

## SECTION 7: MAINTENANCE SPECIFICATION

### 7.1 REPORTING AND REPAIR

- 7.1.1 The Contractor will provide an attended service to receive and record faults notified by the Authority and Police in respect of the equipment referred to in the Appendix 3b BCP Council Asset List and Appendix 3d Dorset Council Asset List via the Authority's fault management system covering 24 hours a day, 7 days a week (inclusive of Public Holidays). The Contractor shall be responsible for locating the cause of all faults or errors and identifying these to the Engineer. The Contractor will also be required to liaise with other suppliers to effect a repair
- 7.1.2 The Contractor must attend on site and replace or repair as necessary all parts and equipment in order to rectify the reported Fault. This will cover all mechanical, optical, electrical and electronic equipment internal and external to the controller up to the power company supply cut-out at the sites specified in or added to the Inventory (Appendix 3b BCP Council Asset List and Appendix 3d Dorset Council Asset List)
- 7.1.3 The Contractor shall act as the Service Managers agent in this matter and accept Fault reports by whatever means 24 hours a day, 7 days a week. The Contractor shall submit a Draft Method Statement explaining how this service is to be provided.
- 7.1.4 There shall be no appreciable delay in accepting fault reports or the reporting of the clearance report.
- 7.1.5 Contract hours for urgent faults (Table 2) - An on-call fault repair service 7 days a week including Public Holidays with attendance on site within 2 contract hours of notification of urgent faults in respect of the equipment referred to in Appendix 3b BCP Council Asset List and Appendix 3d Dorset Council Asset List, or by 06:00 hours for faults reported between 19:00 hours and 06:00 hours. Response time shall commence immediately the fault is notified to the Contractor by the fault reporting centre or Engineer or from 06:00 hours
- 7.1.6 Contract hours for non-urgent faults (Table 3) - An on-call fault repair service between 5 days a week, Monday to Friday excluding Public Holidays and Bank Holidays with attendance on site within contract hours by the end of following day of notification of non-urgent faults in respect of the equipment referred to in Appendix 3b BCP Council Asset List and Appendix 3d Dorset Council Asset List. Response time shall commence immediately the fault is notified to the Contractor by the fault reporting centre or Service Manager. Exception applies to tall poles and mast arms as described in Section 6, 6.8.
- 7.1.7 Emergency cover (Table 1) - Shall be provided outside the normal contract hours, seven days a week, including all Public Holidays. This cover is for exceptional use only, such as a road traffic collision to make equipment safe to the public, or to respond to a gas leak or explosion in the vicinity of a controller primarily to make the installation safe or restore priority junctions to operation.

- 7.1.8 Emergency Cover is not to be used for routine faults or any other reason. Attendance on site is required within 2 hours of notification of the faults with all the conditions of Urgent faults applying. In respect attendance for emergency faults time incurred shall be chargeable at the engineering rate provided in the Schedule of Rates.

### Service Level Requirement Tables

Table 1 – Chargeable Service (core service)

Fault Category	Description	Contract hours	Response time	Repair time
Emergency	RTC	Monday to Sunday - 19:00 to 06:00	2 hours	Restore of service / make safe

Table 2 - Service Level Requirements - (core service) - Urgent

Fault Category	Description	Contract hours	Response time	Repair time
Priority 1	Urgent	Monday to Sunday - 06:00 to 19:00	2 contract hours (including Public holidays and Bank holidays)	4 hours from receipt of fault

Table 3 - Service Level Requirements - (core service) - Non-urgent

Fault Category	Description	Contract hours	Response time	Repair time
Priority 2	Non Urgent	Monday to Friday - 06:00 to 19:00	by the end of following day; weekend faults plus Fridays faults done on Monday excluding Public holidays and Bank holidays.	Within 13 contract hours of passing the fault.

Table 4 – Non Routine / Chargeable Service (core service)

Fault Category	Description	Contract hours	Response time	Repair time
Priority 3	Chargeable	Monday to Sunday - 06:00 to 19:00	2 weeks from date of Chargeable (including Public holidays and Bank holidays)	182 contract hours

- 7.1.9 In this Specification the hours shall mean:

- (a) for all calls other than Emergency attendance will be between 06:00 - 19:00 hours 7 days a week including Public and Bank Holidays;
- (b) Emergency Cover will be between 19:00 hours and 06:00 hours 7 days a week including Public and Bank Holidays.

- 7.1.10 Faults notified to the Contractor between 19:00 hours and 06:00 hours will be deemed to have been received by 06:00 hours the following day (except in the case of Emergency Cover and Priority Sites).



- 7.1.11 Emergency Cover shall be provided outside the normal contract hours, seven days a week, including all Public Holidays. This cover is for exceptional use only, such as a road traffic collision to make equipment safe to the public, or to respond to a gas leak or explosion in the vicinity of a controller primarily to make the installation safe or restore priority junctions to operation. Emergency Cover is not to be used for routine faults or any other reason. Attendance on site is required within 2 hours of notification of the faults with all rebate conditions of Urgent faults applying. In respect attendance for emergency faults time incurred shall be chargeable at the engineering rate provided in the Schedule of Rates.
- 7.1.12 The fault service relating to Emergency Cover must make use of the manned answering service specified in paragraph 7.1.1 and will receive calls from various sources. Calls will be restricted to emergencies and will include, but will not be restricted to:
- (a) Gas explosion or a reported gas leak at or near to signal equipment.
  - (b) Road Traffic Collision involving damage to signal equipment and causing potential danger to the Public (i.e. exposed live electrical conductors).
  - (c) Any other situation considered by the Employer, or his designated officer, to require the urgent attention of the Contractor outside the normal Fault service. However, the Contractor should be aware that the frequency of Emergency calls is small, averaging less than Ten Emergency calls per year. However, by their very nature and randomness the Employer cannot give an indication of the number of calls there will be
  - (d) The Contractor will also have the power to declare an Emergency if, following a site visit, he considers the site is unsafe.
- 7.1.13 The Contract shall cover all the equipment detailed in the Inventory of Equipment (Appendix 3b BCP Council Asset List and Appendix 3d Dorset Council Asset List) and any additions or deletions thereto made during the period of the Contract.
- 7.1.14 The Inventory of Equipment shall be agreed between the Contractor and the Service Manager one-month prior to the commencement of the Contract and subsequently one-month prior to the commencement of each Contract year.
- 7.1.15 The Service Manager may designate up to 25 sites in BCP and 10 sites in Dorset, as having precedence in respect to attendance for fault attendance purposes. For Urgent Faults these sites shall be attended within two hours. These high priority sites will be reviewed annually to take into account new or modified signal installations.
- 7.1.16 Faults shall be reported to the Contractor as being one of the following priorities: -
- Priority 1 - Urgent**
- 7.1.17 Attendance on Site with a Full Repair or a Make Safe Repair within four hours of the receipt of the fault message.
- 7.1.18 The Contractor shall attend on Site with a Full Repair or Make Safe Repair within

the same day and within four hours for any Priority 1 Fault reported before 19:00 hours.

- 7.1.19 Where the Contractor attends site and traffic signals are out of order then an on-site risk assessment shall be completed to determine whether “Light Signals not in use” boards to Diag 7019 TSRGD 2016 shall be used to advise traffic of the signal conditions. Where boards and bags are too dangerous to fit / install the Service Manager is to be informed.

Where it is determined that boards are required then these shall be attached to ALL primary signal heads. Where free standing sign boards are used then the signs shall be set out adjacent to the carriageway on each approach, face the direction of traffic approach and shall be positioned so that they provide adequate advance indication to drivers and are not obscured by other items of street furniture, nor create a hazard for pedestrians or other traffic.

Where the Contractor is required to leave the site in an un-restored state boards shall be provided and ALL pedestrian indicators shall be covered over with a proprietary cover.

The Contractor shall remove all out of order boards and pedestrian covers prior to allowing any signal display to again be made at the site.

- 7.1.20 This category of fault shall comprise but will not be restricted to the following Fault conditions: -

- a) All signals unlit (all out).
- b) Signals failing to change (stuck).
- c) Defective signals which although not in accordance with (a) or (b) above, are likely to cause excessive queues or danger and have caused abnormal traffic conditions.
- d) Signals omitting a phase / stage
- e) Pedestrian phases inhibited
- f) Two lamps out on one approach, same colour.
- g) Permanent demand on push button unit or demand not being accepted.
- h) SCOOT (or other) vehicle detectors causing significant highway network problems.
- i) Equipment damaged and in a dangerous condition.
- j) Communications failure
- k) Signal head out of alignment creating potential visual conflict
- l) Or as designated by the Service Manager

Any other defect, which the Service Manager indicates to the Contractor, requires urgent attention. The Service Manager will endeavour to contact the Contractor prior to fault being assigned to explain justification for using this clause.

- 7.1.21 Failure to attend, rectify and clear faults in the allowed time could result in a service credit being applied and corresponding detriment to the key performance indices used to measure the contractor performance.

### **Priority 2 – Non-Urgent**

- 7.1.22 This category shall be used for failures not as significant as Priority 1 faults and as

such are less likely to cause serious traffic disruption.

Attendance on Site with a Full Repair or a Make Safe Repair within thirteen Contract Hours of the receipt of the fault message. Exception applies to tall poles and mast arms

- 7.1.23 This category shall comprise, but will not be restricted to, all other faults not covered by the above.

Any other defect, which the Service Manager indicates to the Contractor, require this level of attention.

- 7.1.24 Failure to attend, rectify and clear faults in the allowed time could result in a service credit being applied and corresponding detriment to the key performance indices used to measure the contractor performance.

### **Repetitive Faults**

- 7.1.25 Should two repetitive faults, or three faults of a similar nature, appear on equipment within 1 month, or six faults within any twelve month period, the Contractor shall carry out a thorough investigation, to a level agreed with the Service Manager, of the faulty equipment in the presence of the Service Manager.
- 7.1.26 Should the result of the investigation detailed in 7.1.25 be inconclusive and the repetitive fault condition continues, then the faulty equipment shall be removed from site and returned to the Depot at the Service Manager's discretion, where a soak test shall continue until such time as the fault condition has been identified and rectified. Replacement equipment shall be put on site whilst the soak test is underway.
- 7.1.27 Should a fault condition not be rectified, the faulty equipment shall be abandoned and the replacement equipment retained on the inventory in its place.

### **Priority 3 – Chargeable Maintenance or Other Ordered Works**

- 7.1.28 This category shall be used where following a Priority 1 or 2 fault visit in order to affect a Full Repair chargeable work, possibly involving civil works, is required. This level of priority shall include slot cutting but not exclusively.
- 7.1.29 The Contractor shall send a Full Repair message to the Service Manager within 182 Contract Hours of sending a Demote Fault Priority message.
- 7.1.30 In addition, the Service Manager will use this priority to issue requests for Other Ordered Works whereby the Contractor shall execute the work within the response time allowed for within this priority.
- 7.1.31 The Contractor shall not apply premium rates to this level of priority for effecting repairs outside Normal Working Hours.
- 7.1.32 The Contractor shall utilise the facilities of the Fault Management System to alert the

Service Manager of the charges for the fault visit. The Service Manager will issue orders to cover the agreed charges from which invoices may be raised.

7.1.33 The Contractor shall as soon as it is apparent that a chargeable repair is required contact the Service Manager to confirm that the repair is to be carried out but shall not generally wait for an official order before making a Full Repair.

7.1.34 The most likely reasons for not wanting the repair to be carried out is that the Service Manager wants to change the method of detection or if the site is due for refurbishment.

## **7.2 EXTENSION TO REPAIR TIMES**

7.2.1 Where the Contractor notifies the Service Manager that circumstances beyond the Contractor's control have arisen at the Site. Such circumstances include, but are not necessarily limited to: -

- Permit not granted, reason for refusal (excludes contractor being late to apply).
- Adverse weather conditions which would cause damage to the equipment if the repair was to be executed.
- Access to the Site not granted by third parties.
- Actions of any third party.
- Fire.
- Flood.
- Presence of toxic or explosive gas or substances.
- Drug paraphernalia in duct boxes, such as needles.

Then the Fault Repair shall be demoted to a Priority 3 and held until the site or weather conditions (or whatever else the circumstances were that prevented the Full Repair being carried out) have been removed or are no longer existing. Then the fault shall be reinstated to the original Fault Priority but start from the point when it is possible for the Contractor to attend and rectify the fault.

7.2.2 Where the Contractor sends a revised Fault Priority or Demote Priority message and the Service Manager demonstrates within five calendar days following the submission of the Contractor's report that the revised Fault Description is erroneous and/ or a Full Repair should have been completed within the higher Fault Priority time limit, the Contractor's fault repair message shall be deemed to be invalid and a service credit shall apply and the original Fault Description shall be aggregated against Key Performance Indicators.

7.2.3 A "Full-clear" to a reported fault shall mean that the equipment is left in a fully operational condition.

7.2.4 Should it not be possible to rectify a fault condition within the time scales detailed for Priority 1 or 2 then a Temporary Clear message shall be submitted to the Service Manager. The Contractor shall give the reasons why a Full Clear is not possible, and the proposed action to be taken by the Contractor to achieve a Full-clear shall be stated.

## **7.3 INCIDENTAL FAULT DETECTION**





7.3.1 During the course of any activity associated within the Contract, the Contractor shall report to the Service Manager any fault on any of the equipment that might be identified incidentally, which will require a new fault to be created on the Fault Management System.

7.3.2 Any fault identified incidentally whilst a fault is being attended to on any site shall, wherever possible, be rectified by the Contractor whilst on Site.

#### **7.4 TRANSMISSION OF FAULT REPORTS AND CLEARANCES**

7.4.1 For repair times lapsing outside Contract Hours, the Contractor shall send via the Fault Management System a Full Repair message or in the case of a Make Safe Repair a Demote Fault Priority message to the Service Manager, within sixty minutes of the start of Normal Working Hours the next Normal Working Day.

7.4.2 The Full Repair or Make Safe Repair message shall contain the actual time the fault was cleared, demoted or escalated.

7.4.3 Fault reports may be generated through the Fault Management System from a variety of sources including:

a) Reports from members of the public, District Engineers, Highways Inspectors and Police. The Service Manager shall assist the Contractor by making reasonable efforts to verify reports in such cases by checking sites physically or where appropriate, via the RMS or UTC system. The Service Manager will allow faults to be submitted directly through the Fault Management System but may intervene at his discretion. Verify any verbally reported fault reported directly out of hours with the Service Manager's Standby Engineer before responding to the fault.

b) During routine inspections by the Service Manager or Contractor.

c) Automatically generated faults from RMS and UTC systems. The Service Manager shall, where practicable, intervene and evaluate faults generated by the RMS and UTC systems prior to passing them to the Contractor but reserves the right to allow automatic generation of faults via these Systems where appropriate.

7.4.4 Where faults are generated and passed through the systems, either automatically or manually through any process involving Contractor site works such as:

Annual Inspections  
Optical Maintenances  
Fault Repairs  
No-Routine and planned works  
Scheduled switch off and on events

Then the Contractor shall reject / clear all faults for the Authority as recorded within the fault management system.

7.4.5 The Contractor shall during normal working hours contact the Service Manager from site when attending faults or carrying out inspections or carrying out bulk lamp changes on equipment connected to the UTC or RM system prior to the commencement of any remedial action.

## **7.5 MATERIALS, EQUIPMENT AND PARTS**

### **Vehicle Detection Loops**

- 7.5.1 An objective of this contract is to reduce the time taken to repair faulty or damaged inductive loop detectors and joints. The Contractor shall endeavour to identify the nature of the fault on first attending the fault report and shall not pass on the fault for a subsequent visit as requiring loop/joint investigation except where the loop/joint investigation can be completed within the contract period for the fault. The time to affect a full repair shall be the time to repair a faulty detector joint or report the inductive loop as faulty i.e. 13 contract hours.
- 7.5.2 The Contractor shall repair faulty, or damaged inductive loop detectors as soon as possible after receiving the fault, and in any event within 182 Contract Hours of notification by the Service Manager, or becoming aware of the faulty loop detector through 7.5.1 above, except by the agreement of the Service Manager. The Loop will not be considered as repaired until it has been tested, jointed and brought back into service.
- 7.5.3 The Contractor shall, with the agreement of the Service Manager, adopt suitable measures to reduce the effects of damaged loops or joints pending their repair such as, but not exclusively, "writing-out" loops, introducing artificial phase demands etc.
- 7.5.4 All work associated with this section must be in accordance with Specification Traffsig 1F.
- 7.5.5 The siting, size and configuration of the loops outside of Traffsig 1F must be agreed with the Service Manager. No alterations must be made without consultation with the Service Manager.
- 7.5.6 All loops must be re-cut and if required re-cabled as per the original installation of the individual loops. If there is any doubt as to the method, size and configuration the Contractor shall confirm this with the Service Manager.
- 7.5.7 The Employer has a policy wherever possible, to utilise stop line loops and above ground detection. The Contractor must bear this in mind when System 'D' loops have become faulty and seek confirmation from the Service Manager that the existing loop configuration is to be maintained.
- 7.5.8 Prior to any slot cutting being undertaken the relevant permit from the authorities street works team must be obtained. The proposed traffic management arrangements must be forwarded to and agreed by the Service manager prior to sending to the permitting team. The traffic management arrangements once agreed shall form the basis of a template for future maintenance, if required, on the same loop(s).
- 7.5.9 The Contractor shall purchase a supply of water for use during slot cutting with the appropriate water authority. This cost shall be included in the Contract Price. It should be noted that several Water Companies operate within the Contract Area.

### **Above Ground Detectors**



7.5.10 Only above ground detection units to specification TOPAS 2505A, TOPAS 2506A and TOPAS 2507A must be used unless previously agreed by the Service Manager.

7.5.11 With above ground detection the plug and socket arrangement must be adopted.

## **7.6 NO FAULT FOUND CONDITION**

7.6.1 The Contractor shall bear the cost should the Contractor be called to a site in response to a fault report and no fault whatsoever is found on the equipment and the fact reported to the Service Manager.

7.6.2 Where the reported Fault cannot be detected the Site will be inspected to determine if any other Faults exist and such Faults will be rectified and reported to the Service Manager and rectified within the Response time as specified in the Specification.

7.6.3 In the case where a Fault cannot be detected but the same Fault is reported within seven days or three times in one month and the Fault is still not found and rectified by the Contractor the Service Manager will request a special investigation as set out in clause 7.1.25.

## **7.7 LOGBOOK**

7.7.1 The Contractor shall complete a brief visual check of whole site during each site visit. All site visits shall be recorded in an onsite logbook. The logbook shall remain onsite and is the property of the Service Manager, removal of any logbook from site must be authorised by the Service Manager. Where a logbook is missing the Service Manager shall be informed and the logbook replaced by the Contractor. Where a logbook is full the Contractor shall provide a subsequent replacement as part of the Contract. The site record shall include but NOT be limited to:

- a) Condition of controller access, doors, manual panels, seals and feeder pillars
- b) Check controller for signs of slug / snail activity or damage
- c) Observation of signal sequence and clearance of traffic.
- d) Mode of operation.
- e) Visibility and alignment of all signals.
- f) Visual inspection of general carriageway condition and stop lines.

7.7.2 All visits by the Contractor relating to the Site shall be recorded in the logbook, photographed and uploaded into the Fault Management System.

7.7.3 The format of the logbook shall be agreed with the Service Manager one month prior to the commencement of the Contract.

## **7.8 SITE DRAWINGS**

7.8.1 The Contractor, with the co-operation of the Service Manager, shall maintain a current site drawing in each signal controller and an electronic copy on the Fault Management or Asset Management System.



7.8.2 The Contractor, if required shall provide the Service Manager with a current amended site drawing subject to an electronic copy of the site being available, within 28 days of any material alterations to the Site being made by the Contractor.

7.8.3 The site drawing shall show the location of all equipment including controller, pole types, lanterns, ducts, cable-runs and detector loops plus any other detection equipment as detailed in Traffsig 1F. It will also show location of Electricity Supply Housing (ESH), electrical ducts, communication ducts and CCTV cameras.

## **7.9 EQUIPMENT APPROVAL AND STATUS**

7.9.1 All equipment to be supplied under this Contract must have a suitable approval status for use on the highway. The Contractor must provide all suitable proofs of approval to the Service Manager's if required. Any costs associated with non-compliance regarding approval status will be reclaimed from the Contractor by the Service Manager.

## **7.10 WORKS**

7.10.1 During the Tender evaluation process for this Contract, the Employer will have sought the views of the Contractor on the procurement, installation, testing and commissioning of new works. However, other contractors may supply and install equipment not procured under this Contract on behalf of the Employer and external developers may provide some installations. The following clauses relate to this equipment.

7.10.2 The Contractor shall attend the commissioning of all new or modified equipment not provided under this contract as required by the Service Manager.

7.10.3 The Service Manager shall endeavour to give the Contractor reasonable notice of commissioning which shall be during normal working hours and generally not less than 2 working days.

7.10.4 The Contractor shall carry out such checks and tests, as he considers necessary and report any failings to the Service Manager. The installation contractor shall rectify any failures and the equipment shall then be re-commissioned.

7.10.5 The Contractor shall, following commissioning, take the new equipment into the Contract at the rates then current and in accordance with the Schedule of Rates. The Contractor will also add the site to the Fault Management System within 24hrs of site being commissioned.

7.10.6 If as a result of tests carried out by the Contractor, it is found that the Fault lies within equipment for which he is not responsible the Contractor must co-operate fully with any other contractor the Service Manager may employ.

7.10.7 In all matters relating to a commissioning, the Service Manager's decision shall be final.

## **7.11 ADDITIONS TO AND REMOVALS FROM THE INVENTORY**

- 7.11.1 New equipment shall be added to the inventory immediately following successful commissioning, this will be carried out by the Contractor.
- 7.11.2 Decommissioned equipment shall be removed from the inventory immediately following decommissioning, this will be carried out by the Contractor.
- 7.11.3 The Service Manager shall endeavour to inform the Contractor of the intention to add new equipment or trial new technologies, not provided under this contract, to the inventory 10 days prior to installation on site.
- 7.11.4 The Contractor shall establish appropriate spares holding sufficient to enable the provisions and response times detailed in the Specification to be met subject to the conditions set out in clause 7.25. The Contractor shall purchase and hold sufficient spares to carry out the obligations under the Contract. All spares shall be a like for like replacement.

The Contractor shall provide the Authorities with schedules of minimum replacement spares required to be held at the local depot which supports the Contracts and also details of the Traffic Signal Engineer's maintenance vehicle spares which would be held. These details shall be provided within the mobilisation period one month prior to the commencement of the Contract, which would represent a minimum holding necessary to fulfil the requirements of the Contract. This schedule will be updated and agreed with the Engineer on an annual basis.

- 7.11.5 The Contractor from the date of commissioning will maintain new Traffic Control Installations and new equipment. The Employer will however have the benefit of one year's warranty from the manufacturer. Under such circumstances the Contractor, having repaired the fault using his own spares, may either repair the faulty parts at his expense or make use of the warranty cover to have the parts repaired by the manufacturer. Any costs incurred in the return of the faulty parts to the manufacturer will be the responsibility of the Contractor.
- 7.11.6 The Contractor must, in accordance with the Employer's requirements, afford all reasonable opportunities for carrying out their work to any other contractors employed by the Employer, and to the workmen of the Employer who may be employed in the execution on or near the Site of any work not included in the Contract or any contract which the Employer may enter into in connection with or ancillary to the Services. The Contractor must, on the written request of the Service Manager, make available to any such contractor, or to the Service Manager any other such service of whatsoever nature, the Employer will pay to the Contractor in respect of such use or service such sum or sums as will, in the opinion of the Service Manager, be reasonable and in accordance with the Schedule of Rates.
- 7.11.7 The Service Manager shall carry out such tests or inspections as may be necessary to enable him to fulfil his obligations under the terms of the Contract.
- 7.11.8 The Service Manager may perform some or all of the following tasks to enable them to provide a more efficient service to the community. The list is by no means definitive, but care will be taken not to impinge on the Contractor's obligations under the Contract:
  - (i) Vary any timing intervals as are provided via handset, or other methods

allowed in various equipment. The Contractor shall be notified of the changes as soon as possible after the event,

- (ii) Arrange slot cutting and/or road opening and reinstatement by contractors other than the Contractor for any repair to loop or feeder cables,
- (iii) Refurbishment of street furniture
- (iv) Arrange the installation of trial equipment by third party contractors, the Contractor will be notified and invited to attend installation.

## **7.12 ROAD TRAFFIC COLLISION DAMAGED EQUIPMENT**

7.12.1 Where the Contractor has identified non-routine works attributed to a road traffic collision, vandalism or other unplanned event then the required works to restore the signals shall be carried out expediently in accordance with response times as noted in Table 1. Whilst attending an RTC it is imperative to record as much as practicable about the incident, the minimum provisions are:

- a) The Contractor on attendance will electrically make safe the site. Where the Distribution Network Operator (DNO) supplier is required to isolate the electricity supply the Service Manager shall be informed.
- b) Where debris is required to be cleared from the site and it is not feasible to be removed by the Contractor staff in attendance the The Service Manager shall be informed to arrange site clearance.
- c) The Contractor will review the damage and record all parts required to reinstate the site by list and photographic evidence. This report shall be provided to the Contractors supervisor to arrange resources/parts and copied to the Service Manager.
- d) Where the offending vehicle is in situ or Police are in attendance details should be recorded and provided to the Service Manager for cost recovery. These details shall include but are not limited to the vehicle registrations, make, model and colour of the vehicles. Police officer attending names and collar numbers. Police incident number should be referenced to the fault within the fault management system.
- e) Where the incident has been attended during the hours of darkness then a daylight photographic record is required to be provided by the Contractor prior to reinstatement.
- f) All details are to be recorded on the fault management system and only cleared down on completion of the works.

All RTC damaged equipment shall be treated as a Priority 1- Urgent Fault, the Service Manager may change this to an Emergency.

7.12.2 Following the make safe first visit if RTC damaged control equipment requires more extensive action than is possible in the timescale allowed a Temporary Clearance report shall be sent by the Contractor to the Service Manager. The Service Manager shall be given sufficient information to establish the extent of the remedial works required and shall demote the Fault to a Priority 3 (chargeable) and the Contractor shall repair the Site within the time allowed for that category of Fault. Failure to repair within this timescale could incur a service credit.

- 7.12.3 If the RTC occurs outside Contract Hours then based on the information given to the Contractor it may be necessary to declare the Fault as an Emergency. The Contractor shall deal with this situation as appropriate to the scale of the incident.

### 7.13 BACKGROUND SYSTEM INFORMATION

- 7.13.1 Background System Information – each Authority has a mix of various systems and applications as detailed in Table 7 below.  
These systems are currently supplied and maintained under separate agreements. Where new or additional equipment is required to interface to these systems then the type will be defined by the Contract Manager.

Table 7: BCP & DC Background System Information

Authority	System	Purpose	Provider
BCP	UTC Hosted	Traffic Control System	Yunex
BCP	Stratos Hosted	Common Database System	Yunex
BCP	Inview	Fault Management System	Yunex
BCP	RMS	Remote Monitoring System	Yunex
BCP	PGS	RGB VMS & Parking	Swarco
BCP	VAS	Vehicle Activated Signs	Yunex
BCP	FAWL's	School Warning Flashing Lights	Yunex
DC	UTC Hosted	Traffic Control System	Yunex
DC	Stratos Hosted	Common Database System	Yunex
DC	RMS	Remote Monitoring System	Yunex
DC	VMS – car park	Display car park data	Swarco Zephyr System
DC	Car Park Data	Car park data collection	Swarco Zephyr System
DC	Imtrac	Fault & Asset Management	Ian Routledge
DC	VAS	Vehicle Activate Warning Signs	Swarco
DC	FAWLs	School Warning Flashing Lights	Yunex

- 7.13.2 The Contractor will be required to interface and liaise with the System provider engineering staff to resolve faults and / or technical issues which may arise throughout the Contract without the intervention of the Service Manager. Contact details for each system supplier will be provided by the Authority to the Contractor.
- 7.13.3 The UTC equipment listed in the inventory will be maintained by the contractor. This does not include software support which will be obtained direct from the system provider, namely Yunex formerly Siemens Mobility.
- 7.13.4 The Contractor will have to demonstrate by the production of a Draft Method Statement that they have the spares, training and have developed a line of support with the main system provider to fully support this equipment and its network architecture. This issue will form part of the quality assessment for this contract.
- 7.13.5 The Contractor shall set out in their Draft Method Statement how they intend to maintain the specialised UTC equipment and any proposed successor equipment. The Contractor shall submit any, and all, details of any proposed sub-contractor they may wish to use for this work. The details of any sub-contractor shall form part of the

quality assessment for this contract.

7.13.6 The parts of each system covered by this specification are:

- a) Outstation Data Transmission Equipment (OTU's), various locations
- b) Outstation Remote Monitoring Equipment (OMU's), various locations
- c) SCOOT Detection Equipment
- d) Testing communications, Outstations, VMS

7.13.7 The Contractor shall co-operate fully with the network operators and BT in the reporting of and assisting in the fixing of Faults on equipment as required on the section dealing with Public Utilities.

7.13.8 The Contractor shall be responsible for the routine maintenance and repair of all items detailed in the Inventory and any additions or amendments, including the components and component assemblies that make up these items, and shall bear the cost involved in carrying out such work unless otherwise specified.

7.13.9 The Contractor shall supply from his own resources all necessary labour, transport and test/monitoring equipment for the rapid restoration of service and the repair of faulty units. The Contractor may provide an approved Sub-Contractor for parts of this work if set out in their Quality Plan and Draft Method Statement. The Sub Contractor shall operate to the same time constraints as the Fault Priority demands.

7.13.10 Initial fault diagnosis will be made by the Service Manager based on information from the normal system output and any other information available to him.

7.13.11 Should a call-out under section 7.14.8 result in the Service Manager being advised that the fault is not on the equipment as reported, the Contractor will then be contacted and he will locate the fault and take the appropriate action to ensure rapid restoration of service.

7.13.12 Faults will be classified as Priority 1 Urgent, or Priority 2 Non-Urgent. An urgent fault is designated as:

- a) Any data transmission fault involving loss of communication;
- b) Equipment damaged and in a dangerous condition;
- c) Any equipment fault leading to, or likely to lead to, severe traffic congestion;
- d) Loss of the emergency green wave facility.

Other faults may be classified as a non-urgent fault, Complex, Minor Chargeable Maintenance or Order Works.

7.13.13 On arrival at the fault location, the Contractor will remain until the fault has been cleared or a temporary repair made unless the approval of the Service Manager has been obtained to act otherwise. In this latter case the Contractor will advise the Service Manager of the state of the equipment and his reasons for departure.

7.13.14 Routine maintenance shall not be undertaken outside normal hours except by prior arrangement with the Service Manager.





- 7.13.15 The Contractor shall identify all items requiring routine maintenance, the time interval between maintenance visits and include the costs in their Contract Price. This information should be contained within the Draft Method Statement and Quality Plan submitted by the Contractor as part of the assessment process.
- 7.13.16 Following a routine maintenance visit the Contractor shall forward to the Service Manager a written report of the state of the equipment and any recommendations within 10 working days of the event.
- 7.13.17 If the Contractor sends any part of the equipment away for overhaul or repair he shall bear all the costs, including those of packing, carriage and insurance, that are incurred in the despatch, overhaul, repair, return or replacement of the equipment.
- 7.13.18 Any equipment so removed for overhaul or repair shall be replaced with equivalent equipment until such time as the original equipment is reinstated.
- 7.13.19 The Contractor shall ensure that the system is available for operational service when a fault is cleared. On those occasions when it is necessary, the Contractor may, subject to the prior permission of the Service Manager, be given facilities in the on-line system to test the equipment that has been repaired or replaced.
- 7.13.20 Tests that result in significant disruption of traffic shall only be used where it is considered that such tests are essential for the verification of the clearance of the fault. Permission must be obtained from the Service Manager prior to any such test.
- 7.13.21 Where the system has to be taken out of service for maintenance or repair permission must be obtained from the Service Manager before any disconnection is made.
- 7.13.22 The system supplier, Yunex formerly Siemens Traffic Mobility, support and maintain the software and some hardware under a separate agreement.

## **7.14 BCP OPTICAL MAINTENANCE**

### **General Requirements**

Signal Optical Maintenance shall include all lamps and LED Signals comprised within each site including permanently illuminated mandatory signs associated with signals.

Signals shall be maintained as follows:

- 7.14.1 The annual bulk lamp change / replacement of:

Vehicle Reds, Greens and Ambers  
Pedestrian Reds, Greens  
Fluorescent Tubes and Wait Lamps

- 7.14.2 The annual cleaning of:

All signal aspects (tungsten halogen and LED)  
Photo electric cell (external)

Regulatory Box Signs  
Wait Indicators  
Nearside indicators  
VMS Sign Illumination

Cleaning operations should be carried out at the same time as lamp changing.

Any misaligned signal heads found on this annual visit are to be realigned. Insecure or missing backing boards and edge strips to be repaired or replaced as part of optical maintenance programme.

- 7.14.3 Site is to be cleared of all fly posters/signs/cable ties on traffic signal poles. Where vegetation has encroached on the controller and other signal equipment the Contractor shall record the condition by digital image and supply the images to the Service Manager.
- 7.14.4 The Contractor shall provide the Service Manager with a Draft Programme for carrying out the optical maintenance at each site one month prior to the commencement of the Contract and subsequently one month prior to the commencement of each Contract year. The current optical maintenance programme shall be provided during the mobilisation period to the Contractor. Any proposal whereby the Contractor wishes to modify the current programme shall require agreement by the Service Manager prior to implementation.
- 7.14.5 The Contractor shall be allowed to carry out the Bulk Change and Clean operations within -1 week or +1 week of the agreed programmed date. The date by which the Site has had its optical maintenance shall become its anniversary and be fixed for the duration of the Contract. Failure to carry out the Bulk Change and Clean operations within the agreed programme or within the allowances shall be subject to a service credit and be recorded against the Contractors PI's and KPI's.
- 7.14.6 The Contractor shall agree with the Service Manager a format for the reporting and recording of Optical maintenance one month prior to the commencement of the Contract.
- 7.14.7 The Contractor shall provide a written report in the agreed format within 10 days of completion of each optical maintenance operation detailing materials used and any incidental fault rectification.
- 7.14.8 The Contractor will be responsible for cleaning lenses and reflectors, the bulk replacement of lamps and the replacement of premature lamp failures in signal heads, pedestrian push button units and ancillary regulatory signs of all Traffic Control Installations, including Variable Message Signs, Wig Wags, VAS, School Crossing Flashing and other regulatory signs powered from the controller, including fibre optics and reflectors, chokes, fluorescent tubes and starters together with all wiring connections associated with the lamp units in accordance with the Programme to be agreed between the Contractor and the Service Manager.
- 7.14.9 All photo-electric cells, lenses and reflectors must be thoroughly cleaned. Tungsten halogen fittings, which require the dismantling of the aspect for access to the reflectors, must only be cleaned externally. Abrasive materials must not be used. The Contractor at his cost must provide all necessary equipment and materials for

cleaning.

- 7.14.10 The Services will apply to all equipment listed in the Inventory and any additions thereof. The information being supplied will, to the best knowledge of the Employer, be correct at the time of issue. The Employer as necessary will add new sites and equipment to the list.
- 7.14.11 Bulk replacement of lamps must be carried out at intervals as specified to coincide with a cleaning visit. Lamps must be of the appropriate voltage and wattage rating for the Traffic Control Installation in question.
- 7.14.12 The lamps to be used must have the prior approval of the Service Manager, and he must be notified of any proposed change from that previously agreed.
- 7.14.13 Care must be taken to ensure where applicable that the pins of tungsten halogen lamps are pushed fully home into the lamp-holder sockets and that lamp-holders are correctly seated. Special care must be taken when refitting lamp-holders in fibre optic units to achieve correct orientation, thus ensuring optimum light output. The glass envelopes of the lamps must not be touched by bare hands or dirty cleaning cloths. A visual check of all lamps must be undertaken before leaving the Site.
- 7.14.14 All used lamps, together with the cartons, wrappings etc. must be returned to the Contractor's Depot where the Contractor will be responsible for disposing of them. This must include the removal of any debris or used lamps found on the initial visit following commencement of the Contract.
- 7.14.15 The lamp holders must be inspected when lamps are replaced and if signs of electrical or mechanical damage are found then they must be replaced, as part of the Optical Maintenance Service as defined in this Specification, ensuring the part is new and is the correct type for each reflector style.
- 7.14.16 The lamp transformers and box sign gear must be inspected when lamps or holders are replaced and if signs of electrical or mechanical damage are found the fact must be reported to the Service Manager by the Contractor and repaired within the timescale for a Priority 2 Fault.
- 7.14.17 Where damage to lenses and reflectors is apparent, this must be recorded and then brought to the attention of the Service Manager by the Contractor and repaired within the time scale of a Priority 2 Fault. An order will be issued by the Service Manager for chargeable parts, the damaged parts to be retained for inspection if required.

## **7.15 DORSET COUNCIL OPTICAL MAINTENANCE**

- 7.15.1 Dorset Council has adopted the use of an Asset Management System (currently IMTRAC) to record all optical maintenance inspections electronically. The Contractor must use this system for the reporting and recording of all inspections for Dorset Council. All inspections are to be completed by the Contractors Engineer on site and are to be submitted to the Asset Management System before leaving site. These reports will be provided to Dorset Council electronically by submission through the Asset Management System.

7.15.2 The Contractor's planned optical maintenance programme must be agreed with the Service Manager and entered on Dorset Council's Asset Management System so that the date planned, and actual attendance date can be compared, and used to measure Key Performance Indicators. Dorset Council inspections must be carried out using the provided electronic optical maintenance form on the Asset Management System, whilst on site which will require the use of suitable technology such as a tablet. This will allow for suitable interaction with the form and ability to take and submit photos. The Contractor shall be responsible for providing each of the Contractor's engineering staff with a suitable device such as a tablet, capable of transmitting data to Dorset Council's Asset Management System.

7.15.3 The Contractor is responsible for the provision of a hydraulic lifting platform to gain access to high level and mast arm signals.

Current equipment affected is as follows:

**Table 5: BCP Council Sites with Tall Poles, Hinged Poles or Mast Arms**

SCN	Address	Mast Arm	Tall/ Hinged Pole	Signal Heads
45BS	A3060 Castle Lane East/ Chaseside/ Deansleigh Road	3		3 RAGA
08TB	A348 Ringwood Road near Oakmead School		1	1 RAG
18TB	A347 Wimborne Road near Stokewood Road	1		2 RAG
09TB	Ringwood Rd near oakmead School		1	1 RAG
09PS	A35 Wimborne Road / Dorchester Road	1		1 RAG
11PS	A349 Gravel Hill / Queen Anne Drive	1		1 RAG 1 RAG+GA
18PS	Broadstone Way / York Road	1		2 RAGA
18TP	Broadstone Way / KFC		1	RAG
24PS	A350 Holes Bay Road / Sterte Road	1		1 RAG
38PS	Broadstone Way / Willis Way		1	1 RAG, 1 RAGA
47PS	A35 Bournemouth Road / Archway Road		1	2 RAG
52PS	A3049 Mountbatten Roundabout		1	2 RAG
04TP	A349 Gravel Hill / Poole Boys Grammar	1		2 RAG
07TP	Broadstone Way	1		2 RAG
23PF	Herbert Ave / Newlyn's Way	1		2 RAG
18TP	Broadstone Way		2	2 RAG

26PS	Hatchpond		2	3 RAG
27PS	Waterloo Road / Hatchpond Road		7	7 RAG
44PS	New Quay Road (Part-time)		2	2 RAG
48PF	Poole Road / Branksome Railway Pub		1	2 RAG

**Table 6: Dorset Council Sites with Tall Poles, Hinged Poles or Mast Arms**

SCN	Address	Mast Arm	Tall/ Hinged Pole	Signal Heads
11SC	A351 Sandford Road/ Organford Road, Holton Heath		2	2 RAGA 2 RAGA+GA
50/51 PC	A348 Ringwood Road, east of Fords Close, Tricketts Cross		2	2 RAG
65SC	A30 Yeovil Rd / Development Access		6	

7.15.4 Hinged Poles are designed to be lowered to the ground either using a rope attached to an eyebolt by one person, or in the case of a Sapa hinged pole by using a Sapa pole lowering tool. However, the Contractor must carry out their own risk assessment set out in their Draft Method Statement how they intend to deal with Faults and Routine Maintenance on hinged poles.

7.15.5 The Hinged/Tall Poles as with the Mast Arms are to be treated as structures and will require inspecting as detailed in the Specification.

## **7.16 BULK CHANGE AND CLEAN SCHEDULE**

7.16.1 Carry out bulk lamp changes and lens cleaning at the following frequencies:

- (1) Tungsten Halogen Lamps every 12 months
- (2) Tungsten Filament Lamps every 12 months
- (3) Box sign and other regulatory signs every 12 months

7.16.2 Carry out cleaning of all optical units externally every 12 months during the lamp changes, using propriety cleaning fluid, such as "Nilglas" or similar and clean soft cloths or rag materials.

- (i) LED signal aspects,
- (ii) Wait panels,
- (iii) Nearside LED Pedestrian Demand Units,
- (iv) Regulatory box sign panels,
- (v) Amber Flashing LED and
- (vi) Variable Message Sign faces,
- (vii) Vision type detection such as pedestrian kerbside

7.16.3 Additional, unscheduled cleaning visits when requested by the Service Manager, will be charged at the appropriate labour rates provided in the Schedule of Rates for

Minor Chargeable Works.

7.16.4 At any attendance on Site for Optical Maintenance the Contractor must ensure that:

- (1) Any additional failed lamps not due to be changed on that visit are restored.
- (2) All aspects and heads are correctly aligned, adjusted and secure
- (3) All backing boards, strips, hoods are correctly fitted (including replacement if necessary)
- (4) Any evident Faults or damage are reported to the Service Manager and Contractor.

7.16.5 The Contractor must supply details of each Bulk Change and Clean visit including date and time when each Traffic Control Installation is visited. The Contractor must record any additional materials used or authorised works that are carried out.

## **7.17 PREMATURE FAILURES**

### **7.17.1 Single Red Lamp**

Attendance on Site and full repair as Priority 2.

### **7.17.2 Multiple Red Lamps**

Attendance on site and full repair as Priority 1, including Hinged Poles but excluding Mast Arms which shall be Priority 2.

### **7.17.3 Any Other Lamp**

Attendance on Site and full repair as Priority 2.

### **7.17.4 Any Lamp Failure on a Mast Arm**

Attendance on Site and full repair as Priority 2.

## **7.18 BCP MAINTENANCE OF CAR PARK VARIABLE MESSAGE SIGNS AND TRAFFIC INFORMATION SIGNS**

7.18.1 BCP also has 30 Variable Message Signs to show whether car parks in the town centre of Bournemouth, Christchurch and Poole are full or have spaces. The signs are controlled by a hosted Yunex Database System called, STRATOS.

7.18.2 There are just 4 rotating prism signs, which have all been supplied by Yunex, are mainly controlled through the UTC system.

7.18.3 The car park count information is obtained by inductance loops at the car park entrances and exits.





7.18.4 The current system, which is likely to be added to during the course of the Contract, comprises of the following manufacturers all listed in Appendix 3b BCP Council Asset List Inventory:

- Dambach Signs
- Futurit Swarco VAS
- Pulsar
- Radarlux Speed Check
- Siemens Car Park Count Cabinet
- Siemens Car Park Count Signs
- Siemens Car Park Prism Signs
- Siemens Car Park Signs
- Simmonsign LED
- Swarco Car Park Flag Signs
- Swarco YS1
- Swarco Parking Signs
- Swarco VAS Signs
- Swarco VMS 12 x 5
- VMS Ltd Watchman Signs
- Westotec VAS Signs

7.18.5 The Contractor is required to price for the annual maintenance of the variable message signs all listed in Appendix 3b BCP Council Asset List Inventory:

7.18.6 BCP also has a number of SWARCO signs which are currently maintained under a separate maintenance contract and covers VMS and VAS equipment. Visits to these signs not listed in the Appendix 3b BCP Council Asset List Inventory will be at the discretion of the Service Manager and will be covered by the relevant contract rates.

#### **Fault Priority and Response Times**

7.18.7 Any faults shall be reported by the Service Manager in the same manner as traffic signal faults in the following categories with the appropriate response times detailed in paragraphs 7.1.13 - 7.1.29:

- a) Priority 1 – Urgent. Any fault deemed urgent by the Service Manager in particular when equipment is in a dangerous condition either electrically or physically.
- b) Priority 2 – Non urgent. Any other fault.
- c) Priority 3. As detailed in paragraphs 7.1.23 – 7.1.29.

### **7.19 MAINTENANCE SPECIFICATION FOR THE ICE WARNING EQUIPMENT**

#### **Introduction and Scope**

7.19.1 This specification covers the maintenance procedures for the electrical supply and visual observation of the post the Findlay Irvine Ice Warning equipment is mounted on.

7.19.2 The equipment is fitted at various locations in and besides the highways throughout



the County and use air and ground temperature measurements with wind and dew point checks to predict the formation of ice on the highways. The maintenance responsibility of the Installation equipment is with the Employer, see Appendix 3b BCP Council Asset List (Existing Inventory of Equipment in BCP)

### **Maintenance Services to be provided**

#### **General**

- 7.19.3 The Contractor shall be responsible for the annual inspection of the electrical supply and post, Findley Irvine cover all other aspects of maintenance.
- 7.19.4 The Contractor may be asked by the Service Manager to attend site to check for damage or power failures, these visits will be on a chargeable basis as set out in the schedule of rates.

#### **7.19.5 Ice Alert Outstation Locations**

##### **BCP Council**

- 01BI A338 Wessex Way, Bournemouth
- 02BI A338/A3060 Cooper Dean RBT, Bournemouth

##### **Dorset Council**

- 01IC A30 Yeovil Road, Sherborne
- 02IC A356 Toller Down
- 03IC A35 Organford, Lytchett Matravers
- 01WI B3156 Wyke Road, Weymouth

### **Emergency Service**

- 7.19.6 All fault reception, recording and associated activity will be undertaken as defined in 7.1.3 of this Specification.
- 7.19.7 An on-call fault service will be provided between 0600 hours and 1900 hours, 7 days a week including Public and Bank Holidays.
- 7.19.8 The Contractor shall respond to calls for service as follows:-
  - a) Priority 1 faults - attendance and rectification as defined in Paragraph 7.1.17 that is to say within 4 Contract Hours of notification.
  - b) Priority 2 faults - attendance and rectification as defined in Paragraph 7.1.22 that is to say within 13 Contract Hours of notification.
- 7.19.9 A Priority 1 fault shall be any outstation failure resulting in four or more sensors at a site being inoperative or erroneous.
- 7.19.10 Unless otherwise requested by the Service Manager all other faults shall be defined as Priority 2.



### **Fault visit and repairs**

7.19.11 The Contractor is responsible for attendance on site and the replacement and repair of parts or worn out due to other than fair wear and tear for the equipment listed in Appendix 3b BCP Council Asset List

7.19.12 Where faults occur on equipment and cables for which the Contractor is not responsible then the Contractor shall determine the location and nature of the fault and report them to the appropriate agencies such as:

Data Transmission -	British Telecom (BT)
Power Failure -	The appropriate Electricity Company
3G / 4G / 5G -	Mobile Sim Card Providers

The Contractor shall progress the remedial measures necessary to restore the equipment to full serviceability but shall not be responsible for delays in repairs until such time as the Contractor is notified by either the Service Manager or the agency that the defect has been repaired.

7.19.13 The Contractor shall liaise with the above agencies, attend site to allow access to equipment as required at no additional cost to the Service Manager.

7.19.14 The Contractor shall not be responsible for:

- a) repair of cables, except as the item of a separate order and Demoted Fault Priority message,
- b) repair of data Communications lines or equipment owned by BT or others,
- c) repair of Electricity Companies fuses or cables,
- d) repair of damaged posts or cabinets, except as the item of a separate order and Demoted Fault Priority message,
- e) provision of units to replace equipment damaged by external causes, except as the item of a separate order and Demoted Fault Priority message,
- f) provision of units to replace equipment necessary to replace items beyond economic repair, except as the item of a separate order and Demoted Fault Priority message,
- g) maintenance of any installation equipment.

### **Routine Maintenance**

7.19.15 Routine maintenance comprising twice yearly calibration checks, annual inspections and checks as described in the manufacturer's handbooks shall be carried out. The Contractor shall agree with the Service Manager the timing of the work before implementation.

- 7.19.16 Cable termination and pole top termination at roadside sites shall be inspected annually for deterioration. Cable battens and components shall be cleaned and sprayed with silicon compound.
- 7.19.17 All transmission equipment shall be checked and adjusted annually to ensure signal levels are maintained in accordance with the Service Manager's records.
- 7.19.18 Road surface sensors shall be cleaned annually with an abrasive plastic pad to remove oil, grease and dirt. This activity will require traffic control measures, which must be agreed in advance with the Service Manager. The provision of necessary traffic control measures is the responsibility of the Contractor.

#### **Annual Safety Inspection**

- 7.19.19 The Contractor shall apply safety inspections to both sensor and roadside equipment at each site. These shall include as a minimum the following: -
- i) Inspect and lubricate all hinges, bolts, locks and bearings,
  - ii) Check mechanical security of all electronic equipment and mountings,
  - iii) Check for insect/ rodent infestation and rectify,
  - iv) Check on equipment corrosion protection and rectify,
  - v) Report on equipment accessibility,
  - vi) Inspect entry/ exit points of all cables and check for wear or damage

#### **Transmission Equipment Inspection**

- i) Check correct operation of auto dials on alarm state,
- ii) Check correct response to interrogation calls from master unit.

#### **Electrical Inspection**

- i) All connections, plugs, sockets and leads shall be checked for cleanliness, rigidity, damage and corrosion at both the sensor and main unit connections,
  - ii) Insulation checks between line and earth conductors,
  - iii) Insulation checks between neutral and earth conductors,
  - iv) Line to earth impedance test,
  - v) Neutral to earth impedance test,
  - vi) Check that the correct type and value of fuses have been fitted to all sensor circuits,
  - vii) Check that the maintenance socket operates correctly,
  - viii) Check for the correct operation of residual current devices,
  - ix) Check power supply voltage.
  - (x) Check outstation battery levels.
- 7.19.25 All inspections shall be carried out in accordance with the latest IEE Regulations for Electrical Installations. With the exception of problems involving cabinet corrosion protection and accessibility, all necessary correction measures shall be applied with the minimum delay. All results from inspections 7.22.5 a, b, c shall be logged.
- 7.19.26 The following items shall be repaired by the Contractor: -

- a) fuses, lamps, etc. within the control panel,
- b) damaged cable termination and faulty connectors,
- c) circuit modules within the control panel,
- d) damaged or defective sensors,
- e) power supplies,
- f) alarm units,
- g) any battery which has failed or is recommended to be changed within a given time period,
- h) superficial damage or deficiencies to the equipment housings and fixings,
- i) damaged cable pairs between roadside unit and external sensors.

#### 7.19.27 Calibration Tests

All sensors and roadside equipment shall undergo calibration tests between September and the end of October and again in January.

Ice Alert Outstation Locations

01IC A30 Yeovil Road, Sherborne  
 02IC A356 Toller Down  
 03IC A35 Organford, Lytchett Matravers  
 01WI B3156 Wyke Road, Weymouth  
 01BI A338 Wessex Way, Bournemouth  
 02BI A338/A3060 Cooper Dean RBT, Bournemouth

#### 7.20 BLUETOOTH DEVICES FOR MEASURING JOURNEY TIME

7.20.1 Various types of Bluetooth devices are installed throughout BCP and Dorset the majority of which are recently installed Bluetooth® (BT) based journey time measurement (JTM™) system, see Appendix 3b BCP Council Asset List (Existing Inventory of Equipment in BCP)

7.20.2 The Siemens solution Sapphire JTM™ utilises Bluetooth® technology which is commonly found in mobile phones, aftermarket accessories, in-car communication and audio systems to detect moving BT enabled devices along monitored routes. The detectors continually communicate to all BT devices present in their vicinity – with an extended detection range of up to 100 m for traffic environments in the case of Sapphire. These Bluetooth® devices are managed through Siemens STRATOS Environmental Module, measuring journey times between links.

7.20.3 The current system, which is likely to be added to during the course of the Contract, comprises of the following:

BCP Council      8 Dual Sapphire JTM™  
                      26 Uni Directional JTM™  
                      34 Bluetooth Units

#### 7.21 SETTING OUT

7.21.1 When new or additional equipment is provided the precise positions of the

equipment will be determined by the Service Manager prior to any work commencing, but they will in general be in the positions shown on the drawings to be supplied by the Service Manager.

7.21.2 If at the request of the Service Manager it is necessary to adjust the position of the equipment, the equipment must be re-sited in a location designated by the Service Manager in accordance with the Schedule of Rates - Chargeable Works.

7.21.3 The attendance on site by the Contractor shall be at their own expense.

## **7.22 FACTORY ACCEPTANCE TEST AND SITE ACCEPTANCE TEST**

7.22.1 If the replacement traffic control equipment is a new or replacement controller the Service Manager must be advised and afforded the opportunity for a member of the employer's staff to attend a Factory Acceptance Test (FAT) at the Depot or Suppliers premises.

7.22.2 When replacement traffic control equipment is to be tested on Site, the Service Manager must be advised and afforded the opportunity for a member of the employers' staff to attend a Site Acceptance Test (SAT)

7.22.3 Where new equipment is installed or existing equipment is substantially modified by the Contractor, or a Third Party, so as to require an on-site acceptance, a representative for the Contractor will attend the site acceptance. The Service Manager will, with best endeavours, provide 72 hours' notice to the Contractor prior to the commissioning date and time. The Contractor shall check all terminations and wiring for damage and good workmanship. The cost of these works shall be included in the general rates of the contract.

7.22.4 Time clocks associated with the equipment referred to in the equipment schedule (including any that may be added during the period of the Contract) shall be maintained and adjusted to operate at the prescribed times and in accordance with GMT or BST as appropriate.

7.22.5 All communications devices from point of supply will be included within the Contract. The maintenance of these devices shall include but will not be limited to:

- a) The maintenance of the device hardware.
- b) The installation, replacement and upgrading of both firmware and software.
- c) Maintaining and updating device configurations.
- d) Connectivity of the device to the host system or application
- e) Securing the network from both internal and external threat.

7.22.6 All configuration changes and updates must be agreed with the Service Manager prior to implementation. All configuration data i.e MOVA datasets, Controller Configurations, Specialist Configurations, VMS Comms Configuration, Router Configs and Outstation Configurations, shall be extracted from the remote device and stored with the Fault Management System or as agreed with the Service Manager.

## **7.23 ELECTRICAL TESTING**



7.23.1 The Contractor shall carry out an electrical inspection of each installation generally following the requirements of BS 7671:2018. If the replacement traffic control equipment is a new or replacement cable the Service Manager must be advised and the appropriate tests carried out on the new or replacement length of cable as required by BS 7671: 2018.

7.23.2 The method of testing shall be such that no danger or injury to persons, animals or property or damage to equipment can occur even if the circuit being tested is defective.

7.23.3 The Contractor shall take all reasonable precautions under the terms of the Electricity at Work Regulations 1989 to prevent danger or injury to the maintenance operatives. This is particularly relevant when there is a requirement for secure isolation from Highway Distribution Boards.

7.23.4 Tests shall be carried out on all equipment in accordance with the manufacturer's instructions.

7.23.5 The Contractor shall rectify any defects and recommendations found at the time of testing.

7.23.6 The tests to be conducted are as follows:

- a) Polarity - if the polarity is incorrect the Contractor shall cease all further tests on the unit and immediately report the defect to the Service Manager
- b) Visual Inspection
- c) Earthing
- d) Continuity of the IPC
- e) Insulation resistance
- f) Earth fault loop impedance
- g) Operation of RCD

The Contractor shall ensure that no electronic components are damaged as a result of the testing procedure and that all units are left in working order prior to the operative leaving the Site.

#### **Polarity**

7.23.7 A test of polarity shall be made and it should be verified that all fuses and single pole control devices are connected in the phase conductor only.

#### **Visual Inspection**

7.23.8 A visual inspection shall be made at the head and base of the unit to verify that the electrical equipment has been correctly installed and meets a minimum of IP2X standard and that there is no visible damage, which might impair safety.

## **Earthing**

- 7.23.9 All earth connections shall be clean and electrically sound using crimped terminations. The supplementary earthing between the components shall also be sound.

## **Continuity of Protective Conductors**

- 7.23.10 Using two spare cores check insulation resistance to earth and continuity of conductor.

## **Insulation Resistance**

- 7.23.11 A test voltage of 500V dc shall be applied for equipment rated up to 500V, or 1000V dc for equipment rated above 500V up to 1000V.
- 7.23.12 The Contractor shall ensure that electronic control equipment is not damaged during this test.
- 7.23.13 The insulation shall be tested between the phase conductor and earth, the neutral conductor and earth and the neutral and phase conductors. In all cases the insulation resistance shall not be less than one mega ohm.

## **Earth Fault Loop Impedance Zs**

- 7.23.14 The earth fault loop impedance shall be measured at the controller and at each pole top.
- 7.23.15 The measured impedance value shall be equal to or less than the value shown in BS 7671 for the particular rating of the protective device employed.
- 7.23.16 Where the impedance  $Z_s$  is in excess of the value indicated in the current IEE regulations then the Contractor shall measure the external earth fault loop impedance  $Z_e$  at the supply point. Should this be in excess of the value stated in BS 7671 for the type of protective device fitted then this information shall immediately be passed to the Service Manager for further action. Where the  $Z_e$  is less than this value then the Contractor shall carry out further investigations to determine the reasons of the high  $Z_s$ .
- 7.23.17 Should the Contractor be unable to diagnose the cause of the high  $Z_s$  impedance reading then he shall isolate the installation by removing the fuse, place a warning notice inside the unit and report this to the Service Manager.

## **Operation of RCDs**

- 7.23.18 The effectiveness of RCDs shall be determined in accordance with BS 7671.
- 7.23.19 The Contractor shall carry out the tests and record the values in a form to be agreed by the Service Manager in accordance with the requirements of BS 7671. The Contractor must make the original test certificates available to the Service Manager without delay

- 7.23.20 Failure to carry out the tests or supply the test certificates will be subject to a service credit and be recorded against the Contractors PI's and KPI's.

## **7.24 TEMPORARY COVERING OF SIGNS AND TRAFFIC SIGNAL HEADS**

- 7.24.1 In certain circumstances when the Contractor is carrying out work on a Traffic Control Installation it may be necessary for them to cover traffic signal heads temporarily to avoid causing confusion to traffic and pedestrians. In such circumstances the Contractor will be responsible for covering and uncovering the signal heads if required to do so by the Service Manager at no extra cost. The traffic signal heads must be covered with appropriate covers provided by the Contractor and adequately secured to the traffic signal heads.
- 7.24.2 If the Contractor is unable to restore inoperative Traffic Control Sites then he must arrange for the placing of appropriate 'Signals Not Working' signs and other traffic management measures to be agreed with the Service Manager or the Police (if the Contractor cannot contact the Service Manager within 3 hours of the original notification and be responsible for its removal on restoration.
- 7.24.3 In certain circumstances when a contractor other than the Contractor is carrying out work on or near a Traffic Control Installation it may be necessary at the Service Manager's request to cover traffic signal heads temporarily to avoid causing confusion to traffic and pedestrians. In such circumstances the Contractor will be responsible for covering and uncovering the signal heads if required to do so by the Service Manager at the agreed rate shown in the Schedule of Rates. The traffic signal heads must be covered with appropriate covers provided by the Service Manager, which the Contractor will adequately secure to the traffic signal heads.
- 7.24.4 In certain circumstances when the Contractor is carrying out work on a Traffic Control Installation it may be necessary for them to cover signs temporarily to avoid causing confusion to traffic. In such circumstances the Contractor will be responsible for covering and uncovering the signs if required to do so by the Service Manager at no extra cost. Signs must be covered with effective material supplied by the Contractor at his expense, adequately secured to the sign.
- 7.24.5 In certain circumstances when a contractor other than the Contractor is carrying out work on or near a Traffic Control Installation it may be necessary at the Service Manager's request to cover signs temporarily to avoid causing confusion to traffic. In such circumstances the Contractor will be responsible for covering and uncovering the signs if required to do so by the Service Manager at the rate agreed shown in the Schedule of Rates. Signs must be covered with effective material supplied by the Contractor at his expense, adequately secured to the sign.

## **7.25 EQUIPMENT TO BE MAINTAINED**

- 7.25.1 The equipment to be maintained by the Contractor under this Contract will include all equipment at every Traffic Control Installation as listed in Appendix 3b BCP Council Asset List Inventory to this Specification, and as amended by additions or deletions throughout the Contract.
- 7.25.2 When new equipment, defined as being of a type not currently in the inventory of

equipment when the Contract started or is added to the inventory after the start of the Contract, excluding components or parts of modules, PCB's, etc. and any UTC equipment. Where there is less than FIVE of that type of equipment in the Employer's area of responsibility the spares will be provided at no cost to the Contractor. Where there is five or more of that type of equipment installed in that area, the provision of spares will be the responsibility of the Contractor.

- 7.25.3 Once there are five items in total within the the County or sooner in agreement with the Contractor, the Contractor shall purchase from the Employer, at the same price as the Service Manager paid all remaining items of equipment held by the Service Manager.
- 7.25.4 The Contractor must attend on Site and replace or repair all parts and equipment in order to rectify the reported or any Fault. This must cover all mechanical, optical, electrical and electronic equipment internal or external to the controller. The Contractor must ensure that if No Fault is found an Inspection as required under paragraph 7.6.2 is carried out before leaving the Site.
- 7.25.5 The Emergency Cover to be provided by the Contractor under paragraph 7.1 will include attendance on Site for the purpose of making a Traffic Control Installation safe.

## 7.26 REPAIRS OF EQUIPMENT

- 7.26.1 The following items of work, the equipment and cost of these repairs shall be included in the rates for contractual maintenance.

- (i) The replacement of damaged or missing equipment as follows: -

wait legends, push button assemblies, audible indicator units, tactile drive assemblies, tactile rotating cone, tactile rotating cone motors, nearside LED aspects, pole caps, terminal blocks within the lantern or on top of the poles, lamp holders, lamps, LED aspects, lamp transformers, fluorescent tubes, chokes, starters, solar cells, controller door seals, controller alarm lenses, controller base seals, controller locks and fastenings.

- (ii) The refitting and/or realignment of: -

push button units and nearside units, backing boards, hoods, lanterns, aspect lenses, above ground detection equipment including ANPR and CCTV housings.

- (iii) Miscellaneous Activities: -

1. Attendance at and reporting electricity supply failures, subsequent liaison with supply company,
2. Attendance at and reporting communication line faults, subsequent liaison with communications company,
3. Attendance and assisting the appropriate service provider in gaining access to equipment previously reported faulty by the Service Manager or Contractor to resolve responsibility for electrical or data transmission faults,



4. Abortive call-outs,
5. Take-overs,
6. Commissioning by other contractors where the Contractor would be expected to take-over the maintenance of the equipment,
7. Alterations to time switches and controllers and placing of documentation in the cabinet.
8. Replacing controller EPROM's,
9. Adjusting microprocessor school warning flasher and VMS/VAS RAM timing sets,
10. Attendance on Site to discuss modifications and chargeable work programmes.

(iv) No Fault Found

Where the Contractor is requested to attend Site and No Fault is found with the equipment.

## **7.27 FAULT VISITS AND REPAIRS**

- 7.27.1 The Contractor must attend on Site and replace or repair as necessary all parts and equipment in order to rectify the reported Fault. This will cover all mechanical, optical, electrical and electronic equipment internal and external to the controller up to the electrical supply company supply cut-out at the Sites specified in the Inventory of this Specification and any additions after the start of the Contract.
- 7.27.2 Should the Fault be due to a failure of the power supply the Contractor must report this fact to the relevant electricity supply company and liaise with them on Site where necessary at no expense to the Employer.
- 7.27.3 Should the Fault be due to a failure of the communications or data transmission line the Contractor must report this fact to the relevant communications company and liaise with them on Site where necessary at no expense to the Employer.
- 7.27.4 Should no Fault condition be found the Contractor must inform the Service Manager immediately from the Site.
- 7.27.5 A Fault will not be considered as rectified until the Traffic Control Installation is Fully Operational and this fact reported to the Service Manager
- 7.27.6 A Full Clear will infer that a Traffic Control Installation has been left Fully Operational. Where a "Full Clear" is not possible a "Make Safe or Temporary Clearance" report must be made. Failure to notify the Employer of an outstanding defect will be considered the same as the final repair not being made, this will be subject to a service credit and be recorded against the Contractors PI's and KPI's.
- 7.27.7 Any attendance requiring the signal lamps to be switched off must be notified to the Employer beforehand and the Traffic Control Installation appropriately signed by the Contractor, in accordance with Chapter 8 of the Traffic Signs Manual.
- 7.27.8 If any defect or imperfection occurs as a result of the provision of Services carried out under the Contract whether above or below the surface, the Contractor must search for the cause thereof and when the cause thereof has been ascertained the

Contractor must carry out all necessary repairs to the satisfaction of the Employer, all at the Contractor's expense.

## **7.28 EMERGENCY WORK**

- 7.28.1 In cases of Emergency when required the Contractor must attend on Site within the shortest possible time, preferably within 2 Actual hours after notification and if possible before this, due consideration being given to the prevailing traffic, road, and weather conditions, to ensure the Traffic Control Installation in question is made safe, if necessary removing debris and posting warning signs. If required by the circumstances he must work with the Electricity Supply Company, or any other statutory undertaker or emergency service.
- 7.28.2 If during the course of their employment members of the Contractors staff observe any Traffic Control Installation that is dangerous, they **MUST** carry out such Emergency Work needed to make the Traffic Control Installation safe at the appropriate on-Site response rate, set out in the Schedule of Rates – Minor Chargeable Works and the Service Manager informed as soon as possible.
- 7.28.3 The vehicle and staff attending Emergency Work must have adequate equipment, plant and expertise to effect emergency repairs and restore service until permanent repair is completed.
- 7.28.4 If a call is received by the Contractor out of Normal Hours requesting that a Site condition should be treated as Emergency Works, then the Contractor shall act on the information received. The Contractor may wish to speak to one of the listed contacts provided by the Service Manager to seek advice on the information provided. The decision to proceed with the Emergency Works shall be the responsibility of the Contractor. No criticism will be placed on the Contractor for acting in good faith, however it is still necessary for the Contractor to account for his actions.
- 7.28.5 The Contractor shall provide in their Draft Method Statement how they intend to operate this requirement.
- 7.28.6 The Service Manager must be notified as soon as possible of all Emergency Works that the Contractor has attended. The Contractor must give details of the originator of the complaint, time of call-out, extent of damage and any relevant information that may assist the Service Manager to recover costs from the third party who caused the damage if this can be ascertained. Note the Contractor's Civil Engineering Operative should be able to assist in this matter.

## **7.29 PLANNED MAINTENANCE**

- 7.29.1 An Annual Inspection and an annual Optical Maintenance programme shall be carried out by the Contractor on all the equipment featured in the Inventory of equipment.
- 7.29.2 Where LED optical equipment is employed Optical Maintenance will not be required, other than cleansing, including nearside Pedestrian demand Units and pedestrian kerbside detection as detailed under Optical Maintenance.