

AMX Bridges and Structures Asset Management Software

SERVICE DEFINITION

Lot 2b: Software as a Service (SaaS)| G-Cloud 15

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1 INTRODUCTION

1.1 Company Overview

AMX Solutions Ltd is a leading provider of Infrastructure Asset Management software in the UK and to users worldwide, excelling in the delivery of high quality, flexible asset management software to support organisations' key aims and objectives.

1.2 Value Proposition

AMX for Bridges and Structures Asset Management is a complete solution for Bridge Managers encompassing a comprehensive asset inventory, inspection and maintenance scheduling and completion tools (with automatic SCI Calculations), integrated lifecycle toolkit and full reporting capability. Suitable for any size and/or design of Bridge including multi-span and Toll bridges.

In one powerful, flexible solution, AMX incorporates all expected standards such as the Highway Structures Code of Practice and the Lifecycle Toolkit, whilst empowering the customer to tailor their solution to meet changing requirements, such as capturing new attributes about an asset (e.g. CCTV camera locations), changing data capture/display forms and creating new reports to support business planning.

1.3 What the Service Provides

AMX for Bridges and Structures Asset Management is a comprehensive database solution which can hold a complete asset inventory, inspection and maintenance programmes, lifecycle toolkit, SCI and asset valuation calculations, abnormal load movements, incident management, comprehensive reporting and an inbuilt integration suite for routine or ad-hoc data imports/exports.

AMX Mobile is available to support on-site working in online or offline mode to capture or update inventory, complete inspections and maintenance and record defect details including accurate location and photographs that can be annotated.

1.4 Overview of the G-Cloud Service

AMX for Bridges and Structures Asset Management includes the following:

Element	Standard / Optional
FUNCTIONALITY	
Full Asset Register (Customisable)	Standard
Integrated Maps (Open Source Street Maps for Internet maps)	Standard
Customisable Dashboards	Standard
Corporate GIS Integration (base and optional map layers)	Standard
Inspection and Maintenance Management	Standard
SCI and Asset Valuation Calculations (SAVI aligned)	Standard

Element	Standard / Optional
Defect Recording including GPS location and image capture	Standard
Works Scheduling Tools, including prioritisation and approvals	Standard
Abnormal Load Movements	Standard
Street Gazetteer Data Integration	Standard
Incident Management Functionality	Standard
Complete Reporting Capability	Standard
Integrated Print Templates	Standard
Data Export / Import	Standard
Lifecycle Planning	Optional
Stock Control	Optional
DELIVERY	
Customer Setup/Onboarding	Standard
Database updates (unlimited)	Standard
AMX Support	Standard
OPTIONAL	
AMX Mobile Application	Optional
Database Hosting	Optional
User Training	Optional
System Configuration (per day)	Optional

Full Asset Register (Customisable)

There are pre-defined asset classifications, attributes and data capture forms aligned with the Highway Structures Code of Practice to meet customer requirements. Power users will have advanced permissions and be able to add additional asset types, new data attributes and design forms to meet business requirements.

Integrated Maps (Open Source Street Maps for Internet maps)

AMX comes with integrated Internet maps which can be used to locate assets using point, line and polygon details. These maps are provided using the open source Open Street Map web map services.

Customisable Dashboards

Create multiple dashboards to suit user roles and display relevant data for informed decision making and monitoring performance.

Corporate GIS Integration

AMX can consume corporate GIS maps feeds such as WMS, WMTFS to provide accurate base map and feature layers to assist with data visualisation.

Inspection and Maintenance Management

AMX can consume corporate GIS maps feeds such as WMS, WMTFS to provide accurate base map and feature layers to assist with data visualisation.

SCI and Asset Valuation Calculations (SAVI Aligned)

AMX automatically generates SCI crit and av scores on completion of inspections. Users can generate Asset Valuations, including depreciation details aligned with the SAVI toolkit to support WGA (Whole Government Accounts).

Defect Recording including GPS location and image capture

Defects can be recorded on web and mobile including capturing details of the defect location (set using GPS or manual adjustment if needed), priority, extent, severity, descriptions and photographs, which can include mark-ups to clearly identify the defect.

Works Scheduling Tools, including prioritisation and approvals

Defects that are recorded can be scheduled into Works Orders based on priority, work type, asset, organisation and a variety of other factors to meet customer needs. Once scheduled the work can be assigned to teams for completion and subsequent approval.

Abnormal Load Movements

Plan abnormal load routes and record details for Abnormal Load Movements ensuring routes are suitable for the load being moved.

Street Gazetteer Data Integration

There are standard imports to allow users to import their LG and AD files to visualise the highway network if required.

Incident Management Functionality

Capture details of incidents such as a bridge strike, including details of your response, and any parties involved such as fire or police.

Complete Reporting Capability

Report on any attribute in the AMX database to support analysis, planning and business case support. Reports can include filters, sort orders and charts for ease of display and be exported for consumption by third party systems as needed.

Integrated Print Templates

Design your own print templates within the system, for example; works orders for maintenance contractors or management reports. Include logos, text, data from the system, images and maps.

Data Export / Import

Import data from multiple sources including Excel, CSV, Access and GIS files using the inbuilt import tool to import data quickly and easily.

Lifecycle Planning

AMX has a variety of tools to support lifecycle management at asset and/or element level, taking into account condition, age or reliability ratings. Setup deterioration profiles and intervention strategies to run scenarios for comparison and review.

Stock Control

Manage consumables in AMX, including defining locations (depots and shelf locations) and minimum stock levels. Assign stock to work orders and set alerts when levels need replenishment.

OPTIONAL: AMX Mobile Application

Use the AMX Mobile application on iOS, Android or Windows handheld devices to capture inventory, complete inspections and maintenance in the field with or without an internet connection. AMX Mobile can be used online or offline and synchronises data when internet connectivity is available.

OPTIONAL: User Training

It is recommended that Beginner training is taken-up as a minimum option for all users of the system. Intermediate and Advanced training can be completed to allow more autonomous use and evolution of the application to suit the unique needs of the organisation. Training can be delivered in person or online.

OPTIONAL: Database Hosting

AMX Solutions can provide a fully hosted solution for the AMX system using the Microsoft Azure Cloud platform. This includes managing updates, backups and system support.

2 DATA PROTECTION

2.1 Information Assurance

AMX is GDPR and Cyber Essentials compliant and has the ISO 9001 and ISO 27001 certification. The following details our current overall policy for Information Security.

AMX's business activities are critically dependent on information and information systems. Consequently, AMX has a continual commitment to protect AMX and customer information. To this end, the application of Information Security across AMX is founded upon the following guiding principles:

- Information is a critical asset. All storage and transmission of information processed or controlled by AMX must only be carried out for the lawful purposes for which it is held.
- Information will be classified and protected in a manner commensurate with its sensitivity, value, and criticality.
- Information will be protected from loss of confidentiality, integrity and availability.
- AMX information should only be provided on a need-to-know basis and disclosed only to those people who have a legitimate need for that information.
- Information security requirements will be identified by assessment of risks to determine the balance of investment in information security against the risk to AMX.
- A process of continual review and improvement will be implemented.
- Users, resources or processes that store, transmit or process information will have no more privileges than necessary to be able to fulfil their function.
- All relevant regulatory and legislative Information Security requirements will be met.
- All incidents and losses, regarding Information Security, actual or suspected, must be reported following the guidelines and timescales defined in the AMX Information Security Data Breach/ Incident Policy.
- All systems must be reviewed, prior to implementation, and undergo a rigorous security assessment as part of that process.
- All AMX managers are responsible for the implementation of Information Security Policies within their areas.
- Disregard for these Security Policies may be regarded as misconduct to which the AMX Dismissal and Disciplinary Procedure applies and a serious breach of any policy may be treated as gross misconduct and may lead to dismissal.
- All staff are responsible for upholding this policy, under the guidance and with the assistance of the Product Manager and or GDPR Advisor.
- AMX will provide appropriate security awareness training to all staff and provide specific security training where required, thereby developing and supporting a security and risk aware culture throughout our organisation.

2.2 Data Back-Up, Data Restoration and Disaster Recovery

- For customers using AMX's hosted solution, all databases and web applications are securely hosted within Microsoft Azure.
- AMX Solutions manages the entire backup, restoration, and disaster recovery process using Microsoft SQL Server technologies, ensuring resilience and data integrity.
- Backups are automated and include full, differential, and transaction log backups, enabling point-in-time recovery (PITR) within a 35-day retention window.
- Transaction log backups typically occur every 5–10 minutes, with full backups taken weekly and differential backups every few hours. This allows AMX Solutions to restore a database to any specific point within the retention period in the event of accidental deletion or data corruption.
- Additionally, Long Term Retention (LTR) can be configured where required, allowing backups to be stored beyond the standard 35-day window for compliance or operational needs. These backups can be used to restore databases to a new server even if the original SQL server has been deleted. Please note, there is an additional cost for LTR backups.
- AMX Web Applications can also be redeployed in the event of an outage, although automated recovery and cross-region failover require prior configuration and agreement with the customer.
- Customers choosing to self-host are responsible for managing their own backup, restoration, and disaster recovery processes.

2.3 Privacy by Design

AMX uses the Role Based Access Control, along with the principle of least privilege to control what each user can view, edit or delete. Furthermore, AMX has been designed such that data fields can be flagged as 'Data Protected' or 'Financially Protected'. Additionally, they can be permitted to go to AMX Mobile or not. User roles are used to identify those staff with permission to view and edit Data protected and financially protected fields. Users without these permissions will see a redacted field on any forms and will be unable to display, sort or filter reports using these fields.

Using reports, any Users with the Data Protection flag are able to search for names/addresses etc for removal on request.

3 USING THE SERVICE

3.1 Ordering and Invoicing

Customers wishing to order will need to submit a valid G Cloud Contract which covers all elements of service required prior to commencement.

Should any support be required for completing this process, users can contact AMX at gcloud@amxsolutions.co.uk for help.

On receipt of the Contract and agreed milestones (if applicable), AMX will submit Invoices as appropriate (with Purchase Order references if required), which will adhere to our terms of payment eg payment required within 30 days of receipt.

3.2 Availability of Trial Service

Customers are able to request a demo of the AMX system prior to ordering to confirm it will meet their requirements. This can be arranged by contacting the team at gcloud@amxsolutions.co.uk. A trial solution is not available due to the customisable nature of the system.

3.3 On-Boarding, Off-Boarding, Service Migration, Scope etc.

On-boarding will be managed by a dedicated AMX Account Manager who will conduct an initial discovery meeting to discuss specific requirements, provide technical advice and review data import requirements where applicable. Data import can be achieved either using AMX supplied Excel templates, or where agreed, using direct data import from an existing system.

As a guide the on-boarding will proceed as follows:

1. Order placed and contract signed
2. Initial discovery meeting to discuss delivery of any data import requirements as part of contract:
 - a. Customer to provide Registered user details (name, email, user role)
 - b. Customer to provide initial data for import in agreed format (optional – additional cost) to include:
 - i. Asset Register
 - ii. Historic Action records
 - iii. Street Gazetteer and/or Property Gazetteer for import if required
 - iv. Financial data such as Schedule of Rates.
 - v. Lookup/Picklist setup
3. AMX perform database setup and initial data import
4. Database uploaded to customer site/AMX hosting site
5. Users provided with login details
6. User training provided if selected
7. Initial Testing of system
8. AMX window for changes of 1 month – for any minor changes/bug fixes
9. Customer Go Live.
 - a. AMX provide User Manuals
 - b. AMX provide User access to Support site

It should be noted that user training is not included as standard but is available as an optional extra, and that all data in the database remains the property of the customer and can be exported in Excel, csv or shape format at any stage, including in the case of termination.

In the case of termination, Customers will be required to provide two months written notice to agree a schedule and plan for data migrations. Customers will be provided with a full copy of their data in a format of their choosing. They can select an SQL database, Excel, CSV or shape file export of Assets and Activities or a combination of these. Data will be available for a period of three months after termination, then it will be deleted from the AMX systems for data protection.

3.4 Training

Training is available for AMX at three levels: Beginner, Intermediate and Advanced. It is recommended that all users complete the Beginner training, which includes orientation on the system, options for defining inspection and maintenance regimes and beginner reporting.

Support is provided through a dedicated support site, which all users are given access to. The support site includes a ticketed support system to put you in touch with the AMX support team directly. There you will be able to gain assistance when troubleshooting, get answers to questions and help solve known problems. Also available on the support site is an ever-growing library of searchable support articles.

Support is also available via email and telephone during normal working hours.

3.5 Service Management

AMX is constantly improving, and to ensure customers have access to the latest functionality, there will be updates released to the customer a minimum of every 6 months. These updates can be automatically applied to any AMX hosted solutions, upon agreement but are optional for application on locally hosted solutions. We strongly recommend that all implementations are updated at least once per year to ensure you have the latest tools, features, and security updates. Details of the contents of these update packages are posted on a dedicated download site, and Newsletters are used to notify customers of the availability of the update.

AMX updates are a combination of bug fixes and responses to customer Requests for Change. Customers may submit Requests for Change through the support portal ticket system. Following the ITIL Service Management process, change requests are reviewed at a periodic board and where they are considered to be of value to all customers, the changes are incorporated into the main AMX solution. Once tested, these are released as part of an update package to ensure all customers have access to the best possible solution.

Customer databases are fully customisable by the customer, so as part of the setup 'System Administrator(s)' will be identified who will be awarded permissions to customise the system. They will be able to:

- Add new data fields (attributes) for Assets, Actions and Defects (and other entities)
- Update all Schedules of Rate data
- Create and edit Forms for data capture on the main system and AMX Mobile
- Setup New Users and User Roles
- Create new Reports and Print Templates
- Manage lookup libraries
- Manage map layers
- Add or amend workflow (e.g. calculated fields)

3.6 Service Levels

Service Levels may be negotiated where required, however the standard AMX SLA outlines our service level as follows:

Normal Working Hours

Services support will be available during Normal Working Hours, i.e. 9am to 5pm Monday to Friday, excluding UK Public Holidays.

Services Outside Normal Working Hours

Services outside normal working hours will not usually be required but occasional out-of-hours support can be arranged.

Service Levels

Requests for improvement or fault reporting should initially be made by telephone, Email or via the AMX support site.

Calls are given a priority based on incident description, subject and overall impact to the business e.g. impact on individual, site or organisation. This is determined at the point of call and is reasonably assigned a priority.

A 'Response' from Support Team is a response which will result in one or more of:

- A fix to the problem or completion of a service request.
- A recommendation to implement a temporary workaround.
- A request for further information regarding the problem or further investigative procedures to be carried out.

Following a call being logged either by telephone, email or via the website the Service Desk will update support records of resolutions of faults in order that any recurrence of the fault is avoided.

Description of support service for service requests

The following description demonstrates the minimum level of Service that will be delivered for all hosted clients (support to self-hosted clients may be slower depending upon the level of access available to the AMX Support team). In all cases we will endeavour to provide support as soon as possible in order to meet the business needs of the customer.

	SLA	Response	Response ¹
Incident Class	Aim to fix	Service Desk	Support Team
Low	2 weeks	Immediate	48 hours
Med	72 hours	Immediate	24 hours
High	24 hours	Immediate	2 hours
Critical	same day	Immediate	30 minutes

Incident Classes:

- *Critical* (e.g. AMX inoperable to all users). Options for resolution: Site Visit, Database Script, System Patch.
- *High* (e.g. One AMX module inoperable to all users). Options for resolution: Site Visit, Database Script, System Patch.
- *Medium* (e.g. System behaving in an unexpected way/Bug). Options for resolution: System Patch.
- *Low* (e.g. System behaving in an unexpected (non-critical) way/Bug but work around possible). Options for resolution: System Patch.

3.7 Financial Recompense Model for not Meeting Service Levels

We will endeavour to achieve the Service Levels described. There is no financial compensation for failure to meet these levels.

4 PROVISION OF THE SERVICE

4.1 Customer Responsibilities

The following outlines the responsibilities of the Customer:

Training: It is expected that all users accessing AMX and requesting support have completed the Beginner AMX training course so that they have a good basic understanding of the operation of the system.

User Contact Details: It is expected that customers will provide full and unique details for all registered users, including email addresses. These details will be used to provide access to the AMX system and the AMX Support Portal.

System Administrator: All customers should identify at least one System Administrator who will be responsible for review, approval and implementation of local customisations on AMX. This user should complete the Intermediate training course and be a more experienced user of the system. This user should have the Data Protection User Role assigned and be approved to manage sensitive data within AMX.

Contract Manager: Customers are required to identify at least one Contract Manager who will act as the Primary contact for all contract related queries. This individual should have the rights and permissions to discuss and agree contractual matters on behalf of the organisation.

Database Management: It is expected that, where the customer is hosting their database locally, they are responsible for routine backups, database restoration, application of all updates and data security. It is strongly recommended that the Database Administrator creates a second test copy of the database which can be used for customer development and testing of updates prior to release to a Live environment. Where the solution is hosted by AMX, these duties will be the responsibility of AMX.

Software Updates: For self-hosted clients, the customer is required to maintain and update the AMX Web Application and associated components. The solution should be updated annually to the latest version to ensure it complies with security, legislation and has access to latest features and functionality.

4.2 Technical Requirements and Customer-Side Requirements

The following outlines the minimum specification required to support AMX operations:

4.2.1 Dedicated Server (On Premise)

Web Application

Modern Browsers supported: Chrome, Edge, Microsoft Edge (Chromium), Firefox, Safari.

Web Application Server

Processor: x64 Processor 3.2 GHz +

- Memory: 8 GB +
- MS Windows 2016 Server or above
- IIS 10 or above
- .NET Framework 4.8

Microsoft SQL Server

- Processor: 3.2 GHz +
- Memory: 8 GB +
- HDD: As a guide a new installation with initial data import is approximately 200Mb and standard usage increases this by less than 1 GB per annum.
- MS SQL Server 2016 or above (Also Express Versions)

AMX Web Service Server (Optional)

- Processor: 3.2 GHz +
- Memory: 8 GB +
- MS Windows 2016 Server or above
- IIS 10 or above
- .NET Framework 4.8 or higher

AMX Mobile Web Service Server (Optional)

- Processor: 3.2 GHz +
- Memory: 8 GB +
- HDD: Size of the webservice is approximately 100MB plus additional storage for mobile data storage. Mobile files are generally 1-5MB per inspection recorded*
- MS SQL Server 2016 or above (Also Express Versions)
- IIS 10 or above
- .NET Framework 4.8 or higher
-

4.2.2 Azure Environment

Modern Browsers supported: Chrome, Edge, Microsoft Edge (Chromium), Safari.

App Service Plan (Web Application)

- P0V3
- P0V3 is the minimum service plan. (1vCPU, 4 GB RAM, 250 Remote Storage)
- NET Version ASP.NET 4.8

AMX Web Service Server (Optional)

- P0V3 is the minimum service plan. (1vCPU, 4 GB RAM, 250 Remote Storage)
- NET Version ASP.NET 4.8

AMX Mobile Web Service Server (Optional)

- P0V3 is the minimum service plan. (1vCPU, 4 GB RAM, 250 Remote Storage)
- NET Version ASP.NET 4.8

Note: The Web Application, Service Server and Mobile Web Server can be hosted in the same asp. The minimum requirement is P0V3, **but for some clients, they may need a separate dedicated ASP to host the Mobile API.**

Azure SQL Server

- Standard S3 (DTU 100) is minimum model but customers with complex workflows large database (typically over 50 GB) may require S4 (DTU 250)

4.3 Termination Process

The AMX Account Manager will work closely with customers to support a successful migration of data from AMX in the case of termination.

On providing written notice of termination, or at the end of the contract period, the Account Manager will liaise with the Contact Manager to agree timescales and data extraction process. Data can be provided in SQL, Excel, CSV or shp formats. The data will be available via FTP (or alternative agreed method) for three months from termination. After this period all data will be deleted.

As per AMX terms of service, there are no refunds for early termination of the contract.

5 OUR EXPERIENCE

5.1 Case Studies

AMX Solutions Ltd have worked with public sector organisations for over 15 years to deliver an effective solution to meet their changing needs. Through understanding the challenges of budgeting and supporting the operational efficiencies of team leaders in the public sector, AMX scales with the organisation to deliver comprehensive accurate, relevant and information.

The success of AMX has also attracted private sector customers whose prime contracts are often public-sector organisations both in the UK and overseas. Private sector consulting firms tend to see AMX as a best practice tool that facilitates the operational and technical requirements of the contract while empowering the customer, in addition to managing their own delivery and accountability.

See our case studies in the appendix for real examples.

5.2 Customers



5.3 Contact Details

All G-Cloud enquiries should be sent to gcloud@amxsolutions.co.uk. The Primary contact at AMX Solutions for all matters pertaining to this solution is Karen King.

6 APPENDIX

6.1 Case Study: 2nd Penang Bridge, Malaysia

CASE STUDY



Malaysia – 24km from mainland to island and all that's in between



Background

The Penang 2nd Bridge otherwise known as Sultan Abdul Halim Mu'adzam Shah bridge is a dual 24km carriageway toll expressway with 16.9km length over water. It is the longest bridge in Southeast Asia connecting Batu Kawan on mainland of Peninsula Malaysia and Batu Maung on Penang Island. This newly built bridge (completed March 2014) links the mainland to one of Malaysia's industrial centres on Penang Island and is designed to serve the area for at least 120 years.

Jambatan Kedua Sdn.Bhd. (JKSB) is a company formed by the Malaysian Ministry of Finance and was appointed as the concessionaire to construct, manage, operate and maintain the bridge. Upon completion of the bridge construction, JKSB had put out to tender a project to develop and implement an overarching systems solution to manage all their infrastructural assets; a system which is also envisioned to be instrumental for establishing an asset maintenance strategy and annual works programme for all assets. The project was called Integrated Asset Management System (IAMS) for Jambatan Sultan Abdul Halim Muad'zam Shah. The successful bidder is to develop the system within the first 12 months of being awarded the contract and implementation of the system is to ensue for the remaining 6 years of the project.

Gammerlite Sdn. Bhd. and its sub-consultants who jointly bid for the tender was successful in its endeavour and was awarded the contract in January 2015. After being shortlisted with three other international software providers and, given the demanding needs of the IAMS project to deliver a fully fledged working system while marginalising on room for errors in a short span of time, AMX was approached to provide the off-the-shelf software system for Asset Management.

Gamlite IT (Gammerlite's IT arm) and AMX began to work closely together to identify specific requirements of the project that would need implementing into the off-the-shelf AMX system. This meant adopting flexible working hours to match the time-zone differences, trips to Malaysia to meet with the client and presenting a relevant working demonstration with particular attention drawn to modifications unique to the project brief.

CASE STUDY



About the project

The IAMS project is unique as it combines the computational and analytical capabilities of the IT systems and the intuitions of various engineering faculties. The system shall endeavour to gather, organise and present data derived from site based activities like asset registration, inspection, maintenance and rehabilitation. The data is then presented in a manner where the engineer at site would be able to make decisions in asset maintenance strategies. Day-to-day site operations activities are facilitated with the mobile version of the system, minimising unnecessary paperwork and clutter.

Baseline data obtained from operational activities, historical asset data information, construction history, in-depth understanding of the structures and its behaviour to local climate and environment, and other engineering expert input combined, shall derive the deterioration model of the structures, trigger values for maintenance or rehabilitation works.

The project is envisioned to assist the stakeholders in making decisions with regards to design of the structures, its performance and ultimately define the Total Cost of Ownership of assets owned.

The assets

Types of assets being managed include over 16.9km of marine viaducts and cable stayed bridge, 7km of land expressway, Mechanical & Electrical components such as street lighting and cables, landscape, building and accident management.

Assets are hierarchically organised by their respective discipline (i.e. Bridge, Highway, Building, M&E, Landscape etc.). As built drawings of the structures are digitalised and presented in 3D models and relevant documentation (construction drawings, design and test reports, etc.) are linked to each asset nameplate.

AMX system is customised and configured to manage the various assets, their attributes, condition data, related documents, historical maintenance and rehabilitation information (work orders and NCRs and SORs issued etc.)

The future of working with AMX

AMX will be the platform upon which all the respective management systems shall be individually configured to have its own interface, data models and workflow. Data from external systems, data derived from inspections and other site activities will also be channelled to AMX. Data from AMX will be computed to derive summative information which will be displayed on the IAMS dashboard. The dashboard is the stakeholders' and decision makers' interface where data like KPI performance, statistical information, work programmes based on budgetary constraints and other cost-related information will be made available.

WHY AMX WAS CHOSEN

- **OFF THE SHELF**
Minimal development time
- **ADAPTABLE**
System can be configured to be used to manage any type of asset
- **CUSTOMISATION**
The user interface and modules are customisable to fit the needs of any sector
- **AMX MOBILE**
Versatile and a boon for offsite-based operational activities
- **STRONG SUPPORT TEAM**
A dynamic support team from various time zones and employs various support methods
- **INTEGRATION CAPABILITIES**
A system that can easily interface and integrate with external systems

"This project has been a great opportunity for AMX. The Gamlite IT team are knowledgeable and forward-thinking and together we have been able to increase AMX's overall functionality and capability to match the brief and provide a more comprehensive and reliable product."

Will Thomas

6.2 Case Study: Norfolk

CASE STUDY



Future-proofing data for Norfolk County Council

Background

Technology is always progressing and for Norfolk County Council Highways and Transport department the need to move forward became a catalyst for them to review their current systems and working practices and look to the future.

The department had two Bridges teams (Projects and Asset Management), working independently and using two separate, but established MS Access databases, to manage their stock of bridges and associated assets, including maintenance and inspections. However, as support was to be withdrawn for Access and with the increased pressures to be using lifecycle planning tools for structures and generating asset valuation reports, the teams needed to look for an alternative solution.

The new system would need to provide long term scalable functionality and integrate all of their existing, established bridges databases into one solution. Having viewed multiple options, Norfolk County Council decided on Asset Management eXpert (AMX).



What they needed

The main features that Norfolk County Council was looking for in an asset management solution were:

- The ability to import and merge all existing data from two established MS Access databases, without losing any history or data.
- Still retaining the control to be able to customise the system themselves, without restrictions.
- The ability to expand the system functionality to incorporate lifecycle planning and government reporting requirements unsupported in MS Access.
- A process driven, integrated solution to support inventory reporting, inspection and maintenance cycles and works ordering, bringing both teams together.

"The AMX team really took the time to listen to our needs and processes and ensure that the software would deliver all that we needed with minimal disruption. It's ease of use and scalability ensures it will continue to deliver and grow."

Andrew Wadsworth, Norfolk Highway Bridges team

CASE STUDY

**How did AMX help?**

The AMX solution was designed to put customers in control, with comprehensive in-built customisation tools to empower users to tailor the solution themselves, aided by a responsive support team, eager to listen and help when needed. As a result, Norfolk County Council was able to take control of their data and develop AMX to meet their needs:

- AMX was configured to hold and display the data from the existing, established MS Access databases, tailoring the interface to match previous systems and improve user acceptance. Then the data was imported for a seamless transition.
- Users were trained in customisation of the system, enabling them to generate their own data forms, reports and printouts, import data and integrate with the local GIS system.
- Users were able to use the AMX Bulk editing and scheduling tools to significantly improve efficiencies and data management.
- Lifecycle planning tools were incorporated into the system, with plans to take this forward to support long-term planning and decision making.
- The two teams were able to come together using one system, with Inspection and Maintenance regimes being developed and managed, including producing tailored works orders and defining approval processes.



6.3 Case Study: East End Crossing, USA

CASE STUDY



East End Crossing, USA – a consortia CMMS success story



Background

The consortium between Walsh Investors LLC, Vinci Concessions and Bilfinger Project Investments was to design, build, finance and then operate the Lewis Clark Bridge – also known as the East End Crossing – over the Ohio river from Indiana to Kentucky. The project is commissioned by the Indiana Finance Authority (IFA) who oversee the management of the project on behalf of the Indiana DOT (INDOT) and the Kentucky Transportation Cabinet (KYTC).

The cable-stay bridge opened in December 2016 and the contract covers seven miles of carriageway and over 900 associated assets including, footpaths, drainage, walls, fences, vegetation, lighting, signs and road markings.

After 18 months of operation, the team were still struggling to achieve compliance with a different computerised maintenance management system, so with time tight, they needed to look at options to replace this system and gain approval as quickly as possible.

Working closely with the Project team, AMX was approved as meeting the client requirements within just 8 weeks of proposal.

“AMX is user friendly, customisable and all in one source. AMX has replaced our previous admin burden and justified our decision to switch systems despite the cost implications. AMX proves to be much better value over the contract period and reinforces our commitment to ensuring the continued success of the project.”

Joe Meyn, Walsh Infrastructure
Management (Project Manager)
WVB (Operations Manager)

CASE STUDY



How AMX is used?

Some of the key functionality that was required to support compliance were:

- Full Stock and Material Control, including ordering and assignment
- Winter Maintenance programming
- Defect Timeliness management to meet stringent response times
- Customer Web Access for reporting and inspection
- Vehicle Management
- Tracking un-availability for lane closures
- Tracking all work hours against assets and actions

There are 10 users of AMX currently working on the web, desktop and mobile applications to manage construction, inspections and maintenance, with one dedicated super-user managing the administration. One customer, INDOT, has controlled access to AMX Web to see dashboard reports relating specifically to their own assets and record details of their Quality Inspections.

The Benefits

Using AMX, the project team can track defects and using map polygon selection tools, schedule maintenance responses efficiently, ensuring they have all the right staff, resources and equipment.

With AMX Mobile the project team has also significantly improved efficiency in time and costs on the day-to-day operation of the project, spending more time doing the work rather than on administration.

The system provides one single source for all data, and with the simple reporting tools, the time taken to produce the quarterly reports required by the Customer has been reduced by 88%, with further improvements on the horizon. Access to this quality data is helping to support better decision making.

AMX has enhanced the trust between clients (IFA) and Contractor, where some KPIs were falling short in the previous system, the implementation and output of data from AMX now enables WVB to present a much clearer picture of its operations to meet performance-based targets in an accurate and timely manner. There is now increased confidence in the team's delivery of the contract.

Reflections

The AMX support has been excellent with communication between the teams involved being smooth and easy throughout the process. Having a nominated account manager from the outset has helped to keep the project on time and manage any potential sticking points before they become an issue.



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To arrange a demonstration of AMX and find out how it can benefit your organisation, contact us on 0333 456 0768 or email info@amxsolutions.co.uk.

6.4 Case Study: Isle of Man

CASE STUDY



Isle of Man – Engineered to fit

Background

In 2007, the Department of Infrastructure (DOI) of the Isle of Man Government carried out a thorough review of available asset management systems. BMX was selected to replace their existing, rather antiquated, spreadsheet-based records for around 400 bridges and retaining walls.

Quickly realising how adaptable BMX was, other assets, such as the harbour structures, were added to the BMX system and the ways of using the data were extended.

When BMX was upgraded to AMX (DOI migrated in 2014) there was an even greater step change. Assets on the system now include historic arched bridges to gas jetty fire suppression systems, linkspans to lighthouses, marine breakwaters to signal-controlled railway crossings. Working closely with AMX Solutions, DOI engineers have continued to develop and expand their AMX database and asset management system to meet their varied and changing requirements.

How AMX is used?

As well as a structural inventory and record-keeping, AMX is used, day-to-day, for condition monitoring (by routine and reactive inspections) and for arranging maintenance work. Different work teams can be tasked quickly and efficiently using tailored views and filters. The structures team can produce standard or one-off reports both to manage daily business and to underpin management planning (e.g. with regular monthly reports for divisional meetings).

Condition monitoring is a handy tool for busy managers, but it also informs longer-term maintenance planning. The team need to use both standard indices (UK standards are used) and those with modified weightings and calculations, for structures other than highway bridges and walls. This may be to cope with, say, wave effects or critical SCADA components and it allows cross-discipline comparisons and prioritisations to be made. The flexibility and customisability of AMX comes into its own here, by taking standard models and adjusting their specifications to reflect different characteristics or risk indicators without the need for lengthy 3rd party development input.



“The best feature of AMX is its flexibility. We can record data and calculate fields in the way we want, manage our risks, plan our routine works and major projects, make evidence based bids for maintenance budgets and capital funding and keep the politicians and the public informed

Customisation is easy – you can really adapt it to fit your organisation’s needs.”

Paul Salmon, Asset Manager for Highway, Harbour & Coastal Structures, Department of Infrastructure, Isle of Man

CASE STUDY



Planning for larger maintenance jobs and improvement and renewal work requires not only condition monitoring and structural review but also a variety of other risk review processes. Using techniques learned on AMX advanced user courses combined with a responsive technical support team at AMX Solutions it is possible for the DOI engineers to add the new forms and calculation processes into the Isle of Man AMX database.

Recently the DOI team have been developing the use of the AMX Projects facility to manage its portfolio of project programmes. This covers the spectrum from small internal jobs to major projects using external project managers (and programming tools) and which follow the government's capital procedures. There are challenges and at all levels the focus is on project definition and governance, risk and change management and costs.

Tasked by the Minister for Infrastructure with sharing information with the public, condition indices and the latest inspection date for each bridge are now published on the government website mapping. Currently the data is exported from AMX on a periodic basis by a team member. The team are in the process of automating this data export (with some control measures) to reduce the burden on staff. This automation process will also be used to share up-to-date "no-dig" map polygons with utility companies and the like.

Benefits of AMX

The key to AMX's success for the Isle of Man is its flexibility. The advanced customisation functions enable the user to completely tailor the data held, the classification, processing and management of that data and the resulting management reports and other output to meet the Isle of Man Government's unique business processes, operational patterns, statutory requirements and financial constraints.



6.5 Case Study: Herefordshire

CASE STUDY



Balfour Beatty Living Places & AMX: The Core of Herefordshire's success

Background

Herefordshire Council have been using AMX as part of their structures asset management strategy for over 5 years, operated and managed by a third-party contractor: Balfour Beatty Living Places.

In 2015 they completed their upgrade from BMX to AMX at which point it became clear that there was considerable opportunity to develop the system further, incorporating other strategic needs within the broader asset management team, replacing other systems and bringing together all of their asset data under one roof.

Initially, the objectives were to become proficient at using AMX for Lifecycle Planning for Structures and using AMX Mobile for Bridge Inspections. Once established and with valuable data being gathered, interrogated and reported faster than before, the team were able to adapt the system to achieve the same benefits for Highways by importing their Highway Network data (NSG) and adding Drainage and Flood Risk assets. Then in 2017, they took the decision to apply the same principles into Street Lighting.



How AMX is used?

Within Herefordshire Council, AMX is used across multiple asset management and construction teams including structures, highways, street lighting, drainage and flood risk.

Managing a complex inventory of over 17,000 assets, collection of data needs to be quick and easy; analysing asset status and scheduled tasks must be adaptable and reporting on conditions and progress straightforward.

The addition of AMX Mobile supports the daily activities carried out by four inspectors and enables flexibility to change planned works and react to faults without affecting productivity.

Financial Reward

With stringent budgets being imposed on infrastructure teams the need for visibility and accurate forecasting has become increasingly important. Accurate deterioration modelling and complex risk evaluations of assets is essential for Team Leaders and, particularly for contracting firms such as Balfour Beatty Living Places.

"AMX's lifecycle planning feature helped us to secure an additional £3million from the Incentive Fund to allocate against the annual Asset Management Budget for Herefordshire Council in 2016-21 period."

**Richard Perkins,
Asset Management Team Leader,
Balfour Beatty Living Places /
Herefordshire Council**

CASE STUDY



With AMX, the integrated lifecycle planning function eases this process and in this instance supported the case for securing the council's share of the Government's Incentive Fund. The evidence based condition scoring, deterioration rates and operating cost analysis also clearly demonstrated the need for additional funds to avoid the council facing 20 bridge and highway closures within 10 years. Based on the evidence presented, additional funding was allocated to structures from the council's Productivity Fund award in 2017. A further investment business case is also being submitted to secure further additional funding over the 2018-22 period.

In addition to the strategic benefits, they have also been able to improve their staff resource allocation. The AMX Mobile application significantly reduces paperwork thus removing the need for simple data entry and instead allowing them to focus on technically skilled individuals who can add value and increase productivity in daily operations.

The experience

Throughout the upgrade and customisation process the AMX team were proactive. There were regular visits to the office to demonstrate features and provide training and the technical knowledge and understanding of the different sector requirements meant that any adjustments that were needed or issues that arose were efficiently resolved. As time progresses it is now possible to internally adapt and evolve the system with AMX support to incorporate more strategic objectives because the core data is already all in one place.

Next Steps

Already the lifecycle planning feature is being used to formulate a more accurate five year cost-analysis proposal for the entire Asset Management Department, with a view to quantifying the required annual spend and through evidence based information demonstrating the need for a three-fold increase.

Due to the adaptable nature of the system and by having fully trained, industry qualified users in-house, it is possible to expand the application of the system even further within the infrastructure team. Having already developed their own module for drainage to meet the requirements of the Flood & Water Management Act, the Herefordshire team are looking to utilise AMX for planned maintenance for Highways and integrate with Confirm.

Benefits of AMX:

- Supports Best Practice Standards with in-depth financial & operational reporting
- One central database across multiple teams for increased strategic KPI awareness
- Easy to model and replicate daily operations and applications across different department needs
- Significant savings in both time and costs by reducing paperwork and automating processes
- Eliminates specialist IT involvement through intuitive customisation and super-users

"We have found AMX to be an easy to use and intuitive system that we have been able to develop for one area, but then scale across our service into differing asset areas and services

We have been supported by the AMX team in achieving our service goals as part of this."

**Richard Perkins,
Asset Management Team Leader,
Balfour Beatty Living Places /
Herefordshire Council**

6.6 Case Study: South Gloucestershire

CASE STUDY



Long-term planning with South Gloucestershire Council

Background

The Highway Structures team at South Gloucestershire Council has had quite a history with regards to its management of assets across the region. In 1996 when Avon County Council split up to create 4 new bodies, including the new South Gloucestershire Council, the team worked hard to enhance the level of detail gathered for each asset and match it to their new prioritisation standards.

The combined data of over 2,000 structures was amalgamated and in 2006 placed into an MS Access system. Since then a further 700+ assets have been incorporated into the database and the team were finding day-to-day use increasingly slow and frustrating, with reporting capabilities for lifecycle planning and depreciating costs limited.

With a smaller team and in order to better manage and plan for future budgets, it became apparent that a new, quicker, more flexible solution was needed that could adjust to the team's particular methods of working and the complex data. After a considered tender process which included reviewing several alternatives and visiting other authorities to see it in action, AMX emerged as the best solution for the job along with meeting ICT architectural principles and value for money.



Key improvements:

- Faster
- More comprehensive data capture
- Bulk editing function
- Lifecycle planning
- Depreciation costs
- Potential for mobile working
- Increased productivity

"A flexible system that suits our method of working, providing more than we are used to and more than other systems we have reviewed. AMX Solutions staff back-up is quick and friendly."

Andrew Clabon,
Engineer – Highways Structures,
South Gloucestershire Council

CASE STUDY



Quick start

Implementation of the system once given the go-ahead, was swift and effective. With pro-active involvement from AMX Solutions, the Highway Structures team themselves and also the Council's IT department, to manage the switchover, meant that disruption to day-to-day work was minimised. The new AMX system was up and running quickly, with a test version in which to 'play' with data as well as a live system recording current information and adding new levels of detail.

AMX Solutions provided excellent training to get individuals up to speed with not only using the system, but also how to customise and tailor certain functions to match existing internal processes. After three months of use, the team were invited to a Focus Group run by AMX Solutions, in which common challenges and customisations were explored in more detail, and gave the team further insight into the integration of Lifecycle Planning.



Looking ahead

Consistency and efficiency through prioritisation remains the main focus. It is anticipated that within the next year, the level of detail available for each asset will be more comprehensive than ever before, due to the flexibility and customisation of data fields available – enabling the team to better analyse and prepare for scheduling works and maintaining the high standard of stock condition scores across all assets.

Work is underway to implement a prioritisation formula that has been developed by one of the teams' Engineers, which will be integrated into AMX allowing the system to produce reports combining multiple criteria to prioritise the schedule of works further in advance.

South Gloucestershire is also looking to incorporate AMX Mobile in the near future. This will enable inspectors to update data, on-site, straight into the live database, thereby reducing duplication of work from paper to database, and enable more inspections to be carried out increasing the productivity and accuracy of data associated with inspections.

Finally, using the AMX user access controls, the system will provide a benefit to other departments within the council where data can crossover and be shared. For example, the Helpdesk will be able to accurately identify and record public defect reports by having access to the list of assets – it being just as important to know about assets the council own and manage, as well as assets it does not.

To arrange a demonstration of AMX and find out how it can benefit your organisation, contact us on **0333 456 0768** or email **gcloud@amxsolutions.co.uk**.