switches.

The existing Phase 1 depot network switches is summarised below.

Table 12: Depot network switches

#	Depot	Network switch
1	Atlantis	Alcatel-Lucent 6860E-P24
		Moxa EDS-G205-1GTXSFP
2	Dunoon	Alcatel-Lucent 6860E-P24
		Moxa EDS-G205-1GTXSFP
3	Blackheath	Alcatel-Lucent 6860E-P24
4	Prestwich	Alcatel-Lucent 6860E-P24
		Moxa EDS-G205-1GTXSFP
5	Foreshore	Alcatel-Lucent 6860E-P24
6	Woodstock	Alcatel-Lucent 6850E-P24
		Moxa EDS-G205-1GTXSFP
7	Hout Bay	Alcatel-Lucent 6860E-P24

3.4.4.4.3 Network Communication requirements

1. The Employer will provide connectivity from the individual depots to the control centre via the MPLS network.
2. The Contractor shall be responsible to provide the required network connectivity within the depot. This includes communication from the buses to the servers installed at the depot server room or directly to the control centre.
3. The Contractor shall ensure that the network connectivity is reliable and secure, and that it meets the minimum bandwidth requirements to ensure a reliable and stable networking environment for Schedule Adherence.
4. The Contractor shall install Wi-Fi access points in the depots to ensure full coverage of the parking areas used by the buses.

3.4.4.4.4 Network switches requirements

1. The switches shall provide reliable and uninterrupted connectivity between the Wi-Fi access points and the servers installed in the server room or directly to the control centre.
2. The switches shall support Gigabit Ethernet and shall provide sufficient bandwidth to handle the data traffic generated by the bus onboard equipment.
3. The Contractor shall provide a network switch with sufficient port count based on the Schedule Adherence system design.
4. The switches shall support QoS (Quality of Service) to ensure that critical data such as GPS location and schedule adherence information are prioritized.
5. The switches shall support VLANs (Virtual Local Area Networks) to provide network segmentation and ensure security and privacy of data. The Contractor shall ensure that the VLANs are properly configured and implemented.
6. The switches shall support PoE (Power over Ethernet) to power the Wi-Fi access points installed in the depot parking areas.
7. The switches shall support SNMP (Simple Network Management Protocol) and shall be manageable through a web-based interface. The Contractor shall provide all necessary login credentials and access to the switches.
8. The Contractor shall provide and install layer 2 or layer 3 switches to meet the functional requirements outlined in this document.
9. The Contractor shall provide and install all necessary network cabling to connect the switches to the servers, Wi-Fi access points and City MPLS network.
10. The Contractor shall configure the switches to meet the functional requirements outlined in this document. The configuration shall be documented and provided.
11. The switches shall be installed in compliance with the local electrical and safety regulations.
12. The switches shall be installed in a secure location to prevent unauthorized access. A server rack shall be provided in a dedicated server room at each depot.
13. The Contractor shall liaise with the Communications contractor and/or CCT regarding network design and required switch configuration including VLAN, Port and IP address allocation.

3.4.4.4.5 Wi-Fi Access Points requirements

The purpose of this section is to define the requirements for the installation and configuration of Wi-Fi Access Points (APs) at bus depots as part of the Schedule Adherence system.

1. The Contractor shall be responsible for the installation and configuration of the Wi-Fi network at the bus depots for use by APTMS system.
2. The Wi-Fi hardware shall support both 2.4 GHz and 5.8 GHz frequency bands.
3. The Wi-Fi coverage shall be sufficient to ensure that all data is transferred in accordance with the Service Level Agreement (SLA) requirements.

4. The APs shall be capable of providing the required coverage in both indoor workshops and outdoor parking areas of the bus depots.
5. The APs shall support the latest Wi-Fi standards such as IEEE 802.11ac or later.
6. The APs shall support the latest security protocols such as WPA3 or later.
7. The APs shall be designed and installed to minimize interference from other wireless networks and devices.
8. The APs shall be configured to ensure seamless roaming for buses moving between different coverage areas.
9. The APs shall support advanced features such as load balancing, band steering, and client isolation to optimize the performance of the Wi-Fi network.
10. The APs shall be capable of being managed remotely over the Schedule Adherence network.
11. The APs shall be installed in compliance with all relevant codes and regulations.
12. For existing stations, the existing poles, enclosures, fibre, and electrical ducts can be used by the Contractor as part of the Wi-Fi installation.
13. The APs shall be installed in accordance with the manufacturer's instructions and best practices to ensure maximum performance and reliability.
14. The APs shall be securely mounted to prevent damage or theft.
15. The APs shall be configured to ensure the security of the Wi-Fi network and prevent unauthorized access.
16. The Contractor shall provide all necessary network cabling and wiring required for the installation of the APs.
17. The Contractor shall provide the following documentation upon completion of the installation:
 - a. A detailed Wi-Fi network topology diagram showing the location and configuration of all APs, switches, and routers.
 - b. A list of all Wi-Fi network hardware installed including make, model, serial number, and software version.
 - c. A copy of the configuration files for all Wi-Fi network hardware installed.
 - d. A list of all Wi-Fi network user accounts and their access rights.
 - e. A copy of the test results showing that the Wi-Fi network meets all SLA requirements.

3.4.4.5 CAPITAL WORKS: ON-BOARD SYSTEMS

The following on-board capital works are included as part of this contract:

1. 80 x new Phase 2A electric buses: Design, supply, install and configure all APTMS, CCT and associated equipment.
2. Add new buses onto all backend systems, including Scheduling and AVL/CAD back-end systems.
3. 345 x Phase 1 buses: Replacement of certain equipment as and when Instructed by the Engineer. (* Quantity may vary).
4. Installations of materials on new Phase 2A buses shall be done at the premises of the bus manufacturer located within the wider Johannesburg and / or Ekurhuleni Metropolitan Municipal area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations.
5. Other works as may be identified by the employer during the Contract.
6. New systems shall as a minimum meet the specifications of the existing systems, unless otherwise Instructed by the Engineer.

In terms of the APTMS, the main purpose of the infrastructure installed on vehicles can be categorised into the following:

- a. Provision of planned routes and scheduled data.

- b. Live tracking and schedule adherence monitoring.
- c. Dissemination of on-board passenger information.
- d. Safety and security through on-board CCTV and driver panic button.

The typical architecture of the existing vehicles can be used as the basis for design of APTMS equipment on new vehicles, noting that layouts may differ.

The main systems installed on the vehicles are the bus schedule adherence and tracking system, passenger information and the on-board CCTV and NVR event recorder.

The City supplies the SIM cards on the cellular APN, the Contractor does not have to allow for the supply of the SIM cards or data costs.

A typical vehicle layout is shown below.

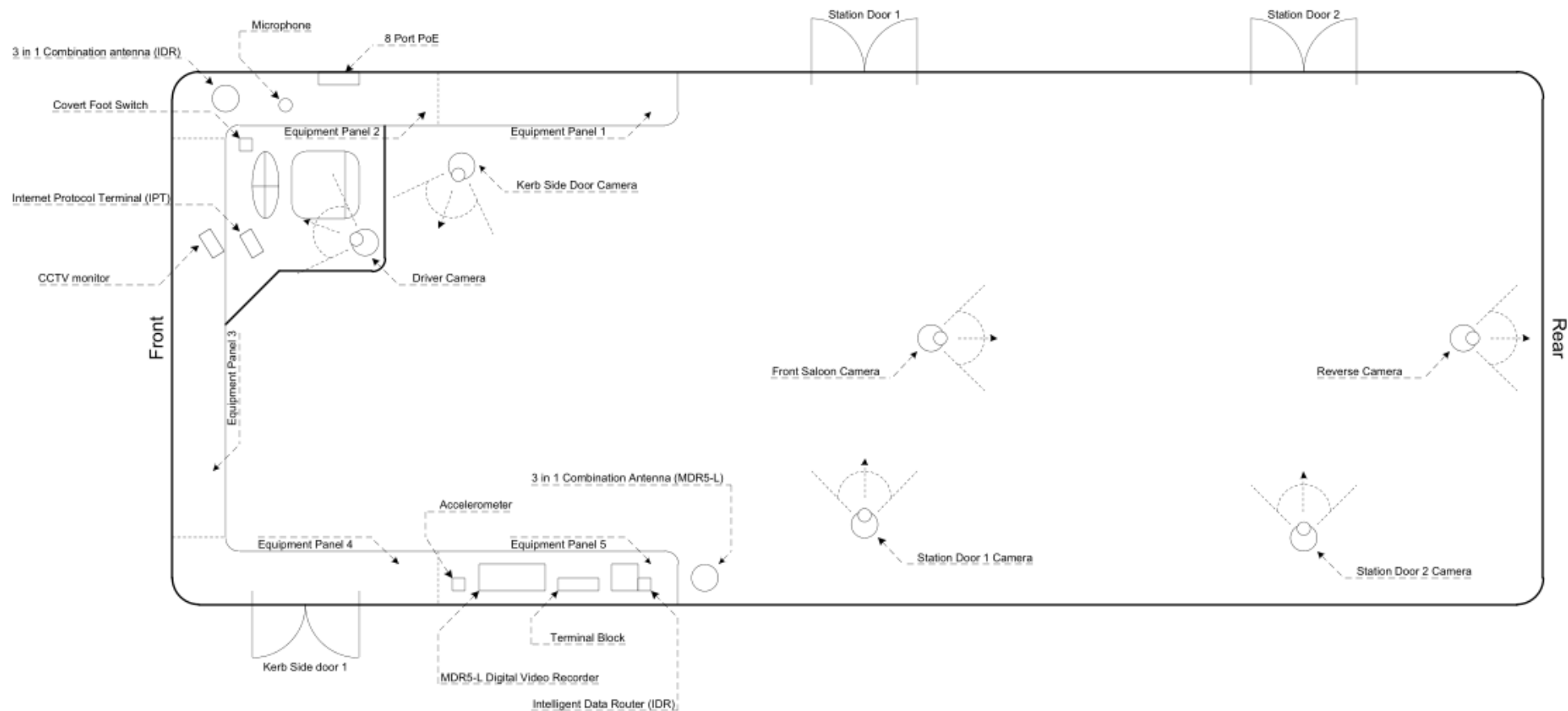


Figure 8: Typical vehicle equipment layout, 12m bus

3.4.4.5.1 Existing bus installations

1. The existing phase 1 buses are installed with the following equipment.
 - a. IP cameras: Mix of Axis M3113-R, Axis P3904-R, Axis P3905 and Hikvision DS-2XM6726G0-IDS (6 per rigid bus, 8 per articulated bus)
 - b. PoE network switch: Redundant – to be decommissioned or re-used – to be confirmed by the Engineer in writing.
 - c. Driver CCTV display, min 10", VGA port
 - d. 3 in 1 combination Wi-Fi, GSM/UMTS and GPS antenna for the VLU.
 - e. 3 in 1 combination Wi-Fi, GSM/UMTS and GPS antenna for the CCTV NVR.
 - f. Driver ruggedized gooseneck microphone: TOA DM-524B
 - g. Internal next stop display
 - h. External destination display
 - i. Controller: Internal and external displays
 - j. Saloon speakers
 - k. Driver speaker
 - l. Driver panic button
 - m. Cabling and looms used for phase 1 APTMS systems

On-board interfaces between different components and parties are shown in the figure below.

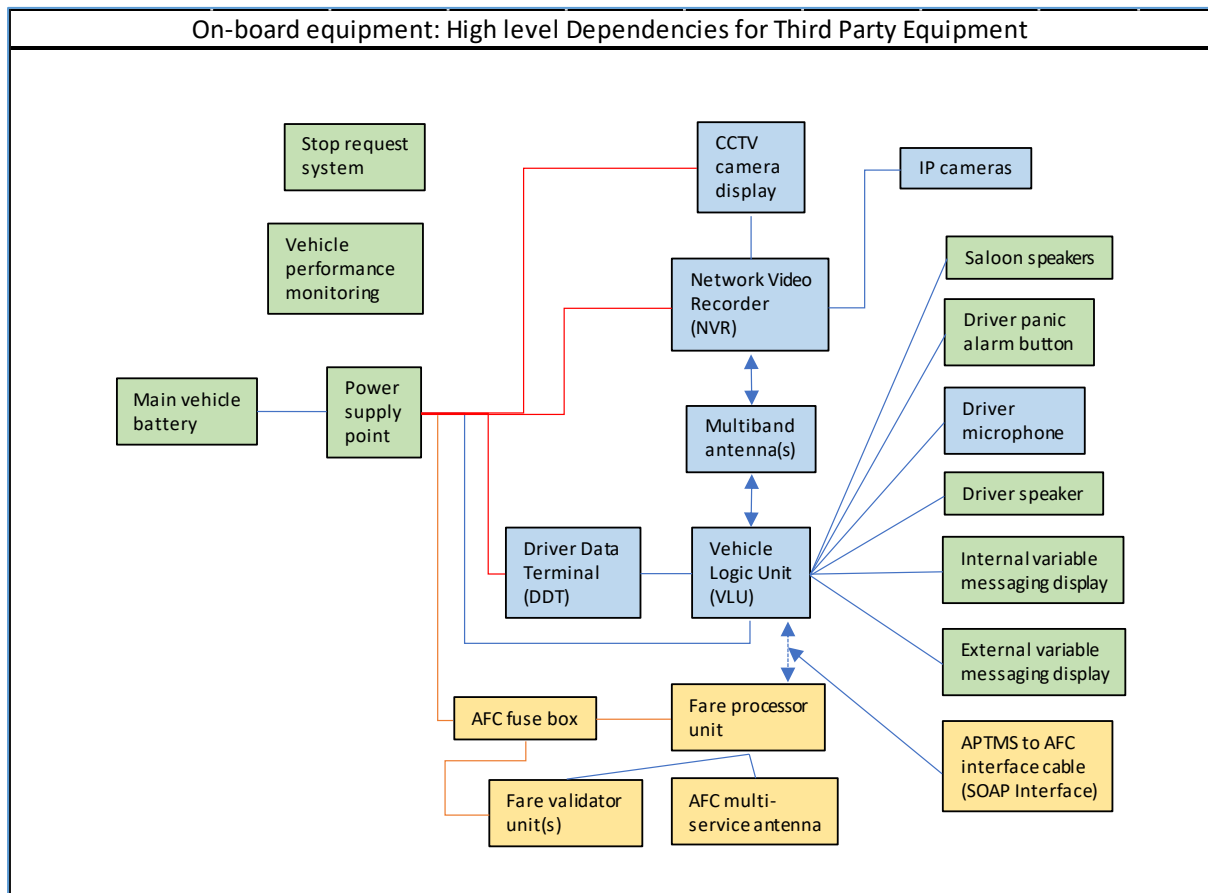


Figure 9: On-board supply responsibilities.

Colours indicate responsibility for supply and installation as follows:

- Green: Vehicle manufacturer and/or VOC

- Blue: APTMS
- Orange: AFC

Refer to the table under C3.1.5 for a more comprehensive view of device responsibilities during the project life cycle. In case of any contradiction the table under C.3.1.5 shall apply.

3.4.4.5.2 Functional description

All on-board devices shall be tested and approved to EN50155 heat and vibration.

New vehicles shall be fitted with a ruggedized tablet with integrated VLU & MDT functions.

1. The **main features** required of the vehicle on-board systems are as follows:
 - a. GPS Tracking and AVL with dead-reckoning at all times
 - b. GSM/UMTS links to control centre for AVL/tracking and driver communications
 - c. Dynamic audio and visual display of "Next Station" and "Time to Next Station" including public transport connections at next stop.
 - d. On-board CCTV with on-board recording. This includes the IP cameras, PoE switch and driver display.
 - e. Communication with driver, visual and audible.
 - f. Driver panic button.
 - g. Wireless docking with high bandwidth wireless LAN links to networks in depots and staging areas – upload all recorded info, download data/configuration.
 - h. On-board driver microphone to address passengers.
 - i. Route No and destination displayed on front of bus
2. The following hardware will be provided and installed by the bus manufacturer/supplier:
 - a. External variable messaging display (EDD)
 - b. Internal variable messaging display (EDD)
 - c. Electronic destination display (EDD) controller
 - d. Saloon and driver speakers
 - e. Door opening signal and door synchronisation unit
 - f. Driver panic/alarm button

The typical layout of existing Phase 1 equipment on a 12m vehicle is shown in . Note that this is not the same for all bus types and that there are some variations in the combination of equipment installed.

3.4.4.5.3 General requirements

The following shall apply:

1. The design, functionality and layout of on-bus equipment shall consider optimal driver visibility and possible driver distraction. Layout and positioning of equipment shall be optimised by placing it in a position that mitigates driver distraction.
2. The Contractor in liaison with the vehicle manufacturer shall be responsible for determining the final location of all on-board equipment (considering point a. above) to be supplied under this contract on each different bus type and configuration. Final equipment locations are subject to approval by the Employer.
3. Installation of APTMS on-board systems on new vehicles shall take place on the production line during assembly of the vehicle and will be facilitated by the vehicle manufacture contractors. The APTMS Contractor shall liaise with and fully cooperate with the vehicle manufacture contractors in order to install all equipment seamlessly, efficiently and according to best practice standards and within the programme of the vehicle manufacturers.
4. In the unforeseen event that the installation cannot proceed as stated in the point above, the APTMS Contractor shall liaise with MyCiTi Operations and Vehicle Operating Company (VOC) as to the best time and place to do the said installation.
5. Installation of APTMS on-board systems on existing vehicles shall take place at the depots(s) when the vehicles are not in service and may entail after-hours work. The APTMS Contractor shall liaise with and fully cooperate with MyCiTi Operations and VOC's in order to install all equipment seamlessly, efficiently and according to best practice standards and within the operating programme of the vehicles.
6. The installation of any antenna on a vehicle shall be done only after consultation with the antenna manufacturer considering installation requirements to guarantee optimum performance, including requirements for a ground plane, if any.
7. The antenna installation shall be watertight and sealed with a washer and with a sealant from Sika or equivalent reputable products.
8. No water shall leak through any mounting point in any way during vehicle washing or driving rainstorms.

3.4.4.5.4 Electrical Requirements

1. In-vehicle devices shall meet accepted SABS/SANS and/or international rules and regulations related to generation of and susceptibility to radio frequency interference (RFI). Unless otherwise approved, all devices, cables and connectors shall be shielded and grounded.
2. On-board components shall be able to withstand sustained voltage levels of up to 48 VDC for up to ten (10) minutes.
3. On-board components shall not suffer corruption of data when the power dips below 9 VDC.
4. On-board components shall not be damaged by very high (twenty [20] times nominal voltage) short duration (up to ten [10] milliseconds) peak voltage.
5. Contractor shall indicate full operational and quiescent power drain for each on-board component proposed.
6. Contractor shall provide effective power regulators/conditioners/filters for all in-vehicle equipment. Specific tests shall be accomplished in each type of vehicle, by electrical system configuration, to assure that an effective filtering system has been identified before installation in the remainder of the fleet.
7. Wiring/installation diagrams for in-vehicle systems shall be provided by the Contractor for each make/model of both service and supervisory (manager) vehicle.
8. Operation of equipment shall not be affected by electromagnetic effects present during normal public transport operations.
9. Operation of equipment shall not affect or be affected by vehicle components, such as engine ignition, or other on-board equipment including vehicle power supplies, radios, automatic vehicle identification systems, fare collection systems, and on-board data collection and processing equipment.
10. Operation of equipment shall not be affected by the electromagnetic fields generated by electrical transmission lines, by an overhead catenary at distances as close as 7 metres, or by local power distribution lines at distances as close as 15 metres.

11. It is the responsibility of the contractor to determine if the bus will require an upgrade of its electrical system (i.e. batteries and alternator) to support the additional on-board electrical equipment, including data exchange.

3.4.4.5.5 Environmental Requirements

1. Mobile equipment shall meet or exceed the following minimum conditions:
 - a) Operating Temperatures between -10° and +70°C
 - b) Storage Temperatures between – 20° and +75°C
 - c) Dust and Water Ingress: Protected to IP (Ingress Protection) 54 for all equipment inside the bus.
 - d) All exterior mobile equipment shall be sealed and weatherproof to a rating of at least IP 65.
 - e) Water Solvents: Water spray on equipment from cleaning floors and walls, industrial solvents, rain, mud, snow and slush may come in contact with equipment.
2. All on-board equipment shall be tested to and comply with EN50155, ISO16750-3 & IEC60068-2.
3. If the Contractor's equipment has been tested to different specifications than those defined above, the Contractor shall identify the environmental testing requirements utilized and results that were obtained. Such alternatives are subject to approval by the Employer.

3.4.4.5.6 Vehicle Logic Unit (VLU)

1. The Vehicle Logic Unit (VLU) shall be designed for installation and operation in a public transport environment. Specifically, the VLU shall include provisions to protect against vibration, water ingress, vandalism, and corrosion.
2. The Contractor in liaison with the vehicle supplier, shall be responsible for determining the final location of VLU installation on each different bus type and configuration, subject to approval from the Employer.
3. The on-board processing unit shall store the Automatic Vehicle Location (AVL) in a non-volatile memory with sufficient capacity to hold thirty (30) days of data assuming up to 20 revenue round trips per day.
4. A three in one combination Wi-Fi, GSM/UMTS and GPS hi performance outdoor antennae shall be installed and mounted on the bus and connected to the APTMS OBU. The antenna shall have ingress protection of at least IP67. At least 20dB isolation between antennae is required. This antenna shall be used for all:
 - a) WLAN communications (shall support both 2.4 and 5.8 GHz)
 - b) GSM/UMTS communications
 - c) GPS data
5. The antenna shall have a small form factor and be mounted flush on the bus to minimise potential damage from external objects such as tree branches etc.
6. (A separate antenna with the same specifications as given here shall be provided for the on-board Network Video Recorder (NVR).)
7. The VLU shall act as the central processor, data storage, and device manager for all on-board systems supplied by the APTMS contractor and the bus manufacturer including:
 - a) The Mobile Data Terminal (MDT)
 - b) Automatic Vehicle Location (AVL)
 - c) Passenger Information Display (PID)
 - d) Automatic Voice Annunciation (AVA)
 - e) Voice and text messages
8. It shall be possible to load and store a minimum of 2 schedules onto the VLU.
9. The VLU shall reconcile discrepancies between GPS and secondary position systems to provide the most accurate vehicle location information.
10. The VLU shall store all the data collected from other on-board components until it can be transmitted to the central system.
11. Real time data exchange between the bus and the TMC is required as follows:

- a) Text messages and voice calls
 - b) Sending of emergency status
 - c) Update of schedules including messages for PID's and AVA.
 - d) AVL data
 - e) Data logs
12. All data between the VLU and the TMC shall be transferred to the central control system via wireless LAN at the depot once the vehicle docks in any of the Employer's Bus Depots.
 13. The VLU shall be responsible for initiating and verifying the complete transmission of data through the wireless LAN at the depots and shall not delete or remove data until a successful transfer has been recorded or if removed by a systems administrator.
 14. The VLU shall include functionality and external interfaces to provide GPS position and time information to future devices/subsystems by others.
 15. The VLU shall be equipped with a lithium battery that would maintain system time for more than 5 years. The VLU shall run diagnostics and report any problems with on-board APTMS components (including the VLU itself).
 16. The VLU shall automatically recognize any system process failure or lock-up and log the problem and attempt a restart. If restart of the process fails, notification shall be sent to the operator via the MDT and logged in the VLU for download at the end of the day.
 17. The VLU shall have two "power-down" timers as follows:
 - a) One power-down timer that will keep the equipment operational for a configurable period of time (0-120 minutes) when the vehicle master switch is turned to "off", "lights" or "night park". This will allow the equipment to remain operational at a layover or extended stop.
 - b) A second power-down timer that will gracefully log-off and shutdown the on-board equipment after a configurable period of time (0-120 minutes) after the first timer has expired. This will allow data transfers to be completed when the bus returns to the depot.
 18. Data shall not be corrupted as a result of short-term power interruptions (e.g. vehicle start-up) or power down.
 19. The VLU shall include functionality to verify the successful transmission of data to the central system before purging any data records or buffers.
 20. The VLU shall include functionality to automatically re-transmit data in the event of an unsuccessful transmission.
 21. The VLU shall provide an interface to V2X hardware, specifically for Traffic Signal Priority (TSP).
 22. As part of the V2X TSP the VLU shall provide traffic signal phase information to the driver, including per second count down of change in traffic signal current phase.
 23. The VLU shall transmit bus speed, direction, location and any geofences to the TSP V2X OBU.
 24. The VLU shall interface with electric bus data signals to provide Battery State of Charge (SOC) to the bus driver.
 25. Installation of VLU on MBT. Functional requirements for MBT shall be limited to schedule adherence tracking and a interface to the driver, i.e. not on-bus announcements and signal interface, other than odometer required.

3.4.4.5.7 Automatic Vehicle Location (AVL)

1. All trunk and feeder buses shall be equipped with Automatic Vehicle Location (AVL) system.
2. The AVL system shall include at a minimum the following hardware elements:
 - a) A GPS receiver, integrated with the vehicle logic unit.
 - b) A secondary position system consisting of an odometer interface or other dead-reckoning device. Such a system may use stochastic probable position and odometer assisted location estimation to supplement the accuracy of vehicle location GPS and in case of loss of GPS reception. The combined AVL accuracy shall be within 5 metres.
 - c) Exterior mounted, watertight GPS and Wireless LAN antennas to be mounted on the roof of the bus for standard height buses and feeder vehicles. A combined GPS/Wireless LAN antenna is

preferred to minimize the number of roof penetrations. The Contractor is advised that on some vehicles, the antennas may be mounted underneath a fiberglass cowling. This should be considered in the selection of appropriate antennas.

- d) All cables, wiring, connectors and labels.
 - e) All mounting brackets, mounting hardware, waterproof sealant, and associated installation materials.
 - f) GPS polling intervals shall be decreased when the vehicle is stationary or switched off to save power and bandwidth requirements.
- 3. The automatic vehicle location (AVL) system shall provide real-time position (latitude/longitude), speed, time and compass direction data to the VLU.
 - 4. The AVL system shall be designed for operation in urban, suburban, and rural areas, including the ability to continue logical vehicle position tracking when a GPS signal is not available or a position fix is not possible (dead reckoning functionality). This could include, but is not limited to environments such as mountainous areas, heavily forested areas, office tower "canyons", tunnels, and multimodal public transport centres located in buildings.
 - 5. The AVL system shall provide GPS time sync to other on-board devices supplied under this Contract.
 - 6. Location data shall be sufficiently precise to accurately and reliably identify the location of each bus on the street network.
 - 7. The AVL system shall provide an arrival and departure time each time the bus stops. The AVL shall be integrated into a remote Computer Aided Dispatch (CAD) system. The CAD system shall be web based and managed by transit operation personnel. The CAD system shall aid dispatchers to manage the fleet and shall include GIS mapping, historical reports and real time alerts. The dispatcher shall be able to select and view one or multiple vehicles in real-time. Upon selection the following information shall be available; date, time, speed direction, route, schedule information and vehicle and driver identification.
 - 8. The AVL shall provide a positional accuracy of +/- 5 meters, 95% of the time.
 - 9. The GPS position shall be updated every 10 seconds or less.
 - 10. The AVL system shall provide multiple geo-fences polygons of a minimum resolution of 5m by 5m.
 - 11. Vehicle location computation lag time shall not exceed two (2) seconds in the vehicle (lag time is defined as the time it takes to compute position information, correct it, and update the on-board systems).

3.4.4.5.8 Mobile Data Terminal (MDT)

- 1. The VLU and MDT may be an integrated device. If it is an integrated device it shall meet the specifications for both units.
- 2. The MDT shall be a separate device to the driver CCTV display.
- 3. The MDT shall comply with the requirements of EN50155.
- 4. The Mobile Data Terminal (MDT) shall be a rugged computing device designed for operation in a public transport environment and shall be managed and controlled by the VLU.
- 5. The MDT shall be equipped with a colour, liquid crystal display (LCD) capacitive touchscreen display.
- 6. The MDT touchscreen shall provide at least 1280 x 720 resolution.
- 7. The MDT display shall include functionality to display different font sizes and styles on the same screen.
- 8. The MDT display shall include functionality to display both text and icon-based messages and key labels.
- 9. The MDT display shall be readable in direct sunlight and shall offer a low-glare setting for night time operation.
- 10. The MDT shall contain a small speaker and tone generator to be used to provide audio alerts.
- 11. Mobile Data Terminals (MDT) shall be installed in each bus, and shall act as the user interface between the operator/bus driver and all in-vehicle devices connected to the VLU and to the TMC, including providing the interface for the functions of initialization, operation, and configuration.
- 12. The MDT shall control settings for internal public address (PA) system, for both automatic announcements and ad hoc announcements by the driver. It shall also enable the driver to communicate confidentially with the control room or emergency services.

13. The MDT shall incorporate a graphical schedule adherence display including alarms/warning if the driver is behind or in front of schedule.
14. The MDT shall control settings for the activation or deactivation of automated voice annunciation (AVA) messages.
15. The MDT shall be designed for simple and intuitive use by operators from varied educational backgrounds. The MDT shall not be configured in such a way as to require computer literacy from the operators.
16. The MDT shall be provided with a "quick reference card" summarizing basic operational processes and functions, to be included in the operators' book. The design of the MDT shall not require that the operator reference this card or other documentation for normal daily use; it is intended as a supplemental reference only.
17. The MDT shall automatically configure and initialize itself for operation when the power is turned on with the default screen being the operator log-on screen.
18. The MDT shall initialize all in-vehicle devices integrated with the VLU in a single action as the operator enters the log-on information.
19. The interface and menu structure of the MDT shall be programmable through configuration data.
20. The MDT shall utilize a hierarchical multi-page menu structure. The MDT shall include functionality to scroll through a page and switch between pages.
21. The MDT shall provide simple access to pre-programmed text messages that are configurable by the Employer.
22. Message selection, variable inputs, and interpretation of received messages shall be from menus and pop-ups that may change based on context.
23. The MDT display shall include default backlight, brightness, contrast, audio and tone settings.
24. The MDT shall include functionality to set audio tone types, frequencies, volume and duration through configuration data.
25. The MDT shall include functionality to set default display backlight, brightness and contrast settings through configuration data.
26. The MDT display shall have controls to allow the bus operator to adjust backlight, brightness, contrast, and volume settings within configurable limits. In no event shall such controls allow the screen to be set to all bright or all dark such that the text is unreadable.
27. Upon start-up and log-on the system shall revert to default settings for all configurable parameters.
28. The MDT shall include operator log-on and log-out functions. The log-on function of the MDT shall permit the operator to initialize the system with an ID number that associates their name and background information with the vehicle for dispatch purposes for the duration of their scheduled block/run/route/route variant/trip.
29. The MDT shall validate log-on and trip change entries against an internal database of valid trips. In the event of an erroneous entry, the MDT shall sound and display an alert for the operator.
30. The MDT shall include functionality to send pre-defined messages to central control. Such messages shall be established through configuration data. The Contractor shall define a comprehensive set of messages that shall include at a minimum the following:
 - a. Log on/log out/system test/maintenance
 - b. Critical messages (including silent alarms)
 - c. Vehicle status report
 - d. On-route
 - e. Out-of-service
 - f. Call for a field supervisor
 - g. Vehicle mechanical problem
 - h. Minimum of five other pre-programmed messages
31. The MDT shall display at a minimum, current system wide transit time, vehicle status (in/out of service), block/run/route/route variant /trip, data messages, and schedule adherence status.
32. The MDT shall indicate that there are unread messages in the incoming message queue and how many messages are in that queue. The MDT shall also indicate when there are no more messages to be read.

33. The MDT shall move priority messages received to the front of the queue and provide visual and audible indications that a priority message has been received.
34. The MDT shall include functionality to skip a message in the queue, delete a message from the queue only after it has been displayed, or save a message to memory for long-term storage (until MDT shutdown).
35. All data messages entered or selected by the operator shall activate the data communications for transmission to dispatch. Emergency alerts/silent alarms shall be transmitted immediately to dispatch as a high priority data communication.
36. Except for silent alarms, the MDT shall indicate to the operator that the operator received a critical message.
37. The MDT shall include a minimum three levels of critical messages including:
 - Overt/Covert Alarm (highest priority - level 0)
 - Emergency Services Requested (high priority - level 1)
 - Non-Emergency Assistance Requested (priority - level 2)
38. The MDT shall be configurable on a system-wide basis to provide non-priority messaging functions to the operator either at any time or only when the vehicle is below a customizable speed threshold.
39. The MDT shall be able to receive and display a minimum of sixty-four characters in a message consisting of ASCII (American Standard Code for Information Interchange) coded numbers and letters. The MDT shall allow scrolling through the message at sixty-four characters or more per scroll action. The MDT shall be able to display multiple text sizes and multiple lines of text
40. Messages displayed to the user shall be in a large font (approximately eighteen point) that is readable by a user with 20/20 eyesight from a distance of three feet. Summary lists, tables of data, etc. may be displayed at a smaller font.
41. The MDT shall provide maintenance personnel with a maintenance and test function device diagnostics, and default configuration values for the MDT.
42. If no operator logout has occurred, the MDT shall remain active until the expiration of the first power down timer in the event the vehicle master switch has been turned to "off", "night run" or "lights". Once the second power down timer has triggered, the MDT shall automatically logout and shut down.
43. Data shall not be corrupted or operation disrupted as a result of short term power interruptions (e.g. vehicle start-up) or power down.
44. The MDT shall not "freeze up" in the event that power is applied in the incorrect order (ignition sense versus continuous power on the load side of the master switch), or power is interrupted/drops during start-up (e.g. from activating the vehicle ignition).
45. On electric buses the MDT shall display to the driver the battery state of charge and estimated range until next charge is required.
46. Where TSP is implemented, the MDT shall display to the bus driver the timer, with countdown in seconds of the current traffic signal phase.

3.4.4.5.9 Phase 1 System combined VLU – MDT Ruggedized tablet

The functions of the VLU and MDT shall be integrated into a single MDT. The MDT shall be a ruggedised, vehicle grade computing terminal responsible for all onboard logic. The MDT shall be fully compatible with the existing APTMS.

The minimum specification of the combined device shall be:

1. The MDT shall be a single, sealed unit containing both the processing electronics and the driver display.
2. The MDT shall have a minimum Ingress Protection (IP) rating of IP65.
3. The MDT shall be designed to operate reliably within a temperature range of -20°C to +70°C and a relative humidity range of 5% to 95% (non-condensing).
4. The unit shall comply with ISO 16750 ("Road vehicles – Environmental conditions and testing for electrical and electronic equipment") for vibration, shock, and electrical loads.
5. The MDT and its power supply shall be designed to operate on a standard 24V DC vehicle power system.
6. It shall tolerate the voltage fluctuations, transients, and electrical noise typical of a heavy vehicle environment.

7. The unit shall incorporate an ignition sense input to control automated power up and safe shutdown procedures.
8. The MDT shall contain sufficient CPU processing power, RAM, and SSD to run its operating system and all application software without performance degradation.
9. The internal storage shall be sufficient to log operational data for a minimum of 30 days in the event of a total communications failure.
10. The integrated display shall be a projected capacitive (PCAP) touchscreen also known as multi-touch capacitive with a minimum diagonal size of 7 inches and a minimum resolution of 1024x768 pixels.
11. The display shall be sunlight readable with a minimum brightness of 800 nits and an automatic brightness control sensor to adjust for ambient light conditions.
12. The MDT shall be designed to be easily swappable to facilitate rapid maintenance.
13. The MDT shall connect to a permanently installed vehicle mounting cradle.
14. A multi constellation Global Navigation Satellite System (GNSS) receiver shall be integrated within the MDT. The receiver shall support as a minimum GPS and GLONASS satellite systems.
15. The MDT shall be equipped with an integrated 4G/LTE modem for primary data communication with the APTMS back-office.
16. The VMDT shall also include integrated Wi-Fi connectivity, 802.11ac or newer.
17. The MDT shall provide full duplex, hands free voice communication between the driver and the control centre using Voice over IP (VoIP).
18. An external gooseneck microphone shall be connected to the MDT either directly or via an external amplifier.
19. The MDT shall provide external antenna connectors for all wireless services. This shall include separate, clearly labelled connectors for GNSS, Wi-Fi and 4G/LTE antennas. The connectors shall be of a standard type such as FAKRA or SMA to allow for connection to an externally mounted vehicle antenna.
20. The MDT shall connect to the onboard EDD Controller via RS-232/RS-485 or ethernet IP-based connection.
21. The MDT shall provide an Ethernet LAN connection port.
22. The MDT shall provide a CAN bus interface to read vehicle telemetry data.
23. Configurable digital I/O ports shall be provided on the MDT. One input shall be dedicated to receiving a signal from a covert driver duress/panic button.
24. The MDT's application software shall be based on a widely supported operating system (Linux or Android).
25. The driver shall log in manually by tapping an RFID card or entering a PIN number.
26. The system shall support a Single Point Log On process to allow for the potential integration with the AFC system.
27. The driver interface shall be simple and intuitive with large, clear fonts and high contrast graphics designed to minimise driver distraction.
28. It shall provide the driver with a clear, at a glance view of their schedule adherence, the next stop and any messages from dispatch.
29. The MDT shall be capable of receiving and applying software, firmware and configuration updates remotely over the air (OTA) from the central system. The update process shall be robust and include fail safe mechanisms.

All data stored locally on the MDT and all data transmitted to the back-office system shall be secured using industry standard encryption protocols.

3.4.4.5.10 Automatic Stop Annunciation (ASA)

The driver and saloon speakers and accompanying wires are supplied and installed through the vehicle supply contract.

Internal and external Amber LED displays with controllers and accompanying wiring utilised by the ASA system are supplied and installed through the vehicle supply contract.

The Contractor (this Contract) shall be responsible for the integration, testing and commissioning of the systems provided through the vehicle supply contract with the APTMS System, to function as per the ASA specification. Testing and commissioning shall be together with the bus manufacturer and /or VOC.

1. The Automated Stop Annunciation system shall include:
 - a) On-board signs to provide a visual next stop and/or destination announcement display.
 - b) An interface with the bus PA system to provide audio next stop or route identification announcements on the bus, as appropriate.
2. The ASA system shall provide visual and audio next-stop announcement acceptable to people with disabilities.
3. Message being played shall be displayed on the MDT.
4. The ASA system shall include functionality for:
 - a. Automated operation that requires no interaction by the operator to trigger announcements (all triggering to be set as configuration data). This may be required to work as follows: The VLU shall store bus stop and route information and compare that to the actual coordinates. At predetermined distances from the next stop an announcement shall be triggered. These trigger distances shall be configurable. If a bus travels off-route the system shall mute all announcements until the bus returns to the route.
 - b. Manual override to allow an operator to cancel or manually activate an announcement.
5. The ASA system shall announce transfer point and connecting route information.
6. The on-board systems shall include functionality to generate and display the following types of next stop and related messages:
 - a. Audio location-based announcements on-board the bus (next stop, customer service, transfers, etc.).
 - b. Visual display in the interior of the bus of the route number and final destination of the bus.
 - c. Visual next stop messages on-board the bus giving the location or name of the next stop.
 - d. Visual display of the current time (optional).
 - e. Time-based audio and textual customer service announcements on-board the bus.
 - f. Announcements initiated by the TMC.
 - g. Pre-recorded audio customer service announcements.
7. All message content shall be configurable by the Employer.
8. Automated internal announcements shall be triggered by the AVL system (through the VLU).
9. The volume of the internal announcements shall be adjustable to a standard level through configuration data. The system shall include a minimum of three volume level settings that can be selected by the bus operator through the MDT.
10. The volume setting shall revert to its default value when the ASA is logged off or logged on.
11. The ASA shall receive its time synchronization from the VLU.
12. The system shall include an automatic gain control to automatically adjust interior volumes depending on interior ambient noise levels.
13. The signs shall have the functionality to display time and messages in the following modes, set through configuration data:
 - a. A single, non-scrolling or non-changing message.
 - b. A right to left scrolling message.
 - c. An alternating message between two pages.
14. Through configuration data, it shall be possible to set the arrival message to play once, play twice, or repeat in a loop while the door is open. If on a repeating loop, it shall be possible to set the repeat interval through configuration data.
15. The announcement shall be repeated automatically if the front door remains open for greater than a pre-determined time. It shall be possible to set this time through configuration data.
16. The ASA system shall include self-diagnostic capabilities and shall provide diagnostic information to the AVL system.
17. The ASA shall provide maintenance technicians with a means of testing and setting the internal audio default volume and ambient noise sensor circuit.

18. The system shall be designed for continuous operation without the need to manually “reboot” computers or devices.
19. Both audible and visible messages shall begin playing within one (1) second of being triggered.
20. The ASA time-sync shall be updated at least once per day. A clock accuracy of +/- 10 seconds per day is sufficient for all ASA system components.

3.4.4.5.11 Emergency Alarm

1. Emergency alarm (EA) switches and associated, hardware, cabling and appurtenances shall be supplied by the vehicle manufacturer for all vehicles. The APTMS contractor shall be responsible for the integration of the EA switch and associated cabling and hardware with the VLU and other on-board systems.
2. The EA activation switch shall be installed in a location easily accessible to the bus operator, and positioned such that activation can be done without visibly alerting a customer on the bus or in the boarding area.
3. In the event of EA activation, the bus operator shall be notified covertly, such that the indication is identifiable only by a trained bus operator.
4. Activation of the overt/covert alarm shall initiate continuous tracking of the vehicle with highest priority being given to the vehicle for data communications.
5. The EA circuit shall be monitored continuously for continuity, and any faults shall be reported on the MDT and provided to dispatch.
6. The Control Centre shall be notified of EA activation within 10 seconds of alarm activation.
7. In the event of EA activation, the bus operator shall be notified within 10 seconds of the alarm being acknowledged by an operator.

3.4.4.5.12 On-board Video Surveillance System (VSS)

A visual surveillance system shall be installed on all buses for the purpose to deter crime and vandalism and aid system operations.

The Contractor shall supply, configure and install the following components:

1. Integration of on-board IP CCTV cameras and PoE switch supplied on new or existing vehicles.
2. Network Video Recorder (NVR).
3. Integration with CCTV display unit for the driver. The display unit shall be utilised by the driver to view real time on-board camera footage of at least 4 simultaneous video streams.
4. Connection of all wiring to/from cameras to/from network video recorder (NVR).
5. Connection of all wiring to/from/ between equipment such as digital display unit, control units, sensor signals, cameras and all other system equipment deemed necessary for desired system function.

3.4.4.5.13 CCTV camera requirements

The following shall apply:

1. Digital (IP based) dome cameras shall be installed inside the bus. Devices shall be tested and approved to EN50155 heat and vibration, or equivalent approved standard.
2. Cameras shall connect to the NVR using CAT6 cable. Connector type to be confirmed in writing.
3. All cameras shall be fixed dome cameras positioned and configured to provide full coverage of the bus interior or other field of view as defined in point 6. below
4. Cameras shall comply with the following minimum requirements, subject to approval from the CCT.
 - a. Interchangeable lenses
 - b. Day/night wide dynamic range with dynamic contrast
 - c. Mini dome enclosure
 - d. Rugged, high impact, vandal resistant and puncture proof domes IK10 Vandal-Proof or equivalent
 - e. IP based with PoE
 - f. On-board (Edge) video analytics

- g. H.265 / H.265+ video compression
 - h. Resolution Minimum 2 megapixel
 - i. Aspect ratio: 16:9
5. Cameras shall be setup, configured and installed to achieve clear and focused images with optimum coverage inside the bus.
 6. Clear unobstructed coverage shall be provided with cameras installed in at least but not limited to the following areas:
 - a. Driver's controls (Overhead) including fare validator
 - b. View of the oncoming road and traffic
 - c. Saloon camera (plus additional camera in rear saloon of articulated bus)
 - d. Doors cameras (Mounted on opposite side of vehicle to each door. Field of view through door into boarding point.
 - e. Reverse view camera
 7. All cameras shall be on and record at full resolution for the full duration of all revenue trips.
 8. Frame rate shall be 25 fps at full resolution, but configurable to lower frame rates and sub streams
- Analogue cameras shall not be acceptable.

3.4.4.5.14 Network Video Recorder (NVR) requirements

The following shall apply:

1. The NVR shall be compatible with the HikVision HikCentral back-office system.
2. The NVR shall have be a device dedicated to the on-board video system. A combined NVR / VLU shall not be accepted.
3. A Network Video Recorder (NVR) with integrated GPS (NMEA-0183 V2.2) and Wi-Fi communications shall be supplied, setup, configured and installed to record up to eight cameras' footage simultaneously.
4. The NVR shall be a ruggedized device for on-board use in compliance with EN50155.
5. Network connector interface shall be confirmed in writing.
6. The NVR shall have an integrated accelerometer.
7. The NVR shall have an integrated POE network switch, with 8 x 100Mb/s Cu ports.
8. The NVR shall have power down timers similar to that of the OBU, that is:
 - a) One power-down timer that will keep the equipment operational for a configurable period of time (0-120 minutes) when the vehicle master switch is turned to "off", "lights" or "night park". This will allow the equipment to remain operational at a layover or extended stop. Transfer of data may be initiated during this time period. During this period the POE devices such as cameras should be powered off.
 - b) A second power-down timer that will gracefully log-off and shutdown the on-board equipment after a configurable period of time (0-120 minutes) after the first timer has expired. This will allow data transfers to be completed (in case this did not complete during the first timer period) when the bus returns to the depot.
9. The NVR shall provide continuous, time scheduled and alarm/ event recording of all cameras connected to its local network and fast and easy to use video retrieval.
10. The NVR shall support video analytics located either on the NVR or remotely on the cameras.
11. The NVR shall support H.265/H.265+ video compression.
12. The NVR shall be fully configured for all cameras supplied under this contract or supplied as part of vehicle manufacture contracts and existing cameras. Configuration shall include but not be limited to:
 - a. Camera and captions/titles (e.g. Names, time stamp etc.)
 - b. Continuous and event/incident recording per camera
13. The NVR shall at least record video at 25 frames per second at 2MP resolution on 8 channels. It shall be possible to configure the recording frame rate/resolution of each camera independently. It shall be

possible to configure different frame rates/resolution for continuous and event based recording (higher frame rate and resolution)

14. The NVR shall have enough storage capacity to record for 18 hours per day for 7 days at 25 frames per second at 2MP resolution for the maximum possible number of cameras which can be connected.
15. For event based recording it shall be possible to configure pre- and post-alarm recording times from 0 sec up to 30 minutes with a resolution of 1 sec.
16. The NVR shall utilise its integrated GPS to geo-reference each video frame to allow search for video by means of co-ordinates (geo-fencing)
17. The NVR shall be connected to a three in one combination antenna.
18. The NVR shall be fitted with a dual band (2.4GHz and 5.8 GHz) Wi-Fi subscriber unit for universal connectivity to all 802.11 WLAN networks. 5.8 GHz access points shall be installed at the depots / staging areas for communication with the NVR's
19. The NVR shall be fitted with a 4G/LTE chip.
20. The NVR shall transmit at a smooth and clear CCTV stream at a frame rate of 25fps, via 4G/LTE to the VUMS at the TMC, during configurable alarm states or on-demand from the TMC.
21. The NVR shall automatically configure and initialize itself for operation when the ignition is turned on.
22. The NVR shall be installed in a way that limits the effects of vibrations in a mobile environment, e.g. on a bracket with dampers.
23. There shall be no external weight (i.e. other materials, equipment, cabling, etc.), on top of the NVR, as this compromises the vibration resistant mounting.

3.4.4.5.15 Driver CCTV display

The following shall apply:

1. The screen shall have both VGA and HDMI inputs.
2. The driver CCTV display shall be a separate device to the MDT.
3. A high brightness sunlight readable colour LED CCTV display for the driver shall be setup, configured and installed.
4. Brightness shall be at least 1 000 nits
5. The screen shall have a resolution of at least 1280 x 800.
6. Contrast ratio at least 800:1
7. The screen size shall have at least 10" display for exclusive display of CCTV streams.
8. The display shall be low glare/anti-glare and be equipped with a suitable cowl to reduce reflections.
9. The display shall have automatic low brightness setting for nighttime operation.
10. The display shall include default (but configurable) backlight, brightness and contrast settings.
11. It shall be possible for the bus driver to set the brightness level on the screen itself.
12. Upon start-up and log-on the system shall revert to default settings for all configurable parameters
13. This display shall be installed at a location and at an angle that does not distract the driver but is still easily viewed by the driver.
14. The VSS shall be configured to show four live video streams simultaneously on the driver CCTV display. The cameras for the default display to be advised by the CCT.
15. The display shall automatically initialize itself when the power is turned on with the default screen being the four default live video streams.

When any (configurable) NVR event is activated its associated (configurable) camera shall be displayed full screen on the driver CCTV display. The normal screen view shall return within one second or more (configurable) from the time that the event signal is reset.

3.4.4.6 Traffic Signal Priority (Optional)

Traffic Signal Priority shall, if triggered by the Employer, be supplied, installed and configured on selected vehicles and at selected intersection controllers using V2X communications.

Subject to being triggered by the Employer the Contractor shall design, supply and install a TSP system, including TSP V2X OBU, TSP V2X hardware at traffic signal controller and antenna. The V2X OBU shall be integrated with the VLU.

The V2X OBU shall be configured to include geofences where the TSP flag shall not be triggered, e.g. bus stops in proximity of traffic signals.

3.4.4.7 Phase 2A APTMS AVL/CAD system with integration platform (if triggered by the Employer)

As an optional requirement, if triggered by the Employer, an alternative / new AVL / CAD system shall be supplied for Phase 2A. It shall be possible for this system to act as integration platform for different APTMS AVL / CAD system vendors.

If triggered by the Employer, the Provisional Sum allowed for in the Schedules of Rates shall be utilised to appoint a Nominated Subcontractor through a tender process to design, install, test and commission an alternative APTMS AVL / CAD System.

The new APTMS shall be deployed alongside the existing Trapeze APTMS and shall operate buses on the new Phase 2A routes.

3.4.4.7.1 AVL/CAD System Modules and Functionality

The APTMS AVL/CAD system shall consist of a comprehensive suite of tools that provides real-time visibility and control over the bus fleet. The system shall include the following modules and functionalities.

- Service Monitoring Module: Provide real-time view of the entire operational network.
- Dispatching and Control Module: Enable dispatchers to manage the fleet and respond to real time events.
- Performance Monitoring and Reporting Module: Provide advanced analytics and reporting capabilities
- Onboard Device Monitoring and Management Module: Provide real-time monitoring of the status and health of all connected onboard vehicle hardware.
- Includes monitoring and operations of battery electric buses.

The user interface shall be modern and web based and shall be accessible from standard web browsers without requiring any client-side software installation.

The GIS map display shall provide an interactive visual representation of the transit network, featuring multiple toggleable layers with real-time traffic, status indicating vehicle icons and search tools.

3.4.4.7.2 Prediction Engine

The system shall provide a dynamic, self-learning prediction engine to generate accurate Estimated Time of Arrival (ETA) and Estimated Time of Departure (ETD) data for all bus services.

The engine shall utilise a hybrid model based on machine learning and statistical analysis. The model shall continuously learn from historical performance and real-time data to dynamically improve its accuracy over time. The system shall be proven through other installations.

3.4.4.7.3 System Architecture and Hosting

The tenderer shall provide a detailed proposal for either an on-premises deployment or a fully hosted solution.

- a. For the on-premises option, the tenderer must specify the required server hardware, software, and network configuration.
- b. For the hosted option, the tenderer must provide details on the data centre location, security measures, service level agreements for uptime and support, and the data backup and disaster recovery plan.

3.4.4.7.4 Data Integration

The system shall be able to consume and process data in the General Transit Feed Specification (GTFS) format. The system shall be capable of generating and publishing real-time data feeds in standard formats such as GTFS-RT and SIRI, to supply live vehicle position and arrival prediction data to third party systems.

Integration with the following existing systems shall be required as a minimum.

- Existing Trapeze APTMS:
 - The existing vehicles operating with Trapeze VLU equipment shall be imported into the new APTMS system to allow for the viewing of the vehicles on the new APTMS.

- GTFS/GTFS-RT and/or SIRI standards for data exchange shall be used to import real-time data from the Trapeze APTMS into the new APTMS.
- DIVA Schedule Planning:
 - The APTMS shall be capable of seamlessly importing and integrating with schedule planning data from the existing DIVA schedule planning software.

The concept is shown in the following diagram.

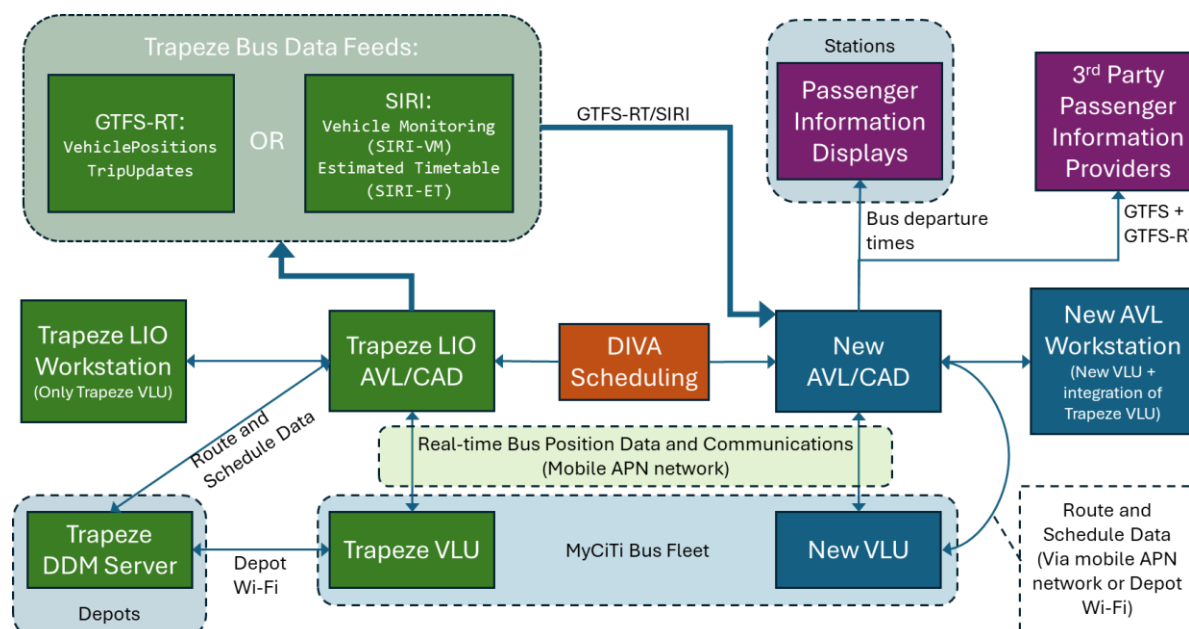


Figure 10: AVL/CAD as integration platform.

3.4.4.7.5 Combined Onboard Vehicle Logic Unit (VLU) and Mobile Data Terminal (MDT)

The functions of the VLU and MDT shall be integrated into a single MDT. The MDT shall be a ruggedised, vehicle grade computing terminal responsible for all onboard logic.

This includes determining the precise vehicle location, calculating real-time schedule adherence, managing all communications with the central APTMS, and providing the primary interface for the bus driver.

The MDT shall be hardware agnostic and shall use GPS as the primary reference for positioning. Odometer pulses may be used, but only for the purpose of dead-reckoning and in areas where the GPS signal is lost.

The Contractor shall supply a complete, integrated solution including all necessary hardware, operating system, cabling and a vehicle mounting cradle.

The new APTMS application to be installed on the MDT shall be procured through the Phase 2A APTMS AVL/CAD system tender process.

3.4.4.7.5.1 Physical and Environmental Specifications

1. The MDT shall be a single, sealed unit containing both the processing electronics and the driver display.
2. The MDT shall have a minimum Ingress Protection (IP) rating of IP65.
3. The MDT shall be designed to operate reliably within a temperature range of -20°C to +70°C and a relative humidity range of 5% to 95% (non-condensing).
4. The unit shall comply with ISO 16750 ("Road vehicles – Environmental conditions and testing for electrical and electronic equipment") for vibration, shock, and electrical loads.
5. The MDT and its power supply shall be designed to operate on a standard 24V DC vehicle power system.
6. It shall tolerate the voltage fluctuations, transients, and electrical noise typical of a heavy vehicle environment.

7. The unit shall incorporate an ignition sense input to control automated power up and safe shutdown procedures.

3.4.4.7.5.2 Core Hardware and Integrated Display

1. The MDT shall contain sufficient CPU processing power, RAM, and SSD to run its operating system and all application software without performance degradation.
2. The CPU shall be a 64-bit, Octa-core processor with a minimum of 2.0 GHz CPU clock. A minimum of 4GB RAM and 64GB ROM shall be provided.
3. The internal storage shall be sufficient to log operational data for a minimum of 30 days in the event of a total communications failure.
4. The integrated display shall be a projected capacitive (PCAP) touchscreen also known as multi-touch capacitive with a minimum diagonal size of 7 inches and a minimum resolution of 1024x768 pixels.
5. The display shall be sunlight readable with a minimum brightness of 1000 nits and an automatic brightness control sensor to adjust for ambient light conditions.
6. The MDT shall be designed to be easily swappable to facilitate rapid maintenance.
7. The MDT shall connect to a permanently installed vehicle mounting cradle.

3.4.4.7.5.3 Positioning, Communications and Connectivity

1. The primary means for determining the vehicle's position shall be a multi constellation Global Navigation Satellite System (GNSS) receiver integrated within the MDT. The receiver shall support as a minimum, GPS, GLONASS, Galileo, and BeiDou satellite systems to maximise accuracy and availability.
2. The system's logic for route tracking, stop detection, and schedule adherence calculation shall be based primarily on the GNSS position. The core functionality shall not be dependent on vehicle odometer, wheel tick, or door open/close signals.
3. The MDT shall incorporate an Inertial Measurement Unit (IMU) with accelerometers and gyroscopes to provide dead reckoning capabilities. This shall ensure continuous and accurate positioning during periods of GNSS signal loss.
4. The MDT shall be equipped with an integrated 4G/LTE modem for primary data communication with the APTMS back-office.
5. The VMDT shall also include integrated Wi-Fi connectivity, 802.11ac or newer.
6. The MDT shall provide full duplex, hands free voice communication between the driver and the control centre using Voice over IP (VoIP).
7. An external gooseneck microphone shall be connected to the MDT either directly or via an external amplifier.
8. The MDT shall provide external antenna connectors for all wireless services. This shall include separate, clearly labelled connectors for GNSS, Wi-Fi and 4G/LTE antennas. The connectors shall be of a standard type such as FAKRA or SMA to allow for connection to an externally mounted vehicle antenna.
9. The MDT shall connect to the onboard EDD Controller via RS-232/RS-485 or ethernet IP-based connection.
10. The MDT shall provide an Ethernet LAN connection port.
11. The MDT shall provide a CAN bus interface to read vehicle telemetry data.
12. Configurable digital I/O ports shall be provided on the MDT. One input shall be dedicated to receiving a signal from a covert driver duress/panic button.

3.4.4.7.5.4 Software and Core Functionality

1. The MDT's application software shall be hardware agnostic. The software shall be based on a widely supported operating system (Linux or Android) to ensure it can be deployed on different hardware platforms in the future, avoiding proprietary hardware lock in.
2. The driver shall log in manually by tapping an RFID card or entering a PIN number.
3. The system shall support a Single Point Log On process to allow for the potential integration with the AFC system.
4. The driver interface shall be simple and intuitive with large, clear fonts and high contrast graphics designed to minimise driver distraction.
5. It shall provide the driver with a clear, at a glance view of their schedule adherence, the next stop and any messages from dispatch.
6. The MDT shall be capable of receiving and applying software, firmware and configuration updates remotely over the air (OTA) from the central system. The update process shall be robust and include fail safe mechanisms.
7. All data stored locally on the MDT and all data transmitted to the back-office system shall be secured using industry standard encryption protocols.

3.4.4.8 Pre-Commissioning and Testing

3.4.4.8.1 Testing

Testing shall comply with the requirements as per the FIDIC General and Particular Conditions of Contract *Sub-Clause 7.4 Testing, Clause 9 Tests on Completion and Clause 12 Tests after Completion*.

Testing shall include pre-commissioning, site inspections and acceptance testing, functional testing and commissioning. All stakeholders shall be invited to all stages of testing as required. Testing and commissioning shall be done after each additional bus, station, depot or staging area is added to the system. The Contractor shall provide all the required test equipment, instruments and Materials necessary to carry out all tests.

The Contractor shall submit test procedures and check-sheets for approval, detailing each test case to be performed. The Contractor shall also provide test reports of pre-commissioning tests completed by the Contractor before inviting the Engineer and all relevant stakeholders to all tests.

Final test procedures shall be approved by the Engineer. Testing shall as a minimum demonstrate that the installed systems, sub-systems and components meet the approved designs in terms of quality of workmanship and functionality.

3.4.4.8.2 Test documentation

All test results are to be saved electronically, preferably on a flash drive. Two sets of flash drives shall be provided, one for the Employer and one for the Engineer.

File names of the test results recorded for network connection shall match the official identification.

The test Equipment name, manufacturer, model number, serial number, software version and last calibration date shall also be provided in the test results documentation.

When repairs and re-tests are performed, the problem cause and corrective action taken shall be noted, and both the failed and passed test data shall be documented.

The Engineer reserves the right to request verification of test results with a re-test of installed cables, on a sampling basis. Re-testing shall be at the expense of the Contractor unless otherwise noted in the Contract documents.

3.4.5 MAINTENANCE: APTMS, ON-BOARD CCTV AND ASSOCIATED SYSTEMS

3.4.5.1 OVERVIEW

This Section specifies the maintenance services for the Advanced Public Transport Management System (APTMS), on-board CCTV and associated systems.

3.4.5.2 SCOPE

Existing Phase 1 systems shall be taken over and maintained. New Phase 2A systems shall be maintained after commissioning of which the 1st 12 months will be the Defects Liability period. During the Defects Liability faults and failures shall be repaired free of charge as per the General and Particular Conditions of Contract.

The maintenance of the APTMS, on-board CCTV and associated system shall include responsive maintenance, Preventative Maintenance, and continuous improvement while meeting Service Levels. Key Performance Indicators with associated penalties shall apply as described in this document.

Responsive maintenance consists of responding to and actioning emergency and other ad-hoc maintenance calls logged on a Maintenance Management Software programme. The Emergency Maintenance performance is measured by the call response and closure times as well as the number of recurring calls.

Preventative Maintenance consists of routine maintenance items and is measured by the overall uptime of the system.

The scope of works includes, but is not limited to:

- Responsive maintenance (first, second- and third-line maintenance)
- Preventative Maintenance (first, second- and third-line maintenance)
- Continuous Improvement
- Backup and Failover testing
- Updating of Maintenance Documentation
- Bus rectification works from previous installation shall be done as and when required.

3.4.5.3 TAKING OVER AND MAINTENANCE OF EXISTING SYSTEMS

3.4.5.3.1 Use and update of existing Computerized Maintenance Management System (CMMS)

The Employer is currently using Forcelink as the Computerized Maintenance Management System (CMMS). The Contractor shall continue to use Forcelink for the purpose of all systems maintenance.

The CMMS includes a list of all APTMS and on-board CCTV assets with their locations. This asset list shall be kept up to date at all times and after every emergency maintenance visit and also every preventative maintenance visits the relevant items shall be updated to ensure accuracy.

The existing Master Schema, APTMS and on-board CCTV Schema's shall be made available to the Contractor. The Contractor shall update the schemas with all new asset and systems information.

The Contractor shall use the CMMS for asset tracking and life cycle management.

The CMMS shall be setup to monitor and track Service Levels and Key Performance Indicators (KPI's) as specified in this part of the document.

- An Equipment list shall be upheld including where the Equipment is located, the relevant IP address of the Equipment, the serial number of the Equipment as well as the make and model.
- A repository of datasheets shall be provided with datasheets of all the Equipment installed and updated as new models are introduced into the system.
- A username and password register shall be kept up to date indicating all the usernames and passwords relevant to the system. The actual password and username information shall be encrypted and forwarded to the Employer during the hand-back procedure at the end of the Contract.
- The CMMS maintenance management system shall be updated with all information as required.

3.4.5.3.2 Maintenance Mobilisation

System maintenance shall start with the Commencement Date, noting the contents of this sub-paragraph.

The first 30 days, starting with the Commencement Date, shall be a mobilisation period allowing time for the following:

- a. Support from the previous contractor for maintenance.
- b. The Contractor shall familiarise himself with the site. Also refer to sub-paragraph 3.4.3.1.1 under section C3.4 Construction.
- c. Draw up a baseline status report of the condition of the site and submit to the Engineer. The first draft shall be submitted within 14 days.
- d. Ensure he has the necessary tools, instruments, equipment and facilities to conduct the Works and procure the same if required.
- e. Procure the necessary spares to conduct all maintenance according to the KPI's.
- f. Setup of the City's CMMS on his own hardware (incl. mobile devices if required). Any devices required shall be for the Contractor's cost.
- g. The Contractor shall obtain necessary training on the City's CMMS if required.
- h. Receive systems OEM training as required to perform minimum tasks as described in Paragraph 3.4.5.4.2.

The Contractor shall issue the first version of his complete maintenance plan, 28 days after Commencement Date.

Maintenance penalties shall be applicable 30 days after the mobilisation period described above, i.e. 60 days after the Commencement Date.

3.4.5.4 MAINTENANCE REQUIREMENTS

The following shall apply:

- Maintenance applies to the complete APTMS and on-board CCTV systems installations.
- The purpose of the maintenance is to ensure complete system functionality remains available and is safe, reliable, and delivering integrated systems operations and making improvements where required. As a minimum the full current system functionality as described or implied in this document shall be maintained.
- The complete maintenance service is included for all systems, subsystems, devices, parts, components, accessories, hardware, applications, software, firmware, and interfaces to other systems and / or any other element as required.
- The Service Level (SL) with Key Performance Indicators (KPI's) shall apply to all maintenance activities.
- The Contractor shall make use of acceptable change control procedures to keep record of any system changes. This procedure shall include holding points to obtain authorised approvals/signatures where applicable.
- If the Contractor uses different terminology to that specified here, the Contractor shall map this to his own terminology to prove that, as a minimum, all components and maintenance elements specified are covered.
- The Contractor shall provide an email address and telephone number dedicated to maintenance support. The telephone number shall be manned during system operating hours. Receipt of emails shall be acknowledged immediately and responded to within 24 hours or as required by the SL.
- Industrial solvents shall not be used by the Contractor to clean equipment.
- The Contractor shall ensure maintenance of all systems is carried out according to manufacturer's recommendations and with approval from OEMs, unless otherwise written approval is granted by the Employer.

3.4.5.4.1 Maintenance Definitions

Refer to the preliminary and general section for defined terms. Defined terms are capitalised throughout the document.

Maintenance is divided into 3 main categories, shown in the figure below. Each of these will be discussed in the next sections.

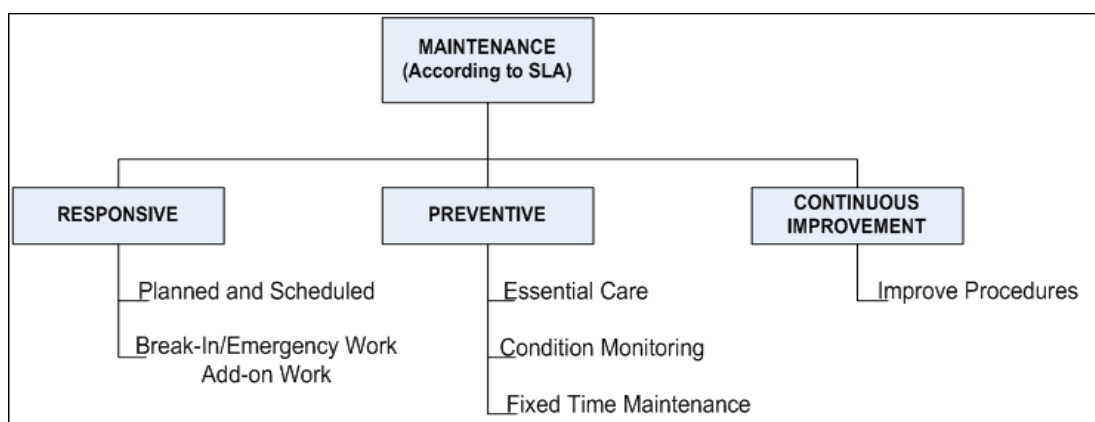


Figure 11: Maintenance categories

A. Responsive Maintenance

The following shall apply:

- a. Responsive Maintenance shall include supply, delivery, installation, setup and configuration and testing and re-integration of all parts, components, devices or software and related services and any work required to correct / rectify / resolve any system failure and its restoration to safe, reliable, normal operation to fulfil its intended function.
- b. Software updates, software version upgrades, and firmware upgrades shall be included.
- c. Responsive Maintenance shall include testing and re-commissioning to prove complete system functionality has been re-instated.
- d. Failures and upgrades shall be rectified by repair or replacement of faulty components and / or update/upgrade of any software, firmware, databases, applications, etc.
- e. Key Performance Indicators (KPI's) shall be measured against SL obligations.
- f. System failures shall be logged directly in the CMMS by the Contractor. This can also be done by parties other than the Contractor.
- g. Failures will result in a Work Request (WR) being logged in the CMMS and assigned to the Contractor by the control centre.
- h. If a failure is outside of the Contractors scope, the WR shall be rejected with motivation for escalation to the correct party.
- i. The Contractor and/or his sub-contractors shall create a Work Order (WO) which shall detail the planning of resources.
- j. After the final remedy, the WO will not be considered closed before 3 days of normal, stable systems operation after the fault was rectified. If the same problem occurs again within this period, it will be considered as belonging to the original WO.
- k. Where applicable Responsive Maintenance shall be initiated through Preventive Maintenance procedures. For example, failure modes which lend themselves to condition monitoring shall be inspected on a regular basis and/or conditions monitored remotely to detect any failure before it results in a Breakdown.
- l. Any system failure shall be inspected and analysed to identify the reason for the failure.
- m. Where a device / component fails and requires return to the OEM for analysis, the Contractor shall promptly return such device / component to the OEM. Any related costs for shipment and / or analysis shall be carried by the Contractor.
- n. Action shall be taken to eliminate or reduce the frequency of similar future failures.

- o. Failure analysis procedures and results shall be documented and form part of the maintenance reports and continuous improvement process. The reports should include failures categorised by equipment type, per error, per resolution, and per call-logging entity. The report shall include the results of the previous 12 months as well as an indication of the average amount of calls logged for the specific equipment type.
- p. The cause of any failure shall be logged against the asset and Root Cause Analysis (RCA) shall be reported against all items. A complete record of the asset history shall be kept and made available to the City of Cape Town upon request by the Employer or the Engineer.
- q. Repaired parts can be used as part of the spares stock. Repaired parts shall be clearly identifiable to differentiate them from new stock.
- r. No part shall be repaired more than twice. Upon the third breakdown or failure of the same part, that part shall be replaced by a new part.
- s. Travelling for maintenance functions shall be included in the monthly rate for maintenance.

B. Planned And Scheduled Responsive Maintenance

The following shall apply:

- The maintenance manager shall be responsible for planning of all work orders.
- Planning shall include a form with checklist to complete including but not limited to:
 - Verify the scope of the job.
 - Equipment, tools, instruments, parts, material, spares and personnel to do the job are identified and allocated.
 - Personnel have the required skills needed.
 - A description of job steps is documented.
 - Risk and safety requirements are identified.
 - Necessary technical documentation is available.
 - Estimated job duration by skills and the number of people needed for the job.
 - Required permits available, including wayleaves if necessary.
 - Consider location and define physical and environmental constraints.
 - Record keeping of all parts and costs
 - Identify and avoid duplicate work
 - Consider performing other jobs in parallel to save time and/or costs
 - Coordination with other Contractors / role players
 - Consider testing to be performed to prove system restoration
- Where other parties report a fault, an accurate description of the fault will be given as far as possible. It shall however remain the responsibility of the Contractor to obtain complete information about any failure to plan the maintenance as described.
- After a job is planned it shall be scheduled and executed, within the obligations of the SL.

C. Emergency Responsive Maintenance

The following shall apply:

- a. Emergency maintenance will be assigned the highest priority level. Various scenarios of critical nature can lead to this including but not limited to:
 - An immediate safety or environmental hazard.
 - Failure of any core control centre system functionality.
 - Failures that undermine system integrity, e.g., scenarios that lead to incorrect BI reports to manage the VOC contract, e.g., incorrect mileage, missed trips reporting, etc.
 - No communications with buses.
 - No tracking of buses.
 - System backup failure
 - Bus has incorrect base version, i.e., incorrect route/schedule information loaded
 - Kiosk is unable to operate
 - Station has been vandalised

- Any failure or breakdown with significant impact on the system or operations
 - Any further requirements as may be determined by the Employer from time to time.
- b. The Contractor shall always have pre-planned emergency maintenance procedures in place. These shall be submitted to the Employer for approval.
 - c. Emergency maintenance shall be carried out without delay, within the requirements of the SL.

D. Failure Resolution, System Testing and Documentation

Responsive maintenance shall include testing and re-commissioning to prove complete re-integration and reliable, accurate and safe operating conditions have been re-instated. The following shall apply:

- a. It shall be the Contractor's responsibility to:
 - Prove full system functionality has been re-instated.
 - Develop detailed test documentation and issue to the Employer for approval.
 - Submit test reports with results of any testing proving normal and stable operations have been re-established.
- b. If test results fail, the Contractor shall include additional testing and / or re-testing or perform further maintenance if required, while SLA obligations and penalties remain in force.
- c. The Employer and/or Engineer might at their own discretion witness any testing.
- d. The Employer retains the right to demand further testing if in its opinion the provided information is inadequate, or if the system is unstable or fails to meet intended operating conditions or for other reasons as may be motivated by the Employer.
- e. Testing might be required over more than one day and include other systems to prove systems integration and to achieve acceptable test conditions or sample size for acceptable statistical evaluations.
- f. Where system changes are affected, the Contractor shall be responsible to keep, update and generate new and revised as-built documentation as required within 14 days after failure resolution.

E. Preventive Maintenance

- a. The key objectives of Preventive Maintenance are:
 - ensure continuous optimum system performance and peak efficiency of equipment
 - monitor device performance and minimize deterioration
 - detection and correction of incipient failures either before they occur or before they develop into breakdowns
 - ensure all software is updated
- b. Preventive Maintenance shall be a planned, scheduled, and controlled program.
- c. Depending on the device or component preventive maintenance periods for different parts may be done at different intervals, such as weekly, bi-weekly, monthly, quarterly, 6 months or annual.
- d. Preventive maintenance is sub-divided into
 - Fixed time maintenance:
 - Systematic inspections based on manufacturer recommendations, considering Mean Time between Failures (MTBF) and any other recommendations as may apply.
 - Trend analysis through component History. Anticipate component failure before it occurs.
 - Essential care including:
 - Detailed cleaning
 - Replace and renew
 - Adjust and re-configure
 - Testing, analysis and verification
 - Routine software or system updates

- Condition monitoring: System performance monitoring through systematic inspections and / or remote monitoring.

These maintenance check sheets are included as an example of the level of detail that is required during preventative maintenance checks. The Contractor shall be responsible for developing their own maintenance check sheets for approval by the Engineer.

3.4.5.4.2 APTMS and On-Board CCTV Systems Preventive Maintenance Tasks

- Preventive Maintenance will be monitored according to a schedule and checklists to be agreed with the Employer. The Contractor shall ensure that the checklists are signed off by facilities managers as applicable (e.g., VOC, SOC, City of Cape Town) and shall be submitted to the Employer monthly, seven days before the first day of the relevant month.
- The tables below specify the minimum Preventive Maintenance to be performed.
- The Contractor shall remain responsible for the complete maintenance of the entire system and the Contractor shall review the tables and propose improvements if required. Any changes shall only take effect after written approval from the Employer.

Table 13: Preventative maintenance tasks of the APTMS and on-board CCTV Back Office equipment.

Ref	Support System	Task Description
1	Servers	<ul style="list-style-type: none"> • Server Disk usage and availability check • Server Volume Group status • Verify the system logs • Server Process check • Check for updates • Confirm Backups done • Check Alarms/log files • Check performance reports • Check for environmental conditions (e.g., temperature) • Cleaning
2	SAN and DAS	<ul style="list-style-type: none"> • Server Disk usage and availability check • Server Volume Group status • Verify the system logs • Server Process check • Check for updates • Confirm Backups done • Check Alarms • Check performance reports • Check for environmental conditions (e.g., temperature) • Cleaning • Manage Archive (backup storage)
3	Firewall	<ul style="list-style-type: none"> • Check for alarms • Check for software updates • Check log files and status report • Ensure equipment is clean
4	Workstations	<ul style="list-style-type: none"> • Update all software • Clean • Virus free • Restart • Confirm all software functioning correctly
5	Anti-Virus	<ul style="list-style-type: none"> • Check for updates • Check Alarms • Check performance reports • Check for environmental conditions • Cleaning server

Ref	Support System	Task Description
6	Disk usage check	<ul style="list-style-type: none"> Verify that the Operating System mount points have enough disk space to allow operation.
7	Process check	<ul style="list-style-type: none"> Verify that all operational processes are up and running.
8	Check for updates	<ul style="list-style-type: none"> For Operating System software. For Database software. Drivers For Third-Party software (Java, DotNet, Web Browser, etc.) installed;
9	Backup process	<ul style="list-style-type: none"> Verify log files for backup process and successful completion of the defined backup process. Test integrity of backup;
10	Database Checks	<ul style="list-style-type: none"> Check disk space for the tables and system elements; Verify log files for errors and warnings; Actuate preventative maintenance for error and warning log messages; Ensure that database clients have connectivity;
11	Check performance reports	<ul style="list-style-type: none"> Verify that the system is running unstressed and with enough resources;
12	Check High Availability	<ul style="list-style-type: none"> Verify the High Availability status of the VMware. Perform a test by shutting down a physical server.
13	Check for environmental conditions	<ul style="list-style-type: none"> Verify CPU temperatures; Verify HDD temperatures; Verify Rack temperature; Verify Rack humidity;
14	Check system time synchronisation	<ul style="list-style-type: none"> Check and confirm system time is synchronised.
15	Clean equipment	<ul style="list-style-type: none"> Clean equipment as required. Remove dust and/or foreign particles/objects.
16	Schedule Planning and Schedule Adherence systems	<ul style="list-style-type: none"> Check and confirm that all data from all buses have been successfully uploaded from the previous night and data are available as part the BI reports. Check and confirm data is passed along to PI systems. Check interface between systems. Check and confirm that the PI server is providing passenger information Check and confirm time-synchronisation between all servers, PID's, on-board systems, etc.

Table 14: Preventative maintenance tasks of the APTMS station equipment

Ref	Support System	Task Description
1	Passenger Information Display	<ul style="list-style-type: none"> Physically inspect equipment; Check that all cabling is connected and secured Remove dust or foreign substances; Measure power supplies and confirm within acceptable operating tolerance Check and clean filter fans. Check and ensure PI controller in operation. Restart. Update OS / software / firmware if required. Check and confirm correct bus schedule departure information is displayed and updated. Check integrity of brackets Check integrity of enclosure Check brightness level and brightness level auto adjustment through ambient light sensor. Check for environmental conditions (e.g. temperature)
2	Kiosk intercom	<ul style="list-style-type: none"> Confirm operational Confirm high quality voice Confirm software up to date Clean
3	Platform intercom	<ul style="list-style-type: none"> Confirm operational Confirm high quality voice Confirm software up to date Clean
4	Alarm system	<ul style="list-style-type: none"> Confirm operational Test all PIR detectors for sensitivity Confirm software up to date Clean
5	Network switch	<ul style="list-style-type: none"> Check all Firmware and software up to date Check log files for errors and alarms Restart Clean

Table 15: Preventative maintenance tasks of the APTMS and on-board CCTV depot equipment

Ref	Support System	Task Description
1	Wi-Fi network	<ul style="list-style-type: none"> Check status of all access points Confirm firmware and software up to date Check log files for warnings or errors Clean from dust Confirm alignment is correct Confirm wiring is fixed and functional Check Controller firmware and software up to date Check throughput Clean enclosure on mast Check log files for errors
2	Communications Network	<ul style="list-style-type: none"> Check all Firmware and software up to date Check log files for errors and alarms Clean
3	Schedule Adherence depot data manager functionality check (On-premises or hybrid solution)	<ul style="list-style-type: none"> Check and ensure connectivity between schedule adherence depot front-end and back-end. Check the upload status of data files from buses to back-end. Check that all buses have uploaded latest data files from last docking at depot.

Ref	Support System	Task Description
4	Bus CCTV front end server (On-premises or hybrid solution)	<ul style="list-style-type: none"> Check and ensure connectivity between CCTV front-end and back-end. Check the upload status of video files from buses to front-end. Check CCTV system health monitor
5	Clean equipment	<ul style="list-style-type: none"> Clean equipment as required. Remove dust and/or foreign particles/objects.

Table 16: Preventative maintenance tasks for the APTMS and on-board CCTV bus on-board equipment

Ref	Support System	Task Description
1	General inspection	<ul style="list-style-type: none"> Visually check integrity of installation: All devices & brackets securely fastened Cables connected and secured Check for dust and foreign objects and clean Fuses in place and intact Check labelling Earth connections secured Tighten connections if necessary Confirm antenna cable and connections integrity Investigate for possible water ingress through roof of otherwise
2	Terminal block	<ul style="list-style-type: none"> Check connections at terminal block Ensure wires are properly secured and rectify if required Measure signals received and check if within acceptable levels, door signals, odometer, stop signal, etc.
3	Vehicle Logic Unit (VLU)	<ul style="list-style-type: none"> Check space available on hard drive and record status and date Check hard drive integrity Check that latest route data is loaded and same on all buses Check last successful upload of data files and record status and date Check and confirm odometer pulse calibration, recalibrate and adjust if necessary Check for new OS/firmware updates
4	Mobile Data Terminal (MDT)	<ul style="list-style-type: none"> Check integrity of satellite reception Check Wi-Fi connectivity Test RTT request and communications to Control Centre Back Office
5	Covert alarm button	<ul style="list-style-type: none"> Check functionality of covert alarm operations with Control Centre.
6	On-board CCTV NVR	<ul style="list-style-type: none"> Check space available on hard drive and record Check hard drive integrity, error monitoring, predictive failure analysis Check that system files are up to date. Check last successful upload of video files and record status and date Check and confirm event recordings are setup correctly Check for new OS/firmware updates Check shock absorbent bracket integrity Check NVR free of any weight, e.g. no cables resting on top of NVR Review alarm event recording triggers and adjust if necessary. Confirm event recording frame rate & resolution is setup correctly. Check and recalibrate accelerometer if necessary.
7	Accelerometer	<ul style="list-style-type: none"> Check mounting to ensure proper response to g-forces. Confirm calibrations is correct
8	CCTV cameras	<ul style="list-style-type: none"> Confirm all cameras working Check connections and brackets for integrity Check all CCTV cameras securely fixed and field of view covers required areas, e.g. doors, saloon, etc. Adjust lens and camera field of view if necessary Clean enclosure with approved, non-corrosive cleaning material Replace dome enclosure if necessary.
9	Driver CCTV display	<ul style="list-style-type: none"> Check that display is operational and display cameras upon startup

Ref	Support System	Task Description
		<ul style="list-style-type: none"> Check that during an event (e.g. reverse gear engaged) camera is displayed full screen
10	Clean equipment	<ul style="list-style-type: none"> Clean equipment as required. Remove dust and/or foreign particles/objects.

3.4.5.4.3 Monitoring of Preventive Maintenance Performance

System uptime and system health shall be key performance indicators of the preventative maintenance of the systems. System uptime and health monitoring is also required to indicate device degradation for the necessary effective pre-emptive planning of device maintenance.

All devices that form part of the systems shall have health monitoring and logging capabilities. The devices shall be able to send health and uptime related device data to the Back Office on schedulable intervals. All devices connected to the systems are required to send such health and uptime related data to the back office.

All devices shall be able to store health and uptime related data locally on the device such that some of the data is retained when a network outage occurs.

The system back-end shall enable the receipt of health and uptime related data from all connected devices and shall be able to store and analyse such data for the purposes of health monitoring of the system.

In addition to the device health and uptime monitoring functionalities, the Contractor shall provide network uptime monitoring software for the monitoring of the network equipment. The data generated from the network uptime monitoring software shall provide supporting documentation to claims for acquittance due to network outages which are out of the control of the Contractor.

3.4.5.4.4 Continuous Improvement

- The goal of Continuous Improvement is to improve and optimise maintenance procedures over the duration of the Contract period.
- Optimised maintenance eliminates both under-maintenance and over-maintenance and results in overall cost savings.
- After review, evaluation and analysis of current and alternative procedures, the Contractor shall propose amendments including motivation.
- Any changes to maintenance procedures shall only come into effect after written approval from the Employer or the Engineer.
- The Employer may at its own discretion instruct the Contractor to review, analyse and/or amend any specific process.
- Trend analysis, Root Cause Analysis (RCA) and Current Best Practice (CBP) Assessment shall form part of Continuous Improvement.
- The Contractor shall keep record and report on all Continuous Improvement actions and outcomes.
- The maintenance plan shall be continuously updated to reflect the most recent maintenance procedures and status.

3.4.5.4.5 Maintenance Reporting

The following reports shall be submitted as and when necessary:

- Monthly maintenance report including at least the following:
 - summary and overview showing WR's and WO's categorised per sub-system, device, status, priority and over an adjustable defined period.
 - Rejected WR's including motivation for rejections e.g. outside Contractor's scope of work. Where applicable and possible the Contractor shall identify the correct service provider to whom the WR should be assigned.
 - Open and completed WO's.
 - Average time to repair.
 - System uptime and percentage available per sub-system and/or equipment type.
 - SL performance against KPI's.
 - Risks & mitigation measures.

- Responsive Maintenance.
 - Preventive Maintenance against the planned schedule.
 - Continuous Improvement.
 - Status of spares stock and stock movement (for example repaired, at OEM, etc.)
 - Pending insurance claims which impact maintenance with related detail.
 - Any other information to assist in interpreting system performance and reliability or as instructed by the Employer or Engineer.
- b. System test and re-commissioning reports including test procedures, analysis and results as may be required to prove the system has been reinstated to full functionality.
 - c. Trend analysis report.
 - d. Breakdown analysis/system failure report, to describe the cause of breakdown, how it was repaired and what can be done to avoid similar future problems.
 - e. Maintenance reports shall be submitted to the Employer and Engineer at least 2 days prior to the monthly maintenance meeting. If the report is submitted late, the Employer reserves the right to subtract 5% of the value claimed by the Contractor for Maintenance and SL obligations.

3.4.5.4.6 Maintenance Plan

The Contractor shall develop a maintenance plan. The following minimum requirements shall apply:

- a. The Maintenance Plan shall cover all maintenance activities and processes as specified.
- b. The Maintenance Plan shall identify the maintenance activities, priorities, maintenance schedules, and resource commitments and expenditures.
- c. Depending on the device or component preventive maintenance periods for different parts may be done at different intervals, such as weekly, bi-weekly, monthly, quarterly, 6 months or annual.
- d. Forms per maintenance activity shall be developed as required and include check sheets of tasks performed and records of readings or results of tests.
- e. The Maintenance Plan shall include flowcharts of all processes, showing decision points, holding points and responsibilities. Decision and holding points shall be as relevant for internal approvals / commissioning as well as approvals / sign off by the City and/or Engineer.
- f. The Maintenance Plan shall clearly describe escalation procedures and show the interface between Preventive Maintenance and how any identified issues are escalated to Responsive Maintenance.
- g. The Maintenance Plan shall include the maintenance team organogram.
- h. The Maintenance Plan shall describe maintenance processes considering planning of human & material resources with the view of SL compliance.
- i. The Maintenance Plan shall describe procurement procedures, lead times and keeping sufficient spares stock to meet SL obligations.
- j. The Maintenance Plan shall describe how the Contractor will manage sub-contractors and suppliers to ensure sufficient spares stock is available as may be required.
- k. The Maintenance Plan shall include any other information as may be required for a complete maintenance plan.
- l. Upon Instruction from the Employer or Engineer, the Contractor shall review and amend the maintenance plan if required.
- m. The Maintenance Plan shall be critically reviewed and updated on a continuous basis.

3.4.5.4.7 Spares Stock

The following shall apply:

- a. The Contractor shall ensure he carries enough spares stock to meet his SL obligations.
- b. The Contractor shall be responsible to ensure his sub-contractors carry sufficient spares stock to meet his SL obligations.
- c. The Contractor shall submit to the Employer a minimum recommended spares list for approval.
- d. Upon Instruction from the Employer or Engineer the minimum required spares shall be amended.

- e. The Contractor shall be responsible to store the spares in a separate lockable room, for exclusive use of this Contract.
- f. New stock shall be separated and distinguished from repaired stock.
- g. The Contractor shall assign a responsible person to the spares store. This person shall:
 - Manage access to the spares store and prevent unauthorised access.
 - Keep inventory and take full responsibility for the release of any items from stock.
 - Promptly update the inventory upon any change in the stock i.e. release of stock, return, new stock, etc.
- h. The Contractor shall carry complete insurance on all spares against any eventuality.
- i. Upon Instruction by the Employer or Engineer, the Contractor shall allow the City and/or Engineer access to the spares for inspection of inventory.
- j. Six months before the end of the Contract, the Employer will enter into a discussion with the Contractor on how to handle maintenance spares at the end of the Contract.
- k. The Contractor shall take responsibility for the provision and replenishment of all spares to meet his SL and KPI's.
- l. Spares will be procured at the tendered rate including escalation as allowed for within the Contract. For the first 12 months after commissioning, equipment will be replaced at the Contractor's cost within the Retention Period.

3.4.5.5 MAINTENANCE SERVICE LEVEL (SL)

- a. The SL shall be applicable to the Contractor including Works carried out by his sub-contractors.
- b. The Contractor shall be responsible for his sub-contractors and ensure that his sub-contractors comply with SL obligations.
- c. The Contractor shall enter into a signed agreement with each sub-contractor including:
 - an undertaking between the parties that both the Contractor and sub-contractor shall comply with the SL obligations
 - spares stock management
 - dispute resolution procedures and application of penalties
- d. The signed sub-contractor agreements shall be submitted to the Employer and the Engineer.
- e. The System Operating Times are as defined in the terminology section of the Employer's Requirements.

3.4.5.5.1 Key Performance Indicators (KPI's) & Penalties

It is essential to ensure both systems availability and adequate response and repair times and the following KPI regime shall apply:

- a. The availability KPI defines the average uptime required during system operations spread over all the equipment of one type.
- b. The resolution time KPI defines the required **response & repair time**, measured during system operations for a particular equipment type, except on-board equipment, which is measured outside of these hours.
- c. Both KPI's shall be applied and measured simultaneously and independent of each other.
- d. KPI calculations are based only on System Operating Times, except for on-board equipment, which is measured outside of these hours. Downtime occurring outside of System Operating Times will not be included in availability or resolution time calculations, unless it relates to on-board equipment, in which case only downtime outside of these hours will be considered.
- e. Partial functionality will be considered a normal failure, e.g. intermittent functionality of any device or loss of some function(s) of a device.
- f. If one KPI affects others, then the most stringent KPI requirements shall apply.
- g. The Contractor shall provide evidence for cases he claims non-performance due to 3rd party dependency failures.

- h. The total monthly penalty for maintenance works shall be capped at a maximum of 30% of the sum of all the monthly maintenance pricing items.
- i. Penalties values shall be included in any CPA calculation.
- j. Exceeding the KPIs shall not result in a credit to the Contractor.
- k. The imposing of penalties is at the sole discretion of the Employer.
- l. The Contractor may request scheduled system downtime as part of routine maintenance procedures, e.g. to update software. The Employer and the Contractor shall agree ad-hoc if such downtime will be acceptable in operating hours, or if such downtime will have to be outside of operating hours.
- m. The Contractor may make representation in order to adjust the maintenance SL limits. Any changes shall be agreed in writing between both parties before coming into effect. Consideration of any such representation shall be at the sole discretion of the Employer.

The following table lists the KPIs per equipment, sub-system, or functionality:

Table 17: KPI's for availability and resolution times

Table 17: KPIs for availability and resolution times					
Equipment / device type / sub-system / functionality	AVAILABILITY KPI PARAMETERS				Resolution time KPI
	Availability KPI [%]	Performance Measurement Tool	Penalty unit [%]	Penalty value per unit [ZAR]	
Control Centre: Advanced Public Transport Management System and vehicle tracking system					
Central system	100.00%	CMMS calls	0.10%	R500	4 hours
Client workstations	100.00%	CMMS calls	0.10%	R500	4 hours
Live vehicle tracking	100.00%	CMMS calls	0.10%	R500	4 hours
Voice/text communications to vehicles	100.00%	CMMS calls	0.10%	R500	4 hours
Passenger Information to stations	99.50%	CMMS calls	0.10%	R500	4 hours
System backup	100.00%	CMMS calls	0.10%	R500	8 hours
Depot Data Management back-end	99.00%	CMMS calls	0.20%	R500	12 hours
Business Intelligence system	99.00%	CMMS calls	0.20%	R500	24 hours
Control Centre: Schedule planning system					
Schedule Planning system	100.00%	CMMS calls	0.10%	R500	8 hours
System backup	100.00%	CMMS calls	0.10%	R500	8 hours
Duty scheduling & optimisation	99.80%	CMMS calls	0.10%	R500	8 hours
Vehicle scheduling & optimisation	99.80%	CMMS calls	0.10%	R500	8 hours
Despatch module	99.80%	CMMS calls	0.10%	R500	8 hours
Client workstations	99.95%	CMMS calls	0.10%	R500	12 hours
Timetable publication module	99.00%	CMMS calls	0.20%	R500	24 hours
VDV interface	99.00%	CMMS calls	0.20%	R500	24 hours
On-board CCTV Archive server	99.00%	CMMS calls	0.20%	R500	8 hours
On-board Advanced Public Transport Management System systems					
VLU on-board unit	99.80%	CMMS calls	0.03%	R1 000	4 hours; outside operational hours. Subject to confirmation with the VOC.
Mobile driver terminal	99.80%	CMMS calls	0.03%	R1 000	4 hours; outside operational hours. Subject to confirmation with the VOC.
Driver panic button	99.80%	CMMS calls	0.03%	R1 000	6 hours; outside operational hours. Subject to confirmation with the VOC.
Internal/External next stop display	99.80%	CMMS calls	0.03%	R1 000	6 hours; outside operational hours. Subject to confirmation with the VOC.
On-board Network Video Recorder	99.80%	CMMS calls	0.03%	R1 000	4 hours; outside operational hours.

Equipment / device type / sub-system / functionality	AVAILABILITY KPI PARAMETERS				Resolution time KPI
	Availability KPI [%]	Performance Measurement Tool	Penalty unit [%]	Penalty value per unit [ZAR]	
					Subject to confirmation with the VOC.
On-board CCTV cameras	99.98%	CMMS calls	0.02%	R1 000	6 hours; outside operational hours. Subject to confirmation with the VOC.
Driver CCTV display screen	99.80%	CMMS calls	0.03%	R1 000	6 hours; outside operational hours. Subject to confirmation with the VOC.
Driver microphone	99.80%	CMMS calls	0.03%	R1 000	6 hours; outside operational hours. Subject to confirmation with the VOC.
Depot Equipment					
Vehicle tracking workstation	99.00%	CMMS calls	0.20%	R500	8 hours
Depot Data Management front-end	99.00%	CMMS calls	0.20%	R500	12 hours
On-board CCTV archive front-end	99.00%	CMMS calls	0.20%	R500	8 hours
Wi-Fi Access Network	99.00%	CMMS calls	0.20%	R500	8 hours
Station Advanced Public Transport Management System Equipment					
Network switch	99.50%	CMMS calls	0.10%	R500	8 hours
PID	99.50%	CMMS calls	0.10%	R500	8 hours
Intruder detection system	99.00%	CMMS calls	0.20%	R500	12 hours
Platform intercom	99.00%	CMMS calls	0.20%	R500	12 hours
Kiosk intercom	99.00%	CMMS calls	0.20%	R500	12 hours
General					
General call to maintenance support email address or phone	N/A	Email	N/A	N/A	24 hours

3.4.5.5.2 Availability KPI

The following shall apply:

- The reporting period for availability is one month, including weekends and public holidays.
- Availability will be the average availability of sub-system, equipment, or device type as per the table above over the reporting period.
- Different availabilities apply to different systems / sub-systems / equipment / functionality as listed in the table.
- Downtime will be calculated from time that a Work Request (WR) is logged until the WR is closed by MyCiTi operations (via the CMMS). This reflects the time that the system was down or unavailable.
- Unavailability due to 3rd party damage, e.g. resulting in an insurance claim will not be considered as part of the availability calculation.
- In the tables above columns 2, 4 and 5 have the following meaning

- Availability KPI [%]: This is the required availability. Below this threshold penalties will start to apply.
 - Penalty Unit [%]: This is the unit of unavailability (expressed as avg. percentage of equipment/device types over the reporting period) for which penalties shall apply. The penalty value will be incremented for each unit of unavailability. Part of a unit shall be counted as a full unit.
 - Penalty Value per Unit [ZAR]: This is the value of penalty that applies for every unit of unavailability.
- g. The following are 2 examples to demonstrate the application of the above:

Example 1:

- The total operational minutes for the Central System for the Advanced Public Transport Management System and vehicle tracking system over a 31-day month without public holidays is 33 000 minutes (04:00 to 22:00; Monday to Saturday and 04:30 – 20:30 Sundays and public holidays).
- The Central System requires 100% uptime. If the system is down a penalty will apply for every 0.1% of time (33 minutes) accumulated over the month for which the system is down.
- The applicable penalty per unit of downtime is R500. If the system is down for a total of 45 minutes over the period of a month, a penalty of R1 000 will apply (part of the 0.1% downtime will be counted as a full 0.1% downtime).

Example 2:

- There are 2500 on-board CCTV cameras in operation. Each of these have 11 160 minutes **non-operating** time in a month, for a total of 27 900 000 minutes over a 31-day month.
- The on-board CCTV cameras require 99.98% uptime. If the accumulative downtime of all on-board CCTV cameras over the month is more than 0.02% of the total non-operational time (5 580 minutes or approximately 93 hours) a penalty will apply for every 0.02% of time (about 93 hours) during the month for which the on-board CCTV is down.
- The applicable penalty per unit of downtime is R1 000. If the total accumulative on-board CCTV downtime over a month is 200 hours, a penalty of R2 000 will apply (part of the 0.02% downtime will be counted as a full 0.02% downtime).

3.4.5.5.3 Resolution time KPI

The following shall apply:

- a. The resolution time KPI's stated in column 6 of the tables are the times within which repairs shall be completed measured during system operations, except for on-board equipment, which is measured outside of these hours. Different resolution times apply to different systems, sub-systems or functionality as listed in the table.
- b. Resolution time KPI's for on-board systems are determined from the time when the Contractor has access to the bus to carry out the repairs, outside of operational hours.
- c. The Employer may, at its own discretion accept a temporary solution within the specified resolution times, given that such a temporary solution provides full functionality of the device, component or sub-system. The time in which to complete the full repair shall be limited as agreed with the City of Cape Town.
- d. System testing shall be completed within the resolution times.
- e. Where extended testing necessitates periods longer than the resolution times it shall be considered as a temporary solution as specified in item c above. It shall be regarded as the full repair once complete testing has been successfully conducted.
- f. Resolution time KPI's targets shall be met for all repairs, including 3rd party damage and repairs performed under insurance and shall not be dependent upon payment or any other condition of an insurance claim.
- g. Submission of test reports shall be within 5 business days after failure resolution.
- h. Every hour over the KPI target, that a piece of equipment remains faulty, shall attract a penalty of R 1 000 for that equipment.
- i. Part of an hour shall constitute a full hour.
- j. The following is an example to demonstrate the application of the above.

Example:

- A WR is logged against a bus with a faulty Mobile driver terminal at 17:00 on a Tuesday. The bus arrives back at the depot at 21:00. The next morning at 06:30 the Mobile driver terminal is repaired and tested (confirmed by the MyCiTi operations). The time between 22:00 to 04:00 is outside of system operations. The Contractor had access to the bus at 21:00 and his resolution time is 4 hours. The Mobile driver terminal should have been repaired at 02:00. The Contractor has therefore exceeded his resolution time by 4.5 hours. This incurs a penalty of R5 000, as part of an hour is counted as a full hour.

3.4.5.5.4 Maintenance Performance Evaluation

The consistent provision of quality preventative and responsive maintenance to the Employer is paramount.

The overall maintenance performance by the Contractor will be monitored by calculating a performance score every month, using the KPI's above as well as a score derived from the execution of preventative maintenance (PM).

Performance score = Quality score + PM score

Quality score = the sum of all the penalties expressed as a percentage of the maintenance pay items accumulated by the Contractor over a month.

PM score = 0 or 5%

Preventative Maintenance will be monitored according to a schedule and checklists/SOPs agreed with the City of Cape Town. The Contractor shall ensure that his equipment PM checklist is signed off by the facilities/depot / bus manager after each visit and these shall be submitted with his monthly invoice as proof of the PM work done. Failure to adhere to and complete the agreed schedules or work shall result in a PM score of 5%. Note the PM score is not a financial penalty.

The Performance level of Good, Average or Poor will then be established from the evaluation table below

Table 18: Performance levels

Monthly Performance Level	Performance score
Poor	> 10%
Average	5-10%
Good	< 5%

Where performance is unsatisfactory, the following process shall occur:

- a. Achieving a "poor" performance level in any single month shall result in the issue of a "first warning notice" by the Employer to the Contractor, indicating the performance measures which have been breached giving rise to the notice, and indicating to the Contractor the implications of the notice. The Contractor shall within five (5) business days, provide to the Employer, an action plan to achieving future compliance with the relevant performance measures for the written approval of the Employer. The Contractor shall implement the action plan and provide to the Employer a report evidencing how the measures identified in the action plan have been implemented by the end of the next month.
- b. If the Contractor fails to implement and comply with the action plan, and/or obtains a second consecutive month score of "poor", the Employer has the right to issue a "second warning notice" to the Contractor, indicating the performance measures which have been breached, and requesting a second action plan to achieve future compliance with the relevant performance measures. The Contractor shall implement the second action plan and provide to the Employer a report evidencing how the measures identified in the second action plan have been implemented by the end of the next month.
- c. If, following the above remedies, the Contractor:
 - fails to implement and comply with the second action plan, and/or
 - obtains a third consecutive month score of "poor", and/or
 - obtains 5 or more "poor" scores in the course of a 12 month period

The Employer has the right to issue a "final warning notice" to the Contractor, indicating the performance measures which have been breached, and requesting a final action plan to achieve future compliance with the relevant performance measures. The Contractor shall implement the final action plan and provide to the Employer a report evidencing how the measures identified in the final action plan have been implemented by the end of the next month.

If the Contractor fails to implement and comply with the final action plan, the Employer shall have the right to terminate the Contract.

3.4.5.6 BUS RECTIFICATION WORKS

Bus rectification works to replace the cabling looms and power cabling, and connectors was initiated in 2021. The purpose of the works is to improve and standardise the supporting bus infrastructure for the bus onboard equipment.

The scope of the bus rectification works is primarily split between cable looms and power rectification.

- Cable looms: Replacement of looms, including cables, connectors, sleeving and labelling.
- Power: Replacement of power cables, including connectors, fuses, terminal block, distribution block, sleeving, labelling and earthing.

Depending on the progress made with the bus rectification works during the current APTMS Contract, there might be some works left to be completed. The City reserves the right to request bus rectification works on any number of buses.

For the Scania K250, Volvo B9L, Scania K310 and Volvo B9LA a DC-DC smart charger and battery protection shall be installed. The charger shall be rated at 24V input, 24V output, 17A continues output current. The Victron Energy Orion-Tr Smart Charger Isolated 24/24-17 (400W) or equivalent shall be installed.

The material types and quantities required for the bus rectification works are summarised, but not limited to, the items listed in the table below. Actual quantities and material types might vary depending on final approvals.

The material required shall include all consumables specifically split tubing, cable ties, heat shrink, screws, bolts, washers, nuts, labels.

The service level KPIs shall not apply to bus rectification works.

Table 19: Bus rectification works, material types and quantities.

	Optare Solo	Volvo B7R and B7RM (Rigid)	Volvo B12MA (Articulated)	Scania K250 and Volvo B9L (Rigid)	Scania K310 and Volvo B9LA (Articulated)
Replacement of looms					
Twin flex (red/black) - Driver speaker wiring	7 m	2 m	2 m	6 m	6 m
Twin flex (white/black) - Passenger speaker wiring	25 m	30 m	42 m	30 m	42 m
Covert button cabling, 4core .22 mylar	8 m	6 m	6 m	-	-
IP Camera cabling (stranded CAT 6E)	40 m	75 m	115 m	75 m	115 m
Inelmatic VGA monitor loom	8 m	4 m	4 m	8 m	8 m
Power rectification					
1.5 panel wire (Red) - Terminal block	4 m	4 m	4 m	4 m	4 m
1.0 panel wire (Red) - POE, MDR, Terminal block, EDD	4 m	4 m	4 m	4 m	4 m

	Optare Solo	Volvo B7R and B7RM (Rigid)	Volvo B12MA (Articulated)	Scania K250 and Volvo B9L (Rigid)	Scania K310 and Volvo B9LA (Articulated)
1.0 panel wire (Black) - POE, MDR, Terminal block, EDD	6 m	6 m	6 m	6 m	6 m
1.5 panel wire (Yellow) - Terminal block	1 m	1 m	1 m	1 m	1 m
1.0 panel wire (Yellow) - Terminal block, MDR	2 m	2 m	2 m	2 m	2 m
0.22 2 core Mylar - Microphone, Odometer pickup	8 m	8 m	8 m	8 m	8 m
0.5 panel wire (Black)	9 m	16 m	22 m	16 m	22 m
0.5 panel wire (White)	9 m	16 m	22 m	16 m	22 m
n/o n/c magnetic contacts	2 units	3 units	5 units	3 units	5 units
2 way mate n lock m/f connectors c/w pins (to fit 1.0mm twin flex)	7 units	9 units	11 units	9 units	11 units
4 way mate n lock m/f connectors c/w pins (to fit .22 mylar)	1 units	1 units	1 units	1 units	1 units
FR307 diode	5 units	5 units	5 units	5 units	5 units
8mm Yellow ring terminal	6 units	4 units	4 units	4 units	4 units
6mm Yellow ring terminal	4 units	4 units	4 units	4 units	4 units
6.3 female yellow push on terminal	1 units	1 units	1 units	-	-
RJ45 connector (CAT 6)	18 units	18 units	20 units	18 units	20 units
RJ 45 boot	18 units	18 units	20 units	18 units	20 units
Grounding					
6.0 panel wire (Black)	9 m	3 m	3 m	-	-
Power distribution block					
Fuse terminal (PIT 4-FSI/F)	2 units	-	-	-	-

	Optare Solo	Volvo B7R and B7RM (Rigid)	Volvo B12MA (Articulated)	Scania K250 and Volvo B9L (Rigid)	Scania K310 and Volvo B9LA (Articulated)
Ground terminal (PIT 4-PE)	3 units	-	-	-	-
Clip fix ends (CLIPFIX 35)	2 units	-	-	-	-
End caps (D-ST 4)	1 units	-	-	-	-
Din rails (Perforated)	0.15 m	-	-	-	-
Terminal block					
Fuse terminal (PIT 4-FSI/F)	10 units	10 units	10 units	10 units	10 units
2A Mini blade fuse	5 units	5 units	5 units	5 units	5 units
5A Mini blade fuse	6 units	6 units	6 units	6 units	6 units
15A Mini blade fuse	1 units	1 units	1 units	1 units	1 units
Ground terminals (PIT 4-PE)	7 units	7 units	7 units	7 units	7 units
Signal terminals (PIT 1,5/S)	26 units	26 units	26 units	26 units	26 units
Clip fix ends (CLIPFIX 35)	2 units	2 units	2 units	2 units	2 units
End caps (D-ST 4)	4 units	4 units	4 units	4 units	4 units
Din rails (Perforated)	0.3 m	0.3 m	0.3 m	0.3 m	0.3 m
Power relays (PLC- RPIT- 24DC/21HC)	2 units	2 units	2 units	2 units	2 units
Reverse signal (PLC- RPIT- 24DC/21)	1 units	1 units	1 units	1 units	1 units
Rectifier diode	6 units	6 units	6 units	6 units	6 units

3.4.6 TRAINING AND OPERATIONAL SUPPORT

3.4.6.1 Training

The Contractor shall provide training to the Employer's identified personnel on the detailed operations of the APTMS and on-board CCTV systems.

The purpose of the training is to ensure sufficient knowledge transfer takes place between the Contractor and the City and/or other parties in order to operate and maintain the system independently at a level where the full benefit of the system can be extracted.

The Contractor shall train personnel as decided by the City on the maintenance and/or operations of all systems. The Employer may decide that training be provided to a third party.

The Contractor shall conduct training classes as per the following table and shall submit training material for approval by the Employer at least 14 days before scheduled training. Upon Instruction by the Employer or the Engineer the Contractor shall amend training documentation to include/exclude/amend the scope of training.

The Contractor shall not conduct training without written approval from the Employer on the date and content of the training session. Any number of personnel may attend any class up to a reasonable size, to be determined by the Employer. The Employer will provide training facilities as required.

Table 20: Training categories

#	Training categories
1	CAD / AVL training
a	• Client operations
b	• Passenger information & PI web server
c	• Preparation of data supply and base version
d	• Depot Data Management, front-end & back-end
e	• Service monitoring
2	Schedule Planning System
a	• Duty scheduling & duty scheduling optimisation
b	• Bus scheduling & bus scheduling optimisation
3	On-board training (OBU & MDT)
a	• Driver training on use of MDT
b	• Troubleshooting of devices, incl. OBU, MDT and other on-board devices if necessary.
4	Business intelligence
a	• Report generation and export
b	• Analysis and interpretation of reports
5	On-board Video Surveillance System
a	• Extracting video footage from TMC and depot
b	• Extracting footage directly from on-board NVR
c	• Troubleshooting of on-board video display, NVR and CCTV
d	• Recording, normal and event based

Each training session shall cover enough scope to last a full day, i.e. 8 hours.

Some of the training sessions may be to train the trainer, depending on the category and if approved by the Employer in writing.

The Contractor shall keep an attendance register of each session and submit this to the Employer and / or Engineer after every session. The Contractor shall keep a complete register / breakdown of all training which was provided and still to be provided for approval by the Employer. This shall include dates, training session topic, content summary, name of trainer, duration of training, etc. This shall be included in the Contractor's monthly progress report.

The same or different scope of work shall be covered per session as instructed by the Employer upon which the Contractor shall issue a training document for approval by the Employer. The content of the training sessions per category or sub-category may differ depending on the level of competence of the trainees.

Certain categories and training sessions may require to be carried out by the OEM system specialists of the existing systems.

Besides the formal training sessions the Contractor shall:

- i. Provide on the job training in the Control Centre, depot, station or buses upon request from the Employer. Scope of such training to be agreed with and approved by the Employer in writing.
- ii. Allow up to 2 persons per time, as designated by the Employer to job-shadow the Contractor's personnel as part of training, as and when required by the Employer. There shall be no limit in the number of times job shadowing is allowed.

3.4.6.2 Operational support

The Contractor shall provide operational support to the Employer on the existing Advanced Public Transport Management System and bus tracking system, schedule planning system and on-board video surveillance systems as and when required, including but not limited to the following:

- a. Generate BI reports to review bus operations performance, e.g. productive / unproductive mileage reports including missed trips per route, Advanced Public Transport Management System reports, etc.
- b. Analysis and interpretation of BI reports in terms of operations.
- c. Optimising the current MyCiTi bus routes and the operations along each route.
- d. Review and improvement of existing Standard Operating Procedures (SOP).
- e. Assist and advise on the development of new SOP's.
- f. Assist system controllers in the Control Centre with the application of SOP.
- g. Perform route surveys of new routes.
- h. Optimise driver rosters.
- i. Assisting with developing schedules for whatever new roll-outs may occur.
- j. Remote support and checking of schedules which the Employer may prepare for future roll-outs.
- k. Assisting with the transferring and roll-out of base versions and developing of operating procedures for future roll-outs.
- l. Export of information as required for export to other as may be required.
- m. Export/extract of on-bus recorded video footage, if required.

The scope and dates of any operational support shall be subject to approval in writing from the Employer

3.4.6.3 Travelling and accommodation for Training and Operational support

Travelling and accommodation costs for training and/or operational support will be paid subject to the following:

- a. Only for overseas-based personnel, after approval from the Employer in writing on the scope and dates of training and/or operational support to be provided.
- b. A return flight ticket per trip, economy class at the going rate of the major airlines at the time required.

Note, all other travel costs, e.g. for the purposes of system maintenance and operations shall be included in tendered rates.

Particular Specification E: Environmental Management Specification and its Annexures are attached hereto / included in Volume 1

Particular Specification H: Health and Safety Specification is attached hereto / included in Volume 1.

3.4.7 WAYLEAVES, PERMISSIONS AND PERMITS

The Contractor shall be responsible for obtaining all of the necessary wayleaves, permissions or permits applicable to working near any existing services, other infrastructure or vehicles on Site, and shall ensure that any wayleaves, permissions or permits obtained by the Employer's Agent prior to the award of the contract (if any) are transferred into the Contractor's name.

The Contractor shall abide by any conditions imposed by such wayleaves, permissions or permits.

The Contractor shall ensure that all wayleaves, permissions and permits are kept on site and are available for inspection by the relevant service authorities on demand.

The Contractor shall also ensure that any wayleaves in respect of electricity services are renewed timeously every three months.

3.4.8 LOCAL PRODUCTION AND CONTENT

The Contractor will be required to comply with all requirements as stated in this document.

3.4.9 EMPLOYMENT OF SECURITY PERSONNEL

All security staff employed by the contractor on behalf of the CCT or at any CCT property must be registered with Private Security Industry Regulatory Authority (PSiRA). Proof of such registration must be made available to the employer's agent upon request.

3.4.10 UNIVERSAL ACCESS

In pursuit of becoming a fully accessible city, the City of Cape Town expects all Consultants and Service Providers to design and construct to SANS Standards for accessible Design, and any relevant City of Cape Town documents as may be relevant, and to exhibit a commitment to employing Universal Design Principles in their design, construction, service and product delivery of construction projects. This applies to all projects whether new, temporary, upgrades or rehabilitation works.

The contractor will engage with project representatives and the CCT's Universal Accessibility Department on how Universal Design Principles will enhance accessibility, within this project, that meets a variety of needs and creates a city that is accessible to everyone.

C3.5 Management

CONTENTS

- 3.5.1. FORMS FOR CONTRACT ADMINISTRATION
- 3.5.2. PARTICIPATION OF TARGETED LABOUR
- 3.5.3. COMMUNITY LIAISON OFFICER
- 3.5.4. PARTICIPATION OF TARGETED ENTERPRISES
- 3.5.5. ENVIRONMENTAL MANAGEMENT PROGRAMME
- 3.5.6. HEALTH AND SAFETY

3.5.1. FORMS FOR CONTRACT ADMINISTRATION

The Contractor shall complete, sign and submit with each monthly statement for payment, the following updated returns (the format of which are attached in C3.6 Annexes as amended from time to time):

- a) Monthly Project Labour Report (Annex 1)
- b) B-BBEE Sub-Contract Expenditure Report (Annex 2)
- c) Joint Venture Expenditure Report (Annex 3)
- d) Targeted Labour Contract Participation Expenditure Report (Annex 4): Not applicable.
- e) Targeted Enterprises Contract Participation Expenditure Report (Annex 5): Not applicable.

The Monthly Project Labour Report must include details of all labour (including that of sub-contractors) that are South African citizens earning less than R350.00 per day, as adjusted from time to time (excluding any benefits), who are employed on a temporary or contract basis on this contract in the month in question.

In addition to the Monthly Project Labour Report the Contractor shall simultaneously furnish the Employer's Agent with copies of the signed employment contracts entered into with such labour, together with certified copies of identification documents, proof of attendance in the form of attendance register or timesheets as well as evidence of payments to such labour in the form of copies of payslips or payroll runs. If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it and proof of such acknowledgement shall be furnished to the Employer's Agent.

The Monthly Project Labour Reports shall be completed and submitted in accordance with the instructions therein and copies of all submitted documents must be kept on site be made available to the employer's agent upon request.

The **B-BBEE Sub-Contract Expenditure Report** is required for monitoring the prime contractor's compliance with the sub-contracting conditions of the **Preference Schedule**.

The Joint Venture Expenditure Report is required for monitoring the joint venture's compliance with the percentage contributions of the JV partners as tendered, where the joint venture has been awarded preference points in respect of its consolidated B-BBEE scorecard.

The Targeted Labour Contract Participation Expenditure Report (if applicable) is required for monitoring the contractor's compliance for achieving the specified minimum targeted labour contract participation goal (CPG_L) and, if applicable, for calculating any penalty in terms thereof.

The Targeted Enterprises Contract Participation Expenditure Report (if applicable) is required for monitoring the contractor's compliance for achieving the specified minimum targeted enterprises contract participation goal (CPG_E) and, if applicable, for calculating any penalty in terms thereof.

The Expenditure Reports shall be verified by the Employer's Agent/Employer's Agent's Representative.

In respect of Annexes 2 and 3, the Employer shall, in addition to any other sanctions available to it, apply the financial penalties applicable to breach of preferencing conditions in the **Preference Schedule** Preference Schedule in Part C5.2 Returnable Schedules. In the case of joint ventures (Annex 3), the contractor shall prove his compliance with item 6) in Section 2 of the Preference Schedule by providing a consolidated scorecard at his own cost on instruction from the Employer's Agent.

[]

3.5.2 PARTICIPATION OF TARGETED LABOUR

Not applicable.

[]

3.5.3. COMMUNITY LIAISON OFFICER

Not applicable.

3.5.4. PARTICIPATION OF TARGETED ENTERPRISES

[Not applicable.]

3.5.5. ENVIRONMENTAL MANAGEMENT PROGRAMME

(a) ENVIRONMENTAL MANAGEMENT SPECIFICATION

For use with the General Conditions of Contract as described in C1.2: Contract Data Part 1

E1 SCOPE

The Environmental Management Programme (EMP) for the project is comprised of this Environmental Management (EM) Specification and its Annexures, including the “Additional environmental issues deemed to form part of the Environmental Management Specification” attached as Annexure D hereto, which together cover the requirements for controlling the impact on the environment of construction activities.

E2 INTERPRETATIONS

E2.1 Supporting

specifications

The following standardised specification shall, *inter alia*, apply to this Contract:

- a) SANS 1200A, as may be varied or added to in the Scope of Work

E2.2 Application

This EM Specification contains clauses that are generally applicable to the undertaking of construction works in areas where it is necessary to impose pro-active controls on the extent to which the construction activities impact on the environment.

In the event of any difference or discrepancy between the provisions of the Standardised Specifications and the provisions of the EM Specification, the latter shall prevail.

E2.3 Definitions and abbreviations

For the purposes of this EM Specification the following definitions and abbreviations shall apply:

a) Environment

The surroundings within which humans exist and that are made up of –

- a) the land, water and atmosphere of the earth;
- b) micro-organisms, plant and animal life;
- c) any part or combination of i) and ii) and the interrelationships among and between them; and
- d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

b) Potentially hazardous substance

A substance which, in the reasonable opinion of the Engineer, can have a deleterious effect on the environment.

c) Method Statement

A written submission by the Contractor to the Engineer in response to the EM Specification or a request by the Engineer, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity, in such detail that the Engineer is enabled to assess whether the Contractor's proposal is in accordance with the Scope of Work and/or will produce results in accordance with the EM Specification.

d) Reasonable

Unless the context indicates otherwise, means reasonable in the opinion of the Engineer after he has consulted with a person suitably experienced in "environmental implementation plans" and "environmental management plans" (both as defined in the National Environmental Management Act, 107 of 1998).

e)

f) Solid waste

All solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, domestic waste, dead vegetation, asphalt products, etc.

g) Contaminated water

Water contaminated by the Contractor's activities containing cements, concrete, lime, paint products, thinners, turpentine, chemicals, fuels, oils washing detergents, etc.

h) Working area

Any area within the boundaries of the Site where construction is taking place.

- i) Contractor's camp or construction camp
- The area designated for all temporary site offices, storage areas, construction plant parking areas, staff welfare facilities, etc.
- j) Engineer
- The person/firm so named in the Contract Data, whose function is to administer the Contract as agent of the Employer.
- k) Engineer's Representative (ER)
- The natural person appointed by the Engineer in terms of the Contract, who shall observe the execution of the Works, examine and test materials and workmanship, and deliver and receive communications to/from the Contractor.
- l) Environmental Officer (EO)
- Appointed by the Engineer as his environmental representative on Site, with the mandate to enforce compliance with the EMP. The duties of the EO are stipulated in the City's guideline document for the EO and ER.
- m) Environmental Control Officer (ECO)
- An independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of Environmental Authorisations (EAs), and the EMP for the project.
- N) Environmental Site Officer (ESO)
- Employed by the Contractor as his environmental representative to monitor, review and verify compliance with the EMP by the Contractor. The ESO must ensure that he is involved at all phases of the construction (from site clearance to rehabilitation).
- o) Abbreviations
- The following abbreviations occur in this EM Specification:
- | | |
|--------------------|--|
| EMP - | Environmental Management Programme |
| EM Specification – | Environmental Management Specification |
| EO - | Environmental Officer |
| ECO – | Environmental Control Officer |
| ESO – | Environmental Site Officer |
| ER – | Engineer's Representative |
| MSDS - | Material Safety Data Sheets |

E2.4 Engineer's authority to delegate

In terms of Sub-Clause 3.2 in the FIDIC General Conditions of Contract, 1999 (Yellow Book), the Engineer may assign duties and delegate authority to assistants who may include a resident engineer. For the purposes of this EM Specification a resident engineer is synonymous with the Engineer's Representative (ER). Other than the ER, another assistant to the Engineer can be in the form of an Environmental Officer (EO), who shall be responsible for monitoring compliance with the EMP. All instructions given by the EO shall go through the ER, who will then convey these to the Contractor, except in the case of an environmental emergency, in which case the EO can issue an instruction directly to the Contractor. An environmental emergency is one which, in the opinion of the EO, would cause serious environmental harm if not addressed immediately.

Depending on the nature/environmental sensitivity of the Contract the following variations in the organisational structure are possible:

- a) The ER may work together with an EO; or
- b) There may be an ER only (for construction projects with low potential for causing significant environmental impacts). In this case the ER has responsibility for the EO's functions.
- c) There may be an independently appointed Environmental Control Officer (ECO) who will fulfil essentially the same functions as the EO. The ECO may work with just the ER (if there is no EO) or may work with both the ER and EO.

The term "Engineer" in this EM Specification refers to the Engineer as defined in Clause H2.3.9 acting through the ER/EO/ECO as delegated.

E3 MATERIALS

E3.1 Materials handling, use and storage

The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) required to comply with the EM Specification. The Contractor shall ensure that these delivery drivers are supervised during offloading by someone with an adequate understanding of the requirements of the EM Specification.

Materials shall be appropriately secured to ensure safe passage between destinations. Loads, including but not limited to, sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

All manufactured and or imported materials shall, where reasonably possible, be stored within the Contractor's camp and, if so required by the Engineer, out of the rain. The location and method of protection of such materials stored outside of the Contractor's camp and the method of rehabilitation of these areas, shall be subject to the Engineer's approval.

Stockpile areas shall be approved by the Engineer before any stockpiling commences.

E3.2 Hazardous substances

Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances in GN 1179 (25 August 1995)) stored on Site for use during construction shall be stored in secondary containers which are clearly and appropriately marked/signed. The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDSes shall be followed in the event of an emergency situation.

If potentially hazardous substances are to be stored on Site, the Contractor shall inform the Engineer of such substances and provide a Method Statement detailing the substances/ materials to be used, together with the storage, handling and disposal procedures of the materials. Hazardous substances shall be stored out of flood risk areas and disposal of these substances shall be at a licensed waste disposal facility.

E4 PLANT (referring to "Contractor's Equipment" as defined in the FIDIC General Condition of Contract, 1999 (Yellow Book), and the Contractor's facilities as used in SANS 1200A)

E4.1 Fuel (petrol and diesel) and oil

a) Storage

If fuel and oil is to be stored on Site, then the Contractor shall submit a Method Statement covering the procedures for dealing with accidental hydrocarbon spillage and leaks, and detailing how these liquids will be stored, handled and disposed of.

The Engineer shall approve the location of all fuel storage areas. All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities. Symbolic safety signs depicting "No Smoking", "No Naked Lights" and "Danger" conforming to the requirement of SANS 1186 are to be prominently displayed in and around the fuel storage area. There shall be adequate fire-fighting equipment at the fuel storage area.

The Contractor shall ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and adequately secured. The capacity of the tank shall be clearly displayed and the product contained within the tank clearly identified using the emergency information system detailed in SANS 0232 part 1. Fuel storage tanks shall have a capacity not exceeding 9000 litres and shall be kept on site only for as long as fuel is needed for construction activities, on completion of which they shall be removed.

The tanks shall be situated on a smooth impermeable base with an earth bund. The volume inside the bund shall be 110% of the total capacity of the largest storage tank. The base may be constructed of concrete, or of plastic sheeting with impermeable joints, covered by a layer of compacted earth to protect the sheeting. The impermeable lining shall extend to the crest of the bund. The floor of the storage area shall be sloped to enable any spilled fuel and/or fuel-contaminated water to be removed easily.

If any rainwater collects in the bunded areas, it shall be promptly removed and taken off Site to a disposal site approved by the Engineer.

Only empty and externally clean tanks may be stored on the bare ground. Empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.

Adequate precautions shall be provided to prevent spillage during the filling of any tank and during the dispensing of the contents. If fuel is dispensed from 200 litre drums, the proper dispensing equipment shall be used, and the

drum shall not be tipped in order to dispense fuel. The dispensing mechanism for the fuel storage tanks shall be stored in a waterproof container when not in use.

b) Refuelling

Plant shall be refuelled at a designated refuelling area approved by the Engineer. The surface under the temporary refuelling area shall be protected against pollution to the reasonable satisfaction of the Engineer prior to any refuelling activities. The Contractor shall ensure that there is always a supply of absorbent material (e.g. Spill Sorb or Enretech #1 powder or equivalent) readily available that is designed to absorb, break down and encapsulate minor hydrocarbon spillage. The quantity of such material shall be able to handle a minimum of 200 litres of hydrocarbon liquid spill.

c) Treatment and remediation

Treatment and remediation of hydrocarbon spill and leak areas shall be undertaken to the satisfaction of the Engineer. In the event of a hydrocarbon spill the source of the spillage shall be isolated and the spillage contained.

E4.2 Ablution and toilet facilities

Washing, whether of the person or of personal effects, defecating and urinating are strictly prohibited other than at the facilities provided.

The Contractor shall provide ablution facilities for all personnel employed on the Site, including shelter, toilets and washing facilities. The Contractor's personnel will not be permitted to use the City's ablution facilities.

Toilet facilities provided by the Contractor shall occur at a maximum rate of 1 toilet per 30 workers (1:15 is preferred). Toilet facilities shall be located within the Contractor's camp, but also at work areas remote from the camp, all to the satisfaction of the Engineer. All portable toilets shall be adequately secured to the ground to prevent them toppling over as a result of wind or any other cause.

The Contractor shall ensure that the entrances to these toilets are adequately screened from view, that they are maintained in a hygienic state, serviced regularly, that no spillage occurs when they are cleaned and that contents are removed from Site. Toilets shall also be emptied before any temporary site closure for a period exceeding one week. Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. The Contractor shall provide toilet paper at all times.

No ablution facilities shall be located closer than 50m to any water body

A Method Statement shall be provided by the Contractor detailing the provision, location, and maintenance of ablution facilities.

E4.3 Eating areas

The Contractor shall designate eating areas within the approved Contractor's camp. The feeding of, or leaving of food for, animals is strictly prohibited. Sufficient bins, as specified in Clause H4.4 below, shall be present in these areas.

Any cooking on Site shall be done on well-maintained gas cookers with fire extinguishers present. No open fires for cooking purposes shall be permitted, unless for occasional use in facilities specifically provided for this purpose and within the confines of the Contractor's camp.

H4.4 Solid waste management

H4.4.1 Litter and refuse

The site shall be kept neat and clean at all times, littering is prohibited.

No on-site burying or dumping of any waste materials, vegetation, litter or refuse shall occur. The Contractor shall provide scavenger and weatherproof bins with lids, of sufficient number and capacity to store the solid waste produced on a daily basis. The lids shall be kept firmly on the bins at all times. Bins shall not be allowed to become overfull and shall be emptied regularly, at least once a week. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Engineer has approved. Wherever possible refuse shall be recycled, and containers for glass, paper, metals and plastics shall be provided and the contents delivered to suitable recycling facilities when necessary.

All other litter and refuse shall be disposed of off Site at an approved landfill site. The Contractor shall supply the Engineer with a certificate of disposal.

H4.4.2 Construction waste

Where possible all construction waste or spoil material shall be recycled, either on Site or elsewhere. As a last resort all construction waste shall be disposed of off Site at an approved landfill site. The Contractor shall supply the Engineer with a certificate of disposal.

H4.5 **Contaminated water management**

Potential pollutants of any kind and in any form shall be kept, stored, and used in such a manner that any spill or escape can be contained and the water table and/or any adjacent water courses or bodies are not endangered. Spill kits which can be used to contain and/or mop up spills shall be available. Water containing such pollutants as cements, concrete, lime, chemicals, oils and fuels shall be discharged into a conservancy tank for removal from the Site to a licensed disposal facility. This particularly applies to water emanating from concrete batching plants and to runoff from fuel storage, refuelling or construction equipment washing areas. Wash down areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted.

No paint products, chemical additives and cleaners, such as thinners and turpentine, may be disposed of into the stormwater system or elsewhere on Site. Brush/roller wash facilities shall be established to the satisfaction of the Engineer.

A Method Statement shall be provided by the Contractor detailing the management of contaminated water.

Should contaminated water be released into the environment, specifically into a water course, monitoring thereof shall commence in accordance to the National Water Act, 36 of 1998, Section 21(f) – refer to GN 399 (26 March 2004). Contaminated water must not be released into the environment without authorisation from the relevant authority.

The Contractor shall notify the Engineer immediately of any pollution incidents on Site and, at his own cost, take all reasonable measures to contain and minimise the effects of the pollution.

Any rehabilitation of the environment required as a result of such pollution shall be carried out by the Contractor at his own cost in accordance with a Method Statement approved by the Engineer.

E4.6 **Site structures**

The type and colour of roofing and cladding materials to the Contractor's temporary structures shall be selected to reduce the visual impact.

E4.7 **Lights**

The Contractor shall ensure that any lighting installed on the Site for his activities does not cause a reasonably avoidable disturbance to other users of the surrounding area.

Lighting installed shall, as far as practically possible, be energy efficient. Lighting utilised on Site shall be turned off when not in use.

E4.8 **Workshop, equipment maintenance and storage**

No workshops or plant maintenance facilities shall be constructed on Site for performing major or routine maintenance of equipment and vehicles.

The Contractor shall ensure that in those areas where, after obtaining the Engineer's approval, the Contractor carries out emergency or minor routine plant maintenance, there is no contamination of the soil, water sources or vegetation. Drip trays to collect waste oil and other lubricants shall be provided in any areas of the Site where such maintenance takes place. Drip trays must be emptied regularly and after rain, and the contents disposed of at a licensed disposal facility.

All vehicles and plant shall be kept in good working order. Leaking vehicles and plant shall be repaired immediately or removed from the Site.

The washing of vehicles and plant on Site shall be restricted to emergency or minor routine maintenance requirements only. Washing may only be undertaken in areas designated by the Engineer.

E4.9 **Noise**

The Contractor shall limit noise levels (for example, by installing and maintaining silencers on plant). The provisions of SANS 1200A Clause 4.1 regarding "built-up areas" shall apply.

Appropriate directional and intensity settings are to be maintained on all hooters and sirens.

No amplified music shall be allowed on Site. The use of audio equipment shall not be permitted, unless the volume is kept sufficiently low so as to be unobtrusive. The Contractor shall not use sound amplification equipment on Site, unless in emergency situations.

Construction activities generating output levels of 85 dB(A) or more in residential areas, shall be confined to the hours 08h00 to 17h00 Mondays to Fridays. Should the Contractor need to do this work outside of the above times, he shall do so only with the approval of the Engineer, and the surrounding communities shall be informed prior to the work taking place.

E5 CONSTRUCTION

E5.1 Method Statements

The Contractor shall submit the environmental method statements required within such reasonable time as the Engineer shall specify or as required by the EM Specification. The Contractor shall not commence any activity until the Method Statement in respect thereof has been approved and shall, except in the case of emergency activities, allow a period of two weeks for consideration of the Method Statement by the Engineer.

The Engineer may require changes to a Method Statement if the proposal does not comply with the specification or if, in the reasonable opinion of the Engineer, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted by the EM Specification.

Approved Method Statements shall be readily available on the Site and shall be communicated to all relevant personnel. The Contractor shall carry out the Works in accordance with the approved Method Statement. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract.

Changes to the way the Works are to be carried out must be reflected by amendments to the original approved Method Statements, and these amendments require the signature of both the Contractor and the Engineer.

Method Statements shall consider all environmental hazards and risks identified by the Contractor and/or Engineer and shall contain sufficient information and detail to enable the Engineer to assess the potential negative environmental impacts associated with the proposed activity and shall cover applicable details with regard to:

- a) construction procedures,
- b) materials and equipment to be used,
- c) getting the equipment to and from Site,
- d) how the equipment/material will be moved while on Site,
- e) how and where material will be stored,
- f) the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur,
- g) the control of fire,
- h) timing and location of activities,
- i) compliance/non-compliance with the EM Specification,
- j) any other information deemed necessary by the Engineer.

The format to be used for the required method statements is bound in Annexure A of this EM Specification. The Contractor (and, where relevant, any sub-contractors) must also sign the Method Statement, thereby indicating that the work will be carried out according to the methodology contained in the approved Method Statement.

H5.1.1 Method Statements to be provided within 14 days from the Commencement Date

- a) Layout and Preparation of Contractor's Camp (H5.4).
- b) Ablution Facilities: number of, location, cleaning, method of securing to the ground, etc. of portable toilets (H4.2).
- c) Solid Waste Management: number of, type, location, cleaning, method of securing to the ground, etc. of bins (H4.4).
- d) Environmental Awareness Training: logistics for the environmental awareness courses for all the Contractor's management staff, as well as other employees (H5.2).
- e) Emergency Procedures for Accidental Hydrocarbon Leaks and Spillages (H4.1 and H5.8).
- f) Asphalt and Bitumen: details of all methods and logistics associated with the use of bitumen and asphalt (H5.11).

H5.2 Environmental	Awareness	Training
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It is a requirement of this Contract that environmental awareness training courses are run for all personnel on Site. Two types of courses shall be run: one for the Contractor's and subcontractors' management, and one for all site staff and labourers. Courses shall be run during normal working hours at a suitable venue provided by the Contractor. All attendees shall remain for the duration of the course and sign an attendance register that clearly indicates participants' names on completion, a copy of which shall be handed to the Engineer. The Contractor shall allow for sufficient sessions to train all personnel. Subsequent sessions shall be run for any new personnel coming onto Site. A Method Statement with respect to the organisation of these courses shall be submitted.

Notwithstanding the specific provisions of this clause, it is incumbent upon the Contractor to convey the spirit of the EM Specification to all personnel involved with the Works.

H5.2.1 Training Course for Management and Foremen

The environmental awareness training course for management shall include all management and foremen. The course, which shall be presented by the Engineer or his designated representative, shall be of approximately one hour duration. The course shall be undertaken prior to the commencement of work on Site.

H5.2.2 Training Course for Site Staff and Labour

The environmental awareness training course for site staff and labour shall be presented by the Contractor from material provided by the Engineer. The course shall be approximately one hour long. The course shall be undertaken not later than 3 working days after the commencement of work on Site, with sufficient sessions to accommodate all available personnel.

All the Contractor's employees, sub-contractors' employees and any suppliers' employees that spend more than 1 day a week or four days in a month on Site shall attend the Environmental Awareness Training Course for Site Staff and Labour

H5.3 Contractor's Environmental Representative (ESO)

The Contractor shall appoint an environmental representative, also called an Environmental Site Officer (ESO), who shall be responsible for undertaking a daily site inspection to monitor compliance with this EM Specification. The Contractor shall forward the name of the environmental representative (ESO) to the Engineer for his approval. The environmental representative (ESO) shall complete Environmental Site Inspection Checklists (Annexure B attached hereto) and these shall be submitted to the Engineer once a week.

H5.4 Site division, demarcation and "no go" areas

The Contractor shall restrict all his activities, materials, plant and personnel to within the Site or any particular working areas specified or indicated on the drawings.

The Contractor shall erect and maintain permanent and/or temporary fences of the type and in the locations specified elsewhere in the Scope of Work or on the drawings. Such fences shall, if so specified, be erected before undertaking any construction activities.

Where environmentally sensitive areas are specified as "no go" areas, the Contractor shall ensure that, insofar as he has the authority, no person, plant or material shall enter the "no go" areas at any time.

A Method Statement detailing the layout and method of establishment of the Contractor's camp (including all offices, shelters, eating areas, storage areas, ablution facilities and other infrastructure required for the running of the project) shall be provided.

H5.5 Access routes/ haul roads

On the Site and, if so required, within such distance of the Site as may be stated by the Engineer, the Contractor shall control the movement of all vehicles and construction equipment, including that of his suppliers, so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic, and that all relevant laws are complied with. In addition, the movement of such vehicles and construction equipment shall be planned and operated so as to minimise disruption to regular users of the routes. As far as possible the Contractor shall use existing access and haul routes. Damage to existing access roads as a result of construction activities shall be repaired to the satisfaction of the Engineer, using material similar to that originally used. The cost of the repairs shall be borne by the Contractor. New temporary access or haul routes may only be established with the prior approval of the Engineer. The rehabilitation of such routes shall be to the Contractor's own cost and to the approval of the Engineer.

Any directional signage required by the Contractor for the purposes of directing the movement of his own vehicles and construction equipment (or that of his subcontractors or suppliers) must be of a design and in a location approved by the Engineer. Directional signage may not be erected in such a manner that it interferes with sight lines or pedestrian movement.

H5.6 Construction personnel information posters

The Contractor shall erect and maintain information posters for the information of his employees, depicting actions to be taken to ensure compliance with aspects of the EM Specification. A2 information posters, printed on white vinyl, shall be erected at the eating areas and any other locations specified by the Engineer.

The specification for the poster is presented in Annexure C of this EM Specification. The symbols shall be black and the circles shall be red lines. The Contractor shall ensure that the construction personnel information posters are not damaged in any way, and shall replace a poster if any part of it becomes illegible.

H5.7 Fire control

Other than for cooking purposes as specified in Clause H4.3, no fires may be lit on Site. Any fires which occur shall be reported to the Engineer immediately.

Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include fuel storage and refuelling areas, and any other areas where the vegetation or other materials are susceptible to the start and rapid spread of fire.

In terms of the National Environment Management: Air Quality Act, 39 of 2004 and Community Fire Safety By-law, burning is not permitted as a disposal method.

The Contractor shall appoint a Fire Officer (who may be the ESO) who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedure to be followed. The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall forward the name of the Fire Officer to the Engineer for his approval.

The Contractor shall comply with Clause 27 of the Construction Regulations, 2003 where applicable, and shall ensure that there is suitable and sufficient fire-fighting equipment available on Site at all times.

The Contractor shall be liable for any costs relating to the rehabilitation of burnt areas, should the fire be the result of the Contractor's activities on Site

The Contractor shall submit a Method Statement to the Engineer covering the procedure to be followed in the event of a fire.

H5.8 Emergency procedures

The Contractor's attention is drawn to the Method Statements required in terms of Clauses H4.1 and H5.7 above. Such Method Statements shall include procedures to be followed by the Contractor in the event of an emergency.

Furthermore, in the event of an emergency, the Contractor shall contact the City of Cape Town's Emergency Call Centre by telephoning 107 or 021 480 7700 (from a cell phone). Telephone numbers of emergency services, including the local fire fighting service, shall be posted conspicuously in the Contractor's office near the telephone.

H5.9 Health and safety

The Contractor shall comply with requirements of the Occupational Health and Safety Act, 85 of 1993 and Construction Regulations, 2014, the Health and Safety Specification and relevant clauses of GCC 2010, insofar as health and safety is concerned.

H5.10 Community relations

If so required, the Contractor shall erect and maintain information boards in the position, quantity, design and dimensions specified in the Scope of Work or as directed by the Engineer. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Engineer.

The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself.

H5.11 General protections in terms of the National Heritage Resources Act, 25 of 1999

The Contractor shall take cognisance of the provisions of the National Heritage Resources Act, 25 of 1999 in respect of, *inter alia*, structures older than 60 years; archaeology, palaeontology and meteorites; burial grounds and graves; and public monuments and memorials.

H5.12 Protection of natural features

The Contractor shall not deface, paint, damage or mark any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes, unless agreed beforehand with the Engineer. Any features affected by the Contractor in contravention of this clause shall be restored/ rehabilitated to the satisfaction of the Engineer. The cost of restoration/rehabilitation shall be borne by the Contractor.

The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

H5.13 Protection of flora and fauna

Except to the extent necessary for the carrying out of the Works, as specified by the Engineer, no vegetation shall be removed, damaged or disturbed.

The presence of any wild animals found on Site shall be reported to the Engineer, who shall issue an instruction with regard to their removal or relocation. If a wild animal needs removal from the Site the Cape Nature (Metro Region) Conservation Services Manager may be contacted for assistance (tel 021 955 9132/9121/3122/9130). Trapping poisoning, injuring or shooting animals is strictly forbidden. No domestic pets or livestock are permitted on Site, with the exception of controlled watchdogs approved by the Engineer.

Where the use of herbicides, pesticides and other poisonous substances has been specified, the Contractor shall submit a Method Statement to the Engineer for approval.

H5.14 Erosion and sedimentation control

The Contractor shall take all reasonable measures to limit erosion and sedimentation due to the construction activities and shall, in addition, comply with such detailed measures as may be required by the Scope of Work. Where erosion and/or sedimentation, whether on or off the Site, occurs, rectification shall be carried out in accordance with details specified by the Engineer. Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification shall be carried out to the reasonable requirements of the Engineer, at the Contractor's cost. In particular, the Contractor shall ensure that the City's stormwater system is kept free from sediment arising from the Works.

Any runnels or erosion channels developed during the construction period or during the vegetation establishment period shall be backfilled and compacted, and the areas restored to a proper condition. Stabilisation of cleared areas to prevent and control erosion shall be pro-actively managed by the Contractor. The method of stabilisation shall be determined in consultation with the Engineer.

H5.15 Aesthetics

The Contractor shall take any requisite measures to ensure that construction activities do not have an undue negative impact on the aesthetics of the area.

H5.16 Temporary site closure

In the event of temporary site closure (for a period exceeding one week), the Contractor's ESO shall carry out checks and ensure that, amongst others, the following conditions pertain and report on compliance with this clause:

- a) Fire extinguishers are serviced and accessible.
- b) There is adequate ventilation in enclosed spaces.
- c) All hazardous substance stores are securely locked.
- d) Fencing and barriers are in place.
- e) Emergency and management contact details are prominently displayed and available.
- f) Wind and dust mitigation measures, e.g. straw, brush packs, irrigation, etc. are in place.
- g) Excavated and filled slopes and stockpiles are at a stable angle and capable of accommodating normal expected water flows.
- h) There are sufficient detention ponds or channels in place.
- i) Cement and materials stores are secured.
- j) Toilets are empty and secured.
- k) Central waste area and all refuse bins are empty and secured.
- l) Contaminated water conservancy tank empty.
- m) Any bunded areas are clean and treated with an approved product where applicable (e.g. Spill Sorb or Enretech #1 powder or equivalent).
- n) Drip trays are empty and secure

H5.17 Asphalt and bitumen

Bitumen drums/products, if stored on Site, shall be stored in an area approved by the Engineer. This area shall be indicated on the Method Statement for the Layout and Preparation of the Contractor's Camp. The storage area shall be constructed with an appropriate base, bunding and sump to the satisfaction of the Engineer. A Method Statement shall be provided in this regard.

When heating bitumen products, the Contractor shall take cognisance of appropriate fire risk controls. Heating shall only be undertaken using LPG or similar zero emission fuels. Appropriate fire fighting equipment shall be readily available on Site.

H5.18 Dust

The Contractors shall be solely responsible, at his cost, for the control of dust arising from his activities on Site, and for any costs involved in damages resulting from the dust. The Contractor shall take all reasonable measures to minimise the generation of dust

H5.19 Contractor's advertising signage

Any advertising on the Site or any part of the Works shall remain at the sole discretion of the Employer, who reserves the right to order, via the Engineer, its removal, covering or re-sizing, wherever placed, at no cost to the Employer.

Apart from at the Contractor's camp, no signage advertising the Contractor, or any of its subcontractors, manufacturers, suppliers or service providers shall be placed, fixed or erected anywhere on the Site or on the Works without the prior approval of the Engineer. No advertising signage will be permitted on any designated scenic route. Notwithstanding any prior approval given, the Engineer may instruct the Contractor to remove, cover or re-size any advertising signage at any time at no cost to the Employer.

Advertising signage at the Contractor's camp shall be appropriately designed and sized with due consideration to the surrounding environment, views and sight lines.

Branding or identification markings on the Contractor's and subcontractor's vehicles and equipment is generally permitted, although the Employer reserves the right to instruct, via the Engineer, the removal, covering or re-sizing of any branding, markings or signage, on any equipment (scaffolding, for example), which it considers inappropriate in the environment in which it is placed.

No third party advertising (that is, in respect of any person, business or product that is not associated with the Works) shall be permitted anywhere on the Site or Works.

H5.20 Clearance of Site on completion

On completion of the Works, and at final completion when all defects have been remedied or corrected, the Contractor shall, in addition to the requirements for clearance of the Site in terms of the Contract, ensure that he has complied with the following requirements in terms of this EM Specification:

H5.20.1 Clause H3.1

Clean-up of improperly secured transported materials, and rehabilitation of storage areas.

H5.20.2 Clause H4.1.3

Remediation of hydrocarbon spill and leak areas.

H5.20.3 Clause H4.4

Disposal of litter, refuse and Contractor's waste.

H5.20.4 Clause H5.4

Removal of temporary fences and Contractor's camp.

H5.20.5 Clause H5.5

Repair of access roads damaged by the Contractor, and rehabilitation of temporary access routes.

H5.20.6 Clause H5.7

Rehabilitation of burnt areas should a fire be the result of Contractor's activities on Site.

H5.20.7 Clauses H5.11 to H5.13

Rehabilitation of heritage and natural features, including vegetation which is damaged or disturbed, which required protection in terms of these clauses.

H5.20.8 Clause H5.14

Rectification where erosion and/or sedimentation has occurred due to the fault of the Contractor.

H5.20.9 Clause H5.19

Removal of Contractor's advertising signage.

H6 TOLERANCES

H6.1 Fines

Environmental management is concerned not only with the final results of the Contractor's operations, but also with the control of how these operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product, but also to the standard of the day-to-day operations required to complete the Works.

It is thus required that the Contractor shall comply with the EM Specification on an on-going basis and any failure on his part to do so will entitle the Engineer to certify the imposition of a fine. Fines may be issued per incident at the discretion of the Engineer. Such fines will be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications. The Engineer will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due in payment certificates issued under the Contract.

Maximum fines for the following transgressions by either the Contractor and/or his sub-contractors may be imposed by the Engineer, as follows:

	Maximum fine per incident
a) Vehicles, plant or materials related to the Contractor's operations, parked or stored outside the demarcated boundaries of the Site.	R 2 000
b) Persons, vehicles, plant or materials related to the Contractor's operations, found within the designated boundaries of a "no go" area.	R 4 000
c) Persistent and unrepaired oil leaks from machinery/not using a drip tray to collect waste oil and other lubricants/not using specified absorbent material to encapsulate hydrocarbon spillage/using inappropriate methods of refuelling (the use of a funnel rather than a pump).	R 3 000
d) Refuelling in areas not approved by the Engineer.	R 3 000
e) Litter on Site.	R 1 000
f) Deliberate lighting of fires on Site.	R 5 000
g) Individual not making use of the Site ablution facilities.	R 1 000
h) Damage to trees not specified to be removed.	R 5 000
i) Dust or excessive noise emanating from the site	R 1 000
j) Not containing water contaminated with pollutants such as cement, concrete, fuel, etc.	R 2 000

For each subsequent similar offence the fine shall be doubled in value to a maximum value of R50 000.

H7 TESTING

Not applicable to this tender.

H8 MEASUREMENT AND PAYMENT

H8.1 Basic principles

Except where separate pay items have been measured in the Schedules of Rates, all costs in respect of complying with the EM Specification are deemed to be covered by the sum tendered for complying with the EM Specification.

ANNEXURE A: ENVIRONMENTAL METHOD STATEMENT

CONTRACT:.....
DATE:.....

PROPOSED ACTIVITY (give title of method statement and reference number from the EMP):

--

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works - attach extra information to ensure accurate description given):

--

WHERE THE WORKS ARE TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

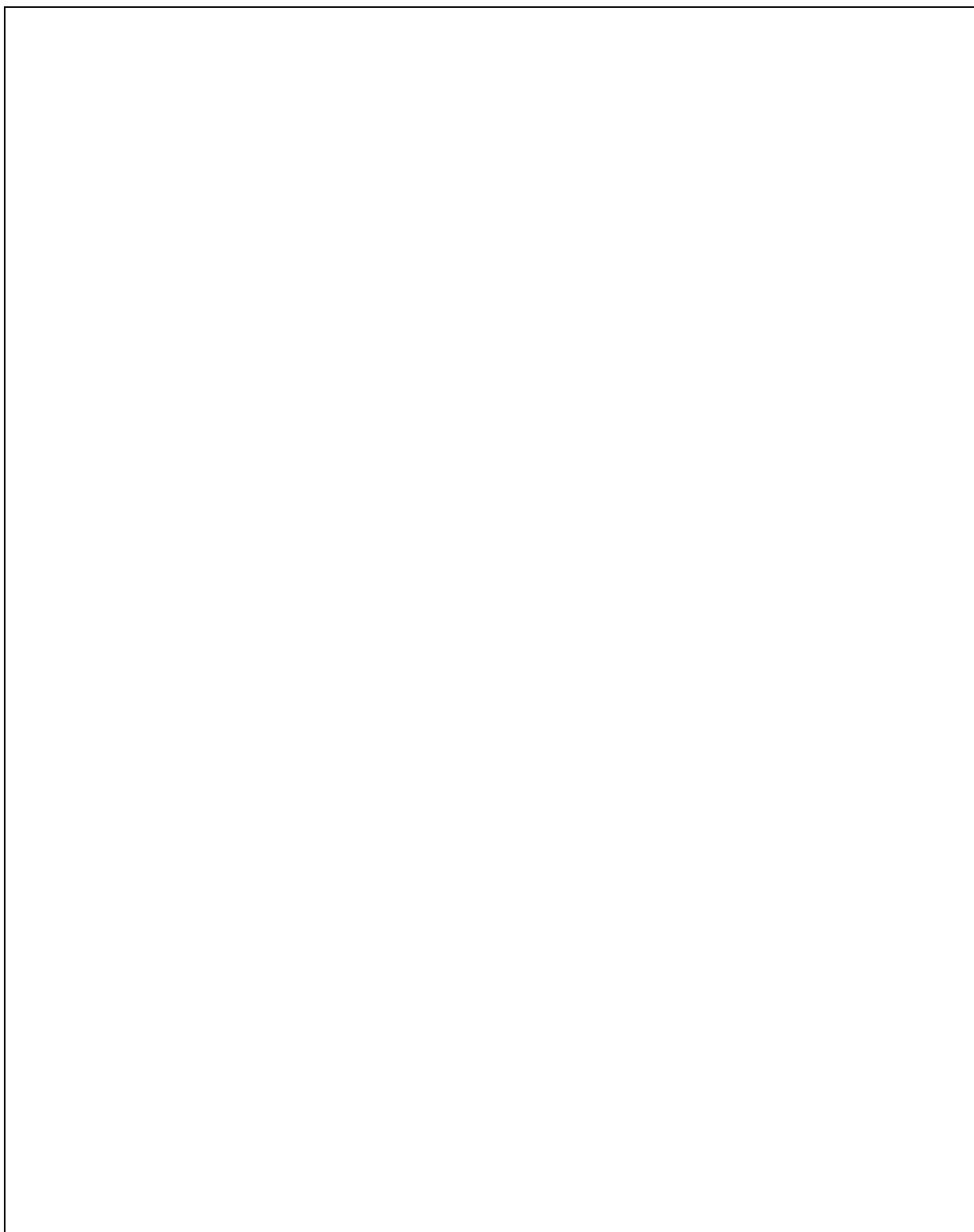
--

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

HOW THE WORKS ARE TO BE UNDERTAKEN (provide as much detail as possible, including annotated sketches and plans where possible):



Note: please give too much information rather than too little. Please ensure that issues such as emergency procedures, hydrocarbon management, wastewater management, access, individual responsibilities, materials, plant used, maintenance of plant, protection of natural features, etc. are covered where relevant

DECLARATIONS

1) ENGINEER'S REPRESENTATIVE/ENVIRONMENTAL OFFICER/ENVIRONMENTAL CONTROL OFFICER

The work described in this Method Statement, if carried out according to the methodology described, appears to be satisfactorily mitigated to prevent avoidable environmental harm:

(signed)

(print name)

Dated: _____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to other signatories and that the Engineer's Representative/Environmental Officer/Environmental Control Officer will audit my compliance with the contents of this Method Statement. I understand that this method statement does not absolve me from any of my obligations or responsibilities in terms of the Contract.

(signed)

(print name)

Dated: _____

3) ENGINEER

The works described in this Method Statement are approved.

(signed)

(print name)

(designation)

Dated: _____

ANNEXURE B: ENVIRONMENTAL SITE INSPECTION CHECKLIST
















To be submitted to the Engineer once a week

CONTRACT:.....
DATE:.....

ENVIRONMENTAL ASPECT	YES/ NO (✓ or X)	COMMENTS
• All new personnel on Site are aware of the contents of the EMP and have been through the environmental awareness course.		
• Contractor's camp is neat and tidy and the labourers' facilities are of an acceptable standard.		
• Sufficient and appropriate fire fighting equipment is visible and readily available in the appropriate places.		
• Waste control and removal system is being maintained.		
• Fences are being maintained.		
• Drip trays are being utilised where there is a risk of spillage.		
• Bunded areas/drip trays are being emptied on a regular basis (especially after rain).		
• No leaks are visible from construction vehicles.		
• Refuelling of vehicles and plant occurs within designated areas, and appropriate refuelling apparatus and drip trays are being used.		
• "No go" areas, natural features, vegetation, etc. have not been damaged.		
• Dust control measures (if necessary) are in place and are effectively controlling dust.		
• Noise control measures (if necessary) are in place and are working effectively.		
• Erosion and sedimentation control measures (if necessary) are in place and are controlling effectively.		
• Material stockpiles are located within the boundary of the Site and are protected from erosion.		
• Other		

Completed by:.....
Signed:.....

ANNEXURE C: CONSTRUCTION PERSONNEL INFORMATION POSTER

ENVIRONMENTAL MANAGEMENT DO'S AND DON'TS		
		
Workers & equipment must stay inside the site boundaries at all times	Do not swim in or drink from streams	Use the toilet provided Report full or leaking toilets
	Do not throw oil, petrol, diesel, concrete or rubbish in the stream	
Do not work in the stream without direct instruction	Do not damage the banks or vegetation of the stream	Only eat in demarcated eating areas Never eat or drink in the stream Put packaging & leftover food into rubbish bins
	Protect animals on the site	
Ask your supervisor or Contract's Manager to remove animals found on site		Do not litter - put all rubbish (especially cement bags) into the bins provided Report full bins to your supervisor The responsible person should empty bins regularly
	Do not damage or cut down any trees or plants without permission	
Do not pick flowers		Always keep to the speed limit Drivers - check & report leaks Ensure loads are secure & do not spill
	Put cigarette butts in a rubbish bin	
Do not smoke near gas, plants or petrol	Do not light fires without permission	Know all the emergency phone numbers
Know the locations of fire fighting equipment	Report all fires	
Do not burn rubbish or vegetation without permission	Work with petrol, oil & diesel in areas marked for this	Fines of between R1000 and R4000 Removal from site Construction may be stopped
Report any petrol, oil & diesel leaks or spills	Use a drip tray under vehicles & machinery	
Empty drip trays after rain & do not throw this water into a river		
	Try to avoid producing dust - wet dry ground & soil	Report any breaks, floods, fires, leaks and injuries to your supervisor Ask questions!
	Do not make loud noises around the site, especially near sensitive areas	
Report or repair noisy vehicles		

ANNEXURE D: ADDITIONAL ENVIRONMENTAL ISSUES DEEMED TO FORM PART OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

Listed below are issues pertaining to the environment that form part of the Contract Document. The Sub-Clause references relate to the **General Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition, 1999 (Yellow Book) published by the International Federation of Consulting Engineers (FIDIC)**. They are listed here to emphasise that they form part of the environmental considerations and requirements for this project. They must be read together with any Particular Conditions referring thereto in Part C1.2 Contract Data.

1. Compliance with applicable Laws

Sub-Clause 1.13 requires that the Contractor comply with all applicable laws, regulations, etc. in fulfilling the Contract.

2. Health and safety

Sub-Clauses 1.13, 4.8 and 6.7 remind the Contractor of his obligations in terms of the Occupational Health and Safety Act, 85 of 1993 and Construction Regulations, 2014.

Clause 5.7 of SANS 1200A reinforces these requirements through the observation of proper and adequate safety arrangements.

3. Access to the Works

Sub-Clauses 2.1, 2.3, 3.2 and 7.3 make provision for the Engineer to authorise the Environmental Officer (EO) to have access to the Works and Site.

4. Monitoring

Sub-Clause 3.1 makes provision for the Engineer to exercise his authority as specified or implied in the Contract, including the monitoring of any environmental variables.

5. Engineer's authority to delegate

Sub-Clause 3.2 gives the Engineer the authority to appoint an assistant to act as the Environmental Officer (EO) for the Contract. The EO, who shall be responsible for monitoring compliance with the EMP, may be the Engineer's Representative or any other person accountable to the Engineer.

6. Engineer's instructions

Sub-Clause 3.3 requires that the Contractor comply with the Engineer's instructions on any matter relating to the Contract. Moreover, this Sub-Clause ensures that the Contractor only takes instructions from the Engineer, or from an assistant authorised by the Engineer in terms of Clause 3.

7. Pollution prevention and interferences

Sub-Clauses 4.14 and 4.18 require that the Contractor takes all reasonable steps to limit damage and nuisance caused by noise or pollution, and not interfere unnecessarily or improperly with the convenience of the public, or the access to, use and occupation of all public or private roads and footpaths.

Clause 5.6 of SANS 1200A further requires the Contractor to minimise dust nuisance and pollution of streams and inconvenience to or interference with the public.

8. Protection of existing environment

Sub-Clause 4.15 requires that the Contractor uses reasonable efforts, including proper use of appropriate vehicles and routes, to prevent any road or bridge to the Site being subjected to damage occasioned by his transport arrangements, and shall have satisfied himself as to the suitability of access routes to the Site.

9. Dust

Sub-Clause 4.18 requires that the Contractor takes all reasonable steps to limit damage and nuisance resulting from pollution caused by his operations, both on and off Site.

Clause 5.6 of SANS 1200A requires that the Contractor take all reasonable measures to minimise any dust nuisance.

10. Noise

Clause 4.18 requires that the Contractor takes all reasonable steps to limit nuisance resulting from noise caused by his operations, both on and off Site.

Clause 4.1 of SANS 1200A requires that when working in built-up areas, the Contractor shall provide and use suitable and effective silencing devices for pneumatic tools and other plant that would otherwise cause a noise level exceeding 85dB.

11. Reporting accidents

Sub-Clause 4.21 (g) requires the Contractor to report to the Engineer details of hazardous incidents and activities relating to environmental aspects in his monthly progress reports.

12. Site clean-up

Sub-Clause 4.23 requires that, on completion of the Works, the Contractor shall clear away and remove from the Site all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works, and leave the Site and Works in a clean and safe condition. However, such Contractor's Equipment, material and Temporary Works as are required during the Defects Notification Period may be retained on Site.

Sub-Clause 11.11 requires that, upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site. If they have not been removed within 28 days after the Employer receives a copy of the Performance Certificate, the Employer may sell or otherwise dispose of the remaining items and shall be entitled to recover the costs for such disposal and restoring the Site from the Contractor.

13. Protection of fossils, etc.

Sub-Clause 4.24 requires the Contractor to take reasonable precautions to prevent any person from damaging, *inter alia*, anything of geological or archaeological interest, and requires that he inform the Engineer and follows any instructions issued in this regard.

14. Housing, food and transport

Sub-Clauses 6.1 and 6.6 require the Contractor to make his own arrangements for payment, housing, feeding and transport for his employees, and unless otherwise stated in the Scope of Work, provide all necessary accommodation and welfare facilities.

Clause 4.2 of SANS 1200A further requires that facilities provided comply with local authority regulations and are maintained in a clean and sanitary condition.

15. Hours of operation

Sub-Clause 6.5 restricts the Contractor's hours of operation to between sunrise and sunset on working days (Monday to Friday) (refer to Appendix to Tender and Particular Conditions), unless, *inter alia*, permitted by the Engineer.

Sub-Clause 6.5 further requires that in the event of an emergency the Engineer shall be immediately advised of work being carried out outside such times.

16. Competent employees

Sub-Clause 6.9 requires that all persons employed on Site are qualified, skilled and experienced. These attributes embrace knowledge of the environmental matters and issues dealt with in the EMP.

17. Removal from Site

Sub-Clause 6.9 makes provision for the Engineer to instruct the removal from the Works and Site of any person who persists in conduct prejudicial to protection of the environment.

18. Unacceptable documentation

Sub-Clause 8.1 in the Particular Conditions requires the Contractor to provide documentation required before being permitted to commence executing the Works. Such documentation includes the Protection of the Environment Declaration provided for in the Contract Document. Furthermore, the Contractor will not be given access to the Site until the required Environmental Method Statements have been submitted.

19. Programme and Method Statements

Sub-Clause 8.3 makes provision for the Engineer to request the programmes for carrying out the Works.

Sub-Clause 8.3 (d) makes provision for a supporting report including methods the Contractor intends to adopt. In the case of the environmental specifications, these would be submitted as Method Statements.

20. Suspension of Works

Sub-Clause 8.8 enables the Engineer to suspend the progress of the Works or any part thereof, which may be as a result of some default or breach of the Contract on the part of the Contractor.

21. Reinstatement

Sub-Clauses 17.1 and 17.2 make provision for the Contractor to rectify any loss or damage to the Works in his care (other than "Employer's Risks"), and bear any costs associated with such rectification.

3.5.6. HEALTH AND SAFETY

H: HEALTH AND SAFETY SPECIFICATION

For use with the General Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition, 1999 (Yellow Book) published by the International Federation of Consulting Engineers (FIDIC).

G1 DEFINITIONS

For the purposes of this Specification, the definitions given in the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014, and the following definitions, shall apply:

- a) "Construction Regulations, 2014" means the Construction Regulations (GNR. 84 of 7 February 2014) published in terms of the OHS Act.
- b) "Contractor" means the Principal Contractor as defined in the Construction Regulations, 2014.
- c) "Employer" means the Client or his agent as defined in the Construction Regulations, 2014.
- d) "Engineer" means the person/firm so named in the Contract Data whose function is to administer the Contract as agent of the Employer, acting through, if appointed, a Health and Safety Agent.
- e) "OHS Act" means the Occupational Health and Safety Act, 85 of 1993.
- f) "subcontractor" means any contractor employed by the Contractor to perform construction work.

G2 SCOPE

In terms of the OHS Act and the Construction Regulations, 2014 the Employer must provide the Contractor with a Health and Safety Specification, to which the Contractor must respond with a Health and Safety Plan for approval by the Employer.

The purpose of this Specification is to ensure that a contractor entering into a contract with the Employer maintains an acceptable level of compliance with regard to health and safety issues during the performance of the Contract. In this regard the Health and Safety Specification forms an integral part of the Contract and the Contractor shall ensure that his subcontractors and/or suppliers comply with the requirements of this Specification.

G3 INTERPRETATION

The OHS Act and its associated regulations shall have precedence in the interpretation of any ambiguity or inconsistency between it and this Specification.

Responsibility for health and safety relating to the Works lies with the Contractor as described in this Specification. Nothing stated in or omitted from this Specification shall in any way limit the Contractor's obligations and liabilities in terms of the OHS Act.

G4 GENERAL REQUIREMENTS

The Contractor shall:

- a) create and maintain a safe and healthy work environment;

- b) execute the Works in a manner that complies with all the requirements of the OHS Act and all its associated regulations, and in so doing, minimize the risk of incidents occurring; and
- c) respond to the instructions issued by the Engineer through the Engineer's Representative, except in the case of a health and safety issue which requires the Contractor's immediate attention, in which case the Employer's Health and Safety Agent can issue an instruction directly to the Contractor.

G5 ADMINISTRATION

G5.1 Application for construction work permit

Not applicable until 7 August 2015.

G5.2 Notification of intention to commence construction work

The Contractor shall notify the Provincial Director of the Department of Labour in writing using the pro forma contained in Annexure 2 of the Construction Regulations, 2014 before construction work commences, and retain a copy of such notification in the health and safety file, if such work will:

- a) include excavation work;
- b) include working at a height where there is a risk of falling;
- c) include the demolition of a structure; or
- d) include the use of explosives to perform construction work.

The Contractor shall ensure that no work commences on an electrical installation which requires a new supply or an increase in electricity supply before the person who supplies or contracts or agrees to supply electricity to that electrical installation has been notified of such work.

The Contractor shall ensure that no asbestos work is carried out before the Provincial Director of the Department of Labour has been notified in writing.

G5.3 Occupational Health and Safety Agreement

The Contractor shall enter into an Agreement with the Employer before the commencement of the Works on Site.

G5.4 Good standing with the Compensation Fund or a licensed compensation insurer

The Contractor shall provide the Engineer with a letter of good standing from the Compensation Commissioner or a licensed compensation insurer before the commencement of the Works on Site.

G5.5 Emergency procedures

The Contractor shall submit for acceptance to the Engineer a health and safety emergency procedure, which includes but is not limited to fire, spills, accidents and exposure to hazardous substances, which:

- a) identifies the key personnel who are to be notified of any emergency;
- b) sets out details of available emergency services, including contact particulars; and
- c) the actions or steps which are to be taken during an emergency.

The Contractor shall within 24 hours of an emergency taking place notify the Engineer in writing of the emergency and briefly outline what happened and how it was dealt with.

G5.6 Health and safety file

The Contractor shall ensure that a Health and Safety file, which shall include all documentation required in terms of the provisions of the OHS Act, the Construction Regulations, 2014 and this Health and Safety Specification, is open and kept on Site at all times.

The Health and Safety file shall be made available for inspection by any inspector, subcontractor, the Employer, the Engineer, the Employer's Health and Safety Agent, or employee of the Contractor, upon the request of such persons.

The Contractor shall hand over the Health and Safety file to the Engineer upon Works completion of the Contract and, if applicable, a certificate of compliance accompanied by a test report for the electrical installation in accordance with the provisions of the Electrical Installation Regulations, 1992.

G5.7 Health and safety committee

Where applicable, the Contractor shall establish a health and safety committee, and shall convene health and safety meetings as provided for in the OHS Act.

The Engineer or the Employer's Health and Safety Agent shall be invited to attend such meetings as an observer.

The Contractor shall ensure that minutes of the health and safety committee meetings are kept.

G5.8 Inspections, formal enquires and incidents

The Contractor shall inform the Engineer:

- a) beforehand of inspections, investigations or formal inquiries of which he has been notified by an inspector; and
- b) as soon as reasonably practicable of the occurrence of an incident (as defined in the OHS Act) on the Site.

The Contractor shall record all incidents and notify the Engineer of any incident, except in the case of a traffic accident on a public road, as soon as possible after it has occurred and report such incident to an inspector as designated in terms of the OHS Act.

The Contractor shall investigate all incidents and issue the Engineer with copies of such investigations.

G5.8 Personal protective equipment and clothing

The Contractor shall ensure that all workers are issued with the necessary personal protective clothing.

G6 APPOINTMENTS

G6.1 Appointment of construction manager

The Contractor shall, prior to commencing the Works on Site, appoint a full-time competent person as the construction manager, with the duty of managing all construction work on a single site, including the duty of ensuring occupational health and safety compliance. In the absence of the construction manager an alternative must be appointed by the Contractor.

The Contractor may, having considered the size of the project, appoint, in writing, one or more assistant construction managers for different sections thereof.

No construction manager may manage any construction work on or in any construction site other than the Site in respect of which he or she has been appointed.

G6.2 Appointment of construction supervisor, and health and safety officers

The construction manager shall appoint a competent employee(s) in writing as the construction supervisor(s) for the Site, who will be responsible for construction activities and ensuring occupational health and safety compliance on the construction site. The Contractor may, having considered the size of the project, appoint, in writing, one or more competent employees to assist the appointed construction supervisor(s).

The Contractor may, having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the Site, appoint a full-time or part-time construction health and safety officer in writing, who has in the Contractor's opinion the necessary competencies and resources, to assist the Contractor in the control of all health and safety related aspects on the Site.

The Contractor shall compile and maintain an organogram which outlines the roles and responsibilities of the construction supervisor's assistants, and health and safety officers.

G6.3 Other competent persons

The Contractor shall appoint in writing competent persons to supervise or inspect, as relevant, any of the following:

- a) temporary works operations;
- b) excavation work;
- c) demolition work;
- d) scaffolding work operations;
- e) suspended platform work operations;
- f) rope access work;
- g) material hoists;
- h) operation of bulk mixing plant;
- i) explosive activated fastening device;
- j) cranes;
- k) construction vehicles and mobile plant (equipment);
- l) the stacking and storage of articles on the Site; and

- m) fire equipment.

The Contractor shall appoint in writing competent persons to:

- l) induct employees in health and safety; and
- m) prepare a fall protection plan.

H6.4 Health and safety representative(s)

The Contractor shall appoint in writing, if necessary in terms of the OHS Act, a health and safety employee representative(s), whose duties shall be as described in the OHS Act.

H7 EMPLOYER'S HEALTH AND SAFETY AGENT

The Employer's Health and Safety Agent shall:

- a) audit the Contractor's compliance with the requirements of this Specification prior to the commencement of any physical construction activities on the Site;
- b) accept or reject all safety plans, giving reasons for rejecting such plans;
- c) monitor the effective implementation of all safety plans;
- d) conduct periodic and random audits on the health and safety file to establish compliance with the requirements of this Specification and the Contractor's health and safety plan; and
- e) visit the site at regular intervals to conduct site inspections, and based upon such visits issue, wherever necessary, any notices and/or instructions to the Contractor or any of the Contractor's subcontractors with a copy to the Engineer and, where relevant, to the Contractor.

The Contractor shall invite the Employer's Health and Safety Agent to audit compliance with the requirements of this Specification before commencing with any new construction activity on the Site.

The Contractor shall permit the Employer's Health and Safety Agent to audit the Contractor's compliance with the approved Health and Safety Plan, and shall provide any assistance and/or documentation as may be required in this regard.

H8 CREATING AND MAINTAINING A SAFE AND HEALTHY WORK ENVIRONMENT

G8.1 General

The Contractor shall with respect to the Site and the construction works that are contemplated:

- a) cause a preliminary hazard identification to be performed by a competent person before commencing any physical construction activity;
- b) evaluate the risks associated with such work constituting a hazard to the health and safety of such employees and the steps that need to be taken to comply with the OHS Act; and
- c) as far as is reasonably practicable, prevent the exposure of such employees to the hazards concerned or, where prevention is not reasonably practicable, minimize such exposure.

The Contractor shall ensure that:

- d) all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;
- e) no structure or part of a structure is loaded in a manner which would render it unsafe;
- f) relevant information, if any, provided by the designer of the structure is taken into account in the risk assessment; and
- g) the designer of any temporary works complies with the requirements of regulation 6(2) of Construction Regulations, 2014.

The Contractor shall carry out regular inspections and audits to ensure that the Works are being performed in accordance with the requirements of this Specification and the Contractor's health and safety plan

H8.2 Risk assessment

The Contractor shall before the commencement of any construction work on Site and during such construction work, cause risk assessment(s) to be performed by a competent person appointed in writing. Such assessment(s) shall as a minimum:

- a) identify the risks and hazards to which persons may be exposed to;
- b) analyse and evaluate the identified risks and hazards based on a documented method;

- c) document a plan of safe work procedures, including the use of any personal protective equipment or clothing and the undertaking of periodic “toolbox talks” or inductions before undertaking hazardous work, in order to mitigate, reduce or control the risks and hazards that have been identified;
- d) provide a monitoring plan; and
- e) provide a review plan.

The Contractor shall ensure that as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated and addressed in the risk assessment.

The Contractor must review the relevant risk assessment –

- f) where changes are effected to the design and or construction that result in a change to the risk profile; or
- g) when an incident has occurred.

H8.3 Health and safety plans

The Contractor shall prior to commencing the Works to which this Specification applies, submit to the Employer's Health and Safety Agent for approval a suitable and sufficiently documented health and safety plan, based on this Specification and the risk assessment that is conducted.

H8.4

The health and safety plan shall include, but not be limited to, the following:

H8.5

- a) The safety management structure, including the names of all designated persons such as the construction supervisor and any other competent persons;
- b) Safety method statements and procedures to be adopted to ensure compliance with the OHS Act; Construction Regulations, 2014 and this Health and Safety Specification;
- c) The provision and use of temporary services;
- d) Personal protective equipment, devices and clothing required;
- e) Emergency procedures;
- f) Provision of workers' welfare facilities;
- g) Induction and training;
- h) Arrangements for monitoring and control to ensure compliance with the safety plan; and
- i) Provision and maintenance of the health and safety file and all other relevant documentation.

The Contractor shall provide each subcontractor with the sections of this Health and Safety Specification pertaining to the construction work to be performed by that subcontractor. The subcontractor shall provide the Contractor with a health and safety plan pertaining to his work, for incorporation into the Contractor's health and safety plan.

The Contractor shall discuss the submitted health and safety plan with the Employer's Health and Safety Agent, modify such plan in the light of the discussions and resubmit the modified plan for approval.

The Contractor shall apply the approved health and safety plan from the date of its approval and for the duration of the Works to which this Specification applies.

The Contractor shall conduct periodic audits for compliance with the approved health and safety plan at intervals agreed upon with the Employer's Health and Safety Agent, but at least once every month.

The Contractor shall update the health and safety plan whenever changes to the Works are brought about.

H8.4 Responsibilities towards employees and visitors

The Contractor shall, as far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted to use, as well as with the precautionary measures which should be taken and observed with respect to those hazards or safe work procedures.

The Contractor shall ensure that all employees under his control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment.

The Contractor shall cause a record of all induction training to be kept, which indicates the names, identity numbers and job description of all those who attended such training.

The Contractor shall not allow or permit any employee to enter the Site, unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the Site at the time of entry.

The Contractor shall ensure that all of his employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner on the prescribed form.

The Contractor shall ensure that each visitor to the Site, save where such visitor only visits the site office and is not in direct contact with the construction work activities:

- a) undergoes health and safety instruction pertaining to the hazards prevalent on the Site; and
- b) is in possession of and using the necessary personal protective equipment.

The Contractor shall cause a record of all induction training to be kept in the Health and Safety file.

The Contractor shall provide suitable on-site signage to alert workers and visitors to health and safety hazards and requirements. Such signage shall include but not be limited to:

- c) prohibited unauthorized entrance;
- d) signage to indicate what personal protective equipment is to be worn; and
- e) activity related signs.

The Contractor shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace.

H8.5 Subcontractors

The Contractor may only subcontract work in terms of a written subcontract and shall only appoint a subcontractor should he be reasonably satisfied that such a subcontractor has the necessary competencies and resources to safely perform the work falling within the scope of the subcontract.

The Contractor shall ensure that all of his obligations in respect of subcontractors in terms of the Construction Regulations, 2014 are adhered to.

H8.6 Work permits and wayleaves

The Contractor shall be responsible for obtaining all the wayleaves, permissions or permits applicable to working near any existing services or other infrastructure on Site, and shall abide by the safety conditions imposed by such wayleaves, permissions or permits.

H8.7 Access to the Site

The Contractor shall ensure that access to the Site is strictly controlled and that, where possible, only authorised persons are permitted onto the Site.

The Contractor shall control the access to Site of his own personnel and equipment, and that of his subcontractors and suppliers, in such a way so as to ensure that the safety of all public pedestrian and vehicular traffic is not compromised.

H8.8 First aid and emergency procedures

The Contractor shall, where more than five employees are employed at a workplace, provide a first aid box or boxes at or near the workplace, which shall be available and accessible for the treatment of injured persons at that workplace. Such first aid boxes shall contain suitable first aid equipment.

The Contractor shall ensure, where there are more than 10 employees employed on the Site, that for every group of up to 50 employees at that workplace at least one person is readily available during normal working hours who is in possession of a valid certificate of competency in first aid.

The following information shall be conspicuously posted in the offices of the Contractor for the duration of the Contract:

Telephone numbers of emergency services;
The names of all safety representatives and safety officers; and
The name(s) of the competent first aider(s).

The Contractor shall post, in prominent places, notices indicating where the first aid box(es) is/are kept, as well as the name of the person in charge of the first aid box.

H8.9 Housekeeping

The Contractor shall ensure, *inter alia*, that suitable housekeeping is continuously implemented on the Site, including provision for the:

removal of scrap, waste and debris, and materials which are no longer required for use, at appropriate intervals (in accordance with Construction Regulation 27); and
proper stacking and storage of materials and equipment (in accordance with Construction Regulations 27 and 28).

H8.10 Fire precautions

The Contractor shall ensure that all appropriate measures are taken to minimise the risk of fire and that appropriate procedures and equipment are in place to deal with the event of a fire, all in accordance with Construction Regulation 29 and the Environmental Management Specification in Part C3.5 of the Scope of Work.

H8.11 Facilities for workers

The Contractor shall provide ablution facilities and eating areas all as specified in the Environmental Management Specification in Part C3.5 of the Scope of Work.

H2 GENERAL HAZARDS AND RISKS APPLICABLE TO WORK REQUIRED IN TERMS OF THIS TERM TENDER

G9.1 Existing Site conditions
To be updated.

G9.2 Information provided by the designer (CR 6(1))
To be updated.

G9.3 Environmental hazards
To be updated.

G9.4 Traffic hazards
To be updated.

G9.5 Construction materials (hazardous substances)
To be updated.

G9.6 Fall protection (working at heights) (CR 10)
To be updated.

G9.7 Structures (CR 11)
To be updated.

G9.8 Temporary works (CR 12)

Not applicable.

G9.9 Excavation work (CR 13)

Not applicable.

G9.10 Demolition work (CR 14)

Not applicable.

G9.11 Tunnelling (CR 15)

Not applicable.

G9.12 Scaffolding (CR 16)

Not applicable.

G9.13 Suspended platforms (CR 17)

Not applicable.

G9.14 Rope access work (CR 18)

Not applicable.

G9.15 Material hoists (CR 19)

Not applicable.

G9.16 Bulk mixing plant (CR 20)

G9.17	Not applicable. Explosive actuated fastening device (CR 21)
G9.18	Not applicable. Cranes (CR 22)
G9.19	Not applicable. Construction vehicles and mobile plant (equipment) (CR 23)
G9.20	Not applicable. Electrical installations and machinery (CR 24)
G9.21	To be updated. Flammable liquids (CR 25)
G9.22	Not applicable. Water environments (CR 26)
G9.23	Not applicable. Overhead Work (CR 27(g))
G9.24	Not applicable. Confined spaces
G9.25	Not applicable. Other hazards...
	Not applicable.]

C3.6 Annexes

CONTENTS

Annex 1: Monthly Project Labour Report

Annex 2: B-BBEE Sub-Contract Expenditure Report

Annex 3: Joint Venture Expenditure Report

Annex 4: Targeted Labour Contract Participation Expenditure Report: Not applicable.

Annex 5: Targeted Enterprises Contract Participation Expenditure Report: Not applicable.

Annex 6: Health and Safety Specification

Annex 7: Environmental Management Specification

ANNEX 1

CITY OF CAPE TOWN MONTHLY PROJECT LABOUR REPORT



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Instructions for completing and submitting forms

General

- 1 The Monthly Project Labour Reports must be completed in full, using typed, proper case characters; alternatively, should a computer not be available, handwritten in black ink.
- 2 Incomplete / incorrect / illegible forms will not be accepted.
- 3 Any conditions relating to targeted labour stipulated in the Contract (in the case of contracted out services or works) shall apply to the completion and submission of these forms.
- 4 This document is available in Microsoft Excel format upon request from the City's EPWP office, tel 021 400 9406, email EPWPLR@capetown.gov.za.

Project Details

- 5 If a field is not applicable insert the letters: NA
- 6 Only the Project Number supplied by the Corporate EPWP Office must be inserted. The Project Number can be obtained from the Coordinator or Project Manager or from the e-mail address in point 4 above.
- 7 On completion of the contract or works project the anticipated end date must be updated to reflect the actual end date.

Beneficiary Details and Work Information

- 8 Care must be taken to ensure that beneficiary details correspond accurately with the beneficiary's ID document.

- 9 A new beneficiary is one in respect of which a new employment contract is signed in the current month. A certified ID copy must accompany this labour report on submission.
- 10 Was the beneficiary sourced from the City's job seeker database?
- 11 The contract end date as stated in the beneficiary's employment contract.
- 12 Where a beneficiary has not worked in a particular month, the beneficiary's name shall not be reflected on this form at all for the month in question.
- 13 Training will be recorded separately from normal working days and together shall not exceed the maximum of 23 days per month
- 14 Workers earning more than the maximum daily rate (currently R450 excluding any benefits) shall not be reflected on this form at all.

Submission of Forms

- 15 Signed hardcopy forms must be scanned and submitted to the City's project manager in electronic (.pdf) format, together with the completed form in Microsoft Excel format.
- 16 Scanned copies of all applicable supporting documentation must be submitted along with each monthly project labour report. Copies of employment contracts and ID documents are only required in respect of new beneficiaries.
- 17 If a computer is not available hardcopy forms and supporting documentation will be accepted.

PROJECT DETAILS

Numbers in cells below e.g (6) refer to the relevant instruction above for completing and submitting forms

CONTRACT OR WORKS PROJECT NAME: (6)		EPWP SUPPLIED PROJECT NUMBER: (6)	
DIRECTORATE:		DEPARTMENT:	
CONTRACTOR OR VENDOR NAME:		CONTRACTOR OR VENDOR E-MAIL ADDRESS:	
CONTRACTOR OR VENDOR CONTACT PERSON:		CONTRACTOR OR VENDOR TEL. NUMBER:	CELL WORK
PROJECT LABOUR REPORT CURRENT MONTH (mark with "X")			
JAN	FEB	MAR	APR
MAY	JUN	JUL	AUG
SEP	OCT	NOV	DEC
YEAR			

ACTUAL START DATE (yyyy/mm/dd)		ANTICIPATED / ACTUAL END DATE (yyyy/mm/dd) (7)	
TOTAL PROJECT EXPENDITURE / VALUE OF WORK DONE TO-DATE (INCLUDING ALL COSTS, BUT EXCLUDING VAT)			
R			

MONTHLY PROJECT LABOUR REPORT

BENEFICIARY DETAILS AND WORK INFORMATION



CITY OF CAPE TOWN
ISIIXEKO SASEKAPA
STAD KAAPSTAD

CONTRACT OR WORKS PROJECT NUMBER:				Year Month		Sheet 1 of	
--------------------------------------	--	--	--	---------------	--	------------------	--

No.	(8) First name	(8) Surname	(8) ID number	(9) New Beneficiary (Y/N)	Gender (M/F)	Disabled (Y/N)	(10) Job seeker database (Y/N)	Contract start date (DDMMYY)	(11) Contract end date (DDMMYY)	(12) No. days worked this month (excl. training)	(13) Training days	(14) Rate of pay per day (R – c)
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

0 0 R -

Declared by Contractor or Vendor to be true and correct:	Name		Signature	
	Date			

Received by Employer's Agent / Representative:	Name		Signature	
	Date			

ANNEX 2

CITY OF CAPE TOWN

CONTRACT NO. AND NAME:

CONTRACTOR:

B-BBEE SUB-CONTRACT EXPENDITURE REPORT BASED ON PAYMENT CERTIFICATE NO.

Value of the contract (as defined in the Preference Schedule) (P*)	R	B-BBEE Status Level of Prime Contractor	
--	---	---	--

Name of Sub-contractor (list all)	B-BBEE Status Level of Sub-contractor ¹	Total value of Sub-contract (excl. VAT) ¹	Value of Sub-contract work to date (excl. VAT) ¹	Value of Sub-contract work to Sub-contractors with a lower B-BBEE Status Level than Prime Contractor
Sub-contractor A		R	R	R
Sub-contractor B		R	R	R
Sub-contractor C		R	R	R

¹Documentary evidence to be provided

Total:
Expressed as a
percentage of P* %

Signatures

Declared by Contractor
to be true and correct:

Date:

Verified by Engineer/
Engineer's Agent's
Representative:

Date:

ANNEX 3

CITY OF CAPE TOWN

CONTRACT NO. AND NAME: _____

CONTRACTOR: _____

JOINT VENTURE EXPENDITURE REPORT BASED ON PAYMENT CERTIFICATE NO.

Value of the contract (as defined in the Preference Schedule) (P*)	R	B-BBEE Status Level of Joint Venture	
--	---	--------------------------------------	--

Name of Joint Venture partner (list all)	B-BBEE Status Level of each JV partner as at contract award	Percentage contribution of JV partner per JV Agreement ¹ A	Total value of JV partner's contribution (excl. VAT) ¹ B = A% x P*	Value of JV partner's contribution to date (excl. VAT) ¹ C	Value of JV partner's contribution as a percentage of the work executed to date D = C/P*x100
JV Partner A		%	R	R	%
JV Partner B		%	R	R	%
JV Partner C		%	R	R	%

¹Documentary evidence to be provided

Signatures

Declared by Contractor
to be true and correct:

Date:

Verified by Engineer/
Engineer's
Representative:

Date:

ANNEX 4: NOT APPLICABLE

CITY OF CAPE TOWN

CONTRACT NO. AND NAME: _____

CONTRACTOR: _____

TARGETED LABOUR CONTRACT PARTICIPATION EXPENDITURE REPORT BASED ON CERTIFICATE NO.

Value of the contract (as defined in the Preference Schedule) (P*)	R	Specified Targeted Labour Contract Participation Goal	%
--	---	---	---

Name of Contractor/Sub-contractor (list all)	Total previous expenditure on wages in respect of targeted labour	Net Amount for this month ¹	Total expenditure on wages in respect of targeted labour
Contractor	R	R	R
Sub-contractor A	R	R	R
Sub-contractor B	R	R	R

¹ Documentary evidence to be provided	Total:	R
	Expressed as a percentage of P*	%

Signatures

Declared by Contractor to be true and correct: _____

Date _____

Verified by Engineer/Engineers' Representative: _____

Date _____

ANNEX 5: NOT APPLICABLE

CITY OF CAPE TOWN

CONTRACT NO. AND NAME:

CONTRACTOR:

TARGETED ENTERPRISES CONTRACT PARTICIPATION EXPENDITURE REPORT BASED ON CERTIFICATE NO.

Value of the contract (as defined in the Preference Schedule) (P*)	R	Specified Targeted Enterprises Contract Participation Goal	%
--	---	--	---

Name of targeted enterprise (list all)	Total previous expenditure (excl. VAT) to targeted enterprises	Net Amount for this month ¹	Total expenditure (excl. VAT) to targeted enterprises
Targeted Enterprise A	R	R	R
Targeted Enterprise B	R	R	R
Targeted Enterprise C	R	R	R
¹ Documentary evidence to be provided			R
Total: Expressed as a percentage of P*			%

Signatures

Declared by Contractor
to be true and correct:

Date

Part C4: Site information

Pages

C4	Site information	247
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CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

C4 Site Information

CONTENTS

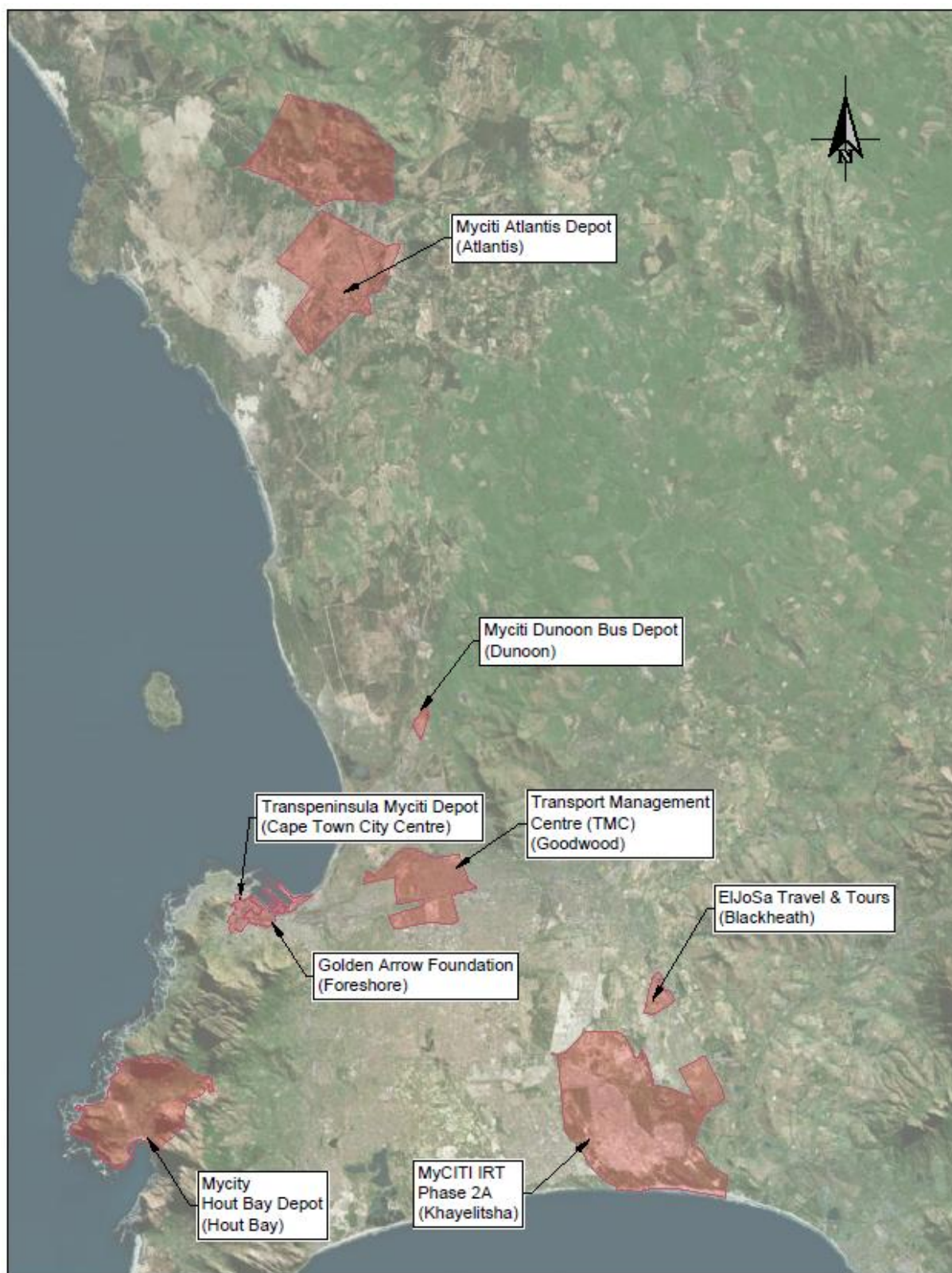
The site is located across the City of Cape Town Metropolitan area and includes all existing and new MyCiTi bus routes, stations, depots, buses, the Transport Management Centre, and the Civic Centre, located in Cape Town, Western Cape.

The MyCiTi network map and schedule information is available at <https://www.myciti.org.za/en/routes-stops/route-stop-station-map/>

An overview of the existing Phase 1 MyCiti routes is shown below.

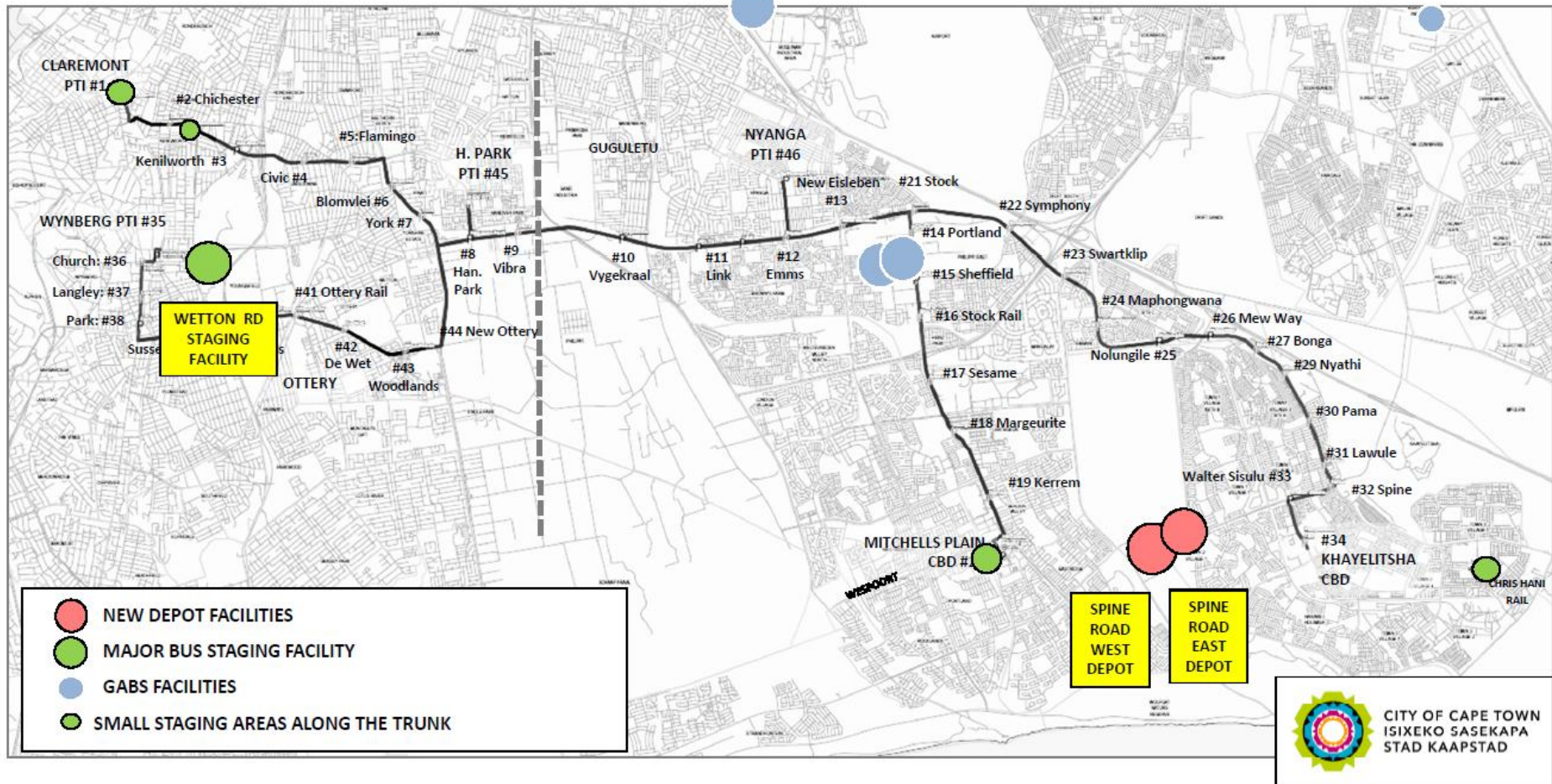
Phase 2A bus installations outside of Cape Town

Installations of materials on new Phase 2A buses shall be done at the premises of the bus manufacturer located within the wider Johannesburg and / or Ekurhuleni Metropolitan Municipal area. It shall be the Contractor's responsibility to ensure he has the materials and appropriately skilled personnel in sufficient number at the bus manufacturers facility to carry out all installations



The Phase 2A depot locality is shown below.

IRT PHASE 2A: DEPOT / STAGING LOCATIONS



1 MyCiTi phase 1 existing service (including the N2 Express services)

The existing trunk stations and depots that are part of the MyCiTi phase 1 service (including the N2 Express services) are listed below. There are a total of 42 stations with 82 platforms and 5 depots with 2 staging areas.

Table 2: MyCiTi phase 1 trunk stations

#	Type	Name/location	# Platforms
1	Station	Adderley	3
2	Station	Airport	2
3	Station	Atlantis	4
4	Station	Century City	3
5	Station	Circle East	2
6	Station	Civic Centre	12
7	Station	Gardens	2
8	Station	Granger Bay	1
9	Station	Grey	2
10	Station	Janssens	2
11	Station	Killarney	1
12	Station	Lagoon Beach	1
13	Station	Melkbosstrand	2
14	Station	Milnerton	1
15	Station	Mitchells Plain	1
16	Station	Montague Gardens	2
17	Station	Neptune	2
18	Station	Omuramba	2
19	Station	Paarden Eiland	2
20	Station	Porterfield	1
21	Station	Potsdam	1
22	Station	Queens Beach	2
23	Station	Racecourse	1
24	Station	Refinery	1
25	Station	Royal Ascot	1
26	Station	Sanddrift	1
27	Station	Sandown	1
28	Station	Section	2
29	Station	Stadium	4
30	Station	Sunset Beach	1
31	Station	Table View	3
32	Station	Thibault	2
33	Station	Turf Club	1
34	Station	Vrystaat	2
35	Station	Waterfront	1
36	Station	Wood	3
37	Station	Woodbridge	1
38	Station	Woodstock	1
39	Station	Zoarvlei	1
40	Station	Dunoon	2
41	Station	Usasaza	1
42	Station	Phoenix/Freedom	1

Table 3: MyCiTi phase 1 depots / staging areas

#	Type	Name/location	VOC
1	Depot	Stables (Dunoon)	Kidrogen
2	Depot	Woodstock	TBRT
3	Depot	Prestwich	TPI
4	Staging Area	Foreshore	TPI/TBRT/Kidrogen
5	Depot	Atlantis	Kidrogen/
6	Staging Area	Hout Bay	TPI/TBRT/Kidrogen
7	Depot	Eastgate (Blackheath)	TBRT

The MyCiTi phase 1 service is operated using a total of 345 buses from a combination of 8 bus types as summarised below.

Table 4: MyCiTi phase 1 bus types

#	Description	Size	Quantity
1	Volvo B12MA	Articulated 18m	8
2	Volvo B7RM	Rigid 12m	34
3	Volvo B7R	Rigid 12m	10
4	Optare Solo	Rigid 12m	215
5	Scania K250	Rigid 12m	30
6	Scania K310	Articulated 18m	24
7	Volvo B9L	Rigid 12m	17
8	Volvo B9LA	Articulated 18m	7

Phase 2A buses

Installations on new Phase 2A buses shall be within the wider Gauteng area.

Part C5: Returnable Documents

Pages

C5.1	List of Returnable Documents	254
C5.2	Returnable Schedules	255 – 296

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS**CONTRACT NO. 110S/2025/26****MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS****C5.1 List of Returnable Documents**

The tenderer must complete the following Returnable Documents in non-erasable **black ink**:

Returnable Schedules that will be incorporated into the Contract

Pages

1:	COMPULSORY ENTERPRISE QUESTIONNAIRE	255
2:	CERTIFICATE OF INDEPENDENT TENDER DETERMINATION	257
3:	CERTIFICATE OF AUTHORITY FOR JOINT VENTURES	259
4:	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD 8)	260
5:	DECLARATION OF INTEREST – STATE EMPLOYEES (MBD 4)	261
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Other documents required for tender evaluation purposes

- Joint Venture Agreement (if applicable) - append to Schedule 3.
- Health and Safety Plan - append to Schedule 20.
- Functionality Criteria - append to Schedule 22.

C5.2 Returnable Schedules**SCHEDULE 1: COMPULSORY ENTERPRISE QUESTIONNAIRE**

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 2a: National Treasury Central Supplier Database registration number :

Section 2b: SARS Tax Compliance Status PIN :

Section 3: cidb registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

** Complete only if sole proprietor or partnership and attach separate page if more than 3 partners*

Section 5: Particulars of companies and close corporations

Company registration number

Close corporation number

Tax reference number

Section 6: Foreign Bidding Suppliers

Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered? ☐ Yes ☐ No
If yes, enclose proof

Is tenderer a foreign based supplier for the Goods / Services / Works offered? ☐ Yes ☐ No
If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)

Questionnaire to Bidding Foreign Suppliers

a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa? ☐ Yes ☐ No

b) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa? ☐ Yes ☐ No

c) Does the tenderer have a permanent establishment in the Republic of South Africa? ☐ Yes ☐ No

d) Does the tenderer have any source of income in the Republic of South Africa? ☐ Yes ☐ No

e) Is the tenderer liable in the Republic of South Africa for any form of taxation?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<p>The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:</p> <p>i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;</p> <p>ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 or Database of Restricted Suppliers;</p> <p>iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;</p> <p>iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and</p> <p>iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.</p>		

Signed

Date

Name

Position

Enterprise
name

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SCHEDULE 2: CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting this tender for Contract No. **110S/2025/26: MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS**

in response to the invitation for the tender made by the City of Cape Town, do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:
(Name of Tenderer)

1. I have read and I understand the contents of this Certificate;
2. I understand that this tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the tenderer to sign this Certificate, and to submit this tender on behalf of the tenderer;
4. Each person whose signature appears on this tender has been authorized by the tenderer to determine the terms of, and to sign, the tender, on behalf of the tenderer;
5. For the purposes of this Certificate and this tender, I understand that the word "competitor" shall include any individual or organization, other than the tenderer whether or not affiliated with the tenderer, who:
 - (a) has been requested to submit a tender in response to this invitation to tender;
 - (b) could potentially submit a tender in response to this invitation to tender, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the tenderer and/or is in the same line of business as the tenderer;
6. The tenderer has arrived at this tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium¹ will not be construed as collusive tendering;
7. In particular, without limiting the generality of paragraph 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation);
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit a tender;
 - (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
 - (f) tendering with the intention not to win the tender;

¹Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

- 8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this invitation to tender relates;
- 9. The terms of this tender have not been, and will not be, disclosed by the tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract;
- 10. I am aware that , in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

.....
Signature

.....
Date

.....
Name

.....
Position

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SCHEDULE 3: CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This returnable schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize

Mr/Msauthorised signatory of the company,

close corporation or partnership , acting in the capacity

of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY SIGNATORY	AUTORISED
Lead partner		Signature..... Name..... Designation.....	
		Signature..... Name..... Designation.....	
		Signature..... Name..... Designation.....	
		Signature..... Name..... Designation.....	

Note :

A copy of the Joint Venture Agreement, showing clearly the **percentage contribution of each partner** to the joint venture, shall be appended to this schedule.

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SCHEDULE 4: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD 8)

Where the entity tendering is a joint venture, each party to the joint venture must sign a declaration in terms of the Municipal Finance Management Act, 56 of 2003, and attach it to this schedule.

- 1 The tender offer of any tenderer may be rejected if that tenderer or any of its directors/members have:**
 - a) abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b) been convicted for fraud or corruption during the past five years;
 - c) wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d) been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 2 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
2.1	Is the Tenderer or any of its directors listed on the National Treasury's Database of Restricted Suppliers as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website www.treasury.gov.za and can be accessed by clicking on its link at the bottom of the home page.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.1.1	If so, furnish particulars:		
2.2	Is the Tenderer or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act, 12 of 2004? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.2.1	If so, furnish particulars:		
2.3	Was the Tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.3.1	If so, furnish particulars:		
2.4	Does the Tenderer or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.4.1	If so, furnish particulars:		
2.5	Was any contract between the Tenderer and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.5.1	If so, furnish particulars:		

I, _____, the undersigned,
(full name in block letters)

certify that the information furnished on this declaration form is true and correct, and accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

.....
Signature

.....
Date

.....
Position

.....
Name of Tenderer/Contractor

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SCHEDULE 5: DECLARATION OF INTEREST – STATE EMPLOYEES (MBD 4 AMENDED)

1. No bid will be accepted from:
 - 1.1 persons in the service of the state¹, or
 - 1.2 if the person is not a natural person, of which any director, manager or principal shareholder or stakeholder is in the service of the state, or
 - 1.3 from persons, or entities of which any director, manager or principal shareholder or stakeholder, has been in the service of the City of Cape Town during the previous twelve (12) months, or
 - 1.4 from an entity who has employed a former City employee who was at a level of T14 or higher at the time of leaving the City's employ and involved in any of the City's bid committees for the bid submitted, if:
 - 1.4.1 the City employee left the City's employment voluntarily, during the previous twelve (12) months;
 - 1.5 a person who was a City employee, or an entity that employs a City employee, if
 - 1.5.1 the City employee left the City's employment whilst under investigation for alleged misconduct, or
 - 1.5.2 was facing disciplinary action or potential disciplinary action by the City, or
 - 1.5.3 was involved in a dispute against the City during the previous thirty six (36) months.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the tenderer or their authorised representative declare their position in relation to the evaluating/adjudicating authority.
3. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**
 - 3.1 Full Name of tenderer or his or her representative:.....
 - 3.2 Identity Number:
 - 3.3 Position occupied in the Company (director, trustee, shareholder²):.....
 - 3.4 Company or Close Corporation Registration Number:
 - 3.5 Tax Reference Number:.....
 - 3.6 VAT Registration Number:
 - 3.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.
 - 3.8 Are you presently in the service of the state? **YES / NO**
 - 3.8.1 If yes, furnish particulars.
.....
 - 3.9 Have you been in the service of the state for the past twelve months? **YES / NO**
 - 3.9.1 If yes, furnish particulars
.....
.....
 - 3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?
YES / NO

3.10.1 If yes, furnish particulars.

.....

.....

3.11 Are you, aware of any relationship (family, friend, other) between any other supplier and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.11.1 If yes, furnish particulars

.....

.....

3.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.12.1 If yes, furnish particulars.....

3.13 Are any spouse, child or parent of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.13.1 If yes, furnish particulars.

.....

.....

13.4 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract? **YES / NO**

3.14.1 If yes, furnish particulars:

.....

.....

3.15 Have you, or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company been in the service of the City of Cape Town in the past twelve months? **YES / NO**

3.15.1 If yes, furnish particulars

3.16 Do you have any employees who was in the service of the City of Cape Town at a level of T14 or higher at the time they left the employ of the City, and who was involved in any of the City's bid committees for this bid? **YES / NO**

3.16.1 If yes, furnish particulars

4. Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	State Employee Number

If the above table does not sufficient to provide the details of all directors / trustees / shareholders, please append full details to the tender submission.

The tenderer hereby certifies that the information set out in this schedule and/or attached thereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the employer of any other remedies available to it

Signature

Date

Name (PRINT)

(For and on behalf of the tenderer, duly authorised)

'MSCM Regulations: "in the service of the state" means to be –

(a) a member of –

- (i) any municipal council;***
- (ii) any provincial legislature; or***
- (iii) the national Assembly or the national Council of provinces;***

(b) a member of the board of directors of any municipal entity;

(c) an official of any municipality or municipal entity;

(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);

(e) an executive member of the accounting authority of any national or provincial public entity; or

(f) an employee of Parliament or a provincial legislature.

² Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

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SCHEDULE 6: CONFLICT OF INTEREST

1. The tenderer shall declare whether it has any conflict of interest in the transaction for which the tender is submitted. **(Please mark with X)**

YES		NO	
-----	--	----	--

1.1 If yes, the tenderer is required to set out the particulars in the table below:

2. The tenderer shall declare whether it has directly or through a representative or intermediary promised, offered or granted:

2.1 Any inducement or reward to the CCT for or in connection with the award of this contract; or

2.2 Any reward, gift, favour or hospitality to any official or any other role player involved in the implementation of the supply chain management policy. **(Please mark with X)**

YES		NO	
-----	--	----	--

If yes, the tenderer is required to set out the particulars in the table below:

Should the tenderer be aware of any corrupt or fraudulent transactions relating to the procurement process of the CCT, please contact the following:

The CCT's anti-corruption hotline at 0800 32 31 30 (toll free)

The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the CCT of any other remedies available to it.

Signature
Print name:
On behalf of the tenderer (duly authorised)

Date

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SCHEDULE 7: AUTHORISATION FOR THE DEDUCTION OF OUTSTANDING AMOUNTS OWED TO THE CITY OF CAPE TOWN

To: THE CITY MANAGER, CITY OF CAPE TOWN

From: _____
(Name of tenderer)

The tenderer:

- a) hereby acknowledges that according to SCM Regulation 38(1)(d)(i) the City Manager may reject the tender of the tenderer if any municipal rates and taxes or municipal service charges owed by the tenderer (or any of its directors/members/partners) to the CCT, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months; and
- b) therefore hereby agrees and authorises the CCT to deduct the full amount outstanding by the Tenderer or any of its directors/members/partners from any payment due to the tenderer; and
- c) confirms the information as set out in the tables below for the purpose of giving effect to b) above;
- d) The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract and/or steps in terms of abuse of the Supply Chain Management Policy.

Physical Business address of the Tenderer	Municipal Account number(s)

If there is not enough space for all the names, please attach the additional details to the Tender Document

Name of Director / Member / Partner	Identity Number	Physical residential address of Director / Member / Partner	Municipal Account number(s)

Signature
Print name:
On behalf of the tenderer (duly authorised)

Date

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SCHEDULE 8: DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION

Bargaining Council not applicable to this Tender.

Declaration in respect of labour legislation

The tenderer, by signing this schedule, declares that it will comply with all labour legislation, as may be applicable.

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 9: CONFIRMATION OF CITY OF CAPE TOWN SUPPLIER DATABASE REGISTRATION

CITY OF CAPE TOWN SUPPLIER DATABASE REGISTRATION		
COMPANY NAME	REGISTERED YES/NO	REGISTRATION NUMBER IF APPLICABLE

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 10: SCHEDULE OF WORK EXPERIENCE OF TENDERER

1. The tenderer must insert in the spaces provided below a list of experience in Advanced Public Transport Management System (APTMS) projects.
2. The tenderer must provide evidence of his experience, i.e. successful implementation / maintenance of the APTMS in the form of a final taking over certificate or a letter from the client indicating the value of works and that the system was successfully commissioned / maintained. Such evidence must be submitted with this Schedule.
3. The Tenderer's attention is drawn to clause C.2.1.4.5 (Minimum score for functionality) in 1.2 Tender Data for a more detailed explanation of the eligibility and functionality criteria.

EMPLOYER (NAME, TEL No. AND FAX No.)	CONSULTING ENGINEER (NAME, TEL No. AND FAX No.)	PROJECT TITLE & NATURE OF WORK	VALUE OF WORK R(m), (Excl. VAT)	COMPLETION DATE

For on-going projects the value of completed works only must be inserted in the table above.

In case the work experience claimed above was executed as part of a Joint Venture, consortium or partnership, the tenderer must indicate what proportion of the work was completed by him and multiply this with the APTMS project value. For example, if a tenderer implemented / maintained 50% of an APTMS project to the value of R 50 million, the value against which experience may be claimed is 50% * R 50 million = R 25 million

WORK EXPERIENCE IF EXECUTED IN JOINT VENTURE, CONSORTIUM OR PARTNERSHIP (“MEMBER VALUE” CARIED OVER TO “VALUE OF WORK” IN TABLE ABOVE)					
1. JOINT VENTURE, CONSORTIUM OR PARTNERSHIP (NAME) (PAST EXPERIENCE)	2.TENDERER OR MEMBER (NAME) (THIS TENDER)	3. PROJECT TITLE (SAME AS TABLE ABOVE)	4. PERCENTAGE (%) WORK EXECUTED BY TENDERER / MEMBER	5. TOTAL VALUE OF PROJECT R(m), Excl. VAT	6. MEMBER / TENDERER VALUE (4. × 5.) R(m), Excl. VAT

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

]

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SCHEDULE 11: SCHEDULE OF EQUIPMENT INSTALLATIONS AND SERVICE HISTORY

Not applicable.

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 12: CONFIRMATION OF CONTRACTOR REGISTRATION / ACCREDITATION

This schedule will be used to evaluate eligibility as stated in the Tender Data paragraph C.2.1.4.4.

Tenderers are to provide confirmation of PSIRA Registration.

PSIRA Registration Number:

Proof of valid PSIRA Registration or renewal of registration at time of tender closing must be attached to this schedule.

Note that should PSIRA registration be that of a sub-contractor, the same sub-contractor's name must be recorded in Schedule 19: Schedule of sub-contractors.

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 13: DETAILS OF QUALIFICATIONS AND EXPERIENCE OF STAFF

1. Tenderers must set out in the tables hereunder details of the listed staff's experience.
2. Certified proof of qualification (for NQF level) and CV must be submitted with this schedule for each of the staff below.
3. Where the proof of qualification does not explicitly state the level of NQF, the qualification will be mapped to the relevant NQF level as provided for by SAQA, <https://www.saqa.org.za/wp-content/uploads/2023/02/Fact-Sheet-SAQA-FPI.pdf>
4. Tenderers are referred to C.2.1.4.5 Minimum score for functionality of the Conditions of Tender for more details about the Tendering Entity's Key Resources eligibility and scoring requirements.

CONTRACT MANAGER	NAME:			
	QUALIFICATION: NQF LEVEL			
	WORK EXPERIENCE (Years & months):			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	START DATE MM / YYYY	END DATE MM / YYYY

PROJECT MANAGER	NAME:			
	QUALIFICATION: NQF LEVEL.....			
	WORK EXPERIENCE (Years & months):			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	START DATE MM / YYYY	END DATE MM / YYYY

TECHNICAL / MAINTENANCE MANAGER	NAME:			
	QUALIFICATION: NQF LEVEL.....			
	WORK EXPERIENCE (Years & months):			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	START DATE MM / YYYY	END DATE MM / YYYY

SENIOR MAINTENANCE TECHNICIAN	NAME:			
	QUALIFICATION: NQF LEVEL			
	WORK EXPERIENCE (Years & months):			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	START DATE MM / YYYY	END DATE MM / YYYY

SYSTEMS ADMINISTRATOR	NAME:			
	QUALIFICATION: NQF LEVEL.....			
	WORK EXPERIENCE (Years & months):			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	START DATE MM / YYYY	END DATE MM / YYYY

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF THE TENDERER:

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

CONTRACT NO. 110S/2025/26

MAINTENANCE AND EXTENSION OF THE MYCITI ADVANCED PUBLIC TRANSPORT MANAGEMENT SYSTEM (APTMS), ON-BOARD CCTV AND ASSOCIATED SYSTEMS

SCHEDULE 14: SCHEDULE OF CONSTRUCTION EQUIPMENT

Not applicable.

SCHEDULE 15: DETAILS OF TENDERER’S WORKSHOP FACILITIES

The tenderer shall state below what technical support centres and repair facilities for the tenderer and/or manufacturer will be available for this Contract and for post contract support.

Spares Storage facility:
.....
.....

Workshop / Repair facilities:
.....
.....

Address.....
.....
.....
.....

Number of Artisans Normally
Employed by Firm
.....

Number of Technically Qualified
Persons Employed

Typical Spares held in stock:
.....
.....
.....
.....
.....
.....

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

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SCHEDULE 16: PRELIMINARY PROGRAMME (FOR INFORMATION PURPOSES ONLY)

The tenderer shall attach a preliminary programme, to this schedule.

This programme shall be in the form of a bar chart (Gantt chart) or similar acceptable time/activity form reflecting the proposed sequence and tempo of the various activities and the quantities that will be carried out every week under each of the elements, comprising the work for this contract. The programme shall also indicate the point where the tenderer intends to commence work operations and the direction in which the work will proceed. The working hours shall be indicated.

The tenderer shall also take into account the additional requirements stated in the Project Specifications when drawing up the programme.

Details of the preliminary programme shall be appended to this Schedule.

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 17: PROPOSED WORK PLAN

The tenderer shall append their proposed work plan to this Schedule.

It should be noted that while a programme may form part of the required work plan, more than a programme is expected in response to this requirement. The work plan must indicate the approach and methodology that the tenderer intends following in order to reach the required outcomes. The work plan must show that the tenderer has appreciated the Scope of Work, and has good insight as to what actions or activities are required in order to comply with the Employer's objectives.

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 18: SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE

Not applicable.

SIGNED ON BEHALF OF TENDERER:

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SCHEDULE 19: SCHEDULE OF SUB-CONTRACTORS

We notify you that it is our intention to employ the following sub-contractors for work (excluding work covered by provisional sums and contingencies) in this contract.

Acceptance of this tender shall not be construed as approval of all or any of the listed sub-contractors. Should any of the sub-contractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate the contract, and the tendered unit rates for the various items making up the work activities shall remain final and binding.

Tenderers are referred to 1.2 Tender Data, paragraph C.2.1.4.4. In the event that the documentation referred to in the paragraph are in the name of sub-contractor(s), the identical name(s) must be recorded in the table below. Failure to record the identical names in the table below will result in the tender being declared non-responsive.

SUB-CONTRACTORS		
Sub-contractor's name	Work activities to be undertaken by the Sub-contractor	Estimated value of work (Rand)

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 20: HEALTH AND SAFETY PLAN

Tenderers are referred to the requirements of Clause C.2.18.4 in Part T1.2 Tender Data and shall append the required draft Health and Safety Plan to this Schedule.

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

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CITY OF CAPE TOWN

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SCHEDULE 21: DEVIATIONS AND QUALIFICATIONS BY TENDERER

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in a covering letter attached to his tender and reference such letter in this schedule. Any deviations or qualifications contained in a covering letter which is not referenced in this schedule will not be considered.

The Tenderer's attention is drawn to clause C.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the Employer's handling of material deviations and qualifications.

If no deviations or qualifications are made, the schedule hereunder is to be marked NIL and signed by the Tenderer.

PAGE	CLAUSE OR ITEM	DEVIATION OR QUALIFICATION

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 22: FUNCTIONALITY CRITERIA

The Tenderer's attention is drawn to clause C.2.1.4.5 (**Minimum score for functionality**) in the Tender Data for a more detailed explanation of the functionality criteria.

The minimum score for functionality is **70**. Tenderers that fail to achieve the minimum score for functionality will be rejected.

The categories and scores for functionality is per the table below.

Item	Category of functionality criteria and applicable schedule	Maximum score
1	Relevant Experience of the Tendering Entity <u>(SCHEDULE 10: SCHEDULE OF WORK EXPERIENCE OF TENDERER)</u>	50
2	Key Resources <u>(SCHEDULE 13: DETAILS OF QUALIFICATIONS AND EXPERIENCE OF STAFF)</u>	50
Total Score		100
Score (Minimum = 70%)		70

To be scored by the City based on evidence submitted with Schedule 10: SCHEDULE OF WORK EXPERIENCE OF TENDERER and Schedule 13: DETAILS OF QUALIFICATIONS AND EXPERIENCE OF STAFF).

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

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SCHEDULE 24: RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:		
	Date	Title or Details
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Attach additional pages if more space is required.

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 25: PREFERENCE SCHEDULE

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 To be completed by the organ of state

a) The applicable preference point system for this tender is the 90/10 preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	90
SPECIFIC GOALS	10
Total points for Price and SPECIFIC GOALS	100

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

Definitions

The following definitions shall apply to this schedule:

- (a) "tender" means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) "price" means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) "rand value" means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) "tender for income-generating contracts" means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) "the Act" means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 90/10 PREFERENCE POINT SYSTEMS

A maximum of 90 points is allocated for price on the following basis:

90/10

$$P_s = 90 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{min} = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)
Gender	3	
Race	3	
Disability	1	
Promotion of Micro and Small Enterprises	3	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[Tick applicable box]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 4.1 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:
.....
.....
.....
.....

OFFICIAL RECEIPT
(Valid only if printed
by official cash
receipting machine)

IRISITI ESESIKWENI
(Isemthethweni kuphela
xa ishicilelwe
ngumatshini wokukhupa
irisiti osesikweni.)

AMPTELIKE KWITANSIE
(Geldig alleenlik indien deur
amptelike kontantvangs
masjien gedruk.)

GL DATA CAPTURE RECEIPT
(CASHIER TO RETAIN A COPY)

RECEIPT NO: _____

DATE: _____

SAP GL:

8	1	0	1	0	0
---	---	---	---	---	---

PROFIT CENTRE:

1	3	0	5	0	0	0	1
---	---	---	---	---	---	---	---

NAME/COMPANY NAME:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

AMOUNT:

						R	3	0	0	-	0	0
--	--	--	--	--	--	---	---	---	---	---	---	---

SERVICE DEPARTMENT DETAILS-

DEPARTMENT: LEGAL SERVICES: APPEALS UNIT

EMAIL: MSA.Appeals@capetown.gov.za

CIVIC CENTRE IZIKO LOLUNTU BURGERSENTRUM

12 HERTZOG BOULEVARD CAPE TOWN 8001 P O BOX 298 CAPE TOWN 8000
www.capetown.gov.za

Making progress possible. Together.

CITY OF CAPE TOWN

URBAN MOBILITY: PUBLIC TRANSPORT SYSTEMS

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SCHEDULE 27: OEM SUPPORT STATUS

This schedule must be read in conjunction with T1.2 Tender Data, paragraph C.2.1.4.3 OEM Support Status. This schedule will be used to evaluate eligibility as stated in the Tender Data. Tenderers are therefore required to:

1. Attach letters of support from Mentz Datenverarbeitung (MDV) and Trapeze as stated in the Tender Data.
2. Declare the make (manufacturer) and model of the following on-board hardware and include the required letters from the OEMs Trapeze and Hikvision, if applicable per the Tender Data.

#	QUESTION	ANSWER
2.1	Who is the OEM of the <u>On-Board Vehicle Logic Unit (VLU)</u> being offered? Note: Current OEM is Trapeze	VLU OEM:
2.2	What is the model of the VLU being offered?	Model:
2.3	Who is the OEM of the <u>Mobile Driver Terminal (MDT)</u> being offered? Note: Current OEM is Trapeze	MDT OEM:
2.4	What is the model of the MDT being offered?	Model:
2.5	Who is the OEM of the on-board Network Video Recorder (NVR) being offered? Note: Current OEM is Hikvision	NVR OEM:
2.6	What is the model of the NVR being offered?	Model:

SIGNED ON BEHALF OF TENDERER:

CITY OF CAPE TOWN

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SCHEDULE 28: DECLARATION OF TENDERED RATES SUBMITTED WITH THE TENDER

I, the undersigned, in submitting this tender for Contract **110S/2025/26** in response to the invitation for the tender made by the City of Cape Town, do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____
that:

(Name of Tenderer)

- I have read and I understand the contents of this Certificate, in accordance with C.2.14.11 of the Tender Data;
- I understand that as per clause 22.4 of the Municipal Supply Chain Management Regulations, 2005, *"Where bids are requested in electronic format, such bids must be supplemented by sealed hard copies."*
- I understand that I am required to submit one (1) electronic excel copy (on a USB Flash drive), and one (1) hardcopy(printed) of the Schedule of Rates, and that both copies submitted are to be in the same format as those issued by the Employer.
- I confirm that both the hardcopy and electronic excel copy of rates submitted with this tender are a replica of each other, and no alterations have been made to the format and contents.
- I accept that if/when a Notice to Tenderer (NTT) is issued by the Employer for changes relevant to the Schedule of Rates, I will be required to attach the respective addenda separately to that which has been issued with the original document.

SIGNED ON BEHALF OF TENDERER:

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