MAKING CITIES MORE ATTRACTIVE PLACES TO LIVE AND WORK

TRAMS
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THE WORLD LEADER IN TRAM OPERATIONS

75 LINES spanning 800km
1,300 TRAMS operated
670 MILLION PASSENGERS in 2017
THE WORLD’S LARGEST TRAM OPERATOR

Keolis is the world’s leading tram operator, at the forefront of light rail network operations for over 40 years. Today we are bringing that knowledge to seven countries on three continents, operating and maintaining more kilometres of tram network, and carrying more passengers, than any other company. We share our experience with public transport authorities and partners to deliver industry-leading standards of safety, punctuality, customer satisfaction and continuous improvement.
MORE THAN 800KM OF TRAM OPERATIONS AROUND THE WORLD

Keolis, at the forefront of light rail development worldwide.
OPERATOR OF WORLD’S LARGEST TRAM NETWORK:
MELBOURNE with 250km of double track

OPERATOR OF UK’S LARGEST TRAM NETWORK:
GREATER MANCHESTER with 92km of double track
SUCCESSFUL DELIVERY IN ALL CONDITIONS

WE HAVE THE WIDEST POSSIBLE EXPERIENCE

NETWORKS AND TECHNOLOGY
Keolis successfully operates and maintains every type of tram network. Rolling stock varies from the world’s oldest to the most modern. The different networks, technology and conditions our services cover range from:
- Fully segregated lines to the majority of lines shared with cars (e.g. Melbourne)
- Dedicated lines to track shared with other rail services (e.g. Lyon)
- Lines with full traffic light priority to lines with no traffic light priority
- Overhead wires to ground-level (APS) power supply (e.g. Bordeaux)
- Conventional trams to urban rail lines (e.g. suburban rail line T11)
- Single class fleets to mixed fleets (e.g. Melbourne)
- Extreme cold (e.g. Waterloo) to extreme heat (e.g. Gold Coast).

CONTRACTUAL ARRANGEMENTS
We are flexible and used to working with public transport authorities and local industry leaders under a variety of different models. Our contractual arrangements in different cities include:
- Full operation and maintenance of the tram network and vehicles (e.g. Melbourne)
- Tram operation only (e.g. Bergen)
- Operation of the entire city public transport network (e.g. Bordeaux)
- Revenue risk (e.g. Lyon)
- No revenue risk (e.g. Strasbourg)
- Partnering in design, build, finance, operate and maintain contracts (e.g. Nottingham).
OUR MAJOR TRAM NETWORKS AND THEIR PERFORMANCE

📍 NOTTINGHAM, UK
Customer satisfaction 96-98% since 2013; Punctuality 95.7% in 2016; 16.4 million passengers in 2016; 32km of lines.

📍 BERGEN, NORWAY
Customer satisfaction 95-99% since launch in 2010; Service delivery at or above 99.9%; 10.6 million passengers in 2016; 20km of lines.

📍 MELBOURNE, AUSTRALIA
World’s largest tram network. Continuous improvement in passenger satisfaction since takeover in 2009. Record punctuality 83.8% in 2016; more than 200 million passengers in 2016; 250km of double track.

📍 GOLD COAST, AUSTRALIA
Customer satisfaction 87%; Punctuality 99.9%; More than 30 million passengers since network opened in 2014, 20km of lines.

📍 BORDEAUX, FRANCE
Customer satisfaction 91.5%; Punctuality 95.2%; 86 million passengers in 2016, 65km of lines. Expected to become the largest French integrated tram network in 2019.

📍 LYON, FRANCE
Customer satisfaction 88%; Punctuality 90%; 91 million passengers in 2016, 107 stops, 61km of lines fully integrated with metro and bus networks. Major role in transporting spectators to the Euro 2016 Football Cup.

📍 WATERLOO, CANADA
Due to open in summer 2018. Early involvement outside contract includes integrated bus/rail planning. 19km of lines, with plans for further 17km of high frequency bus lines to be converted to tram.

📍 NEWCASTLE, AUSTRALIA
Due to open in 2019. 3km of lines running through city centre.

NETWORKS JUST LAUNCHED, TAKEN OVER OR IN MOBILISATION

📍 GREATER MANCHESTER, UK
Transferred in July 2017, merging maintenance and operations employees from four companies into one organisation; 38 million passengers in 2016; 92km of lines.

📍 AARHUS, DENMARK
Launched first phase of new network in September 2017 with 12km of lines; 98km more lines to open by early 2018 – will include tram-train operations with speeds of up to 100km/h.
OUR PROMISES TO CLIENTS, PASSENGERS AND COMMUNITIES

When operating any contract, Keolis’ service is based around a set of promises that combine to make public transport a natural choice.

1. **Zero harm**
   We have set ourselves the highest possible safety standard – zero injuries to passengers, employees and people living close to our networks.

2. **Economic efficiency**
   We provide added value to clients by using our operations, commercial, and management expertise to increase service quality and revenue while reducing lifecycle costs.

3. **Operational excellence**
   We provide services passengers can depend on, whatever the conditions. From this foundation, we adapt to the needs of residents and clients – redesigning networks for both major special events and lasting improvements.

4. **Sustainable operations**
   We create sustainable businesses by reducing the environmental impact of travel, building trusted relationships with clients, investing in employee skills and developing our services for all citizens.

>>> The outcome is high quality, accessible public transport, seamlessly integrated into the fabric of city life.

Gold Coast, Australia
HOW WE KEEP OUR PROMISES

To keep our promises wherever we operate, we base our actions on five pillars of excellence that reflect the entire lifecycle of the network – from design and construction to start of operations, improving day-to-day performance and developing the network.

1. Engaging early with transport authorities
2. Securing smooth launches and takeovers
3. Thinking Like a Passenger
4. Optimising operational performance
5. Enhancing network capability

Each pillar has a set of processes and systems which our companies adopt. It guarantees that throughout each phase we:

- **Understand** what our clients and passengers want
- **Transfer** solutions that work and adapt them to local needs
- **Work with** suppliers, clients and stakeholders to continually improve results
- **Take account of** future requirements to deliver best value
- **Capture lessons** learnt and share successes

To assist our teams on the ground we provide a wealth of central knowledge and support, including research centres staffed by our leading engineering, safety, operations and customer service specialists. A team of project experts from our Tram Excellence Centre (see p.20-21) advises every new business. Our success is evidenced by a record of world class performance and continual improvement from Norway to Australia.
**PILLAR #1**

**ENGAGING EARLY WITH AUTHORITIES**

Keolis engages constructively with public transport authorities from contract award, offering expertise and proven solutions to inform the design of new tram networks. Benefits to our clients include reliable, integrated public transport, lower lifecycle costs, and vibrant neighbourhoods.

**DESIGNING EFFICIENT, HIGH PERFORMANCE TRAM NETWORKS**

Our international experts work proactively with public transport authorities (PTAs) and project partners to add value to network design. Early involvement includes offering design reviews and specialist workshops to help ensure services will be:

- Safe (e.g. segregated from cars as much as possible)
- Fast (e.g. traffic light priority)
- Convenient (e.g. station access and layout)
- Reliable (e.g. robust infrastructure, location and design)
- Considerate to residents (e.g. low noise)
- Low environmental impact (e.g. in energy use)
- Good value (e.g. fewer trams needed).

We work with the network constructor during design and construction, giving PTAs confidence benefits will be delivered.

“**We are working beyond our contract by using our experience of integrated transport to help deliver our client’s aspirations for the overall transit network.**”

**Ian Cushion,**
General Manager, Keolis Waterloo

**OUR EARLY ENGAGEMENT WITH PUBLIC TRANSPORT AUTHORITIES**

- Understand client priorities for their city
- World-leading experts based locally
- Constructive feedback, based on proven solutions
- Transparent, open dialogue
- Look beyond our contract
- Add value to clients’ investment.

Bordeaux, France
INTEGRATING TRANSPORT TO MAXIMISE GROWTH
We offer clients our experience of positioning tram lines as the spine of integrated transport networks. We research whether services match demand and lifestyle across the city, and redesign networks accordingly with all modes working together.

Our method includes:
• Redesigning networks with tram lines fed by high frequency, complementary bus services
• Co-ordinating timetables and capacity
• Funnelling all public transport into multi-modal termini with frequent connections. It grows patronage and cuts costs.

In Bordeaux, public transport use was static before Keolis took over in 2009. By 2016, application of these principles increased tram and bus trips by 46% to 138 million.

MORE LIVEABLE CITIES
We work with PTAs, project partners, councils and residents to build streetscape improvements into construction plans for new tram networks. Benefits delivered include new urban plazas, wider pavements, green spaces, and new cycle and pedestrian routes.

TRANSFERRING INTEGRATED TRANSPORT EXPERTISE
In Waterloo, we are working with our client’s transit agency and operator, Grand River Transit (GRT), to provide an integrated network from the day our tram service begins in 2018. It includes advising on bus network redesign, launch plan, joint timetables and a phased optimisation of journey times to guarantee connections. Daily integration will be underpinned by sharing operations data. Our design laid the ground by selecting the same vehicle tracking system as GRT’s buses.

On the Gold Coast, we attended integration workshops to share our experience with the PTA. Network redesign included turn-up-and-go bus lines feeding into tram stops from areas that previously had few services. Regional public transport use grew 25% in year one.
PILLAR #2
SECURING SMOOTH LAUNCHES AND TAKEOVERS

Since 2009, Keolis has launched nine new tram networks and taken over seven networks. New networks achieved high performance from the start. Existing networks transferred seamlessly. Our success is based on a tested approach that works time and again. It is part of our everyday business.

→ 16
new tram networks and takeovers since 2009

“Twinning with our last UK takeover, DLR, provided valuable experience for managing employee transfer and IT system replacement, contributing to a seamless start to our operation of the network.”

Florian Le Loroux, Mobilisation Director, KeolisAmey Metrolink

TRANSFERRING PROVEN PROCESSES AND KNOWLEDGE
Our processes for new launches include:
• Management training on twinning networks, with local managers able to train their own employees, so they fully understand their network
• Employee recruitment/training based on tested and proven mobilisation schedules
• Trial run tests based on Keolis best practice (e.g. safe driving at road junctions).
For takeovers, processes focus on key tasks for seamless service continuity including:
• Employee transfer – early, accurate communication for strong workplace relations
• IT – highly-skilled teams replace IT owned by the outgoing operator and ensure systems work faultlessly
• Day 1 readiness – audits and briefings ensure all people and equipment are prepared and in the right place.
For ongoing support, we twin new businesses with the last company we launched or took over, and second our international experts to local teams.

BUILDING ROBUST, LEAN SUBSIDIARIES
Keolis adds value for PTAs and passengers by creating flexible, agile workforces. Well-sized teams with multi-skilled employees improve service resilience, customer experience and costs. Our open plan depots mean all employees work as one team and understand their impact on service delivery. We work with trade unions to adjust companies we take over. Engagement surveys show it makes for a more motivated workforce.

ENSURING SAFETY AND QUALITY FROM DAY 1
On new launches we engage with highway departments to maximise tram reliability in traffic; with project partners to coordinate tasks; and with communities on safe use of the network. For takeovers we build co-operative relationships with the outgoing operator (e.g. for employee communication) and with the PTA to resolve any issues.
SUCCESSFUL GOLD COAST LAUNCH
On the Gold Coast, we worked with partners to meet pre-launch challenges. We trained drivers by coordinating with the constructor on limited track availability. We secured traffic light priority in daily road management with evidence to reassure the highways authority. Community events included familiarisation for disabled groups, school visits and promotion - 80,000 attended the launch. Punctuality months 1-3: 98.1%. Safety months 1-3: 0.05 collisions/10,000km. Patronage 13% above forecast after nine months.

SMOOTH TRANSFER OF 850 EMPLOYEES
In 2017, we took over Greater Manchester’s network, seamlessly transferring 850 employees from four companies. To build workplace relations for smooth operation from Day 1, we briefed unions continuously before and after legal consultation. With the outgoing operator, we set up multiple channels for staff to ask questions, and ensured prompt, accurate replies. We timed roadshows so as many staff as possible could go - 94% said the briefings were useful; 89% were confident in KeolisAmey Metrolink as an operator.
PILLAR #3
THINKING LIKE A PASSENGER

All Keolis businesses have adopted our Thinking Like a Passenger approach, delivering world class customer satisfaction and continuous improvement. The results are driven by a customer service culture and deep understanding of our passengers.

95-99% satisfaction in Bergen since the launch in 2010

96-98% satisfaction in Nottingham since independent surveys began in 2013

“Whenever there is a dip in any aspect of satisfaction, we go out on the line to find out what passengers are experiencing, and jump on it.”

Gry Miriam Olsen, CEO, Keolis Bergen

ENRICHING THE CUSTOMER EXPERIENCE
Our companies create a customer service culture from tram stop to boardroom. We build customer experience into every aspect of our business, and expect everyone to ‘put yourself in passengers’ shoes’. Day-to-day impacts include:
• High passenger comfort – attentive driving style
• Clean trams – cleaning adapted to changes in weather
• Useful information – real-time, on-demand
• Employees – available where needed most.

Detailed procedures for sufficient employees to be available quickly and informed during disruptions include: practised rapid response; back office employees trained to assist.

We build on these basics with proactive customer engagement and insight research to truly understand our passengers. We act on the findings rapidly. The result is high customer satisfaction.

PERSONALISED MOBILITY SERVICES
Our ultimate aim is to offer fully-personalised transport, using IT innovations to remove all uncertainty and inconvenience. In 2015 we set up a digital lab to understand trends in people’s use of new technology. We then investigated 2,000 digital solutions, shortlisting 200. The first are already part of our plans to provide a total mobility service so that passengers can travel how and when they want, informed and in control.

INCLUSIVE SERVICES FOR ALL PASSENGERS
We make our services accessible for passengers with specific requirements. Our companies meet stakeholders to understand different needs, then modify services, staffing and training, or arrange initiatives with PTAs – for example familiarisation events for people with reduced mobility; ambassadors at gateway stations (e.g. airports) to guide visitors on using the tram.
CUSTOMER SATISFACTION RISES EVERY YEAR
In Melbourne, we have driven up satisfaction with the world’s largest network to record levels. We have raised employee engagement from 68% to 78%. Research on ‘travel pain points’ led to continual information upgrades (e.g. more employees at key locations; PTA funds for multimodal screens; app refreshes). Satisfaction with our 2,200 employees and information has risen every year since we took over in 2009, contributing to continual improvement in our overall rating.

WORLD FIRST TECHNOLOGY TRIALS
In Orleans, we are piloting world-first technology to integrate barcode ticketing with our existing journey planner. Customers plan their door-to-door trip, buy a ticket and download it to their phone using a single app. In Bordeaux, we have tested virtual reality software to show passengers how the tram route and surrounding area will develop. Digital images on the inside of tram windows also showed real-time multimodal information.
PILLAR #4
OPTIMISING OPERATIONAL PERFORMANCE

Our planning and service delivery expertise mean the operational performance of our tram networks rivals any in the world. From new lines to some of the world’s oldest, our passengers are travelling more safely and reliably year after year.

ACTING ON OUR ZERO HARM PROMISE
All Keolis employees are trained to understand the link between high safety and punctuality, preventing conflicting priorities and clarifying safety as our top concern. From that foundation, our businesses develop their safety culture based on:
• Annual action plans reviewed by Keolis experts
• Investigating every incident no matter how small
• Safety ambassadors to observe working practice.
Each company has ongoing campaigns to reinforce safety culture, question how we work, and raise awareness of how to travel on, and live safely near, the tram.

CONTINUALLY IMPROVING OPERATIONAL PERFORMANCE
All Keolis companies embed high performance in day-to-day business from planning to service delivery. We adapt timetables to seasonal conditions, our maintenance systems anticipate and prevent faults and we manage operations in real-time (e.g. drivers, with radio support, are able to fix most tram faults).

→ ABOVE 95% punctuality in Bordeaux, Nottingham and on the Gold Coast
We drive continuous improvement in asset management and network control by co-locating operations and maintenance teams, with a shared objective of on-time services. Daily and weekly reviews assess whether incidents can be handled better and anticipate challenges.

EFFECTIVE PLANNING FOR SPECIAL EVENTS
We provide the highest possible capacity and reliability to special event venues, while meeting the needs of other passengers, by:
- Scheduling maintenance so trams are available to increase service frequency
- Managing passenger flows to ensure platform safety
- Reviewing plans with PTAs to ensure the best service for the city.
It caters successfully for regular festivals (e.g. taking at least 300,000 spectators to Melbourne’s Australian Open tennis tournament), and new venues (e.g. taking up to 17,000 people to Lyon football matches).

SAFE TRANSITION TO LARGER NETWORK
In Nottingham, we used our global safety knowledge when opening two extensions in 2015, including installing systems to manage and monitor new assets and facilities, and a pre-launch ‘Think Tram, Think Safety’ campaign for the new lines and surrounding areas. We continue to provide educational sessions for schools, roadshows for vulnerable groups and promote safe behaviour for passengers and road users. Collisions fell from 0.18/10,000km in 2014 to 0.14 in 2016.

CONTINUAL IMPROVEMENT IN PUNCTUALITY
On the Gold Coast, we have continually improved high punctuality since network launch in July 2014. Initiatives include monitoring performance data for patterns or issues and addressing them, training to manage small delays in real-time, sharing drivers’ knowledge and feedback, regular cross-departmental analysis, and working with city authorities on efficient on-street operation. We are now achieving 100% punctuality against some of the world’s toughest targets.
PILLAR #5
ENHANCING NETWORK CAPABILITY

Across the world, rapid patronage growth is creating reliability and capacity challenges for tram operators and transport authorities. Keolis is responding with innovative operational and asset management solutions to accommodate demand and meet passenger expectations at an affordable cost to our clients.

INCREASING SPEED TO CREATE NEW OPTIONS
All our subsidiaries investigate ways to improve average service speed in order to release trams to increase capacity or provide ‘hot spares’ to improve service reliability. Joint projects with PTAs and highway authorities include: traffic light priority (while taking account of the impact on road users); and improving the location of speed limit signs. Our independent initiatives focus on fast departure from stops – e.g. refresher driver training to cut dwell times; managing passenger flows at high demand stations; tram modifications so doors open/close faster.

INNOVATIVE TIMETABLES TO ACCOMMODATE GROWTH
We work outside our contracts to identify new ways to accommodate growth which minimise the need for PTAs to invest in trams and infrastructure. Our proven timetabling solutions to increase frequencies with modest investment include:

• Dedicated short distance services on the busiest parts of the route
• Moving from fixed departure times on high frequency networks to metro-style interval timetables.

When presenting the case for change to clients, we provide a technical assessment of any infrastructure requirements, a passenger impact study, and a plan showing how we will operate new service patterns reliably.

ASSET DEVELOPMENT TO MEET EMERGING CHALLENGES
Our asset management plans look beyond our role as network maintainer to offer clients choices on efficient asset renewal. We consider whether remodelling infrastructure (e.g. termini and road junctions) would increase speed, capacity and reliability at efficient cost. In addition, we trial technology to manage demand and improve passenger comfort.

“Our Route 96 upgrade is opening conversations with our client about how to redesign the tram network to work better than it ever has before.”

Ian Hopkins,
Principal Advisor Network Planning, Yarra Trams
METRO-STYLE TIMETABLE
In 2013, Bergen’s PTA agreed our case to switch to a metro-style, interval timetable to manage operating pressures caused by high growth. Patronage has risen from 19,000/day in 2010 to 45,000. Adjusting the running time of each service dynamically means we prevent small delays escalating and can ensure trams are always evenly spaced, guaranteeing high peak frequency and preventing crowding so that passengers can always board the next tram. The operating efficiency also means we can maintain high frequency during reduced tram availability – e.g. during the current project to lengthen trams.

MODERNISATION LABORATORY
In Melbourne, our upgrade of a busy route is a test-bed for modernisation. Benefits so far include:
• Creation of double track terminus - prevents delays of up to six mins; major junction redesign to create triple tracks – improves tram priority.
• Four stops made level access; high capacity trams
• Partnership to trial passenger count sensors and lighting controls at stops
• New public plaza, wider pavements.
The project is opening discussions with the PTA on new ways to combat challenges of high growth (12.5% in 2016) and 75% shared road operation.
EXPERT SUPPORT FROM OUR TRAM EXCELLENCE CENTRE

Keolis’ Tram Excellence Centre is a showcase for the Group’s leading expertise, acquired through our tram networks worldwide.

It is located in Lyon where we have operated and maintained the multimodal network since 1977.

**TRAM EXCELLENCE CENTRE EXPERTISE**
The centre’s team of light rail experts and project managers have extensive knowledge and experience of:
- tram network design
- performance management and modelling to improve speed, punctuality and capacity
- operation and maintenance costing
- rolling stock maintenance, refurbishment and renewal
- infrastructure maintenance (e.g. signalling, track, power supply)
- ticketing, fare collection and passenger information systems

Advice is available to our subsidiaries as and when requested.

**NEW BUSINESSES**
twinned with existing high performance networks

**EXPERT MENTORS**
assigned to new operations

**READINESS AUDITS**
to ensure safe high performance operation

A further audit at the end of the first year advises on whether operations and safety management could be improved, drawing on Keolis best practice. In addition, the centre arranges operations and safety training for all managers at a similar network in France with a record of high performance. The sessions also assign expert mentors to our new management teams.

When we take over existing networks, a readiness audit takes place three months before transfer, including assessing the performance of the existing operator. A further audit after six months assesses progress and opportunities during the crucial change management period when we are introducing Keolis systems and best practice.
“The availability of knowledge and expertise from Keolis’s Tram Excellence Centre has been essential in our preparations to operate Denmark’s first light rail network. Whenever we have needed help we have received it.”

Thomas Friis Brændstrup,
CEO, Keolis Aarhus

KNOWLEDGE TRANSFER FOR DENMARK’S FIRST TRAM NETWORK

In Aarhus, the local management team drew on the expertise and knowledge of our Tram Excellence Centre in preparing for the launch of Denmark’s first tram line. The centre’s experts briefed the team on safety management systems; the trial run plan was based on the Gold Coast’s; trips to Nottingham and Bordeaux were arranged to inform operational plans. The centre also provided advice to the local team which influenced the PTA’s. Changes agreed by the PTA included:

• A phased launch to build new drivers’ confidence
• Best practice passenger safety announcements.
WORKING WITH AUTHORITIES AT EVERY STAGE OF THE TRAM LIFECYCLE

PILLAR #1  ENGAGING EARLY WITH AUTHORITIES
- Designing efficient, high performance tram networks
- Integrating transport to maximise growth

PILLAR #2  SECURING SMOOTH LAUNCHES AND TAKEOVERS
- Transferring proven processes and knowledge
- Building robust, lean subsidiaries
- Ensuring safety and quality from Day 1

PILLAR #3  THINKING LIKE A PASSENGER
- Enriching the customer experience
- Inclusive services for all passengers
- Personalised mobility services

PILLAR #4  OPTIMISING OPERATIONAL PERFORMANCE
- Acting on our zero harm promise
- Continually improving operational performance
- Effective planning for special events

PILLAR #5  ENHANCING NETWORK CAPABILITY
- Increasing speed to create new options
- Innovative timetables to accommodate growth
- Asset development to meet emerging challenges
TO FIND OUT MORE

For more information on our service offer, visit the tram page of www.keolis.com