**National Highways**

**Specification for the National Highways Dynamic Display System (DDS) Service Support: Engineering Remote Access Solution.**

|  |  |
| --- | --- |
| **Document Title** | **Specification for the National Highways Dynamic Display System (DDS) Support Contract: Engineering Remote Access Solution.**  |
| **Author** | Mike Trembeth |
| **Owner** | Glyn Evans  |
| **Distribution** |  |
| **Document Status** | Final |

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Description** | **Author** |
| 0.1 | 30th June 2022 | First Draft | Mike Trembeth |
| 1.0 | 11th Aug  | Final | Mike Trembeth |
|  |  |  |  |
|  |  |  |  |

**Reviewer List**

|  |  |
| --- | --- |
| **Name** | **Role** |
| Glyn Evans  | Head of Programmes |
| Alan Begg | Service Group Leader |
| David Thomas | Technical Reviewer |
| Lee Bryant | Procurement Lead |

**Approvals**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Signature** | **Title** | **Date of Issue** | **Version** |
| Glyn Evans  |  | Head of Programmes |  |  |
| Alan Begg |  | Service Group Leader |  |  |
| Mark Fairweather  |  | Operational Technology Procurement Group lead |  |  |

**Contents**

*Section Page*

[1 Purpose and Objectives 4](#_Toc76472176)

[2 Background to National Highways (The Customer) 4](#_Toc76472180)

[3 Background to the DDS 5](#_Toc76472197)

[4 Current Service Support Arrangements 5](#_Toc76472211)

[5 Remote Engineering SOlution-General Project/contract requriements 6](#_Toc76472219)

[6 Remote Engineering SOlution – Functional requirements 9](#_Toc76472228)

[ANNEX A DDS LocationS 11](#_Toc76472245)

# Purpose and Objectives

* + - 1. This document specifies National Highways’ requirement for the delivery of a secure Engineering Remote Access Solution for the service support requirements of Dynamic Display Systems (DDS) located at the National Highways Regional Operational Centres (ROC) and the National Traffic Operations Centre (NTOC).
			2. Successful delivery of a DDS Engineering Remote Access Solution will maximise the availability of the system to the users and maximise the return on the capital investment in the asset by prolonging the life of the equipment in the most cost-effective manner.
			3. The objective of this specification is to deliver high quality service support outcome for the DDS at the National Highways Operational sites to ensure efficient issue identification and resolution processes are adhered to which in turn facilitates and maintains Operational activities.

# Background to National Highways (The Customer)

* + - 1. The National Highways key strategic and business priorities are to:
* Make our roads safer;
* Improve the experience of all road users;
* Deliver the £15 billion of investment set out in the government’s 5-year Road Investment Strategy - 2021 to 2025.
	+ - 1. National Highways key business objectives are set out in a number of key documents, including (but not limited to):
* [Road Investment Strategy 2021 to 2025](https://www.gov.uk/government/publications/road-investment-strategy-for-the-2015-to-2020-road-period);
* [National Highways Delivery Plan 2021 to 2025](https://www.gov.uk/government/publications/highways-england-delivery-plan-2015-2020);
* [National Highways Innovation, Technology and Research strategy](https://www.gov.uk/government/publications/highways-englands-innovation-technology-and-research-strategy);
* [National Highways Traffic Information Strategy](https://www.gov.uk/government/publications/traffic-information-strategy).
	+ - 1. In order to deliver the above priorities National Highways staff, its partners and suppliers are expected to demonstrate the following values:
* Safety;
* Integrity;
* Passion;
* Ownership;
* Teamwork.
	+ - 1. National Highways ambition is to ensure our major roads are more dependable, durable and most importantly, are safe.
			2. National Highways works hard to make sure the SRN is:
* Free flowing – where routine delays are infrequent, and journeys are reliable;
* Safe and serviceable – where no-one should be harmed when travelling or working;
* Accessible and integrated – so people are free to choose their mode of transport and can move safely across and alongside our roads.
	+ - 1. National Highways further aims to:
* support economic growth with a modern and reliable road network that reduces delays, creates jobs, helps business and opens up new areas for development;
* ensure our activities result in a long term and sustainable benefit to the environment.
	+ - 1. The SRN is managed through seven Regional Operational Centres (ROCs) and a National Traffic Operational Centre (NTOC).
			2. National Highways has a uniformed Traffic Officer Service (TOS) who serve in ROC and patrol key areas of the SRN.

# Background to the DDS

* + - 1. The Dynamic Display System (DDS) is a video wall for displaying images to assist National Highways Operational Teams in SRN event management. The DDS is commonly used to display CCTV images, weather, maps, Status of Roadside devices and television news channels.
			2. The DDS is operationally required 24 hours a day and 365 days a year.
			3. The DDS are currently in good working order and are service managed under a single contract let by National Highways Digital Services directorate.
			4. The DDS are in the ROC, National Traffic Operational Centre (NTOC) and in some separate ROC Silver Command rooms.

# Current service support arrangements

* + - 1. For issue resolution, the current Service Support Supplier covers the 2nd and 3rd line support and maintenance of the DDS hardware, software and firmware of the DDS 24/7 365 days of the year for each of the sites listed in Annex A.
			2. For issue resolution, 1st Line triage, call logging, remote phone support and diagnostics will be carried out by National Highways Operational Service Desk (AIMS). The current DDS service support supplier is a resolver group for AIMS and will be the primary user of the DDS Remote Engineering Access solution once installed.
			3. The current Service Support Supplier carries out preventative maintenance of the DDS system in accordance with the Original Equipment Manufacturer (OEM) recommended equipment maintenance regime.
			4. Preventative maintenance is considered as a minimum required procedure to ensure the DDS system is fully operational.
			5. Apart from Routine and Reactive maintenance the current Service Support Supplier is required to undertake additional activities at the specific request of National Highways, such as Configuration, security updates, software updates and patches.

# Remote engineering solution – General project/contract requirements

* + - 1. The winning Supplier that will deliver the Engineering Remote Access Solution will be responsible for the design ratification, development delivery and support of a Remote Engineering Access solution.
			2. The Engineering Remote Access Solution will provide engineers the access and capability to carry out the activities out lined in Section 4 under the current Service Support arrangements.
			3. The Engineering Remote Access solution will need to be available 24/7 365 days of the year.
			4. The Engineering Remote Access solution will need to be installed by no later than Feb 22.
			5. On contract award, the Supplier will enter a start-up mobilisation phase, to be detailed in the Implementation Plan that the Supplier shall provide within 4 weeks of the call off commencement date.
			6. The Supplier’s staff shall be compliant with Skills Framework for the Information Age (SFIA) and provide and co-ordinate suitably experienced and qualified Technicians or Engineers to undertake all engineering activities, including site work and incident repairs of the technology used to provide the National Highways DDS Remote Engineering Solution. The Supplier will need to maintain a succession plan to ensure that staff providing the Service and any proposed staff replacements, have a consistent level of skills so that there is no skill fade on any resources provided under this contract. Any proposed staff replacements shall be to the final satisfaction of the National Highways Contract Manager.
			7. The Supplier shall ensure that all resources meet National Highways minimum security requirement of BPSS. Guidance can be found at the following website.

<https://www.gov.uk/guidance/security-vetting-and-clearance>

* + - 1. The Supplier design, development and delivery shall comply with best practice regarding energy use and recyclable materials in the production and maintenance of display systems equipment.
			2. The Supplier is required to ensure that the performance of the DDS shall not be adversely affected by any of its obligations under this Contract and in the event of such adverse effects, shall at its own expense restore the DDS to full operation, responding as if it were a fault.
			3. The Supplier will seek to establish good working relationships with National Highways ROC Control Room representatives and IT support representatives.
			4. Immediately on arrival at a manned site, the Supplier shall report to the authority in charge, complying with all entry and exit procedures as required. For each ROC, the Supplier shall liaise directly with the ROC Technology Manager or equivalent.
			5. The Supplier shall comply with National Highways Health and Safety standards.
			6. Access to the National Highways Planned Engineering Works (PEW) online system will be provided following contract award. This system is used to seek approval for access, and to perform work at the control rooms.
			7. The Supplier shall be responsible for electrical safety testing of the Equipment included fixed wire and portable appliance testing as outlined by BS7671(4).
			8. The Supplier shall ensure that it has no conflict of interest at any time throughout the duration of the contract; and shall notify National Highways immediately should the potential for this arise.
			9. On entering and vacating sites, the Supplier shall visually check that any automatic Fire and / or Security Alarm Systems that they have responsibility for are in the correct operational mode. The Supplier shall ensure that defects are reported to the correct person/organisation.
			10. The supplier shall comply with GDPR regulation.
			11. The Supplier shall comply with the requirements of the National Highways Digital Service (DS) Cyber Security Team and Code of Connection (CoCo) as well as IEC 27002:2005 - Code of Practice for Information Security Management.
			12. The Supplier shall provide a single point of contact, email address and telephone number, at location within England.
			13. As part of the incident management process, the supplier will accept incidents and provide ticket reference, progress updates and resolutions details to and from the NH single point of contact (AIMS Incident Management supplier).
			14. The Supplier shall provide a warranty of 1 year that includes cover for full incident management and repair of the Remote Engineering Solution.
			15. The Supplier shall provide a service desk and telephone response Monday to Friday 0800 to 1800 and the ability to receive email incidents.
			16. The Engineering Remote Access solution will have a performance availability SLA of 99.6%.
			17. The Supplier shall provide the following response and resolution times for the Engineering Remote Access solution under this contract for any hardware or software element of the solution.

|  |  |  |  |
| --- | --- | --- | --- |
| Fault Category | Example | Response: Monday to Friday 0800 – 18.00  | Resolution: Monday to Friday 0800 – 18.00  |
| Critical/UrgentP1 | Total loss of remote accessE.g., Loss of the whole solution system.  | < 4 Working hours | <12 Working hours |
| MajorP2 | Restricting serviceE.g., 50% of the Remote access solution not being able to be fully used by the current Supplier Engineers. | < 8 Working hours | < 24 Working hours |
| Minor/Non-urgentP3 | Non-service affecting issues. I.e., the Solution is functioning but is impaired in some way but can still be used by the current Supplier Engineers. | < 1 Working week | < 2 Working week |

* + - 1. Resolution – Target SLA success is a fix that has been put in place which remedies whatever was causing the initial critical fault. Critical faults can be downgraded to be resolved by the Required SLA (e.g., where critical fault has a workaround implemented which results in it being downgraded to a major fault) – subject to agreement with National Highways or the nominated representative.
			2. The National Highways preferred method of raising an incident will be via ServiceNow, – Customer Incident Management System. The Supplier will receive and transfer incident via an electronic link to ServiceNow.
			3. Any additional task that is undertaken through this contract must fall within the scope of the services provided under this contract.
			4. The Supplier shall undertake all tasks that fall within the service, in accordance with defined National Highways processes. This shall include the process of quoting for the additional work, using the hourly rates stated in the Schedule of Call of Charges. Preparation of such quotations shall not be chargeable under the contract.
			5. The Supplier shall undertake associated handover of the Engineering Remote Access Solution in line with National Highways DS Handover into Service Process as appropriate and mutually agreed between the Supplier and National Highways.
			6. The supplier will provide a handover pack of the solution on completion of the project, not limited to: Maintenance requirements, OEM documents diagrams, Cyber Code of Connection certificate, Hardware and Software asset list, Test documentation, Licensing information and Configuration data; as defined in NG Handover procedures MCH1349.
			7. All licensed software shall be clearly listed and all charges including recurring or annual charges shall be clearly identified. All software licenses necessary shall be purchased by the Supplier and shall be transferred to National Highways upon final acceptance by National Highways.
			8. The Supplier shall provide 1st and 2nd line managerial escalation contact details for which National Highways may report unsatisfactory service under this contract.
			9. Three months before the end of the contract (including warranty period) National Highways will discuss with the supplier what will happen to the Remote Engineering Solution. This could be either to decommission or to handover the solution to a new supplier or National Highways.
			10. If the solution is to be decommissioned, the Supplier shall ensure that any decommissioning of equipment for which the Supplier is responsible for, does not affect the operation and availability of the remaining systems / subsystems.
			11. The Supplier shall comply with the EU Waste Electrical Equipment (WEEE) directive in a manner that does not leave National Highways exposed to any security risk as per National Highways Cyber Security Team Policy.
			12. The Supplier shall have the capacity of supplying Spares and Consumables for the equipment for the core period of the maintenance contract as a minimum.
			13. The proposed contract is for a period design, development and delivery by Feb 2023 followed by a one-year warranty.
			14. The Supplier will nominate a Contract Manager for the duration of the contract. This nominated person could also be the Project and Technical Manager for any specific additional tasks that may be awarded to the Supplier under this contract.
			15. The Supplier will provide a Monthly Progress Highlight Report against approved delivery programme to National Highways and to attend quarterly review meetings.
			16. The Supplier shall record National Highways issues with the Engineering Remote Access solution and include these in the Monthly Report.
			17. The Supplier shall maintain and update site data and configuration under the Suppliers control in response to National Highways Operational Asset requirements.
			18. The supplier will provide training of all Engineering Users of the Engineering Remote Access solution.
			19. Any proposed software changes shall be submitted by the Supplier to National Highways for review prior to being implemented.
			20. The Supplier shall provide National Highways Contractor’s Monthly Report (CMR), near the end of each month, which will include a forecast for the spend within that month. A forecast for the remainder of that financial year shall also be reported in the CMR. National Highways will in turn, issue the Supplier with the necessary receipting details that will need to be detailed on the invoice to be submitted by the Supplier to National Highways Financial Team.
			21. As part of the reporting cycle, Interim assessments are to be made by the Supplier at monthly intervals and are reported in advance of progress meetings. If the interim assessments indicate that a project performance target is not likely to be met, the Supplier shall submit proposals for changes to improve project performance to National Highways for acceptance.

# Remote engineering solution – functional requirements

* + - 1. National Highways has been in discussions with its consultants and DDS Service Support Supplier to agree a high-level design to allow remote engineering access for the current DDS service support supplier.
			2. The Engineering Remote Access Solution proposed will provide an additional platform to assist regional DDS deployment and development activities, but primarily enhance Field Service support offering, by allowing engineers to check system status and proactively monitor individual system components. In many circumstances this access will either prevent the necessity to dispatch an engineer to site to support a Field Service call, or at very least provide an opportunity to increase the efficiency of a resulting site attendance through the ability to check system status prior to a visit.
			3. The Engineering Remote Access Solution will allow the DDS Service Support Supplier to administer and configure the DDS Controller via remote desktop session, providing the ability to perform controlled system shutdowns, restarts, access to event logs and the opportunity to collaborate more effectively with other National Highways system providers during troubleshooting activities. In addition, remote access to the DDS Controller will also provide a more efficient approach to carrying out changes and future development of systems, lessening the need to send specialized engineers to site in some circumstances. As examples, it will be possible for the DDS Service Support Supplier to make minor amendments to the pre-set layout configurations or determine that the DDS Controller is receiving a CCTV input, however it will not be expected to verify the quality of the image displayed or whether the correct image is being displayed without visual support from a presence on-site.
			4. The Engineering Remote Access Solution will allow DDS Service Support Supplier to access the status of display monitor performance so that Field Service engineers are able to attend equipped to carry out the replacement of consumable parts effectively. Again, it should be noted that it is not possible for all tasks and troubleshooting activities to be completed remotely and that is particularly the case for intermediate system components such as video extenders which provide no direct diagnostic capabilities other than visual inspection, thus requiring a physical on-site intervention.
			5. To facilitate the remote connection to the DDS, the supplier will make an application to utilise the National Highways Open VPN access. This service has a normal operational period between the hours of 08.30 – 17.00. The supplier will request 24/7 coverage for no more than 2 concurrent users with 2 public IP addresses (including redundancy) within the application for use of this service.
			6. National Highways expect that communication connectivity required for the Engineering Remote Access Solution shall be provided by the National Road Transmission System (NRTS). The supplier will need to work with the NRTS incumbent supplier to ensure that the connectively is delivered in a timely fashion.
			7. The Engineering Remote Access solution will be based on an IP-SEC site-to-site mesh network emanating from the DDS Service Support Supplier Data Centre using primary/redundant NAT-T connections provided by National Highways NRTS at the EPAN SDP and the DDS Service Support Supplier to make onward connection VPN tunnels to the DDS Server Hardware via rackmount appliances within the regional DDS cabinets for this purpose. The appliances are to run a suite of software to create and manage these tunnels and to firewall and control traffic. The default policy will be Deny All. The supplier will work with National Highways and the National Highways DS Cyber-Security team to agree a suitable policy as required for data towards the National Highways network. The Supplier is expected to retain most traffic onto a dedicated switching infrastructure where possible but may have a requirement to route or NAT towards in certain scenarios. It is expected this to be for RDP/VNC use only in these scenarios.
			8. Specifically, the introduction of this solution will have no impact on the direct connection of the DDS Controller to other CCTV systems.
			9. National Highway’s intention is to first deploy the remote access and monitoring solution to the NE Test Facility located at NE ROC Wakefield before commencing with rollout to the operational DDS systems throughout the ROCs and NTOC. In preparation for this deployment, the Supplier we will compile supporting documentation and design updates required for consideration of Cyber Security Code of Connection requirements to demonstrate the solution meets the security requirements of the NH Cyber Team.
			10. The supplier will also provide draft test documentation for each stage of testing for NH approval, and for this testing to be carried out and witnessed by NH subject matter experts.
			11. However, there may be a requirement for vulnerability assessment, or similar, to meet current NH Cyber-Security procedures.
			12. A high-level design drawing has been provided in a separate document as part of the procurement pack in “National Highways DDS Remote Engineering Access Simple Network Diagram”.

**Annex A: DDS Locations and existing contract period of cover**

The location addresses for each DDS are as follows:

|  |  |
| --- | --- |
| **Location** | **Address** |
| North East ROC | Kestral House, Peel AvenueCalder Business Park Durk, WakefieldWF2 7UA |
| North East CCTV Test environment | Kestral House, Peel AvenueCalder Business Park Durk, WakefieldWF2 7UA |
| Eastern ROC | Key 53St Albans RoadSouth Mimms HertfordshireEN6 3DT |
| West Midlands ROC | Unit 1Quinton Business ParkQuintonB32 1AF |
| East Midlands ROC | Lawrence DriveNottingham Business DriveNG8 6PZ |
| South West ROC | Brunel House930 Hempton CourtAztec WestAlmondsburyBristolBS32 4SRX |
| South East ROC | FosterdownGodstoneRH9 8BQ |
| The National Traffic Operations Centre(NTOC) | Quinton Business Park3 RidgewayQuintonBirminghamB32 1A |
| North West ROC Silver Command | Newton-Le-WillowsWA12 0DS |
| North WEST ROC Primary DDS | Newton-Le-WillowsWA12 0DS |