



**Mobility Analytics Platform
Service Definition Document**

G-Cloud 15 Framework

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1. Service Overview

1.1 What is uMove?

uMove is a ready-to-use mobility analytics platform that provides clear, visual insights into how people move. Built on UrbanTide's uSmart platform, uMove helps cities, regions, and transport authorities understand travel patterns, by bike, on foot, and across different transport modes, to support evidence-based planning, investment prioritisation, and evaluation of active travel and other transport initiatives.

uMove integrates data from multiple sources, including traffic sensors, cycle counters, pedestrian monitors, and public transport feeds, into a single-source, centralised evidence-based. The platform transforms raw transport data into actionable insights through customisable dashboards, interactive mapping, and automated reporting.

uMove is designed to support decision-making and analysis.

1.2 About UrbanTide

UrbanTide was formed from the team that bid, planned and delivered Innovate UK's £24m future cities demonstrator for Glasgow. We implemented the £7.2m OPEN Glasgow programme that explored the value of new technologies, opened up city data, and created engaging solutions for a range of urban challenges.

Since then, UrbanTide has grown from strength to strength, working with a wide variety of clients and partners across transport, energy, and urban planning. We believe we can make our communities smart by focusing on the integration of people, data and technology to create more liveable communities for everyone.

UrbanTide Limited has a decade of experience delivering data management and analytics solutions to public and private sector organisations.

1.3 Target Users

uMove is designed for organisations that need to:

- Monitor and evaluate active travel infrastructure and initiatives
- Evidence funding applications for sustainable transport investment
- Understand cycling, walking and multimodal transport patterns
- Support Local Cycling and Walking Infrastructure Plans (LCWIPs)
- Track traffic volumes, speeds, and vehicle classifications across their network
- Integrate data from multiple sensor providers into a single platform
- Generate automated reports for stakeholders and government bodies
- Make evidence-based decisions on transport infrastructure planning

1.4 Proven Track Record

uMove is trusted by transport authorities and their partners across the UK, including:

- Active Travel: Cycling Scotland covering all 32 Local Authorities in Scotland with the Active Travel Open Data Portal, Walk Wheel Cycle Trust and SESTrans
- Local Government: Somerset Council (4,000+ monitoring sites), Central Bedfordshire Council, City of Edinburgh
- Regional Transport: Hitrans, Transport Scotland (via Cycling Scotland funding)

- Pilots and Innovation: Transport for London (bus journey time analysis), Department for Transport (TRIG Funding)

2. Key Features and Capabilities

2.1 Multi-Source Data Integration

uMove integrates data from any transport data source, any format, and any size. This includes real-time sensor feeds, batch data uploads, and reference datasets. The platform supports data from multiple sensor providers simultaneously, enabling a comprehensive view of transport patterns across your network.

Supported sensor providers include:

- Vivacity Labs (AI traffic sensors, ANPR journey time)
- Tracsis, Clearview, Drakewell, QFree, Kinetics
- Traffic Technology, RTEM, Metrocount, Eco-counter
- TomTom and Google Traffic (journey time data)
- Custom integrations available on request

2.2 Data Validation and Quality Assurance

uMove applies robust validation immediately following data ingestion to ensure high-quality, analysis-ready data. Validation workflows can be configured per dataset to reflect different data structures and quality requirements.

Validation processes include:

- **Data Type Check:** Confirms correct data types for each field
- **Range Check:** Ensures values fall within nominated bounds
- **Consistency Check:** Verifies logical consistency (e.g., arrival times in sequence)
- **Uniqueness Check:** Prevents duplicate records
- **Format Check:** Ensures correct data formatting and schema compliance

Validation failures are flagged visually, with options to Accept, Accept as Questionable, Replace with comparable data, or Reject.

2.3 Data Transformation and Processing

uMove's data pipelines transform raw sensor data into analysis-ready formats:

- **Aggregations:** Consolidate individual records into categories (speed bands, vehicle classifications, time periods)
- **Journey time matching:** ANPR data matching and journey time calculation
- **Timetable comparison:** Compare live location data with scheduled positions
- **Normalisation:** Standardise date/time formats, timezone adjustments
- **Format conversion:** CSV to JSON/XML, spatial data processing

2.4 Interactive Mapping

Native mapping functionality enables users to visualise transport data geographically. Combine multiple datasets into layered maps showing sensor locations, traffic volumes, cycling infrastructure, and more. Maps support vector and satellite base layers with customisable styling.

2.5 Reporting and Data Export

Generate, view and download reports for single sites, groups of sites, or across your entire network. Reports can be exported as PDF, Excel, or CSV for external analysis or stakeholder communication. Automated reporting eliminates manual data compilation work.

2.6 API Access

All data is available via secure RESTful API, enabling programmatic access for custom analysis, integration with other systems, or feeding downstream applications. API documentation is provided via Swagger UI.

3. Data Sources and Integration

uMove integrates a comprehensive range of transport and mobility data sources. The following table summarises the data types supported and our proven experience with each.

Data Type	Sources	Example Deployments
Classified Traffic Counts (vehicles, pedestrians, cyclists, e-scooters)	Vivacity, Tracsis, Clearview, Drakewell, QFree, Kinetics, Metrocount	Cycling Scotland, Somerset Council, Central Bedfordshire
Cycle Counts (automatic loop counters)	QFree, Eco-counter, dedicated cycle sensors	Cycling Scotland
Pedestrian Footfall	Vivacity, city centre monitoring systems	Cycling Scotland, City of Edinburgh
Average Journey Times	Vivacity ANPR, TomTom, Google Traffic	Cycling Scotland
Bus Journey Times	SIRI-SM, SIRI-VM, BODS, Operator RTI feeds	Transport for London, Nottingham City Council
Train Departures/Arrivals	DARWIN (National Rail)	Nottingham City Council
Tram/Light Rail	Operator APIs, GTFS, Google Maps API	Nottingham City Council
Parking Availability	ParkSmart, NCP, local authority feeds	City of Edinburgh (Fusion)
EV Charge Points	BP Pulse, ChargeMaster, Osprey	Islands for Net Zero
Air Quality	Earthsense, real-time analysers	Glasgow City Council
Roadworks/Disruptions	Scottish Roadworks Register, local feeds	City of Edinburgh (Fusion), Somerset Council

4. Dashboards and Visualisation

4.1 Available Dashboards

uMove provides a growing set of thematic dashboards focused on all forms of mobility:

- **Traffic Monitoring:** Classified counts, speeds, volumes by site and network
- **Multimodal Mobility:** Transport modes, routes, and spatial patterns
- **Cycling Trends:** Patterns and volumes over time, seasonal variations, growth analysis
- **Active Travel Planning:** Supporting LCWIP development and scheme evaluation
- **Active Travel to Schools:** Insights for School Travel Planning

4.2 Visualisation Types

uMove transforms transport data into actionable insights through:

- Nationwide and regional summary statistics with drill-down capability
- Detailed site-level analysis with date range querying
- Interactive maps showing sensor locations and spatial patterns
- Time-series charts for trends and comparisons
- Vehicle classification breakdowns (cars, HGVs, cycles, pedestrians, e-scooters)
- Speed distribution analysis
- Emissions estimates based on traffic volumes and classifications

4.3 User Accessibility

uMove is designed for non-technical users, including policy teams, transport planners, and programme managers. Dashboards are intuitive and easy to use. The platform provides views suitable for expert users who require detailed data analysis, professional users who need operational dashboards, and public users who need simple summaries.

5. User Roles and Access Control

Access to data in uMove is managed through the uSmart platform's robust access control framework. This ensures that only authorised users can access specific dashboards, datasets, or geographic areas. Permissions can be configured by role, organisation, or project, enabling secure collaboration while maintaining full control over data.

Organisation Level

- **Organisation Admin:** "Super user" role managing all users, groups and datasets in an organisation

Group Level

- **Group Admin:** Manage users and datasets within a group, create new groups
- **Data Publisher:** Manage datasets within a group (create, update, publish, delete)
- **Data Provider:** Update existing datasets within a group (data only)
- **Data Viewer:** View datasets within a group (read-only access)

User roles apply at the organisational level, and individuals can have different roles across organisations. Groups enable further subdivision of permissions within an organisation.

6. Technical Requirements

6.1 Access Requirements

uMove is a fully responsive web application accessible via any modern browser on desktop or mobile devices. No separate mobile app or client software installation is required.

- **Supported Browsers:** Current versions of Chrome, Firefox, Safari, and Microsoft Edge
- **Connection:** HTTPS (TLS 1.2 or above)
- **Mobile Access:** Responsive design adapts to all screen sizes, some dashboards interactions are designed for desktop.

6.2 Authentication

- **Username and Password:** Strict password policy requiring a minimum 8 characters with uppercase, lowercase, digits, and special characters
- **Multi-Factor Authentication (MFA):** Mandatory for administrators; configurable for all users

6.3 API Technical Specifications

- **Protocol:** RESTful API over HTTPS
- **Authentication:** AWS Cognito client credentials with API key and secret
- **Real-time:** REST, websocket connections for streaming data
- **Documentation:** Swagger UI with interactive endpoint documentation

6.4 Supported File Formats

Category	Formats
Tabular	CSV, JSON, XML, Excel (XLS, XLSX)
Spatial	GeoJSON, ESRI Shapefile, MapInfo Table, GML, KML
Documents	PDF, Word, PowerPoint
Images	JPG, PNG, TIFF, GIF

6.5 Web Standards and Accessibility

uMove uses HTML 5.2, CSS 4, standard character set UTF-8 and complies with the Open Standards principles policy, ensuring broad compatibility and improved support for international languages. The platform adheres to WCAG 2.2 Level AA accessibility guidelines. All data transmissions are secured via HTTPS.

7. Service Levels and Availability

7.1 Availability Guarantee

uMove guarantees 99.5% platform availability, measured monthly.

7.2 Performance Thresholds

The following performance thresholds apply 95% of the time during normal operation:

Service	Performance Threshold
Page Load Speed	Within 3.5 seconds
Raw Data Access	3 MB/s or faster
API Access (Simple Query)	8 MB/s or faster
API Access (Advanced Query)	1.5 MB/s or faster

7.3 Issue Response Times

Our Service Level Agreement defines response times based on issue severity:

Severity	Acknowledged	Temporary Fix	Permanent Fix
Critical	1 business hour	1 business day	5 business days
Urgent	1 business day	3 business days	7 business days
Medium	1 business day	5 business days	10 business days
Informational	5 business days	N/A	N/A

Support is provided during Normal Business Hours: 8:00 am to 6:00 pm UK time, Monday to Friday, excluding public holidays.

8. Backup, Disaster Recovery and Business Continuity

8.1 Recovery Objectives

Recovery Time Objective (RTO): 3 business hours

Recovery Point Objective (RPO): 3 business hours

8.2 Backup Strategy

- Full snapshots are taken every night
- Incremental backups are automatically generated throughout the day
- Point-in-time recovery is available from the commit log for any point within the preceding 7 days

8.3 Resilience Architecture

uMove is built on a microservices architecture deployed on AWS infrastructure with built-in redundancy:

- Services are continuously monitored and automatically restarted if interrupted

- OpenSearch Serverless provides elastic compute capacity that scales dynamically with demand
- Auto-scaling infrastructure handles usage spikes without service degradation
- All system logs are tracked in a central repository for monitoring and rapid incident response

8.4 Business Continuity

UrbanTide maintains a Business Continuity Plan (BCP) including a Disaster Recovery Plan (DRP) as part of our Security Policy. The plan is reviewed and updated annually to reflect changes in technology, processes, and identified risks.

9. Hosting and Data Location

9.1 Infrastructure

Hosting Provider	Amazon Web Services (AWS)
Data Centre Location	Dublin, Ireland (eu-west-1)
Data Residency	All customer data remains within the UK/EEA
Architecture	Microservices with auto-scaling
Storage	Amazon S3, OpenSearch Serverless

9.2 Data Segregation

Customer data is logically separated to ensure complete isolation between organisations:

- Each customer has a dedicated metadata database
- Files are stored in securely separated folders on AWS S3
- Real-time data is stored in separate keyspaces (effectively different databases)

9.3 AWS Compliance

AWS datacentres comply with ISO 27001, SOC 1/2/3, CSA CCM, and numerous other international security and compliance standards. AWS physical security includes perimeter controls, security personnel, intrusion detection, and comprehensive access logging.

10. Security

10.1 Encryption

Data at Rest: AES-256 encryption for all databases and files, with keys managed via AWS Key Management Service (KMS)

Data in Transit: TLS 1.2 encryption for all communications. All API requests must be made over HTTPS.

10.2 Access Security

- Role-based access control with granular permission levels
- Multi-factor authentication (mandatory for admins, configurable for all users)
- Strict password policy enforcement
- All access is logged and auditable
- AWS developer controls require two-factor authentication and are restricted to vetted UrbanTide employees

10.3 Security Testing

- Annual penetration testing by CREST-approved service providers
- Continuous monitoring of software and library versions with prompt security patching
- Security patches can be deployed within one day for critical vulnerabilities
- Development follows OWASP top 10 security guidelines

10.4 File Security

Integrated virus scanning (ClamAV) automatically scans all uploaded files and blocks infected files from being stored on the platform.

10.5 GDPR Compliance

uMove follows strict data privacy and security standards through the uSmart platform. Data is handled in accordance with applicable data protection regulations, and insights are provided in aggregated and anonymised form. Under GDPR, users have control over their personal data and can request for personal information to be provided to them or removed. The system is completely searchable, allowing data to be exported for portability.

11. Onboarding and Training

11.1 Documentation

A detailed online Knowledge Base covers all platform functionality, including user management, data access, dashboards, maps, and reporting. Articles are organised by user role and task, enabling self-service learning and quick reference. Documentation is available via the web and can be downloaded as a PDF.

11.2 Training Options

- **Platform Overview:** Introduction to uMove dashboards, navigation, and key features
- **Data Interpretation:** Understanding transport data, metrics, and visualisations
- **Reporting and Export:** Generating reports and extracting data for external use
- **Train the Trainer:** Enabling admin users to run their own training courses

11.3 Onboarding Support

New customers receive dedicated onboarding support to ensure successful implementation. This includes initial platform setup, data source configuration, and hands-on sessions to familiarise teams with key workflows. Additional analytical support can be provided where required to help teams interpret insights effectively.

12. Support and Maintenance

12.1 Support Channels

- Helpdesk for issue logging and tracking
- Email support
- Slack notifications (configurable)
- Dedicated account management

12.2 Support Hours

Support is provided during Normal Business Hours: 8:00am to 6:00pm UK time, Monday to Friday.

12.3 Maintenance

Platform maintenance and updates are included in the service. Because uMove runs in the cloud, you will always benefit from the latest version with the latest features. We fix major issues immediately and release hotfixes and minor releases every week. Major new features are generally released every 4-8 weeks.

12.4 Outage Management

Customers are notified of service outages via email alerts. During incidents, proactive update frequencies are defined based on issue severity:

- Critical issues: Hourly verbal updates
- Urgent issues: Daily written updates
- Medium issues: End of week updates

13. Service Constraints

uMove is designed to support decision-making and analysis. The following constraints apply:

- Data quality depends on the accuracy and availability of source sensor data
- Real-time data feeds require active connections to third-party data providers
- Custom sensor integrations may require additional configuration time
- Historical data availability depends on when data collection began for each source

14. Data Export and Exit Arrangements

14.1 Data Export

Users can export data through multiple methods during and at the end of the contract period:

- **Self-Service Export:** Direct download from the web interface in standard formats (CSV, JSON, GeoJSON, Excel, PDF)
- **API Extraction:** Programmatic retrieval using personal API tokens or system-level API keys
- **Assisted Extraction:** Upon request, data provided in client-specified format and media, including transfer to nominated third parties

14.2 End of Contract Process

On contract termination or expiry:

- Users may extract their data using any of the methods described above
- All client data is securely deleted or destroyed, or returned in full if directed by the client
- Written certification of deletion or destruction is provided within 14 days of completion
- If any legal or regulatory requirements necessitate temporary data retention, the client is notified with full details and a clear timeline for subsequent deletion

14.3 Included in Contract Price

- Data extraction and export in standard formats
- API access for programmatic data retrieval
- Transition support and handover
- Secure data deletion and written certification

14.4 Additional Costs

Bespoke data format conversions beyond standard formats are quoted on request.

15. Certifications and Compliance

15.1 UrbanTide Certifications

Certification	Description
ISO 27001	Information Security Management System certification
ISO 9001	Quality Management System certification
Cyber Essentials Plus	UK Government-backed cyber security certification with independent verification

15.2 AWS Infrastructure Compliance

AWS datacentres comply with extensive certifications, including ISO 27001, ISO 27017, ISO 27018, SOC 1/2/3, CSA CCM, and SSAE-18/ISAE 3402.

15.3 Data Protection

UrbanTide complies with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. Where personal data is processed, a Data Processing Agreement is put in place with appropriate terms to ensure compliance with Data Protection Legislation.

15.4 Security Governance

A named board-level director has overall accountability for information security. Security responsibilities are integrated across the organisation, with all staff trained on data protection legislation and security procedures relevant to their roles.

16. Other Procurement Options

UrbanTide is pre-qualified and listed on the following relevant public sector frameworks:

Framework	Reference
Spark DPS Framework	RM6094 Spark DPS
AI DPS Framework	RM6200 Artificial Intelligence
Big Data and AI	RM6195 Big Data and AI

17. Contact Information

For enquiries about uMove or UrbanTide services:

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