Cubic Transport Management Platform

The Evolution of Integrated Transport Management

CUBIC | Transportation Systems

The Evolution of Integrated Transport Management

The urban public transit landscape is changing rapidly. The proliferation of new transport modes and services, coupled with rising customer expectations and the explosion of connected technologies, requires transit agencies to adopt modern, integrated approaches to transportation management. To make cities more livable and public transit more reliable, those approaches must focus on holistic multimodal network management and traveler journeys rather than the management of disparate transportation modes.

That's why we have developed the Cubic Transport Management Platform (TMP) — an innovative, cloud-hosted solution designed to support all aspects of transit operations for even the most complex transportation networks. Cubic's Transport Management Platform is flexible and scalable, allowing Transport Management Centers (TMCs) to proactively coordinate and manage multimodal transportation networks to reduce the likelihood of congestion and accidents and improve network efficiency, resulting in safer, more secure and reliable journeys for all.
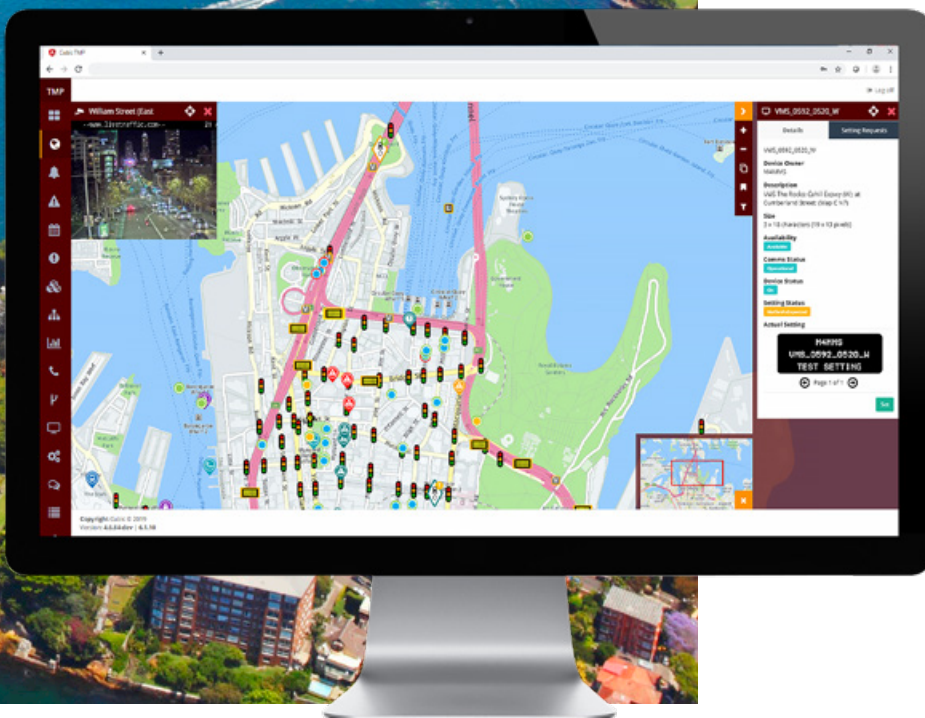
Real-time Network Visibility

The Cubic Transport Management Platform helps transit agencies improve their network visibility and overall situational awareness by providing a single live view across the entire transportation network. Covering multiple transportation modes, including roads, light rail, bus and ferry, this fully modular and scalable solution incorpora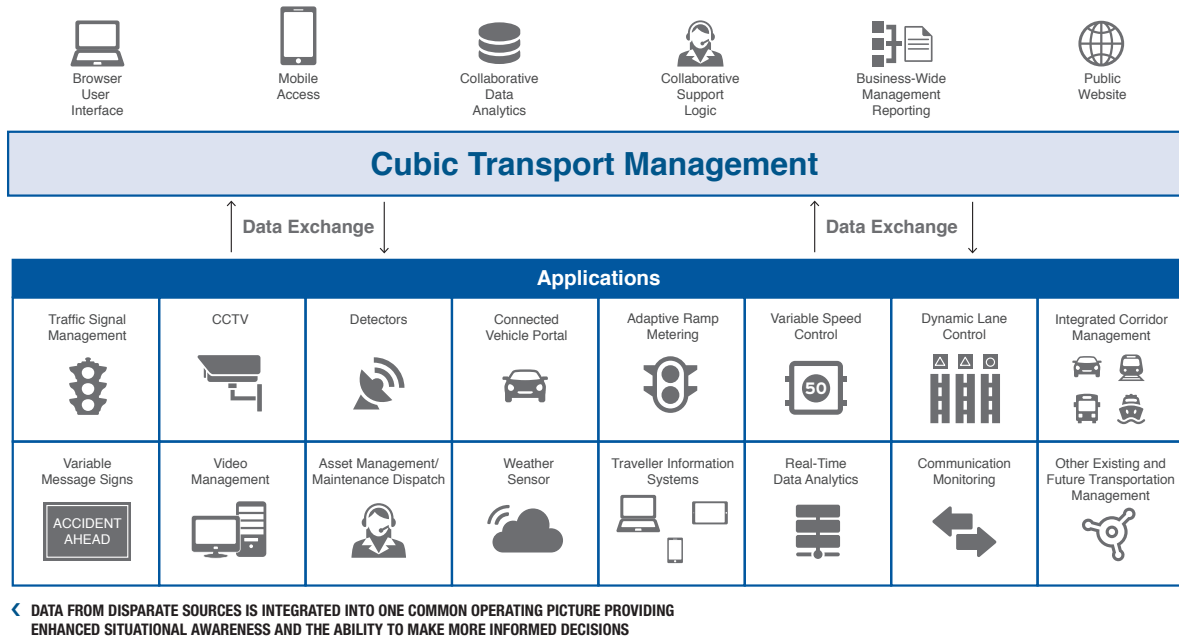tes traffic-based and public transit real-time information, allowing rapid incident identification, real-time understanding of incident impact, and more effective incident response.

Live System Integration

The transport management platform integrates multiple agency and external systems, helping protect existing investments while improving the operational efficiency of TMCs. Its open architecture and enterprise integration platform rapidly combine subsystems and data sources into a single control system where data is presented to the operator in a single live view resulting in a more coordinated agency response that spans all modes of road based and non-road transportation.

Cubic Transport Management is an Integrated Transport Management Platform

Browser User Interface

Mobile Access

Collaborative Data Analytics

Collaborative Support Logic

Business-Wide Management Reporting

Public Website

Cubic Transport Management

↑ Data Exchange ↓   ↑ Data Exchange ↓

Applications

Traffic Signal Management	CCTV	Detectors	Connected Vehicle Portal
Adaptive Ramp Metering	Variable Speed Control	Dynamic Lane Control	Integrated Corridor Management
Variable Message Signs	Video Management	Asset Management/ Maintenance Dispatch	Weather Sensor
Traveller Information Systems	Real-Time Data Analytics	Communication Monitoring	Other Existing and Future Transportation Management

ACCIDENT AHEAD

< DATA FROM DISPARATE SOURCES IS INTEGRATED INTO ONE COMMON OPERATING PICTURE PROVIDING ENHANCED SITUATIONAL AWARENESS AND THE ABILITY TO MAKE MORE INFORMED DECISIONS

Multimodal Coordination

Offering a range of real-time insights across multiple transportation modes and an advanced, rule-based response, Cubic's TMP simplifies multimodal coordination, helping agencies better understand network conditions, provide superior trip information to travelers and guide them to an improved experience on the network. The flexible and scalable architecture helps agencies adapt and respond to changing traveler behavior and the rapid pace of urbanization.

Predictive Rather than Reactive

Featuring predictive demand management, analytics, and advanced simulation, The Cubic TMP allows TMC operators to build a predictive view of the entire traffic network. This not only enables agencies to reduce the impact and the probability of incidents, but it also helps them predict congestion, simulate various network events and drive further network efficiencies.

Cubic Transport Management Overview

With a modern enterprise integration platform at heart, The Transport Management Platform addresses common agency challenges, including the need for improved visibility, multimodal coordination, and predictive traffic management:

Situational Awareness

A Common Operational Picture serves as a primary situational awareness tool and allows agencies to directly monitor the network.

Event & Response Management

Built-in congestion, incident, and planned event management workflows provide consistent, optimized and rapid response capability.

Analytics & Predictions

Analytics and predictive modeling and event simulation assist with reducing the likelihood of congestion and accidents, drive network efficiencies and environmental benefits.

Agency Coordination

Centralized coordination across agencies allows for consistent and combined multi-agency responses.

Connected Environments

Connected environments provide improved network efficiency and eliminate the overhead of managing multiple systems.
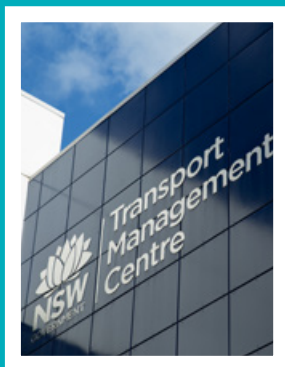
CASE STUDY:
New South Wales, Australia
Intelligent Congestion Management Program

– **Manages over 800 roadside devices spread across 112,000 miles of road.**

– **Displays the live position of up to 5000 public transport vehicles**

– **Processes up to 600 transport situation alerts daily**

The New South Wales Transport Management Centre (TMC) is one of the world's most complex multimodal Transport Management Centers. Covering 112,000 miles of road and serving a population of over 7.5 million it is responsible for the planning, coordination and pro-active real-time management of the entire New South Wales road network.

In 2018, Cubic was awarded the contract to implement a new Intelligent Congestion Management Program at the TMC to upgrade the original Incident Management System installed by Cubic in 1997.

Once completed, the Intelligent Congestion Management Program will transform the TMC into a truly predictive, data-driven, multimodal operational center that optimizes the entire transport network and helps the city manage multimodal end-to-end journeys, paving the way for Mobility-as-a-Service.

Cubic's Transport Management Platform (TMP) running on Microsoft's Azure platform, will form the heart of the ICMP solution. With a goal of 'predict in 30 minutes, act in 5', the new system will enhance the monitoring and management of the state's road network, coordinate the public transport network across all modes, improve clearway management, the planning of major events and reduce incident clearance times.

It will equip city operators and first responders with the tools needed to effectively deal with any challenges, including accidents, emergencies, or natural disasters, while also providing the public with real-time information about disruptions and traffic conditions, offering them personalized, prediction-based journey advice.

By leveraging the Azure cloud, the TMP will ingest multiple data sources (e.g congestion data, public transport data, traffic signals) and deliver actionable insights to those who need them most – improving overall situational awareness and providing a common operating picture across the state's entire transport network.

Improving situational awareness and response effectiveness through a predictive common operational picture

NextCity – building a smarter tomorrow

Cubic Transport Management Platform is inspired by NextCity, Cubic's vision for city management and integrated traveler payment and information that centers on three core principles: the delivery of an integrated customer experience, one account, and integrated operations and analytics.

As the world's population moves to urban centers, the result is greater traffic congestion, frustrated travelers and lessened productivity. Intelligent and actionable information is the key to ensuring that everything is running as smoothly and efficiently as possible within the travel networks — and will empower travelers to make smarter, more informed decisions based on facts. NextCity provides a roadmap for a coordinated framework — using legacy and emerging payment methods and information systems to integrate all travel information and payment, customer experience, operations and analytics in the region for all modes of transportation.
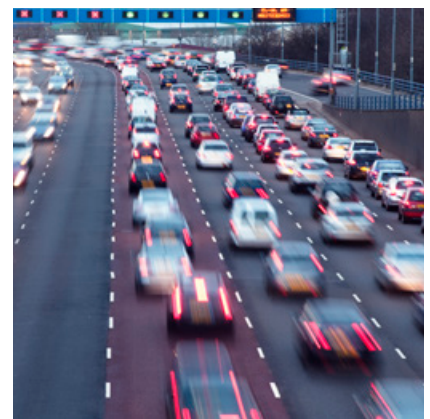
The NextCity vision is built on a model for real-time data gathered across a transportation network through payments, sensors and other touch points, increasing travel efficiencies without losing individual authority flexibility. For travelers, NextCity offers a solution for personalized, actionable information sent directly to their mobile device, all supported by a single account to pay for their entire trip.

Cubic – a leader in intelligent travel solutions

At Cubic, we believe our identity is intrinsically linked with our customers, and the people our customers serve. How they get from one place to the next — how that impacts their lives, their fellow travelers and their cities — and how it feels along the way.

That's why we're passionate about developing transportation solutions that improve the way we move throughout cities. Innovation is in our culture, and our history speaks for itself. In our 45-year history, we've delivered transit fare collection systems to over 450 operators, including 20 regional back office systems and traffic and transportation management systems for major cities and regions on four continents.