



G-Cloud 15 | Lot 2b SaaS

Service definition: Osprey (UTMC service)

January 2026

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1 Introduction to Osprey

Osprey is a suite of intelligent smart mobility applications from Mott MacDonald. Built on proven technology, and leveraging open standards, Osprey provides cost effective tools for traffic managers and operations staff. Osprey also provides a platform for outreach to the public, whether business-as-usual, or in times of crisis.

1.1 Background

Osprey has been continuously developed over the last 16 years and is successfully utilised throughout the UK, making it an effective contributor to the delivery of transport strategy objectives. Osprey is fully compliant with the latest published Urban Traffic Management and Control (UTMC) specifications.

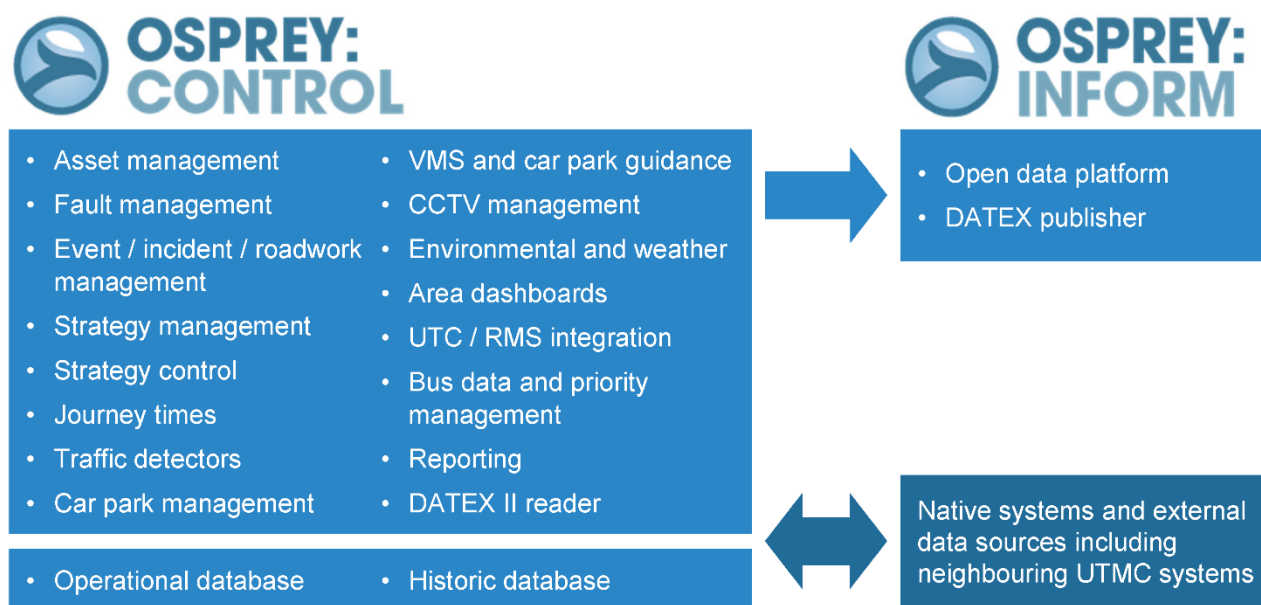
Mott MacDonald has been a leading organisation within the UTMC community from the inception of the Department for Transport's research programme. Our commitment to the benefits that have been realised to public organisations through the establishment of UTMC principles has been constant, evidenced through our continued involvement in the Urban Development Group's supplier's forum.

1.2 Osprey architecture

Osprey is composed of the following core components:

- **Osprey: Control** is the central common database which provides a framework for integration of disparate systems. Modules are included to manage and interact with various data types, and a wide variety of off-the-shelf (or customised) adapters are available to integrate a wide variety of data sources. These modules and adapters are building blocks which can be quickly assembled to create a system tailored to your needs. The key modules such as asset management, fault management, VMS and strategy management are shown below in [Figure 1.1](#). These core modules, combined with a wide variety of 3rd party data sources enable Osprey to make automated and informed decisions to improve the road network.
- **Osprey: Inform** provides a suite of modules to publish data held in Osprey: Control or other (UTMC compliant or non-UTMC compliant) database including an open data publication platform and API.

Figure 1.1: Osprey architecture overview



Osprey is fully compliant with the UTMC standard. It has proven to integrate seamlessly with numerous other UTMC products from a wide range of suppliers and therefore can be confidently placed at the centre of an ITS integration strategy.

Osprey provides an integrated view of traffic and travel information derived from interfacing systems on a single user display. This interface provides users with a comprehensive set of tools to view, enter and analyse data held within the system.

1.3 Key benefits

Osprey provides a robust platform for data interchange between disparate systems, delivering the following benefits:

- Reduced manual operator intervention via automated strategies and schedules, enabling operators time to focus on non-standard tasks and interventions.
- Reduced congestion with automated strategy interventions.
- Improved bus services using intelligent, digitally driven bus priority strategies linking RTPI request and Osprey data to trigger bus priority signal actions via UTC without additional on-street infrastructure.
- Improving public travel information via dynamic Variable Message Signs (VMS).
- A feature rich dashboard that provides a comprehensive view of key junctions, giving quick access to CCTV, VMS, UTC commands and strategy management.
- Automated network management based on a comprehensive detection and intervention engine.
- Comprehensive reporting and analysis, which can be tailored for presentation at all levels of the organisation.

These benefits are delivered through an application suite which has been developed in close collaboration with clients responsible for road network management around the UK. Osprey has a proven track record as a robust, reliable system which forms the heart of an operational environment.

1.4 Ease of deployment

Out of the box, Osprey provides a comprehensive set of features and functionality which provide users with key network management facilities. Our core modules, such as asset management, fault management, event management, SVMS management, Journey time/detector management, CCTV management, car park management and strategy management are included as part of our core system. A wide range of optional modules can be quickly deployed to meet your additional operational needs. Furthermore, should tailoring be necessary, the system can be configured to meet identified requirements.

2 Osprey: Control

2.1 Overview

Osprey: Control consists of:

- A core UTMC compliant common database, which acts as a repository for data received from a wide variety of intelligent transport and other systems.
- A suite of applications which add value to the received data.
- Web Client application allowing operators to interact with the software components and explore data.
- A historical database where all information is stored for reporting purposes (included with Large & Medium hosting packages (see 5.4 Hosting).
- Area Dashboards where salient information is displayed on one page for key road sections to provide an operational view and control quickly and easily.

Equipment and system adaptors can be added to the core system to tailor the Osprey service to meet your requirements.

2.2 Osprey web client

The Osprey Web Client provides an easy-to-use web-browser based user interface, which has evolved over many years of development in close coordination with our existing clients.

The Osprey Web Client has a GIS-based mapping facility tailored for the control room environment and contains a standard set of icons, each with colour coding to show real-time status of each asset with summary information in the form of a tooltip. The mapping facilities group data objects into layers, with each layer able to be toggled on and off as required to tailor presentation of the data.

Figure 2.1: The Osprey Web Client provides network operators with a powerful tool to understand real-time traffic conditions and implement appropriate interventions.

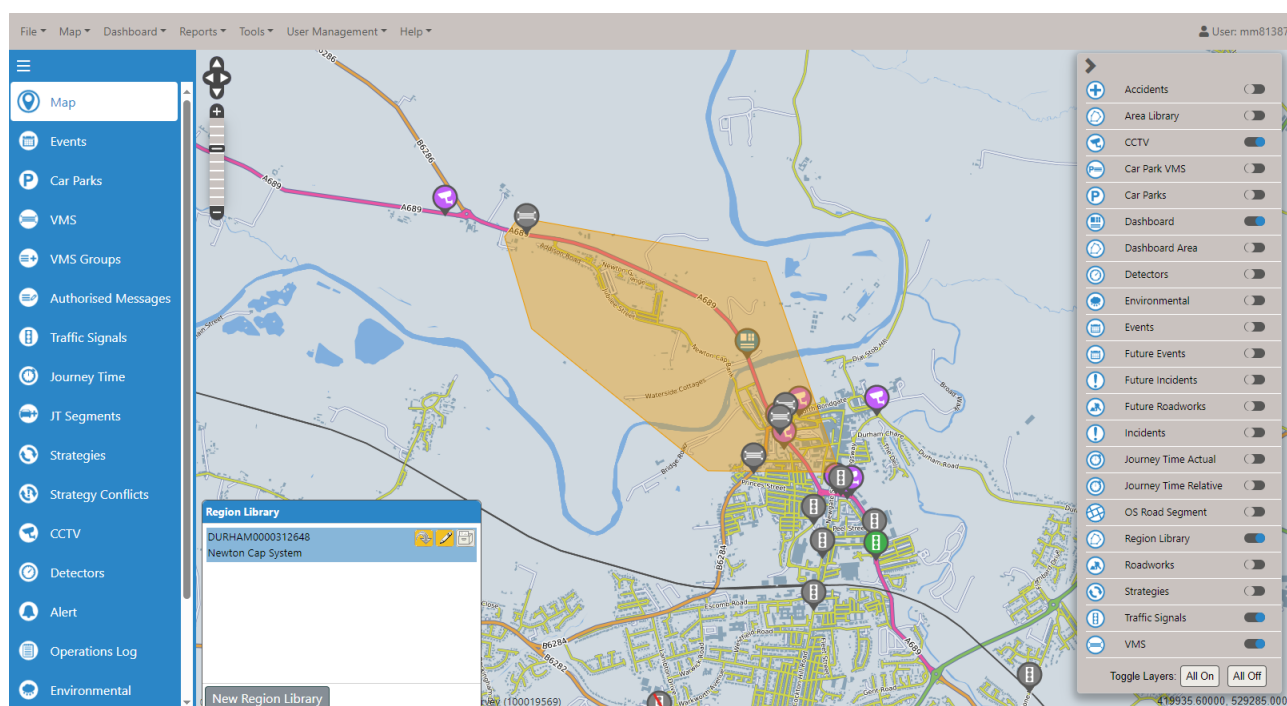


Data entry undergoes validation at all stages to aid the user in entering valid data for each object type, thus encouraging the user to make the information as data-rich as possible.

Osprey's comprehensive user and role management tools allows control over user accounts and the access they have. User accounts are grouped into roles and permissions are allocated to these roles. User Roles can optionally have a geographic region associated with them. Assigning a region to a role restricts users with that role to control of assets and events items within their defined geographic area, whilst retaining view permissions (if enabled) to assets and events out with their defined geographic area.

The following example demonstrates how a local authority has implemented restricted access to a sub-set of users that enables the control of VMS, CCTV and key strategies within a single area to support safety critical bridge closures:

Figure 2.2: Creating a Geographic Region for User Permissions



The areas of functionality that can be controlled includes:

- Equipment
- Strategies
- Events
- Roadworks
- Incidents
- Accidents
- Area Dashboards
- Journey Times
- SCOOT Links
- Car Parks
- CCTV
- Detectors
- Traffic Signals
- VMS
- Environmental assets
- Faults

One of the fundamental elements of the Web Client is the ability to model the traffic network through use of the mapping tools. The real-time information stored within the system can be analysed using user-configurable thresholds to allow easy determination of adverse network conditions based on current and historic data. All real-time data is stored and subsequently used to determine profile data.

2.3 Mobile / tablet support

The Osprey Web Client can be viewed on either tablet or mobile device with a compatible web browser. The functionality available is customised to suit mobile devices and the types of control most appropriate for on-street intervention.

2.4 Historical database

The UTMC database architecture provides for both operational and historical storage of your Osprey data. Current operational data is held in the operational UTMC database and migrated to a historical UTMC database when no longer required for routine operation. For example, when an incident has been closed for longer than one day the data will be archived to the historical UTMC database.

This process occurs on a nightly basis within a scheduled archiving process. The rules for archiving are configurable and can be tuned to meet your data retention requirements and budgets during implementation of the system.

The historical database, along with its associated functionality, is available as part of Osprey's Large and Medium hosting packages. ([see Section 5.4](#)).

2.5 Asset management module

Osprey includes an asset management function to allow the users to input, update and remove all types of equipment. The map facilities of the web client allow users to locate, access and update network assets and equipment across the map. This can also assist users in the planning of field inspection and planned maintenance works. New assets can be created, providing a mechanism to specify the exact location of the asset.

Full inventory at each site can be modelled and updated as the inventory is modified through the replacement and addition of equipment. Full history is maintained for each site, allowing the equipment installed at a particular site at any point in time to be determined.

The Equipment tab contains various filters that allow access to the assets and equipment recorded within the system. Users can use the 'sort' feature to group and locate assets according to relevant parameters such as: Type; Maintainer; and Data Source. Each entry provides access to the detailed information persisted for each item, such as associated secondary equipment details and maintenance details and fault history. A handy search feature allows users to quickly identify the asset of interest.

2.6 Fault management module

Osprey contains comprehensive fault monitoring, reporting, administration, and management features and allow system operators to focus on managing traffic.

Faults can be automatically received for monitored equipment or can be manually entered by users. Fault data captured includes the core fault type, time of occurrence, and detailed description. Recorded faults enter a management lifecycle where they are tracked through to resolution. During this lifecycle, the fault can be updated with new information as necessary, and temporary and final fault resolutions recorded as required.

Maintenance contractors can access Osprey to allow them to receive faults and enter clearances in real time. This allows faults to be dealt with quickly and thus improve repair times and fault KPIs. The system can be set-up with the repair times/service levels for each contractor. Comprehensive reporting and analysis allow contractor performance to be easily monitored (access to reporting is included as part of Large and Medium sized hosting packages).

An additional facility can be added to the Fault management module to interface with a 3rd party maintenance supplier's system. This component can exchange information on active faults and monitor the performance of the 3rd party maintaining the authority's assets.

2.7 Event management

Osprey provides an Event management facility to allow the input of planned events such as roadworks, football matches, or other events which will impact the road network. Unplanned events, such as incidents on the network, can also be entered and managed. The Web Client provides an icon driven display of events, and the data is also presented to the operator in text-based format. This provides a tabular list of events with updates being highlighted in the user interface.

Event management provides:

- Icons representing the location and nature of event, selected from the predefined list of system events.
- The ability to interact with the map-based display, for example, double-clicking on an event will bring up a dialog window which allows the editing of selected event information e.g. duration, description, and status.
- The ability to control the display of this information by turning on/off data layers, e.g. turn off the display of particular events, allowing the display to be de-cluttered.
- Future events can be entered and will display when the event becomes current.
- A display which can be configured to show only current events, future events, or a combination of both.
- Events display filtered according to road class.
- The ability to enter 'Unlocated' events – enter event details without a precise location. This can later be located once further information is received.
- The ability to schedule reoccurring events.
- The ability to use strategies to create events based on pre-defined triggers, e.g congestion events when high travel time thresholds are met.

Event icons are placed dynamically on the main map as and when required. Each UTMC event type is represented by a distinct icon. Osprey can also interface to other management systems including streetworks / roadworks. This approach allows roadworks and other data to automatically be inserted into the common database for subsequent display in the web client.

2.8 Strategy management

The Strategy Manager component of Osprey provides a suite of tools allowing operators to define strategies that monitor the road network for specific criteria and implement automatic responses that will respond to these defined network conditions. Configuration of a strategy is undertaken with a simple to use graphical interface, avoiding the necessity for the operator to have detailed programming knowledge or to remember complex syntaxes.

A strategy is comprised of rules and responses. The rule defines a situation on the road network. The response defines the actions to be taken when the situation occurs. Strategies are defined and monitored through the Osprey Web Client. A strategy icon is displayed on the map and is colour coded to indicate its status:

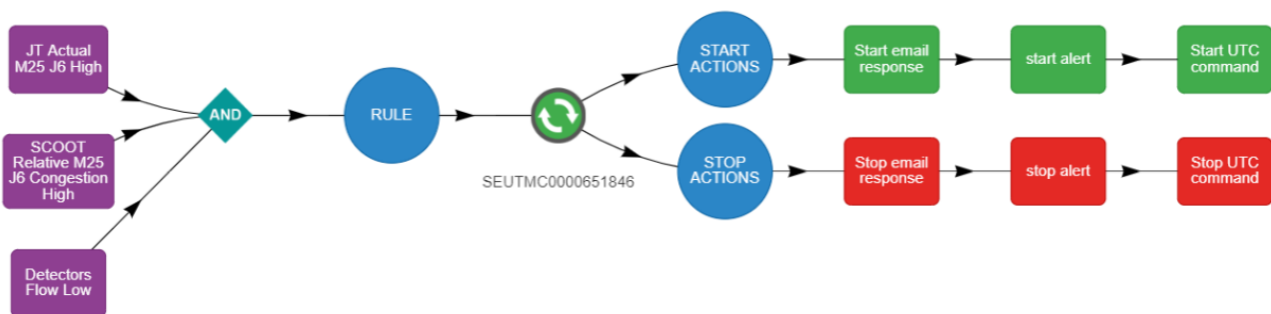
- Amber denotes operational and monitoring
- Green denotes currently running a strategy response
- Grey denotes not operational

Osprey allows area-wide strategies to be easily implemented. The user can select and define a geographic area of interest and to monitor equipment located in this region. Equipment can be grouped, and the group monitored, e.g. total count across collection of detectors.

Inputs which can be used to trigger strategies include:

- Manual request
- Incidents and planned/unplanned events
- Speed, flow, and congestion levels
- Journey time for key routes
- Car park status and occupancy
- Event count, type, severity and lanes effected
- Equipment status
- Fault status
- Traffic counts and queue detection
- Diversion route status
- Bus route trigger points

Figure 2.3: Configuration of a strategy



Strategy response actions include:

- Operator alerts, which indicate to the operator that particular network conditions have occurred, and some action should be considered
- VMS setting, allowing the system to override current VMS settings and alert the public to ongoing issues
- Car park overrides, allowing the system to override current settings to display FULL, BUSY, or SPACES based on live occupancy data and pre-defined thresholds.
- Issuing of commands to connected native systems such as UTC, allowing the system to directly invoke actions on these systems as part of a co-ordinated response
- Activation of strategies on external (linked) UTMC systems
- Creation of UTMC events based on rules
- Issuing of emails and text (SMS) messages to pre-defined recipients
- VMS, emails, and SMS messages can have dynamic content added from assets

Responses can include multiple actions of each type to provide a comprehensive response. When the response is complete (usually signified by the strategy condition being cleared) a series of stop responses are taken to reverse the actions taken. Further strategy configuration allows for persistence of conditions to exist before triggering a response, fixed time responses and a 'log-only' feature, allowing strategies to be tested prior to live implementation. Strategy responses can be staged, providing a timed release of actions for increased flexibility.

Implementation of a strategy response can be set up to run automatically (without operator intervention) or to require operator authorisation to proceed. This facility is useful if the strategy is of high importance and the consequences of implementing the response will result in a major impact.

Each strategy may also have a schedule associated with it, allowing the strategy to only be monitoring and activated during defined time periods. The schedule controls when the strategy is active and should respond to situations.

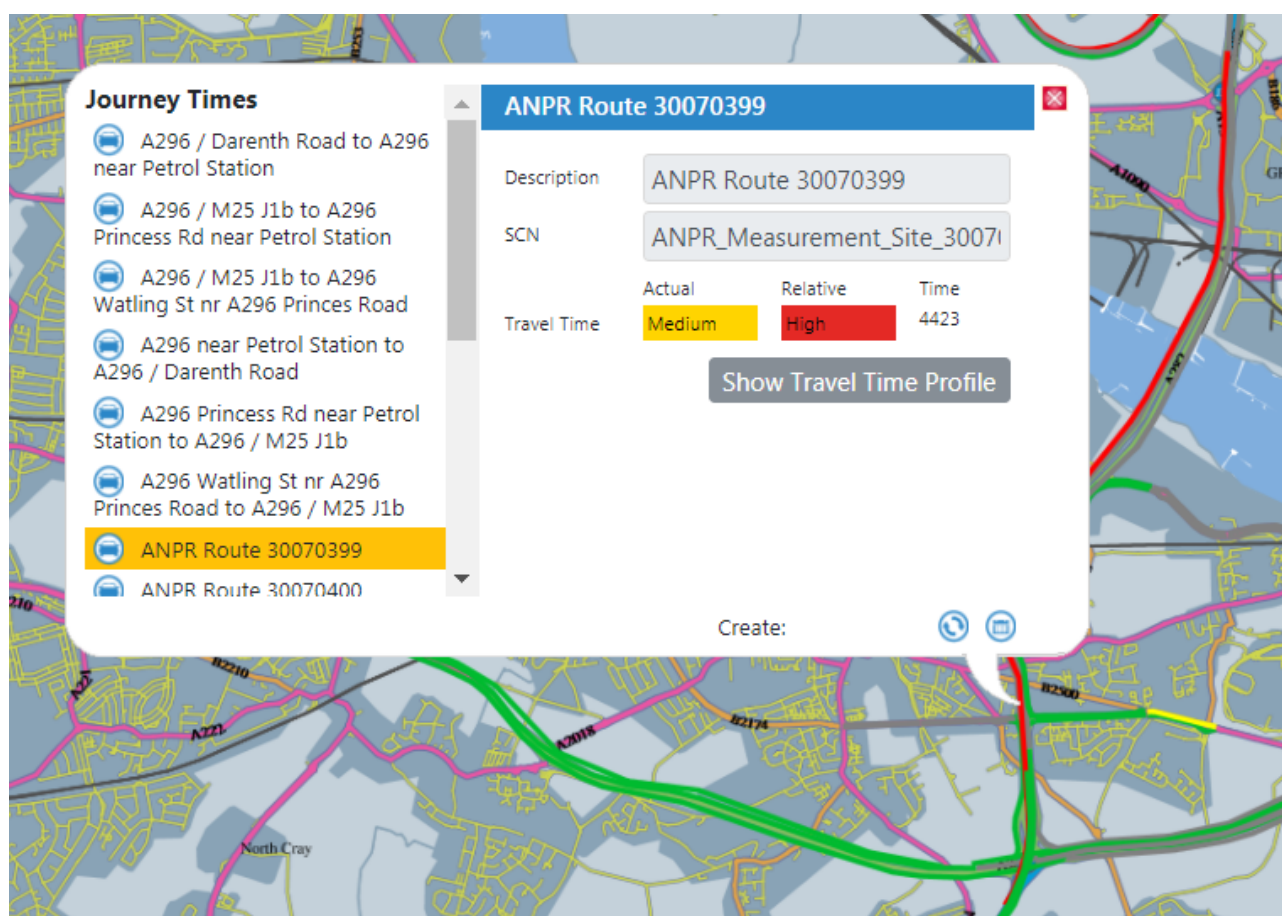
Osprey logs full details of the activity, triggering and running of strategies which can then be analysed.

2.9 Strategy control interface

The strategy management component also allows strategies to be activated and deactivated on external UTMC systems via the strategy control interface. This interface enables two UTMC systems to coordinate their response to defined road conditions (e.g. across a local authority boundary). Where an agreement between system operators is in place, Osprey can set VMS, traffic signals, and other devices on an external UTMC system. The control is fully reciprocal, meaning external UTMC systems can also activate or deactivate Osprey UTMC strategies under the same agreed arrangements. Journey time module

Osprey can process journey time data, including speed and flow, from multiple sources and display this data as colour-coded links on the map ([Figure 2.4](#)).

Figure 2.4: Journey time display with links colour coded according to current conditions



Data for each configured link is stored and used to construct historical profiles. This is used to determine when live journey times exceed those expected for the given day and time. The user can set link thresholds to determine when link status changes from normal to medium or high congestion levels. The link status is used to determine the colouring of the link on the map, providing operators with an at-a-glance view of traffic conditions across the road network.

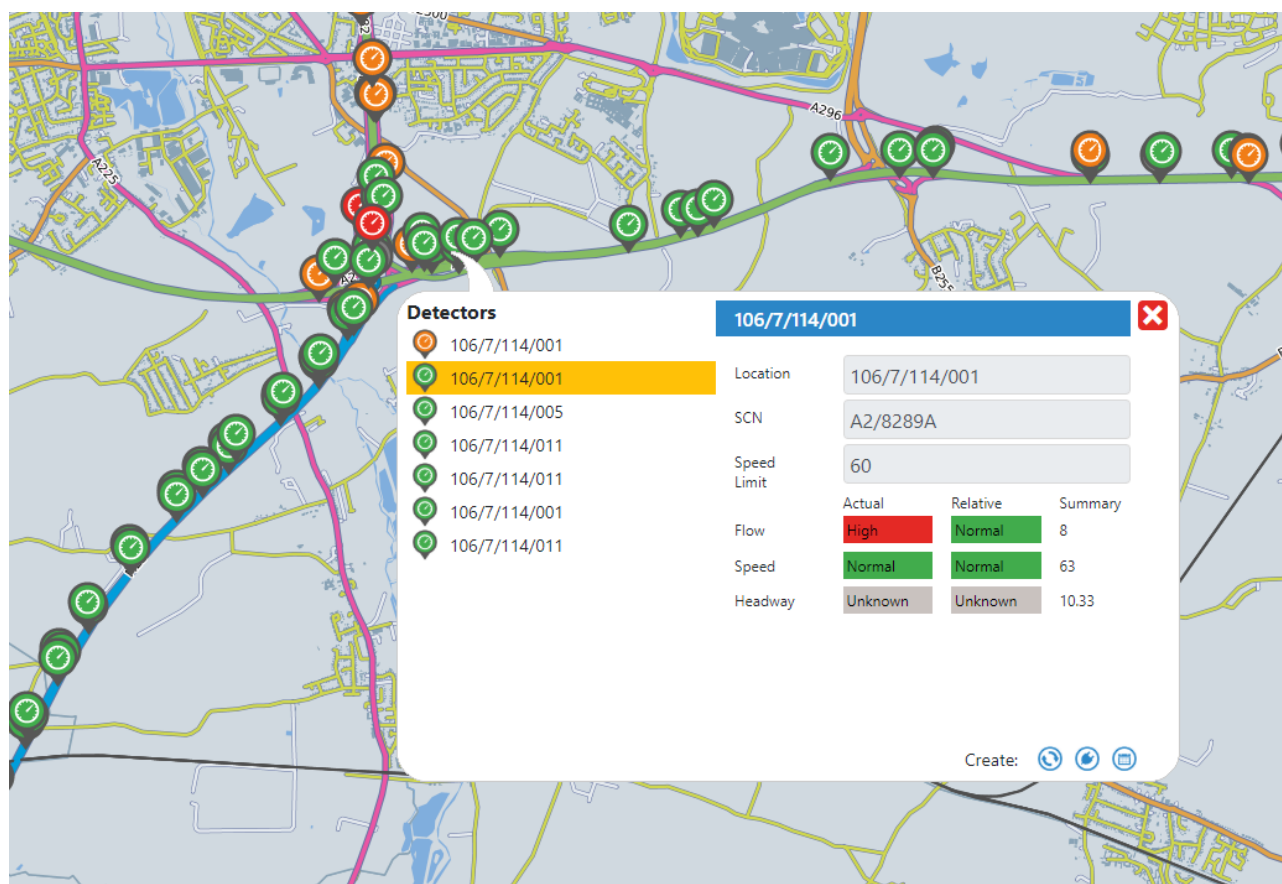
Link thresholds can be defined as relative or actual, allowing the operator to set warnings at specific levels or as a percentage difference to expected travel times.

Users can access this data via graphs, allowing the comparison of today's traffic flow with that historically expected. Journey Time Links can be aggregated into Journey Time Segments for use by the Strategy Manager component. This allows the triggering of strategy responses based on live network conditions, allowing automatic responses to be set up to react to evolving network conditions.

2.10 Traffic detector module

Osprey can process traffic detector data from multiple sources and display this data as colour-coded icons on the map ([Figure 2.5](#)).

Figure 2.5: Detector display with links colour coded according to current conditions



Data for each configured detector is stored and used to create historical profiles. These profiles are used to determine when live detector measurements exceed those expected for the given day and time. The user can set detector thresholds to determine when detector status changes from normal to medium or high levels. Detector data includes speed, flow, headway, and occupancy measurements. The detector speed is used to determine the colouring of the icon on the map, providing operators with an at-a-glance view of traffic conditions across the road network.

Detector thresholds can be defined as relative or actual, allowing the operator to set warnings at specific levels or as a percentage difference to the expected value.

Users can access this data via graphs, allowing the comparison of today's traffic statistics with those historically expected. Detectors can be used by the Strategy Manager component. This allows the triggering of strategy responses based on live network conditions, allowing automatic responses to be set up to react to evolving network conditions.

2.11 Car park and guidance VMS management system

Osprey provides two complementary modes for car park management:

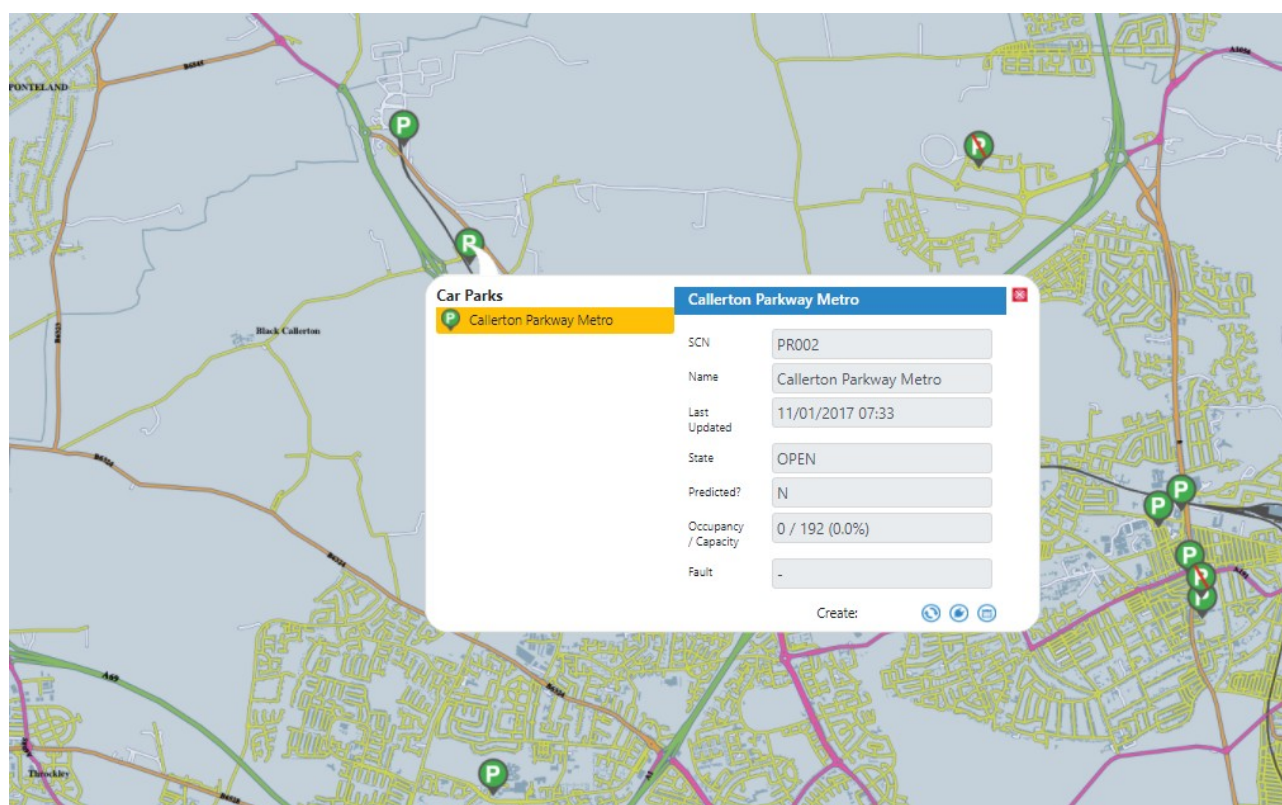
- Interface to existing car park management systems, which already provide the car park counting information.

- UTMC car park management by interfacing directly to car park counters using UTMC MIBs to gather count/occupancy information.

Osprey can gather processed count data and faults from an existing Car Park Management System, using the Osprey Car Park Adapter software. Alternatively, it can gather the raw count data and faults from the car park counting devices, which are monitoring car park entrances and exits.

The system then processes and stores the raw car park data and displays the real-time information on car park guidance signs. This approach ensures that existing and new car parks can easily be integrated into the UTMC system.

Figure 2.6: Osprey car park management modules allow the receipt and management of car park information, and the corresponding setting of guidance signs



Osprey stores data relating to static car park information and dynamic car park spaces and faults.

The occupancy data collected from the car parks is stored in the database for historical analysis and used to develop a daily profile for each car park. Real-time occupancy data is used to 'smooth' historic profiles data (provided it lies within an acceptable range). Profile data can then be used in place of real-time data if the real-time data is not available for any reason. With the profiling enabled and if the car park is not responding to requests for occupancy, this profile data can be used to predict the likely occupancy of the car park at that time.

Car Parks and Car Park Guidance VMS signs are displayed as icons in the Osprey Web Client. The display includes details of the car park static data, the current car park status and the status of the signs. The operator can view a graph of real-time car park occupancy against the average (for every day of the week simultaneously if required). The car park data can then be available to assist with car park planning and trend / performance evaluation.

The system is also capable of accommodating complex car parks which have multiple exits/entrances and temporary floors/areas.

The following car park functionality is provided by Osprey:

- Monitoring and data collection capabilities which will determine carpark occupancies
- Occupancy threshold levels for each car park
- Monitoring and processing of car park information to determine threshold being reached/exceeded
- Implementation of VMS legend displays based on threshold criteria, such as high occupancy
- Facilities to set-up composite car parks by combining individual car parks into an area/group
- Ability to display composite car park information on the signs
- Calculation of spaces remaining
- Operator facilities to override any message
- Facilities for recalibration to recover from cumulative errors or fluctuations
- Provision of various configuration tools and timetable control facilities
- Monitoring and reporting of faults on VMS, car park counters and the communications network

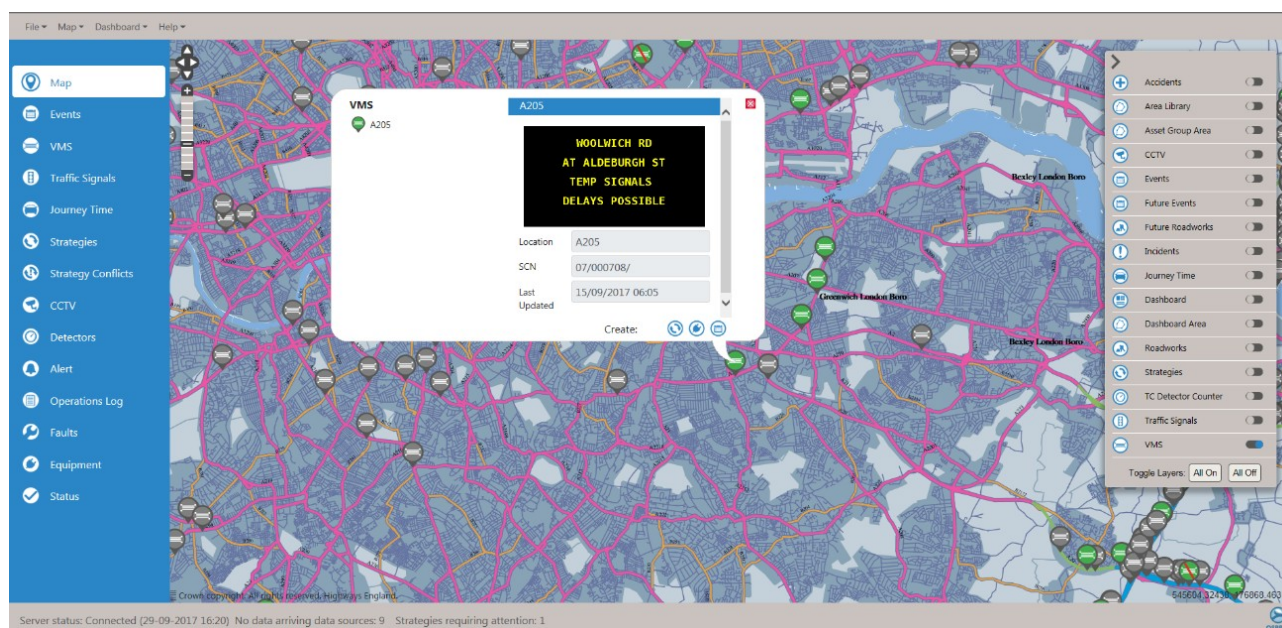
2.12 Strategic VMS management

Osprey provides full VMS sign management functionality for UTMC compliant VMS signs, allowing strategic and car park message signs to be fully utilised. Osprey stores data relating to available sign legends and allows the operator to select from these pre-defined legends. Osprey allows the operator to select a particular VMS sign, or a group of VMS signs and display the required sign legend. It will also store historical information about VMS settings, faults and any static details associated with each sign within the common database.

Implementation of VMS legend displays can be the result of:

- Car park monitoring data request (from car park management component)
- Strategy Management trigger
- Reaching a user defined threshold
- Operator manual override
- Scheduled override

Figure 2.7: Osprey includes the ability to manage text only and pictogram based VMS



Sign settings are derived from a library of messages. Messages can contain either fixed text or dynamic information such as car park occupancy, current journey times or current environmental readings (e.g. Temperature). Each message is assigned a priority level (user configurable) and this is used to prioritise the more important strategic message displays over the general driver information displays. Osprey is fully capable of driving free text signs as well as pictogram capable signs. For common VMS messages, a message library can be developed.

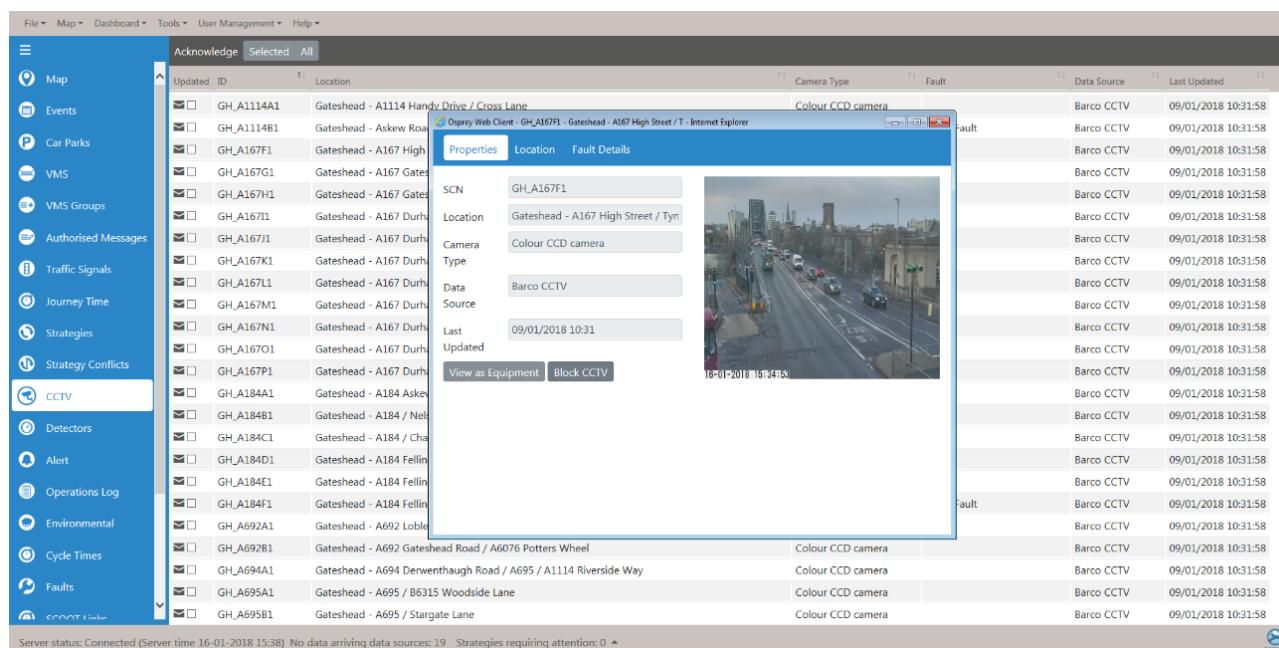
2.13 CCTV management

Osprey provides facilities to integrate with analogue and digital CCTV systems, allowing images to be extracted and published as required. Osprey has the ability for individual camera locations to appear on the map interface and for the user to bring up static images for a camera or to display the camera images in the Web Client or mobile device.

CCTV integration can be achieved in several ways, depending on the capabilities of the existing CCTV system. Where digital streaming is available, static images are collected and if a digital connection is not supported, alternative interfacing methods can still be used to capture images. In all cases, the solution accommodates static images at a frequency that suits the system interface. The exact implementation option can be discussed during call-off and will also consider the associated impact to Hosting (section 5.4)

CCTV cameras are displayed as icons on the map display. Selection of a camera will result in the display of the current image from that camera, as shown in [Figure 2.8](#). CCTV images can be made available in the Web Client. Authorised parties may also be granted secure access to sensitive or streamed images while blocking such images from public access.

Figure 2.8: CCTV images displayed in the Osprey Web Client



2.14 Environmental

Osprey can integrate with sources of environmental data, including sources of meteorological information and air quality data. Sensors and detectors are modelled in the system, plotted on the map with specific details on the equipment type recorded.

Real-time data can be received and displayed in the Osprey Web Client. For weather data, this includes current temperature and precipitation readings. Air quality can include readings such as CO, PM10 and NOx. Historic data is also stored, and this can be used as the basis for development of strategies to react to

changes in environmental data, using the full suite of strategy management rule definition tools. The data can also be used for post-strategy analysis.

2.15 Area dashboards

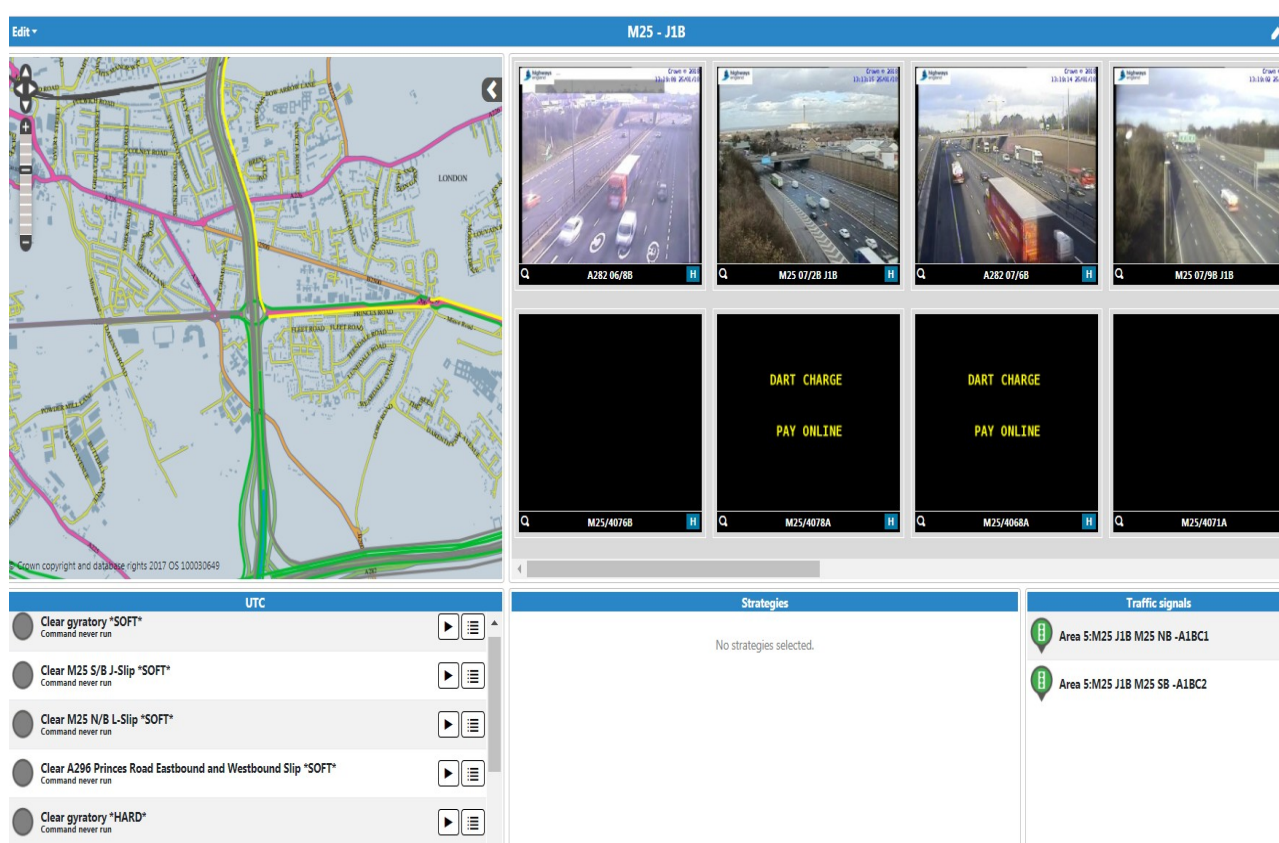
Osprey allows users to create user-defined dashboards to monitor different geographic areas of interest such as a road junction or city centre and see multiple feeds of information through a single customisable dashboard view. A user can select the dashboard area tool and draw a polygon on the map to define the area. Osprey will then identify assets located inside the drawn shape and allows the user to select the assets they are interested in and save the selection as a dashboard. Dashboards can contain a summary map, with additional feeds from:

- CCTV cameras
- Variable Message Signs
- Traffic Signals
- Strategies

The user can start and stop strategies from the Dashboard as well as defining and sending user defined control commands to the UTC system. The dashboard layout is customisable, enabling key CCTV and VMS displays to be easily referenced and a document storage facility allows the dashboard display to show detailed instructions on how to manage the operation of the area.

Dashboard configurations are stored within Osprey and the user can return their dashboard view at any time by clicking the dashboard icon from the main Osprey map, or from a menu list of dashboard areas.

Figure 2.9: Multiple feeds of information can be combined in a single clear dashboard view



2.16 UTC integration

Osprey can provide a full integration with Urban Traffic Control systems. With the provision of an appropriate adapter from the UTC supplier, Osprey can receive fault and status information for each item of equipment under UTC control.

SCOOT data can also be passed, and this data can be managed in a similar fashion to Journey Time data ([Section 0](#)). Osprey will build historic profiles for flow and occupancy and coloured links will be shown on the map to denote current conditions. Historical data can also be examined.

Osprey can also send commands, including core UTC commands as well as macros, to the UTC. This can be achieved automatically using the Strategy Manager or manually using menu actions. The system provides operators with the ability to configure the UTC commands, which can be associated with each item of equipment.

The dashboard feature detailed above in [Section 2.15](#) also allows UTC commands to be predefined and run on an ad-hoc basis.

2.17 Remote Monitoring Systems (RMS) integration

Osprey can provide full integration with Remote Monitoring Systems (RMS), supporting the transfer of data from the RMS into Osprey. With the provision of an additional adapter from the RMS supplier, Osprey can receive fault and status information for each item of equipment under RMS control.

2.18 Bus data management

2.18.1 Bus real-time data

Osprey can provide integration with third-party real time bus information systems (via SIRI interfaces) to provide real time information on bus location, origin, destination, route, and on-time / late running information.

Further enhancements to the bus data management functionality (such stop based real time passenger information) can be discussed on request but are not currently included as part of the bus data management functionality.

2.18.2 Bus priority

Our bus priority interface is fully compliant with the RTIG TO31 specification, delivering the following functionality:

- Ability to combine bus priority request data within our strategy manager with other data sets held within Osprey, for example, journey time and air quality data.
- Junction locking to prevent multiple priority requests from being actioned within system defined time periods.
- Built-in feedback mechanism to RTPI system to confirm the outcome of bus priority request.

2.19 Online reporting

For clients with reporting requirements, Osprey includes an optional Online Reporting component, which provides a comprehensive reporting capability. This feature is available on Large and Medium hosting packages ([see Section 5.4 Hosting](#)).

Osprey Online Reporting is based on industry standard reporting software, and provides a means of accessing, analysing, and presenting your Osprey data. Individual reports can be accessed directly from the Web Client. The Reports menu contains a list of all Reports to which a user has access. Report-specific parameters enable the user to define appropriate filters to drill down into key data-sets.

Our Osprey Online Reporting tool provides these reports as standard:

- **Equipment History:** This report allows history of an individual piece of equipment to be extracted, filtered to a user defined time-period.
- **Event Summary:** The event summary provides a filtered view of events in the system. Parameters include start and end date, event types, severity, and location (road name, road number, district etc).

- **Event History:** The event history provides detail on the life of an individual event. All updates to the event, including alterations to start and end times, description and severity are logged.
- **Strategy Run:** The strategy run log provides of view of the history of an individual strategy. Data such as expressions satisfied, responses trigger times and response outcomes available. This report can be used to analyse the effectiveness of an individual strategy.
- **User Activity:** The user activity log allows supervisors with appropriate permissions to view the activities carried out by an individual user. This includes logging on/off, data entry and report running.

Additional reports can be provided, and the Online Reporting Tool also provides users with the tools to edit and create reports. Note the associated [Technical Requirement in Section 4](#). Such reports are easily uploaded to Osprey, from where they can be made available to a configured set of users.

2.20 Historical data migration

If you require your legacy data to be migrated to Osprey during onboarding, let us know. We have a set of existing tools and scripts to migrate your data. We will work with you to plan this activity and ensure your legacy data is made available in your Osprey installation. Data migration is an optional activity that can be selected via our Lot 3 – Cloud Support services.

2.21 Osprey configuration

As part of your migration to the Osprey toolset, we will discuss your requirements for any configuration changes to any of the available modules and interfaces. We expect these configuration changes to be made available to all Osprey users as part of the overall product enhancement. Our price list distinguishes between existing and new interfaces/data providers:

- **Existing interfaces:** This price reflects the fact we have integrated with the chosen data provider before, limiting costs to configuration and deployment.
- **New interfaces:** This price reflects the fact that we will have to create bespoke customisations to our existing adapters, we will liaise directly with a new provider, analyse different data sets and structures.

3 Osprey: Inform

3.1 Introduction

Osprey Inform provides publishing of data held in Osprey: Control or other (UTMC compliant or non-UTMC compliant) database.

3.2 Open data service

Mott MacDonald's Open Data Service (ODS) suite gives 3rd party users programmatic access to data housed within the Osprey Common Database. It provides robust third-party access for open data consumers, including app developers.

Through the provision of Application Programming Interfaces (APIs), the ODS suite enables authorised users to interact with data held in the Osprey Common Database through the common data-interchange format JavaScript Object Notation (JSON). The use of REST and JSON are common approaches to implementing open data services.

The ODS platform acts as a single client of the core UTMC common database, using standard UTMC protocols to retrieve data. All relevant data changes in the UTMC system are pushed to the ODS client application. A local cache of all such data is held by ODS, which is used to satisfy third party requests for data. As such, all third-party requests are served by the ODS and do not impact on operational usage of the core UTMC system, while the ODS maintains all latest data from the UTMC system.

ODS features both on-demand and asynchronous notification APIs. The on-demand API enables third parties to fetch the latest information through GET requests. In contrast, the asynchronous API lets third parties subscribe to real-time PUSH notifications for updates on available datasets. Access to ODS is secured with a username and password, allowing monitoring of usage of the service.

The ODS suite is easily configurable to publish varying sets of UTMC data, both raw and processed. As well as real-time data, the ODS publishes static data, such as asset location information: Data sets can include:

- Air quality data (location and real-time information)
- Car-park data (location and real-time information)
- CCTV images (location and real-time information)
- Journey times (location and real-time information)
- Accidents, events, roadworks, and incidents (real-time information)
- SCOOT traffic signal data (location and real-time information)
- Weather Station Data (location and real-time information)
- VMS data (location and real-time information)
- Traffic signals (location and real-time information)
- Faults

Hosting for the Open Data Service is included in the Large and Medium hosting options for the core Osprey system. Stand-alone hosting, support and maintenance can be priced on application.

3.3 DATEX publication module

The Osprey XML Publisher module publishes DATEX II XML for the use by internal and external systems e.g., neighbouring traffic management authorities, travel information websites or third parties. DATEX II is a set of European specifications for exchanging traffic information in a standard format between disparate systems.

The XML Publisher module periodically queries the UTMC common database for the latest information for publication. From the retrieved information, the XML Publisher component generates DATEX II XML in the correct format containing the latest information.

XML feeds include VMS Data; Car Park Data; Journey Time Data and Accident / Event / Incident / Roadwork data. Authorised systems and users are then able to access the published XML containing the latest data at their preferred polling period.

The XML Publisher supports multiple subscriptions each with their own periodicity of collecting data. The number of connects would only be limited by hardware and band with constraints.

4 Technical requirements

Osprey is provided as a hosted system using a cloud platform provided, configured, and fully supported by Mott MacDonald.

The Osprey client tools are web-based and require no specific browser software plugins and support all major browsers, including:

- Microsoft Edge
- Google Chrome
- Google Chrome (Mobile)

The Osprey Web Client allows users to manage and monitor operational components and communication links managed by Osprey, including undertaking component configuration.

To edit and create reports (as highlighted in [Section 2.19](#)) via the online reporting tool users must have access to a PowerBI Pro license. Running reports from the Osprey Web client does not require a license.

5 Project management, service support and hosting packages

5.1 Project management

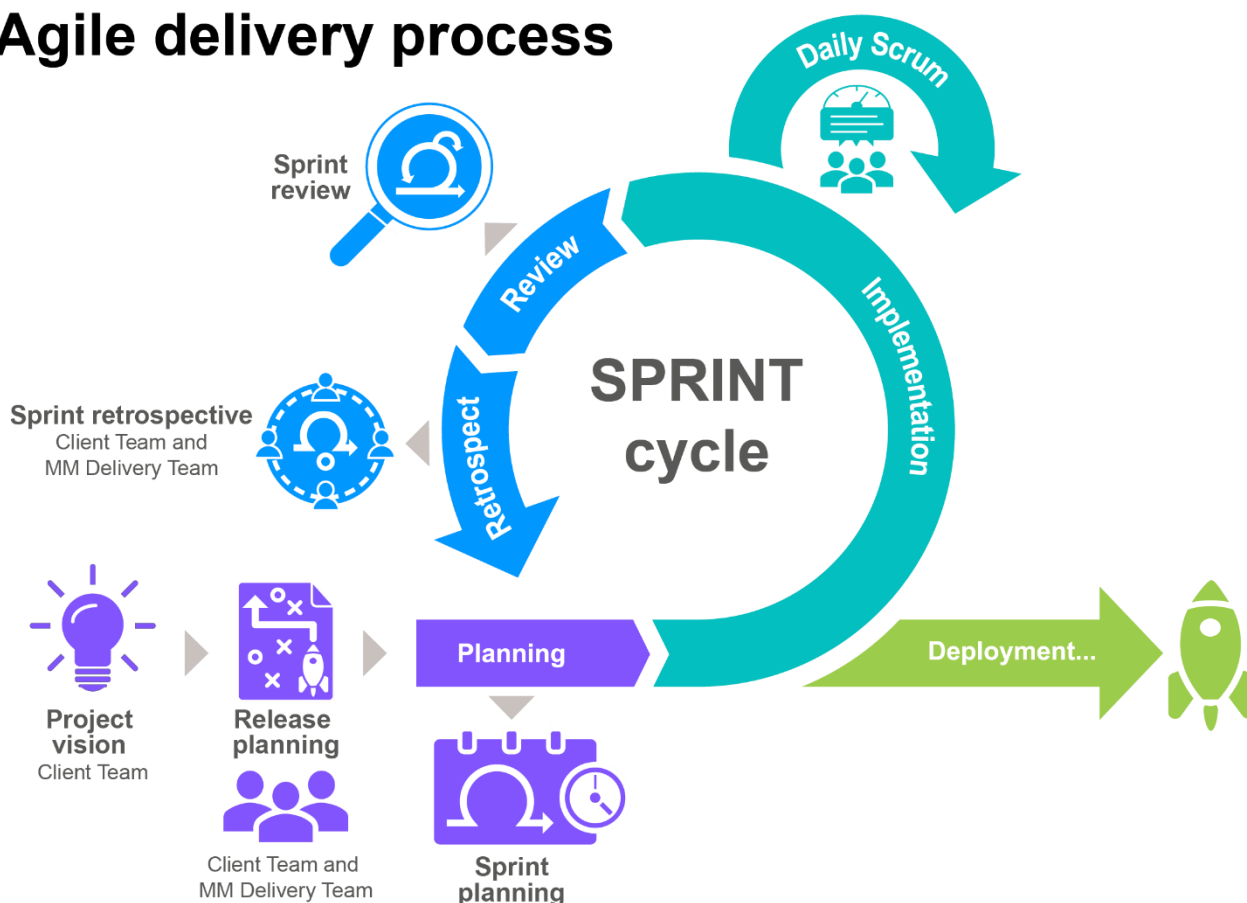
To ensure that your onboarding experience goes smoothly, we will allocate a dedicated project manager to your project. We have several experienced Osprey project managers, who are also professionally accredited. Our project management costs are included in each module price.

Our previous experience has shown that a mixed delivery approach of 'agile' and 'waterfall' methods provides the flexibility to deliver your requirements while optimising available resources.

For well documented and understood requirements, we will take a waterfall approach. Key agile elements will still be used, (sprint planning, retrospectives and show-and-tells) to facilitate communication, encourage continuous feedback, and ensure on-time delivery.

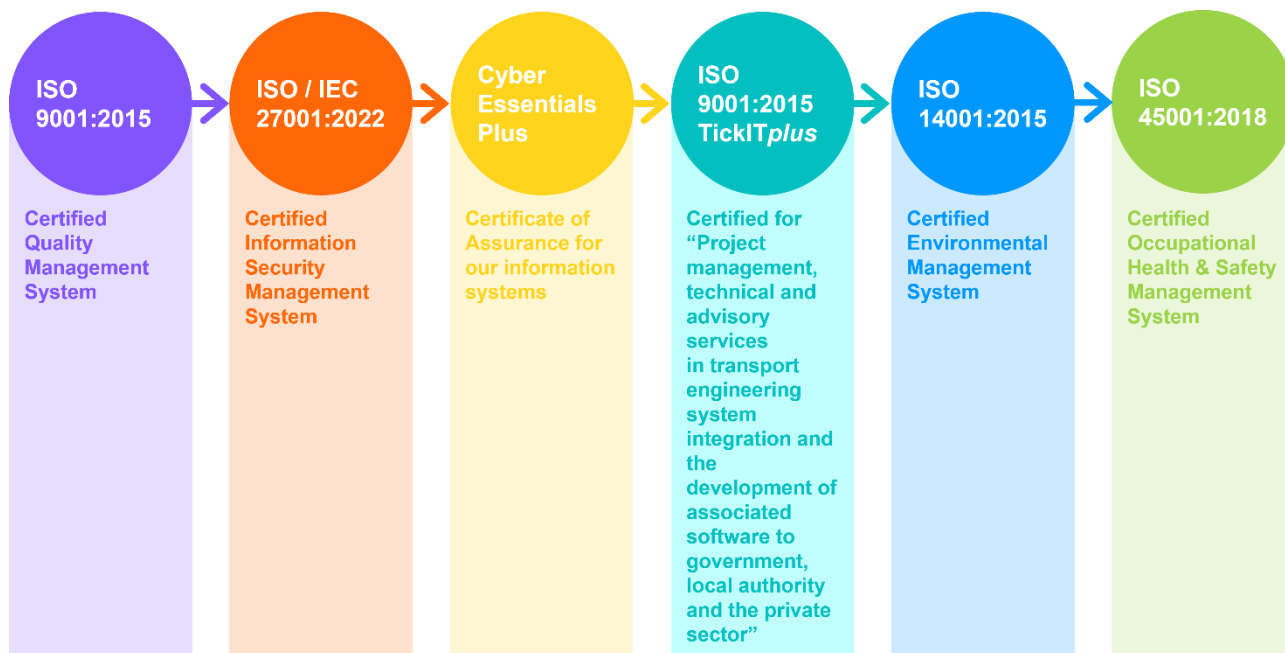
For delivery areas with unknowns or larger scope, we will take an agile approach, working with your client team, identifying, and documenting your requirements, prioritising, and refining them into implementation sprints. This means we can release early and often, giving you quicker access to functionality you need and realising benefits earlier.

Agile delivery process



Our experience shows that involving you in sprint planning and prioritisation will be fundamental to success during delivery, ensuring we maximise value early in your project.

Our Integrated Management System (BMS) provides a flexible framework for project delivery, which can be tailored to allow us to align our delivery processes with your delivery methodologies if required. Our BMS framework satisfies the following standards:



5.2 Implementation consultancy, hosting, and support setup

A fixed price Implementation Consultancy activity is a mandatory service at project start-up. This service includes the provision of a requirements identification exercise, to confirm your exact requirements. The output from this requirements exercise will be captured in a requirements specification.

Should additional requirements be identified further to the standard Osprey software (see [Section 2.21, Osprey configuration](#)), costs for such configuration changes can be provided, based on Mott MacDonald's G-Cloud 14 Lot 2 Cloud software standard rates.

This price includes an initial one-off cost for support and hosting setup, in line with the chosen hosting package.

5.3 Support

Our related cloud support services are defined in the following separate G-Cloud 14 service definitions:

- Lot 3 Cloud Support, Service definition: **Planning cloud services**
- Lot 3 Cloud Support, Service definition: **Deploying cloud services**
- Lot 3 Cloud Support, Service definition: **Supporting cloud services**
- Lot 3 Cloud Support, Service definition: **Securing cloud services**

Our UK-based service desk is staffed by our Information Technology Infrastructure Library (ITIL)-certified team.

We use Jira Service Management (JSM), to manage 1st, 2nd, and 3rd line support. This web-based tool allows you to:

- Log and monitor the resolution of issues
- Track Service Level Agreements (SLAs)
- View historic faults
- Report on recurring issues

Our support service includes:

- Automated system operation checks
- Routine and critical operating system updates
- Fault investigation and resolution
- Full disaster recovery in the event of a system or database failure
- Annual software obsolescence reviews

Response times for support requests are as follows:

Table 5.1: Support service response targets

Priority	Description	Response target	Resolution target
1	Critical loss of service	15 minutes	2 hours
2	Major loss of service	30 minutes	4hours
3	Partial loss of service	1 hour	7.5 hours
4	Enquiry	24 hours	None

All timings are support hours, 0830 – 1700, Monday to Friday, excluding public holidays. However, 24x7 support is available on request. Incident priority will be agreed between Mott MacDonald and the customer when the support request is made.

5.4 Hosting packages

Osprey will be hosted in our UK Microsoft Azure platform. We will work with you to advise on the most appropriate hosting package based on several different factors:

- Number and type of data source adapters
- Contract duration
- Required data retention periods
- Estimated data ingress and egress
- Reporting requirements

Where system expansion is planned during the contract e.g. integration with new data providers or increased data source frequency, we can provide a custom price for monthly hosting, starting at the small or medium size system hosting package and extending to the Medium or Large sized system when required later in the contract. This ensures the hosting level provides sufficient cover each year without unnecessary spend on unused resources.

All hosting packages come with a 99.9% network uptime guarantee.

5.4.1 Large size system hosting

The large size system hosting package is suitable for larger systems with longer data retention periods. Large size system hosting provides:

- Operational & Historic Database & Online Reporting, up to 500GB database storage, retention period of up to 7 years dependent on data size
- Up to 20 data source adapters
- Up to 10 web interfaces
- Up to 20 system-to-system (S2S) VPNs, with a combined egress of 200GB
- Up to 300GB outbound data transfer per month
- ODS (if selected) bandwidth up to 150GB per month
- Operational & Historic Database & Online Reporting

5.4.2 Medium size system hosting

The medium size system hosting package is suitable for systems with fewer data sources and shorter data retention periods. Medium size system hosting provides:

- Operational & Historic Database & Online Reporting, up to 250GB database storage, retention period of up to 5 years dependent on data size
- Up to 10 data source adapters
- Up to 10 system-to-system (S2S) VPNs, with a combined egress of 100GB
- Up to 200GB outbound data transfer
- ODS (if selected) bandwidth up to 75 GB per month
- Operational & Historic Database & Online Reporting

5.4.3 Small size system hosting

The small size system hosting package is suitable for systems with fewer data sources and shorter data retention periods. Small size system hosting provides:

- Up to 100GB Operational database storage
- Up to 10 data source adapters
- Up to 10 system-to-system (S2S) VPNs, with a combined egress of 50GB
- Up to 100GB outbound data transfer
- Operational Database only

All hosting packages require commitment to a minimum 12-month term. Discounts can be secured for reserving certain Azure Service types over a 3-year term.

We will confirm the hosting option required by taking account of the required number of interfaces and expansion requirements as part of early contract discussions.

6 Onboarding / offboarding process

6.1 Onboarding process

Following agreement of contract, we will undertake the following onboarding process:

- Initiation of project management methodology
- Clarification session on configuration requirements held on customer premises.
- Templates provided for customer data inputs, such as user accounts, assets and map data
- Detail our data migration approach from existing UTMC to new Osprey UTMC (if selected, [see Section 2.20](#))
- Hosting setup and configuration
- Osprey service configuration and commissioning
- Support setup

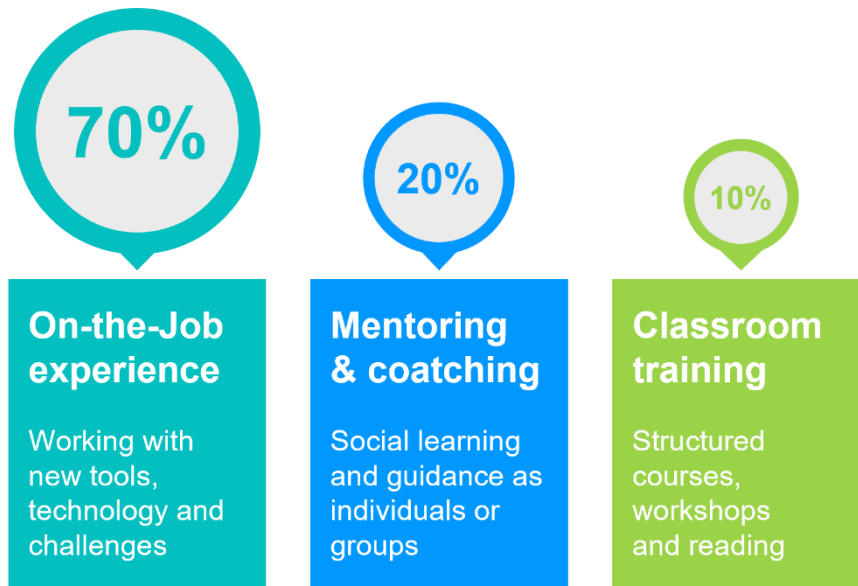
6.2 Offboarding process

As part of the offboarding process, all hosted data will be securely deleted from the Azure environment prior to decommissioning of the service.

We will adhere to the client's requirements on GDPR and destroy personal identifiable data as part of the offboarding process.

7 Training

We base our training on industry best practices by using the OSF (on-the-job, social, formal) learning ratio.



OSF shows that '70/20/10' works well across many organisations, where the bulk of training is done 'on-the-job'.

Our role is to provide the 'social' and 'formal' aspects of training, where your staff might just need some coaching sessions or perhaps more structured upskilling training, for example a top-up session for lesser used parts of the system or introduction of new functionality.

We can provide training in two formats:

- Direct to end-user
- Train-the-trainer

We can train users directly using our expert staff and via train-the-trainer training where we will instruct your staff to pass on the knowledge more widely across the organisation. While train-the-trainer style can be extremely cost effective we find clients value the extra knowledge that our direct training can impart. Many of our clients find the best solution is a combination of the two. Direct training for the most frequent users and train-the-trainer to allow knowledge to be spread more widely to less frequent users.

7.1 User training

We provide user training in a classroom-based format. User training is provided as a half-day session at your premises. Attendees are provided with instruction in using all aspects of the system as an end-user, along with electronic course materials. User training is priced as a unit of five attendees. Maximum course size is 20 attendees.

7.2 Train-the-trainer training

We provide train-the-trainer training in a classroom-based format. Train-the-trainer training is provided as a full-day session at your premises. Attendees are provided with instruction in using all aspects of the system as an end-user, as well as in the underlying system principles, allowing them to confidently provide training and guidance to the ultimate end users. Attendees are provided with electronic course materials. Train-the-trainer training is priced as a unit of five attendees. Maximum course size is 10 attendees.

8 Ordering and invoicing process

Following order placement, we will invoice for up-front module licensing and configuration costs and implementation consultancy services. Thereafter, service provision will be invoiced annually in advance. Invoice terms are 30 days from date of invoice. Non-payment within this timescale may result in suspension of the service.

9 Termination terms

As per the conditions of the contract.

10 Our approach

Whether you are inspecting bridges, planning new road junctions, creating a school performance dashboard, or analysing health patterns, at Mott MacDonald, we know that the right technology, delivered well, makes a difference to our customers. We deliver realistic real-world solutions enabling you to deliver essential information whenever and wherever you need.

Phrases such as big data, cloud computing and the internet of things are used often without a second thought across industry, but what do they mean and how do you make best use of them for your project? We will help **steer you through the hype to what is important and deliver it right first time**.

Ease-of-use, reliability, information security and availability apply across all software projects no matter the sector or industry. We can help **unpick the problem you are really trying to solve, then deliver an effective solution**.

Being technology agnostic, we are free to recommend the right tools for the job and pride ourselves in blending the best off-the-shelf tools with bespoke elements to create the right solution for you.

Backed by a global company of 20,000 staff across 140 countries, our dynamic, forward-looking team of professional technologists has the knowledge, capability, and dedication to make your cloud technology project a success, and we have the track record to prove it.

Some key facts about Mott MacDonald...



A few of our current customers' thoughts...



I wouldn't have trusted any of the other suppliers to deliver this project

National Highways

We have been kept informed of progress along the way and had absolute faith that works would be delivered to the highest possible standard to the requirements set out

Norfolk County Council

Mott MacDonald have shown the upmost professionalism and a collaborative approach, adjusting rapidly and seamlessly to changing requirements

Defra

11 Why choose Mott MacDonald

Our purpose is to improve society by considering social outcomes in everything we do, relentlessly focusing on excellence and digital innovation, transforming our clients' businesses, our communities and employee opportunities.

This is how

We're aware of the lasting, potentially far-reaching impacts of the work we do. As a matter of principle, nobody should be disadvantaged. We know from experience that inclusive projects deliver the best results for everyone, our clients too. That is why social outcomes – accessibility, inclusion, empowerment, resilience, and wellbeing – are at the heart of our purpose.

To maximise benefit for all and protect against harm we're alert to connections, dependencies and influences between projects and the world around them – infrastructure, services, the natural environment, businesses, and people.

In harness with our colleagues' deep subject knowledge and technical excellence, our digital skillset helps us, our clients, and partners to address old challenges better and solve new ones – seeing problems and possibilities more clearly, and being more agile, efficient, and effective.

Improvement is front and centre of what we offer as we work with you towards a more inclusive and resilient society that allows people to live well in a healthy environment, enabled by economic development, vibrant businesses, and fair return on investment.

Advice that adds advantage

Projects to improve health, education, and life chances, and to recover from natural disasters, are all in our portfolio. But the potential for contributing to better social outcomes extends far wider.

With you, we're focused on combating the causes and effects of climate change, managing the coronavirus pandemic, seizing opportunities in digital transformation, and creating and caring for the infrastructure society depends on.

Working with us, you have access to the vast knowledge of internationally recognised engineers, project and programme managers, environmentalists, planners, economists, data scientists, app developers, modellers, social scientists, project finance advisors and more.

We're joined-up across sectors and geographies. Whatever your needs and wherever you are in the world, we will align the right combination of subject and digital expertise to meet your ambitions.

Doing what's right

We're the largest employee-owned firm of our kind. There are no external shareholder priorities to influence our decision making. We can choose the work we take on and focus on the issues that are important to you – and us.

We insist on the highest standards of integrity. We were the first consultancy firm to be certified to BS 10500, now ISO 37001, the international anti-bribery management standard. This assurance of fairness, openness and honesty applies to all our employees, subconsultants and suppliers everywhere we work.

Excellence at your service

Our people stay with us. Stronger retention gives depth of experience, skills, and knowledge. Our ownership model empowers us to invest in the core ingredients of excellence: excellent people supported by industry-leading systems and technology.

Digitalisation has dissolved physical boundaries, enabling us to create networks and virtual teams worldwide. These enable us to provide expertise, share knowledge, spread best practice, collaborate, problem solve and communicate – with the aim of bringing all project stakeholders greater benefits, sooner.

