

# Light rail



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# Connecting new lines, together.



Drawing from our long experience as a multimodal operator, we look forward to assisting you with the construction and optimization of your mobility systems and services.

Our ambition is to develop with you, in a genuine spirit of partnership, customized, safe, effective and responsible transit solutions that are adapted to your needs and constraints and closely in tune with customer expectations.

The mobility of the future will be personalized, autonomous, connected and electric. This is our firm belief. Innovation is at the heart of our approach, in order to constantly improve the performance of public transportation services and make the promise of “new mobilities” a reality, for everyone.

As well as uncompromising safety, which is our credo, our overriding concern is the satisfaction of our customers and the quality of their experience. Every team member in the group engages on a daily basis to meet these challenges and implement solutions both for today and for the future.



**Thierry Mallet**  
Chief Executive Officer

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# Light Rail: a breath of fresh air for cities

Around the world, Light Rail Transit (LRT) has become the symbol of the revival of public transportation. With around 400 systems already running in 50 countries and another 260 being built or on the drawing board, light rail is enjoying a new golden age in cities eager to promote more sustainable travel solutions. Passengers overwhelmingly support a shift back to transit systems transformed by high-end design and the highest standards of service. Yet LRT does more than just modernize mobility: it also breathes new life into the urban environment.

## AN ALTERNATIVE TO CARS IN CITIES

Freed from the constraints of traffic jams, LRT provides speed, frequency, on-time performance and accessibility. It offers passenger capacity able to meet the increasing demand for mobility to serve major routes and link outlying areas.

## THE CORE OF A MULTIMODAL NETWORK

LRT provides a solid framework for multimodal travel. It represents the cornerstone of a system that incorporates transfer hubs for connections to a variety of environmentally friendly mobility solutions such as bicycles, car sharing and Park & Ride facilities.



## A FRESH APPEAL FOR MOBILITY

Comfortable light rail vehicles and quality infrastructure have given citizens a new lease on life when it comes to urban mobility. Designed to minimize pollution and reduce noise while opening up the city, LRT also attracts new passengers with its innovative passenger information and ticketing services.

## A CATALYST FOR URBAN RENEWAL

LRT is often a catalyst for active urban transformation. It opens up public spaces, forges ties between neighborhoods and supports growth of new business clusters. Light rail services also helps shape the city's identity by creating a new living environment and urban landscape.

*As an established trailblazer for the light rail revival, Transdev is one of the world's leading providers of LRT solutions, with 25 systems running in 8 countries across four continents. The company's pioneering position stems from an ability to provide comprehensive support to local authority partners; from initial feasibility studies to everyday success. Transdev offers project management expertise to ensure seamless integration with the local environment in terms of style and substance.*

# Good reasons to choose **Transdev**



## ONGOING DIALOGUE

### ***Involving communities & stakeholders***

Transdev is careful to anchor projects in the life of the city, by involving stakeholders such as businesses, schools, associations and Chambers of Commerce... We work to keep city services accessible during the challenging construction period, ensure public safety when the system is introduced, and help residents adapt their travel habits through educational campaigns. In Reims, France, we went one step further and asked citizens to be “co-creators” of the Light Rail vehicle design and the network rebranding. In Barcelona, we engage extensively with social media channels to shape our latest initiatives and consult the public about future line extensions.

## PROJECT PERFORMANCE

### ***Consulting & engineering expertise***

From the earliest stages of a project, our subsidiary Transamo, provides an overarching vision of project feasibility, safety, operability, urban integration and cost of ownership – including investment, operation & maintenance. Because Transamo has directly advised and assisted the development of over 260 km of light rail, all proposed solutions and recommendations are based on tried and tested operational experience of the world’s leading light rail systems.

## CONTRACTUAL COMMITMENT

### **Win-win partnerships**

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Transdev's rich contractual experience makes us well placed to help deliver any city's mobility ambitions. In France, we have been a long time partner to both cities and regions throughout the renaissance of light rail and a pioneer in public private partnerships (PPPs). Innovative consortia in Barcelona and Tenerife, Spain, have delivered signature levels of quality and performance while operating contracts in Norrköping, New Orleans and Dublin have created win-win partnerships with local authorities to the benefit of passengers.

## QUALITY AND SAFETY

### **Continues improvement process**

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Our objective is to deliver service excellence supported by rigorous processes and continuous improvement. In Barcelona, our management system is ISO 9001 and ISO 14001 certified, the safety system OSHAS 18801 certified, and all lines EN13816 certified. Our networks in Grenoble and Dublin are also ISO 14001 certified, and in addition all our operations adhere to our rigorous internal quality, security and environmental processes.

## KNOW HOW

### **International leadership**

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With 25 light rail systems in 8 countries, Transdev's light rail experts have plenty of knowledge and experience to share: from large scale line extensions to preventing fare evasion and conducting passenger safety campaigns. Our "expert.net" knowledge management process enables and strengthens the sharing of best practices and the constant development of our international know-how to the benefit of all our local clients.



## ENVIRONMENTAL INNOVATION

### **More than eco-friendly**

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We work to maximize the environmental virtues of mass transit through innovative partnerships, green depots and eco-management. In Mulhouse, France, a partnership with electricity provider EDF ensures that the tram-train is powered entirely by renewable energy sources. In Tenerife, Spain, our maintenance depot produces 900 kilowatts of solar generated electricity, representing 16% of the system's energy requirements. In Reims, France, with our construction partner we are extending our experiences in underground electrification to preserve historic city center.

## SATISFACTION

### **Living a culture of customer care**

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The quality of the interaction between our employees and customers helps to define the Transdev "light rail experience". Going for Care our proprietary cultural change program, enhances relational skills of employees: in Sydney, Australia, staff commendations increased by 50% and in 2015 overall customer satisfaction reached 95%. Our "Meet the Managers" activities allow passengers to share their daily mobility concerns with senior management in real-time while traveling on the network, complementing feedback captured through our customer care centers and online.

## INTEGRATION

### **Designing and managing a seamless journey**

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Our expertise in the urban environment and in service design makes creating seamless connections easier between bus, bus rapid transit, and light rail services. In collaboration with urban planners and architects, Transdev designs easy-to-navigate transit centers and Park & Ride facilities, complemented by alternative transportation options such as bike and car-sharing. Beyond this, our modeling software generates analysis of travel times and passenger flows, allowing accurate timetable and attribution of financial, technical and human resources to enable a truly multimodal transportation offer.

# Sydney Light Rail PPP: A huge win for customers

Early 2014, Transdev Sydney was shortlisted to tender for the new 12 kilometers Central Business District and South East Light Rail project as the ALTRAC consortium, alongside partners Alstom Transport Australia, Acciona Infrastructure Australia and Capella Capital. The consortium was announced preferred bidder for the Public Private Partnership in October 2014, entrusted with full management of the project: designing, building, financing, operating and maintaining the new light rail system over a period of 15 years.

The new and significantly expanded light rail system will transform public transportation in Sydney with greater capability, reliability and capacity. Customers will have a more positive travel experience with improved reliability and convenient connections between the Central Business District and surrounding suburbs. Sydney on the whole will see improved productivity and access to urban amenities by reduced traffic congestion freeing up road capacity as the bus the city's bus network will change at the same time.

By entering into a long-term PPP agreement, the government transfers significant financial risks over the whole lifecycle of the project to the private sector. On the other hand, the government retains ownership of the infrastructure,

The strength in the proposal presented by Transdev and the ALTRAC consortium is that it addressed the strategic, organizational and technical concerns expressed by the government. After the success of the Inner West Light Rail extension, the need for extra capacity was apparent addressed by proposing coupled 66-meter tram vehicles, extended service hours and special events services. Another important improvement will be to use modern light rail technology, removing for catenary or overhead wiring and providing power from the ground. This new technology is to be operated within a central pedestrian zone on George Street at the heart of Central Business District, significantly improving the aesthetics of the new light rail line.



sets fares and collects revenues, and will ensure safety and security standards are maintained. The new light rail line and supporting facilities will also help deliver direct economic benefits by providing residents with a lower-cost and more environmentally sustainable transportation alternative, and create jobs both during and after construction.

Less congestion, less pollution and better pedestrian safety are only a few of the benefits of the new Sydney light rail service. The new network will also improve intermodality with trains, buses and ferries, and provide residents, workers and visitors to Sydney a more comfortable and enjoyable experience of Australia's leading city.

*"Light rail has been a game changer for the Inner West with around 20,000 passenger journeys every day between Central and Dulwich Hill. It's proven to be one of the most popular forms of public transportation in the area; with customers embracing the smoother and more comfortable journey that light rail delivers. As we move towards construction of the Central Business District and South East Light Rail, it makes sense for the Inner West line to also be under the same operator. This is an important step in terms of broadening network capacity in the future".*

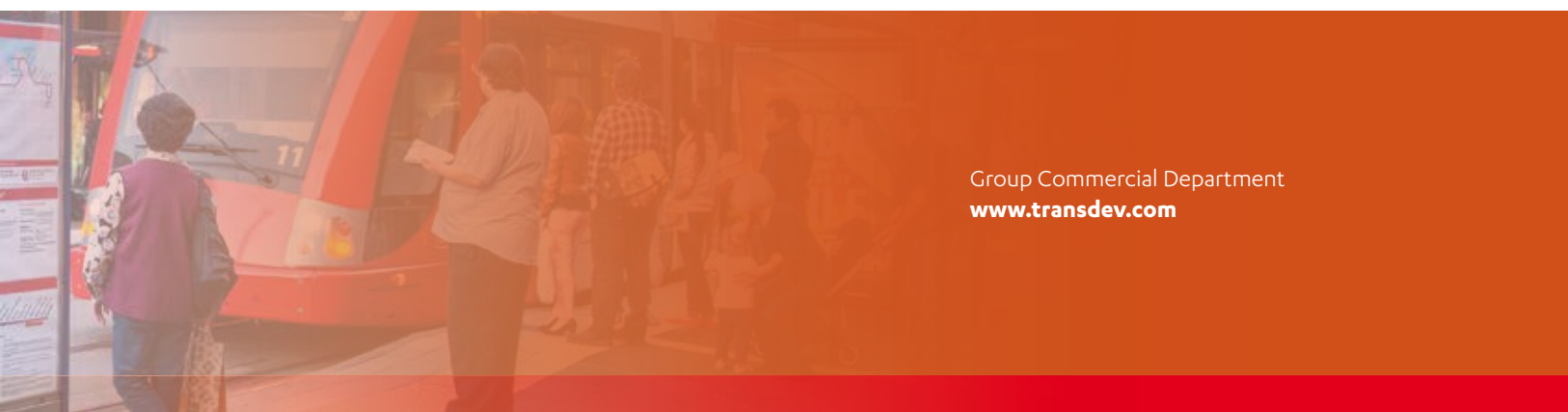
*Minister for Transport & Infrastructure, Andrew Constance MP*

Our ambition :

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*To be the trusted partner of our clients and customers  
by pioneering in mobility.*”









#### CONTRACT FACTS

**TRANSIT AUTHORITY**  
Autoritat del Transport Metropolità de Barcelona (ATM)

**CONCESSION COMPANY**  
Tramvia Metropolità SA (5% Transdev)

**OPERATOR**  
TRAM Operadora Transdev (66%)  
Moventis (34%)

**CONTRACT (Public Private Partnership)**  
BOT (Build, Operate and Transfer)

**CONTRACT START**  
2000

**CONTRACT DURATION**  
25 years from construction completion

**ACTIVITIES MANAGED**  
Network operations  
Maintenance of infrastructure/rolling stock  
Fare evasion control  
Marketing & Communication  
Sales (PTA ticket agents)

#### KEY FIGURES

**SYSTEM**  
2 systems; Trambaix and Trambesòs  
6 lines  
30 km of track  
56 stations

**SERVICES**  
974 departures/weekday

**RIDERSHIP**  
24.5 million passengers/year  
90,000 passengers/weekday

**DISTANCE TRAVELED**  
2.6 million km/year

**VEHICLES**  
Alstom Citadis 302  
41 vehicles

**STAFF**  
205 employees

#### Context

In 2000, ATM, the transit authority of Barcelona, decided to launch two light rail projects under the name TRAM. The goal was to serve the city in different ways:

- > in the South, develop public transportation capacity;
- > in the North, develop an urban and industrial area.

The construction of the two ambitious projects began soon after winning the contract in 2000 and the service was opened to passengers in 2004.

#### Transdev's answer

##### Excellence in managing the project

- > An innovative Build, Operate, Transfer public-private partnership generated €436 million of investment and a consortium of clear complementary expertise.
- > Open and constructive dialogue with partners to ensure passenger-focused infrastructure features and vehicle design.
- > Coordination of services between several operators in the city, providing a unique level of service to passengers, both on our network and during connections.

##### A high level of technical expertise

With 190 crossroads along 29 km of track, Transdev system traffic control expertise allows the light rail to reach the speeds of 18 km/h without jeopardizing car traffic.

##### State of the art Quality Management System

- Barcelona is a fully integrated management system with ISO 9001, ISO 14001, EN 13816 and OHSAS 18001 certifications.
- > Transdev worked with maintenance teams and subcontractors to ensure all elements of the operation achieved international certifications in quality, safety and environmental management.
  - > Daily and monthly reports of key performance indicators in Quality, Safety and Environment are shared within the organization, creating a culture of transparency and performance.

#### Objectives

Developing public transportation ridership is the key objective of the project. The action plan to attract new ridership is based on two goals:

- > provide a credible and reliable system with 95% punctuality or higher;
- > deliver a superior customer experience for passengers.

- > Transdev has conducted a complete environmental audit through which it was able to identify areas of improvement such as the development of a new Energy Efficiency Plan.

##### Friendly, passenger-focused service

- > All TRAM employees receive front-line customer service training.
- > Deployment of Transdev's proprietary "Listen" customer feedback and complaint management system to professionally monitor and efficiently solve areas of dissatisfaction.
- > Extensive engagement with social media channels to shape our latest initiatives and dialogue with the public.

##### Information and educational campaigns

- Creating a safe environment has been a particular focus.
- > Educational programs and special campaigns about antisocial behavior on board and fare evasion.
  - > Close collaboration with regional and local police and communities.
  - > Anti-racism and conflict resolution training for ticket inspectors and safety staff.
  - > Increased technical support and coordination with CCTV.
  - > Automated payments and issuing of fines.

#### RESULTS

- > 2014 customer case resolution time maintained at 24 hours (one business day)
- > +33% of thank-you notes and commendations received during the same period last year
- > From 2010 to 2014 fare evasion has decreased: -37%
- > In 2014 reduced energy consumption by 283,000 kWh and CO<sub>2</sub> emissions by 75 tons



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
Communauté  
d'agglomération du  
Grand Besançon

**OPERATOR**  
Besançon Mobilités,  
a Transdev subsidiary

**ACTIVITIES MANAGED**  
Bus & light rail operations  
Bike-sharing program  
Parking facilities

## KEY FIGURES

59 towns served  
170,000 inhabitants

## SYSTEM

2 light rail lines  
14.5 km of track  
31 stations  
4 trunk bus lines  
17 urban bus lines  
33 interurban bus lines  
5 transit hubs  
6 Park & Rides

## SERVICES

Mon-Sat from 5:00 am  
to 1:00 am, every 5 min  
during peak-hours  
Sunday and holidays  
from 5:30 am to 1:00 am

## RIDERSHIP

50,000 passengers/day

## VEHICLES

19 CAF light rail vehicles  
140 buses  
120 coaches

## STAFF

520 employees  
(light rail & bus)

## Context

The Grand Besançon area has developed an ambitious mobility policy which contains long-term planning and organization of travel, traffic and parking. The light rail service has been part of this vision since the transit program's inception. For a long time, Besançon transportation system has been one of the most successful ones in France; the need for modernization and revitalization pushed the authorities to invest in a light rail system rather than in BRT.

## Transdev's answer

To support the Grand Besançon area in its aspiration for improved and sustainable mobility by partnering and provide needed assistance to:

- > deploy a completely new ticketing system;
- > introduce a Transportation Management System in spring 2014;
- > provide network redesign;
- > launch the light rail services at the end of August 2014.

## A hierarchical transit system

Besançon Mobilités has reorganized the Ginko transit network with new bus & light rail services to fulfill its commitment to deliver high quality service to its customers. The key strategies included creating a tiered network, improve travel time, and better connectivity with regional rail services.

- > Two light rail lines, complemented by four new main bus lines.
- > An optimized network of urban buses at the heart of the city for increased capacity, and frequency.
- > 17 secondary bus lines for a greater service area.
- > Six new Park & Ride facilities to encourage inhabitants and visitors not to driver their cars into the city center.

## New services, better information

The ginko.voyage website is a valuable and indispensable tool for travel planning. This website

## Objectives

- > Build a sustainable and cost-effective transportation system, by choosing a medium capacity light rail vehicle suitable for the current and adjustable to future requirements.
- > Revitalizing the eastern part of the city by improving connections with the city center and surrounding areas.
- > Encourage modal shift from private cars toward public transportation.
- > Propose a Transportation Service Plan which contains direct feeder services, transit network optimization and improved service proximity.

offers ever more services to customers, thanks to its personalized information system:

- > real-time timetables;
- > preferred routes;
- > traffic and disruption alert information.

And in the near future: route calculator, interactive map and a mobile version with enabled geolocation.

## Professional expertise based on sharing of best practices

Transamo, Transdev and Besançon Mobilités assembled its experts and experiences to the benefit of the Grand Besançon area in the implementation, designing, project management and integration of the commissioning and operational requirements of a light rail system:

- > advising the project manager, designing and monitoring the construction jointly with the construction manager; organizing and adapting the company services in order to take over responsibility of the new system;
- > managing the development of technical support systems created by the operator: OAS, SIV, RMS, video, audio, PCC, radio, etc.
- > monitoring the ticketing project.

The Besançon Mobilités teams have also had the benefit of fruitful exchanges with the Transdev technical operations teams at Le Havre, Nantes, Mulhouse, Reims, Nancy and Saint-Étienne.

## RESULTS

- > 6 million passengers during the first four months of operation
- > +20% ridership compared to 2013



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
Reims Métropole

**OPERATOR**  
CITURA

**CONCESSION OPERATOR**  
MARS Consortium  
(Mobility Agglomeration Reims)  
30% Caisse des Dépôts  
17% Transdev  
17% Alstom Transport  
17% Bouygues  
2% Caisse d'Épargne  
2% SNC Lavalin

**BEGINNING OF CONTRACT**  
April 2011

**DURATION OF CONTRACT**  
30 years

## KEY FIGURES

**16 towns served**  
**230,000 inhabitants**

**SYSTEM**  
2 lines  
11.2 km of track  
1.9 km without catenary  
23 stops  
3 Park & Rides

**RIDERSHIP**  
45,000 passengers/day  
16.5 million passengers/year

**DISTANCE TRAVELED**  
3,300 km/day

**VEHICLES**  
18 trains  
Alstom Citadis 302  
(205 passengers capacity)

**STAFF**  
570 employees,  
including 421 drivers

## Context

In the historic city of Reims located in the famous Champagne region, the local community sought to achieve its mobility vision through a complete reinvention of the public transit system and the creation of two integrated light rail lines. A Public-Private Partnership was entrusted develop the project, involving the local community and respecting the city's architectural and cultural heritage.

## Transdev's answer

### The MARS consortium

Responsible for the project's investment, construction, operation and maintenance, this innovative urban Public-Private Partnership achieved:

- > speedy construction: new engineering techniques enabled installation of up to 300 m of track per day;
- > respect for the local urban design: next generation buried catenaries were used for the 1.9 km in the area of the Cathedral and other important architectural and historic sites;
- > transformation of the urban landscape: more than 100,000 m<sup>2</sup> of lawn and 2,500 trees were planted; building facades were renovated along 11 km of the tracks.

### Involving the community

- > The city inhabitants were invited to give input by providing their opinion, not only on the light rail vehicle design, but also on the new transit system's color scheme.
- > An Alstom vehicle design inspired by the famous region's heritage, with a front resembling the shape of a champagne flute, won the hard-fought contest.
- > More than 85% of 7,300 voters chose the strong, united colors of designer Ruedi Baur.

## Objectives

- > Design, build and operate a brand new tramway in the city of Reims, integrated into the existing network and capable of satisfying current and future mobility needs.
- > Propose attractive and innovative features from the outset in order to strongly increase tramway use.

### Boosting mobility and intermodality

- > A completely reinvented network: routes and schedules are designed to optimize intermodality, with particular attention to connections with the regional and national rail network, with two high speed stations and four local train stations served.
- > Centralized Operational Control Center (OCC): coordination of the entire transit system from a modern technical center.
- > Passenger information: smart route planners and real-time information regarding service disruptions.
- > Park & Ride facilities: three sites with 431 places and free parking for annual transit pass holders. Occasional users benefit from unlimited parking and bus / light rail round-trip tickets at reduced prices.

### Integrated ticketing and services

- > The "Grand R" card was launched at the opening of the transit system to encourage multimodality. This unique, individual contactless card can be recharged at 139 self-service stations and sales outlets and on the Internet through a USB-connected card reader.
- > The Citevia prepaid credit card, testes started in May 2011 in partnership with the Caisse d'Épargne, allows its more than one thousand holders to recharge their tickets at 12 ATMs.

## RESULTS

- > 35% of Reims' population lives within 500 meters of a tramway station
- > In 2014, the whole CITURA network was FACE QSE certified
- > 143 versatile tram and bus drivers (driving each mode half of the month)

# Lyon – FRANCE

Rhôneexpress – An innovative direct airport connection contributing to regional growth



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
Syndicat mixte des transports pour le Rhône et l'agglomération lyonnaise (SYTRAL)

**OPERATOR**  
Transdev

**CONSORTIUM**  
28% Transdev  
35% VINCI  
37% Caisse des Dépôts

**CONTRACT START**  
August 2010

**CONTRACT DURATION**  
30 years

**ACTIVITIES MANAGED**  
Project Development  
Operations and Maintenance  
Customer Care  
Ticketing  
Marketing & Sales

## KEY FIGURES

**SYSTEM**  
22 km of track  
4 stations

**SERVICES**  
365 days/year  
from 4:25 am to midnight  
Every 15 min at peak  
hours from 6:00 am to  
9:00 pm  
Every 30 min off-peak

**RIDERSHIP**  
3,300 passengers/day  
1.2 million passengers/year

**VEHICLES**  
6 Stadler Tango capable  
of up to 100 km/h

**STAFF**  
80 employees

## Context

Lyon, a city of 1.5 million inhabitants located at the heart of a region of high economic and tourism activity, wanted to improve the image and efficiency of the connection to its Saint-Exupéry airport. It was also vital to alleviate pressure on the main Lyon train station and improve access to national and regional rail links through the high-speed station at the airport.

## Transdev's answer

### An inventive transportation solution

The first direct express rail airport transfer service in France, Rhôneexpress is an Express Tram-Train able to reach high commercial speeds (up to 100 km/h); but also travel on the existing urban light rail network to reach the heart of the city. Of the 22 km long line, only 7 km is new construction.

The tram-train shares the same operations and control center as the urban light rail system.

### Integrated coordination of traffic

With tracks shared by both the tram-train and urban light rail transit, special segments of the line have been devised to allow Rhôneexpress priority over the urban light rail service which stops more frequently. A shared traffic management system and operational control center was developed to:

- > coordinate departures of both services;
- > manage three sidetrack sections in each direction to overtake the urban light rail. The shared operational control center and traffic management system has resulted in guaranteed transit time and reduced infrastructure costs.

### Comfort and convenience

Customer focus has been applied at each stage of the project.

- > Departures from 4:25 am until midnight, with services every 15 minutes for the majority of timetabled hours. Last departure is guaranteed, even in case of airline delays.
- > Passengers have quick easy access to high-speed rail, bus, plane, metro and light rail services from the Rhôneexpress stops.

## Objectives

- > Identify a flexible and inventive public-private partnership to deliver the project.
- > Create a fast, attractive and efficient transfer solution with the tram-train.
- > Deliver Transdev's mobility expertise in the conception, construction and operation of the project.

> Tram-train vehicles have been especially designed with the airport traveler in mind, including comfortable seating, electricity outlets for chargers and laptop computers, extra luggage space and overhead racks and tables.

> Tickets can be purchased on-board, at self-service kiosks at stations, online or through a multitude of partners.

> A range of services is offered on board trains, including free wifi access, taxi reservations, digital media, magazines, new literature, events and the Lyon City Card.

### Ongoing commitment to a culture of service

> Rhôneexpress is permanently staffed on board with a customer care and sales agent to provide information and service.

> All employees were initially trained in 2010 in Transdev's international customer service program. In 2015 all staff will be engaged in the new service culture program, Going for Care.

> The Transdev proprietary customer feedback and complaint management system "Listen," has been applied across the operation to improve the responsiveness and level of customer care to passengers.

### Real time passenger information

> Information screens on board give passengers up to the minute details on departures/arrivals for high speed train links and airlines, as well as infotainment such as news and weather.

> An SMS alert system allows customers to be notified in real time of any traffic problems and disruptions.

## RESULTS

- > In 2014, 96% customer satisfaction rate
- > 49% of passengers combine using the tram-train service with the urban public transit system
- > 45% are business travelers
- > Average resolution time of customer case has decreased by 55%, from 9,23 days in 2013 to 4,28 days in 2015

# Nantes – FRANCE

TAN – A showcase  
of sustainable mobility



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
Nantes Métropole

**OPERATOR**  
SEMITAN  
a mixed equity company

**CONTRACT DURATION**  
7 years

**CONTRACT START**  
2010 (renewal)

**ACTIVITIES**  
BRT – BusWay®  
Tram  
Bus  
Ferry  
Park & Rides

## KEY FIGURES

**593 000 inhabitants served**  
**523 km<sup>2</sup>**

**SYSTEM**  
3 light rail lines  
43 km of track  
82 stations  
48 Park & Rides  
6,700 spaces

**RIDERSHIP**  
285,150 passengers/day  
71 million passengers/year

**DISTANCE TRAVELED**  
5.3 million km/year

**VEHICLES**  
91 vehicles:  
46 Alstom,  
33 Bombardier  
and 12 CAF

**STAFF**  
1,793 employees  
(light rail & bus)

## Context

Regularly quoted as being one of the nicest cities in France, Nantes is also a pioneer in public transit development. Located at the mouth of the Loire River in the western part of the country, it was the first city to reintroduce light rail in France in 1985. Since then it has constantly innovated facing the numerous challenges to redefine urban mobility. The light rail system now represents over 43 km across three lines upon which a multimodal network with easy connections to bus, BRT, ferry and bicycle services have been built.

## Transdev's answer

### Long-term vision and partner

Transdev has worked with the Nantes Métropole for over 25 years, providing expertise and continuous improvements to create an optimized network to meet the mobility needs of the community. Several major extension and infrastructure projects have been successfully completed.

As a result of this fruitful partnership based on trust and shared vision of modern urban mobility the three light rail lines were successfully NF-certified (French quality certification label) for their reliability, punctuality and customer service.

### Promoting intermodality around light rail

> Simplifying fares and transactions: all transportation modes of the city of Nantes are accessible with a single seamless ticket. To support this, Transdev has developed a range of targeted online services providing customers with access to personalized information. To date there are 86,000 annual

## Objectives

- > Make public transportation an attractive integrated service incorporating new lines and infrastructure, creating synergies with all possible transit modes and partners.
- > Aim for a 50-50 modal share between private cars and public transportation.
- > Reduce the environmental footprint of the transportation services in the city.

pass holders and 54,500 subscribers to the online personalized mobility space.

- > Engaging companies and their employees to reduce use of private cars is a key target. By developing adapted services online, attractively priced local businesses have become an ally in creating mobility change. Our portal dedicated to companies, "Espace Pro," allows companies to manage the payment and distribution of annual passes as well as personalized mobility information for visitors. Almost 400 businesses have enrolled to an "employee mobility plan" which represents 104,000 people (25% of the workforce in the Nantes area).
- > Complementing the development of the light rail system, Park & Ride services have been an important solution to remove traffic congestion from the city center. Nantes has 42 Park & Ride facilities, totaling 6,500 spaces that are integrated with the transit network – conveniently located along major arteries and beltway exits in direct connection with all three light rail lines.

## RESULTS

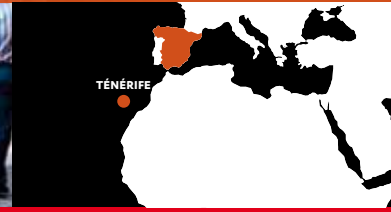
- > Light Rail modal share reached 10% in 2013
- > 218 journeys per inhabitant a year, the second highest in France
- > Civitas\* Awards: "European Green Capital" of the year – 2013
- > All light rail lines have the NF quality certification label by AFRNOR

\*CIVITAS: the European Union initiative to promote cleaner, better, more sustainable and energy efficient urban transport strategies in European cities

# Tenerife – SPAIN

## Light Rail System

A unique project and environment



### CONTRACT FACTS

#### TRANSIT AUTHORITY

Cabildo Insular de Tenerife

#### OPERATOR

Metrotenerife

#### CONSORTIUM

87% Cabildo  
13% Tenemetro

#### CONTRACT START

March 2003

#### CONTRACT DURATION

50 years

### KEY FIGURES

#### SYSTEM

2 lines:

##### Line 1

12.5 km of track,  
21 stations

##### Line 2

3.8 km of track, 6 stations

#### PROJECTS

Line 1 and 2 extension projects  
New Line 3

#### RIDERSHIP

50,000 passengers/day  
13 million passengers/year

#### DISTANCE TRAVELED

1.5 million km/year

#### VEHICLES

26 vehicles  
Alstom Citadis 302  
(200 passenger capacity)

#### STAFF

178 employees,  
including 68 drivers

## Context

Located in the volcanic Canary Islands, the establishment of a light rail system presented a range of challenges:

- > design a network in a very constrained environment: average continuous slope of 5%, narrow streets;
- > tackle a growing population coupled with an ever-increasing number of private cars across the city in order to avoid government expectation of gridlock on the metropolitan area's roads;
- > create minimum disturbance to the local community.

## Transdev's answer

### Deliver a light rail concept and infrastructure in response to a unique landscape

- > Extensive feasibility study phases and population mapping to ensure the most efficient network which ensured that 58% of the metropolitan area population of 380,000 inhabitants live within 500 m of a station.
- > Plan and design tracks, platforms, vehicles and electrical infrastructure over 5-9% inclines.
- > Transdev's subsidiary, Transdata worked throughout the conception and construction phases to provide an operational management system and IT backbone fit for the highest standards of operational quality.

### Respect Tenerife's precious environment

- > With an 880 kW solar plant, Tenerife's light rail maintenance depot produces up to 1.4 MWh of electricity per year, representing 16% of the system's energy requirements.
- > To conserve energy, regenerative brake technology saves 34% more than conventional braking systems.
- > First Spanish public transit operator who contracted directly with suppliers on the open electric market resulting in cost savings of 10-15% of their consumption.

### Drive modal shift and relieve the city from congestion

- > At peak hour frequency, from 7:00 am to 3:00 pm, trams run every 5 minutes across the double track lines.

## Objectives

- > Master technical difficulties of up to 8.5% gradients in construction and operation.
- > Drive modal share and transform mobility patterns.
- > Demonstrate reliability and quality for the tramway project, the very first step of an ambitious mobility and rail development plan.

- > All-night Friday and Saturday night service has proved popular.

- > Real-time passenger information, clear multi-lingual signage and instructions, adapted to assist everyone to take the light rail.

- > Extensive redesigning of urban space has created new pedestrian areas.

### A passenger friendly service

- > Mobile Payment is available from 2013. The App "Vía-Móvil" is currently used by 15% of total passengers.
- > Clear audio information traces the stations along the route and is also available on screens.
- > The system is completely accessible for people with reduced mobility.
- > The low floored vehicles and stations are 100% accessible.
- > Provide a greater capacity (double-connected trams) 24hr service and crowd management during the annual Carnival (during 10 days in February/ March each year) to facilitate the mobility of the large crowds.

### Innovative safety solutions

- > Designed and installed SIMOVE on all LRT vehicles (an onboard speed monitoring system) which engages the emergency break if the correct speed is not kept or reestablished.

## RESULTS

- > Line 1 transported 50,000 passengers per day during its first days of operation, two years ahead of the original objectives.
- > Over 10,000 car journeys eliminated from the metropolitan area in the first year of operation; approximately 13 million trips annually.
- > 30% of trips made by light rail were previously done by car or on foot.
- > First and unique Spanish operator with the AENOR universal accessibility certificate, since 2011 until now.
- > In 2013, despite the financial crisis, increased ridership with 2.5% over the previous year.



# Grenoble – FRANCE

TAG

Driven by quality



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
Syndicat Mixte des Transports en Commun de l'Agglomération Grenobloise (SMTC)

**OPERATOR**  
SEMITAG,  
a mixed equity company

**CONTRACT START**  
2013 (renewal)

**CONTRACT DURATION**  
8 years

**NETWORK**  
Transport Agglomération Grenobloise (TAG)

## KEY FIGURES

49 districts served  
450,000 inhabitants  
541 km<sup>2</sup>

**SYSTEM**  
5 light rail lines  
46 bus lines  
18 Park & Rides

**RIDERSHIP**  
78 million passengers/year  
214,000 passengers/day

**DISTANCE TRAVELED**  
16.3 million km/year

**VEHICLES**  
88 vehicles  
35 Citadis  
(270 passenger capacity)  
54 TFS vehicles  
(170 passenger capacity)

**STAFF (light rail & bus)**  
1,460 employees,  
including 818 drivers

## Context

Located at the foot of the Alps, the city and wider region of Grenoble has demonstrated a strong political will to protect the environment. Concrete actions include a "Local Climate Plan," adherence to "Agenda 21" and signing of the UITP Sustainable Development Charter.

Changes in urban sprawl and an aging population have accelerated the development of entirely new and extended light rail lines to provide a high-quality alternative to the private vehicles and reduce urban congestion.

## Transdev's answer

Transdev has since 1975 through SEMITAG combined the local operational skills with international expertise and experiences to the benefit of the TAG transit system.

### 2013 - 2020: A new ambition

In 2013, the SMTC renewed its confidence in Transdev. The goal with the new contract is to create a new momentum for the TAG system which is structured around the following dimensions.

### An ambitious and continued development of the light rail system

Since the revival of light rail transit in the urban landscape of Grenoble, the TAG system has considerably expanded between 2000 and 2010 by the introduction and development of four light rail lines (A, B, C and D). 2015 is a new milestone with the inauguration of the last phase of a 5<sup>th</sup> line, line E, adding and additional capacity of 45,000 passengers per day.

### An intermodal and attractive transit system

Along with the inauguration of Line E, the bus system has been drastically reorganized: the names,

## Objectives

- > Provide well-developed light rail system which strengthens and complements the bus network.
- > Increase the accessibility of the network.
- > Apply operational expertise and certified management techniques to ensure the highest quality experience for passengers.

timetables, routes, and branding of almost 50 lines have been changed.

The system also includes the following complementary services: three transit stores, 18 Park & Rides and paratransit operations.

### A modernized customer service function

To launch a post-payment solution and an NFC ticket validation function.

### On the forefront of accessibility

TAG has for the last 27 years been committed to the idea of a fully accessible transit system: 99% of the system is today accessible to persons with reduced mobility. TAG's work has been recognized internationally: 2<sup>nd</sup> place "Access City Award" by the European Commission, and 1<sup>st</sup> place in the Accessibility Barometer by the French Disabled Persons Association.

### Ambitious ridership targets

Transdev has made a strong commitment by setting the goal for increasing ridership from 80 million/year to 100 million/year by 2020.

## RESULTS

- > The system is ISO 9001, 14001 and OHSAS 18001 certified, and all five lines are "NF" (French quality label) certified for their adherence to reliability, punctuality, cleanliness and customer service criteria
- > Customer satisfaction rate of 98% in 2013
- > +4,8% ridership increase in 2014

# Mulhouse – FRANCE

Soléa – Reducing congestion and stimulating growth



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
M2A (Mulhouse Alsace Agglomération)  
Région Alsace

**OPERATOR**  
Soléa,  
a mixed equity company

**ACTIVITIES MANAGED**  
Tram-train  
Urban bus and light rail network  
Transport On Demand  
Paratransit

## KEY FIGURES

34 towns served  
268,000 inhabitants

**SYSTEM**  
1 tram-train line  
22 km of track  
18 stations

**SERVICES**  
70 round trips/day

**RIDERSHIP**  
12,000 passengers/week

**DISTANCE TRAVELED**  
500,000 km/year

**VEHICLES**  
12 tram-trains Avanto U  
25500 capable of up to  
100 km/h and carrying  
230 passengers

**STAFF (tram-train)**  
27 employees  
including 15 drivers

## Context

The Thur Valley is one of the key axes of Southern Alsace, populated with numerous and dispersed villages and towns. It is heavily congested, particularly with commuters entering or returning from Mulhouse, an estimated 80% of road traffic is local.

Authorities set out ambitions to deploy an efficient and effective transportation solution to link and rejuvenate the communities, businesses and services along the valley while considerably reducing congestion and emissions.

## Transdev's answer

### The first interconnected Tram-Train in France

A range of stakeholders contributed to the success of the project's numerous technical and contractual innovations. Under the leadership of the regional local authorities, Transdev teams worked closely with partners such as the national rail operator and infrastructure companies, SNCF and RFF, energy company EDF and the technical experts of our upstream consulting and engineering firm, Transamo.

> Already responsible for the technical development and operational success of the urban light rail system, Transamo worked to define the design, operational procedures and integration of urban and national rail infrastructure.

> Soléa training and operational staff teamed up with the French railway counterparts to ensure drivers became expert in both heavy and urban rail procedures and shared operational supervision for the service from two control centers.

> Partnered with EDF in the "Equilibre" energy program across the entire tram and tram-train network in order to use only energy produced from 100% renewable sources.

## Objectives

- > Deliver an integrated and efficient transportation corridor with optimized intermodal connections linking residential, commercial and areas of natural beauty.
- > Optimize use of pre-existing rail networks to reduce costs and introduce new synergies in pricing, operations and energy.
- > Reduce congestion and improve environmental performance.

### Developing mobility

The tram-train efficiently uses only four additional kilometers of track, yet manages to connect to a range of communities, including 6,500 secondary school students at one end of Thann, 6,000 university students and nearly 700 shops at the other end in downtown. Developments include:

- > 600 new parking spaces and secured parking facilities for 250 bicycles;
- > 11 of the 18 stops connect directly to the light rail network;
- > launch of a 3<sup>rd</sup> tram line and reorganization of three bus lines to strengthen transfers to the urban network;
- > connections to regional, national and high-speed rail network.

### Attractive and integrated ticketing

A unique system has been designed to allow all tram-train passengers to complete their journey on the urban network with the same ticket.

The integrated ticket products ranging from single one-way tickets to monthly passes are available from:

- > automatic ticket vending machines;
- > Soléa ticket agencies;
- > network of external sales representatives.

## RESULTS

- > An estimated 5,200 tons of CO<sub>2</sub> avoided every year
- > A 25% reduction in commuting time for passengers traveling from one end of the valley to the other





# Rouen – FRANCE

TCAR – A pioneer in light rail construction and management



## CONTRACT FACTS

**TRANSIT AUTHORITY**  
Métropole Rouen  
Normandie

**OPERATOR**  
TCAR (a subsidiary  
of Transdev)

**ACTIVITIES MANAGED**  
Financing and construction  
of the light rail  
Management of the TCAR  
system (light rail, BRT, bus)  
Marketing &  
Communication  
Ticket sales & fare evasion

**CONTRACT START**  
1994

**CONTRACT DURATION**  
30 years

## KEY FIGURES

45 communities served  
413,000 inhabitants  
387 km<sup>2</sup>

**SYSTEM**  
2 light rail lines with  
1 shared trunk line  
18.3 km with 3.2 km  
of shared trunk line,  
with 1.7 km of tunnel  
and 31 stations  
(including 5 underground)

**SERVICE**  
From 4:40 am to 11:10 pm

**AVERAGE FREQUENCY**  
3 min at rush hour,  
4 min at peak hours  
on the shared trunk line

**RIDERSHIP**  
72,000 passengers/day  
(including fare evaders)  
17.5 million passengers/year

**DISTANCE TRAVELED**  
1.47 million km/year

**VEHICLES**  
Alstom Citadis 402  
(279 passenger capacity)

**STAFF**  
1,177 employees,  
including 706 drivers

## Context

The transit system of Rouen was by the late 1980s saturated and the city needed to create a more efficient mode of transportation to better serve downtown and the area commonly known as “the left bank”. In 1990, the Greater Rouen community launched a tender to build and finance a “metro style” light rail system and for the operation of its integrated public transit network. The contract was awarded to the concession holder SOMETRAR, which outsourced the operation to TCAR.

## Transdev’s answer

### A strong commitment over a period of 30 years

Transdev fully owns the concession-holder company and commits to a high level of annual ridership.

### Ongoing support for a fully integrated and complex system

- > Consistency: a single control center manages three modes of transportation (light rail, BRT and buses), involving totally different technologies.
- > Frequency: introduction of 5 BRT lines in September 2014, called “FAST”. FAST is a service with higher frequency (on average a bus every 8 minutes) on partly dedicated lanes. It provides more reliability and lowered travel times.
- > Reliability: with more than two kilometers of underground routes, Transdev offers professionalism and commits to keep a high level of technical expertise thanks to a three-week long training for all new drivers.

### Continuous improvement of service

Transdev is proactive about delivering the best customer experience:

- > improved passenger capacity by studying new vehicle design and onboard layout (with the

## Objectives

- > Manage the light rail system in integration with other transit services such as BRT, buses, and paratransit services for customers with special needs.
- > Provide a high performant transit network by optimizing connections, managing service disruptions and passenger information.
- > Maintain the light rail system and its stations.
- > Advise the Transit Authority about rolling stock replacement and major infrastructure maintenance.
- > Manage the marketing operations and satisfaction policy.

- introduction of the new Citadis 402, capacity increased from 60,000/day to 100,000/day);
- > optimized connections between the light rail system and the regional trains operated by the French National Railway;
- > introduced a contactless integrated ticketing system, built on a simplified fare structure;
- > in 2014, launched “Going for Care”, Transdev’s proprietary program designed to create a customer service culture with focus on positive customer experiences and increasing customer satisfaction. The program includes culture building, training and change management workshops and initiatives.

### Stay tuned

TCAR has been innovative in providing a cutting-edge passenger website with personalized space for renewing subscriptions and access to loyalty program. As of 2010, it launched a set of new functions on its website: a web shop, real-time trip planner, dynamic mapping and more.

- > In 2014: 23,500 purchases were been made online (+12% from previous year) and 422,000 email alerts and 230,000 SMS alerts were sent to subscribers. TCAR also reached 4,052 followers on Facebook and 2,635 on Twitter.

## RESULTS

- > From 2008 to 2014, public transportation ridership increased 22%
- > Light rail drivers received a customer satisfaction score of 8/10 for their driving skills and their ability to handle unexpected situations
- > More than 4.7 million visitors for [www.reseau-astuce.fr](http://www.reseau-astuce.fr)

# Sydney – AUSTRALIA

## Sydney Light Rail Network

A future proofing transit system



### CONTRACT FACTS

**TRANSIT AUTHORITY**  
Transport for New South Wales (TfNSW)

**OPERATOR**  
Transdev Sydney (part of ALTRAC consortium)

**CONTRACT START**  
Originally 1999, in 2015 renewal and extension through PPP (Public Private Partnership)

**CONTRACT DURATION**  
19 years

### KEY FIGURES

#### SYSTEM

Inner West Line  
12.8 km of track  
23 stops  
1 depot + stabling area  
1 extra stabling area

Central & South East Line  
(estimated opening 2019)  
11.8 km of track  
19 stops  
1 operation + stabling area  
1 heavy maintenance area  
1.5 km wire free section

#### SERVICE

7 days a week

#### OPERATING TIMES

Between Central and Dulwich Hill:  
- Sunday to Thursday  
from 6:00 am to 11:00 pm  
- Fridays and Saturdays  
from 6:00 am to midnight  
Frequency 10-15 min  
Central to The Star:  
- 24 hours a day  
- Overnight frequency  
every 30 min

#### RIDERSHIP

6.1 million passengers/year

#### FLEET

12 new Urbos-3 vehicles

#### STAFF

130 employees

### Context

The NSW Long Term Transportation Master Plan is the NSW Government's strategy to address Sydney's transportation challenges because of growth in population, mobility demand, employment and economy. The Master Plan is supported by a series of integrated transportation delivery plans and regional strategies outlining Sydney's light rail future. It is a four stage process to deliver new and improved light rail services in Sydney; Stage 1: Service integration & improvements, Stage 2: Modernize and extend the existing network, Stage 3: Deliver new services, and Stage 4: Make longer term investigations.

### Transdev's answer

Transdev Sydney proudly operates Sydney light rail services since 1999, providing turn-up-and-go frequency based transit along a dedicated corridor. The Inner West light rail line is commercially focused offering safe, reliable, convenient and comfortable transit conditions. The new Central & South East line planned for 2019 will deliver frequent, fast, reliable services between the Central Business District and important destinations in the south east.

#### A 24-hour Operational Control Center for high availability

A real-time network monitoring through SCADA allows safe regulation together with:

- > continuous voice communications between drivers and the active duty controller (24-hour operation);
- > CCTV cameras at all stops and onboard all vehicles;
- > a live, internally developed, Rail Events Database recording all incidents and hazards for corrective action.

#### High comfort for a convenient journey

A fleet of 12 light rail vehicles with a new generation of upscale features & higher capacity:

- > 12 new Urbos-3 light rail vehicles ordered by the NSW Government from CAF (total capacity 206: 74 seated, 132 standing, two dedicated wheelchair spaces, low floor entry, fully integrated PISPASPA passenger information system).

#### Routine & preventative maintenance for uncompromising safety

- > Regular track inspections by engineers and maintenance technicians.
- > Technical Maintenance Plans developed for core light rail infrastructure assets.

### Objectives

- > Deliver a world-class, reliable and sustainable public transit system.
- > Address Sydney's congestion issues due to growing population pressures.
- > Increase public transit ridership by making it a desirable alternative.
- > Deliver direct economic benefits to Sydney and the New South Wales economy.

- > Biannual shutdowns for preventative and routine track work and maintenance.
- > Subcontracted rolling stock maintenance from Alstom.

#### Accessibility by all means; a pleasant customer experience for all

- > Improved customer information with dedicated passenger information displays real time applications.
- > Opal smartcard enabled since December 2014 for easy intermodal transfers and a fast new payment option.
- > Proactive Community & Customer Engagement programs.

#### Acknowledged high standards

- > Adherence to Rail Safety (Adoption of National Law) Act 2012 No 82 and the Rail Safety National Regulations 2012 & Rail Safety Regulation 2012 No 662, and Work Health and Safety Act 2011 & Work Health and Safety Regulations 2011.
- > Office of the National Rail Safety Regulator (ONRSR) accreditation.
- > ISO 14001 accreditation BSI certification.

#### Future developments

The Central and South East Light Rail project will transform Sydney and cement light rail as a major and growing contributor to the NSW transit landscape. It will provide better journeys for customers with a modern and accessible fleet and a focus on developing seamless interchange points supported by enhanced customer information and way-finding. It will also assist in reducing Sydney's congestion issues, revitalizing the city and deliver an estimated economic benefit of more than AUD\$4 billion to the NSW economy.

### RESULTS

- > Managed a 40% ridership increase with the opening of the Inner West Line extension in March 2014
- > In 2014 92% overall customer satisfaction, 97% satisfaction for Safety/Security, 95% for Customer Service and 94% for Accessibility
- > Fare evasion rate kept to a low 6.5% in 2014
- > Only 10.3 customer complaints per 100,000 journeys in 2014-15 while ridership increased by 58%



#### CONTRACT FACTS

**TRANSIT AUTHORITY**  
Railway Procurement Agency (RPA)

**OPERATOR**  
Transdev Ireland

**CONTRACT START**  
2004, renewed in 2014

**CONTRACT DURATION**  
5 years

#### KEY FIGURES

##### SYSTEM

2 lines  
37 km of track  
54 stops  
6 Park & Rides

##### SERVICES

783 departures/weekday

##### RIDERSHIP

88,000 passengers/day  
32.4 million passengers/year

##### DISTANCE TRAVELED

4 million km/year

##### VEHICLES

66 Alstom Citadis

##### STAFF

300 employees,  
including 170 drivers

## Context

In 1994, within the framework of its urban development plan, the City of Dublin decided to implement – in addition to its existing transit system – a light rail system, for quick and environmentally friendly transportation with high customer capacity to meet rush-hour demand. To build the light rail system, a dedicated agency, RPA, was set up to manage the project. In 2002, Transdev won the contract to operate the light rail lines and began services in 2004. In 2014 following a global tender process the contract was renewed for a further five years.

## Transdev's answer

### A win-win partnership

Transdev supports and works in partnership with RPA, sharing global best-practices and building an open dialogue with Luas stakeholders and employee representative bodies.

### A high level of performance

- > Operations are ISO 9001 and ISO 14001 certified for quality and environmental management. Business Working Responsibly Mark certifies the company's responsible and sustainable practices.
- > The management team is focused on security, driver availability, service disruption management and optimization of timetables and services.
- > Levels of fare evasion are monitored and assessed monthly to identify proactive prevention measures.

### A customer care approach

- > Regular "Meet the Managers" initiatives to solicit customer feedback on the platform allow us to listen to passengers' expectations and supplement continued customer satisfaction surveys and

## Objectives

- Transdev has full operational responsibility, with the goal of providing service excellence:
- > manage and measure improvements in availability, on-time performance and passenger satisfaction;
  - > provide ongoing improvements in fare evasion control;
  - > contribute to improving the image of public transportation in Ireland.

feedback.

- > LUAS benefited from Transdev's exclusive programs enabling high service quality: all employees receive Transdev's international customer care training, deployment of "Listen", Transdev's customer feedback and request program.

### Continued development

- > The new Luas Operating Contract, awarded in 2014, means a new era for Luas – our goal is to Transform Dublin Together, achieving the very highest levels of quality and delivery for RPA and the Authority by aspiring to create the "Perfect Journey" experience for our passengers every day.
- > Digital technology has transformed the way that people obtain information, communicate and interact during recent years. We are well-placed to leverage the potential to use the digital opportunity to reach more people better, faster and in a more meaningful and targeted way to build Luas' reputation still further and support RPA and the authority in achieving passenger growth.

## RESULTS

- > In 2014, 92% of passengers rate the Luas journey experience positively
- > 97.55% average reliability on both Luas lines (2007- 2014)
- > Between 2009 and 2013, whilst the volume of customer correspondence received tripled, our response time reduced by five times
- > 2014 - Achieving the Business Working Responsibly mark (97% score) by Business in the Community Ireland organization
- > 2014 - Awarded Best Company in Ireland by the French Ireland Chamber of Commerce

# Hong Kong – CHINA

## Hong Kong Tramways

A rejuvenated mobility icon



### CONTRACT FACTS

**TRANSIT AUTHORITY**  
Hong Kong SAR /  
Transport Department

**OPERATOR/OWNER**  
Hong Kong Tramways  
Ltd (a member of RATP  
Transdev Asia)

### KEY FIGURES

Population of 7.1 million  
Density of 6,650  
inhabitants/km<sup>2</sup>

#### SYSTEM

1 line, 16km  
6 terminal stations  
6 routes

#### DISTANCE TRAVELED

6.1 million km/year

#### RIDERSHIP

200,000 passengers/day  
73 million passengers/year

#### VEHICLES

163 double-decker trams  
including 2 antique  
'heritage' trams

#### STAFF

630 employees,  
including 325 drivers

## Context

The only double-decker light rail system in operation in the world, Hong Kong Tramways is a veritable icon of Hong Kong since its inception in 1904. Over 110 years later, the system retains a special place in a city able to boast an outstanding transportation infrastructure. Since assuming operational management in April 2009, the focus has been on addressing much needed operational and technical improvements, customer services and reviving the aging rolling stock.

## Transdev's answer

### An in-depth diagnosis

An extensive and well publicized satisfaction survey, community stakeholder meetings and the latest in origin/destination analysis were just some of the techniques used. In collaboration with those who ride, live and work alongside the system, a shared "wish list" of improvements has provided the backbone of the company's strategy.

### A fully proactive and demand-driven organization

- > Scheduling and analysis tools: tram schedules were quickly improved to reflect passenger needs rather than internal supply and constraints.
- > A revitalized management structure focused on achieving improved technical and customer care performance.

### Technical know-how to boost performance

- > Across the fleet, new AC traction motors have not only improved reliability and efficiency; they also have reduced electricity consumption through their regenerative braking system and reduced stopping distances.
- > Frequent, noisy rail replacement work generated additional traffic and disturbed residents and businesses. New maintenance methods and welding techniques have prolonged rail service life and reduced maintenance and operating noise.
- > All trams were fitted with a real-time positioning and monitoring systems alongside 600 electronic RFID tags situated along the route – enabling proactive traffic regulation, management of delays and improved communications with drivers and on-board staff.

### A transformed tramway

A major investment and renovation project has significantly improved passenger comfort and public

## Objectives

- > Improve understanding and fulfillment of passenger and community expectations.
- > Enhance frequency, comfort and security of the tramway.
- > Deliver an ambitious program of technical and operational improvements.
- > Harness technical and organizational developments to ensure an improved customer experience, notably through real-time passenger information.

perception of the tram while completely respecting the historic design.

- > The light-weight aluminum body improves the trams' aesthetic appeal, reduces wood consumption and maintenance costs and makes the trams lighter, thus also saving energy.
- > Spacious new seating design, complemented by new full-size doors and windows.
- > New CCTV cameras and screens to improve safety, particularly at boarding, and fully equipped driver's cabins.
- > New lighting, audio, static and dynamic passenger information displays.

### Making digital improvements

Developed "NexTram", an innovative tool that is first of its kind in the city. NexTram information includes:

- > next three trams approaching any of the 118 stops;
- > possible delays and disruptions automatically and in real-time;
- > customer service information and announcements.

Conducted a comprehensive website assessment based on an analysis of the five pillars of a Web Marketing Strategy; web activities organization, customer engagement, attractiveness, loyalty and online customer experience, to identify areas of improvements and functionality needs.

The revamped website is characterized by:

- > user-friendliness;
- > interactivity;
- > targeting tourists through the promotion of points of interests;
- > search Engine Optimization to better position the website in the top results of Google, Bing, and Yahoo.

## RESULTS

- > 94% satisfaction rate – of which 55% are very satisfied
- > Ranked 9 out of 728 attractions in Hong Kong on TripAdvisor - TripAdvisor Certificate of Excellence in 2014 and 2015
- > Ongoing renovation of 12-15 trams per year



### CONTRACT FACTS

**TRANSIT AUTHORITY**  
Montpellier Méditerranée  
Métropole (3M)

**OPERATOR**  
TaM (Transport  
Agglomération  
Montpellier), a mixed  
economy company

**ACTIVITIES MANAGED**  
Bus & light rail operations  
Bike-sharing program  
Parking facilities  
Upstream consulting  
and engineering services

### KEY FIGURES

**SYSTEM**  
4 light rail lines  
60 km of track  
84 stations  
16 Park & Rides with  
+5,000 spaces

**Line 1**  
125,000 trips/day  
17.8 km - 30 stations

**Line 2**  
45,000 trips/day  
17.5 km - 28 stations

**Line 3**  
53,000 trips/day  
20.1 km - 27 stations

**Line 4**  
22,000 trips/day  
8.5 km - 17 stations

**SERVICES**  
Average frequency:  
3-5 min on line 1  
5-7 min on line 2  
6-7.5 min on line 3  
8-9 min on line 4

**RIDERSHIP 2014**  
246,000 passengers/day  
89 million passengers/year

**VEHICLES**  
87 Alstom Citadis

**STAFF**  
1,200 employees,  
including 680 drivers

## Context

Montpellier, with its mild climate and pleasant atmosphere is the 8<sup>th</sup> largest and the fastest growing city in France. A comprehensive transit system is seen as vital to reducing the disruptive effects of urban sprawl and stimulating the development of lively and dynamic urban areas. At the heart of the city's sustainable mobility strategy has been the expansion of the light rail service.

## Transdev's answer

### Turning the city vision into reality

Since 1996, our engineering and consultancy subsidiary, Transamo, has drawn upon its vast upstream consulting and operational capabilities to assist with the planning and delivery of the four lines representing 60 km of light rail. Expertise in planning, creation and optimization of light rail were also sourced from Transamo. With a 60 km long network, light rail is poised to deliver additional economic, social and environmental benefits to the city.

### As easy as hop-on, hop-off

Everything has been planned to make public transit seamless and stress-free for passengers:

- > 40% of central bus stops are directly connected to the light rail;
- > ticket vending machines are available on platforms;
- > real-time information and video screens at transfer points between the light rail and bus networks keep passengers confident and well-informed as they move between modes;
- > audio announcements are another source of information for passengers in case of service disruptions;
- > real-time information is also delivered by text message alerts or mobile websites accessible on smartphones.

### Walk, cycle, drive: customers have a choice

Accompanying the light rail has been the construction of 160 km of bicycle lanes and the

## Objectives

- > Reduce the negative impact of private cars by offering a multimodal transportation solution.
- > Design and operate a connected intermodal transit network with an LRT backbone covering all areas of the county – reforming the heart of an entire region.
- > Improve accessibility to new modes of transport for all inhabitants, especially those with reduced mobility.

installation and operation of a TaM bike-sharing program with 1,600 bicycles.

Dedicated bicycle parking facilities are available along lines 1, 2, 3 and 4 so passengers can take their bicycles on the light rail for free during non-peak hours.

More than 5,000 parking spaces across 16 Park & Rides ensure that cars can be left outside the central business district as the best way to get around town. An integrated parking and roundtrip ticket is provided for occasional users and reduced parking rates for those with an annual public transit pass.

### Innovative ticketing and information solutions

The Cle'TaM solution was launched in 2010. It allows customers to complete all ticketing purchases online by using a USB key equipped with NFC technology or a SmartCard recharger.

In April 2014, the Montpellier Méditerranée Métropole asked Transdev to also manage the Espace Multimodal de Montpellier Agglomération (EMMA); a multimodal and multichannel digital technology project. EMMA enables customers to use a single digitally chargeable smart card for all the modes of public transportation in the city: bus, light rail, bike-sharing, car-sharing and parking.

EMMA aims to fully digitalize the customer/sales agent relationship by making a virtual sales office available at any time and accessible via several digital channels: personal devices such as computer, smartphone, tablet as well as touch screen self-service kiosks planned for the end of the year.

## RESULTS

- > The tram network provides essential access to 51.5 % of Montpellier's population and 59.5 % of jobs in the region
- > In 2014 EMMA was deployed in three ticket agencies turning them into true multimodal Mobility Centers
- > Over 310,000 trips/day in 2014 on TaM network