

Portfolio of expertise

BUS RAPID TRANSIT



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, Electric and Eco-friendly (P.A.C.E). 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, 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
Chairman & Chief Executive Officer

Buses shift up a gear

Bus Rapid Transit (BRT) – an efficient, adaptable and high-quality bus service – has been growing in popularity since its introduction in the 1970s. Encompassing a variety of configurations, BRT systems offer a flexible mass transit solution that enhances service quality at a lower cost.

With dedicated lanes, simplified routes, and distinctive high-capacity vehicles, BRT has responded to increasing demands for faster, more reliable transit services. BRT systems combine the on-time performance and high-capacity of light rail and metro systems with the flexibility of bus operations to create an efficient backbone for fully integrated transit networks.

The high performance results of existing BRT systems demonstrate that buses will play an important role in future mobility solutions for cities of all sizes. Forward-looking cities are leveraging BRT systems to boost their ability to meet economic and environmental challenges related to mobility, rejuvenate downtowns and connect distant neighborhoods.



Flexibility is key

Flexibility is one of the key advantages that BRT systems have over light rail systems. Whether it is intended to provide high-quality downtown services, move the greatest number of people in the fastest and most efficient way, or something in between, these systems can be tailored to meet the specific goals of each individual network. Moreover, routes, infrastructure and timetables can be easily adapted to each stage of the network's development, offering cities a flexible tool to provide the best service while optimizing investments.

High performing, fully integrated networks

With frequent services and high-capacity vehicles, BRT systems match the busy pace of urban life by reducing wait times and enabling seamless multimodality. High levels of technology are combined with dedicated lanes, rights of way, optical bus guidance, and optimized accessibility, ensuring on-time performance and efficient traffic management. The reliability of BRT systems along with high-quality stations, integrated ticketing services and real-time passenger information enables them to integrate effectively with other transport modes in a transit network.

Transit-oriented development and urban renewal

With a BRT system, investment costs and lead times for public authorities are lower than those of rail-based alternatives. The systems can also be used as an effective transit-oriented development tool by connecting citizens with employment centers and leisure facilities in urban zones undergoing densification. Many networks have used the introduction of a new BRT line to revitalize city centers or reshape the outlying urban environment. Factors such as design, equipment quality and landscaping solutions can all be taken into consideration to help enhance the image of the city and the areas surrounding the bus routes.

Positive environmental impact

BRT systems use high-capacity buses which carry more passengers than traditional buses – reducing per capita emissions of CO² and other pollutants. The use of compressed natural gas, electrical energy, hydrogen and hybrid solutions, and eco-driving protocols help reduce the overall ecological footprint of these systems, including reductions in noise pollution.

Transdev's expertise in BRT includes project engineering, transportation systems supervision and operations, urban integration and commercial management. We have actively participated in numerous projects to support Transit Authorities looking for customized and flexible BRT adapted to future needs.



Good reasons to choose Transdev



Fully integrated networks

Connecting people and places

Transdev has a history of working with Transit Authorities to integrate BRT systems with other transport modes and services through the creation of high-capacity corridors and strong interchanges connected to secondary public transport routes. Our mission is to help connect people, cities and regions with simplicity, speed and comfort.

We apply our experience in mobility management and service design to enhance the entire transit network – combining extensive real-time information expertise, integrated ticketing, customer care programs and feedback management systems with unique branding and targeted marketing campaigns to attract and retain passengers.

Flexibility and value for money

Optimize your resources

BRT systems deliver high-quality outcomes for less investment than many light rail solutions, with the added benefit of shorter delivery times. A distinct advantage of a BRT system is that it can be tailored to the specific needs of a network. These systems are flexible, and can be scaled-up or adapted as needs change.

We have a track record of delivering BRT systems on-time and on-budget, and providing cost analysis and budget management services throughout the life of a project – from design and construction through the operation of the new system. We also have experience with a range of contractual models, including knowledge of Public-Private Partnerships – ensuring high-end delivery within the appropriate framework.

Service and comfort

Over-performing in customer satisfaction

High-capacity vehicles, dedicated lanes, right of way at traffic lights and intersections, and more direct routes, all contribute to BRT systems' ability to deliver levels of frequency and reliability that equal those of light rail systems. In Rouen, where BRT and light rail operate side-by-side, customer surveys report equally positive satisfaction and perception results for the two modes.

Transdev adopts a collaborative approach to ensure the best possible customer experience. We work in association with manufacturers to help Transit Authorities detail tender specifications to secure attractive and high-performance vehicles. Our network designers work closely with Transit Authorities to create efficient and relevant routes based on the needs identified.

Environmental leadership

Green growth

By delivering high-quality services, BRT systems support Transit Authorities' efforts to stimulate a modal shift from private car to public transit and meet environmental targets in terms of pollutant reduction. Transdev works side-by-side with Transit Authorities to meet these goals. Our carbon-calculator methodology can be used to build public awareness campaigns, our eco-driving tools can be used to reduce emissions, and we can provide clients with access to our experience in alternative fuels, environmental audits and risk management systems.

Technological depth

Sharing the best tools for the job

Transdev develops and applies solutions to ensure operational excellence. For example, our BusLab software and complementary interfaces allow networks to receive and analyze real-time data. Map tracing, 3D graphics and performance graphs can be used to analyze commercial speed, route times, punctuality and more.



Urban regeneration

Rediscover the city

Delivering a BRT system provides an opportunity for urban renewal that may be aimed at regenerating a city center, revitalizing isolated districts, or stimulating growth of new business areas. Transdev's team brings a depth of experience gained from collaborating with Transit Authorities to engage with stakeholders at all levels of a project to create the political will and vision to ensure success.

By drawing on Transdev's experience in the field of transit-oriented development, we can make the most of infrastructure, equipment, and facilities to improve the experience for passengers and pedestrians interacting with the system, while contributing to a contemporary and innovative image for the surrounding urban environment.

Simplicity

Highly approachable and easy to use

Simplicity is the hallmark of BRT systems. At the stations, on board the vehicles, or in the transit hubs, Transdev's systems and infrastructure ensure a stress-free and efficient trip for passengers. Real-time information, audio announcements, and dynamic visual data on connecting services help passengers make smooth transfers. In Nantes, this approach –combined with our integrated ticketing expertise– has helped the BusWay drive a sector-wide 7% increase in ridership across the southwest of the city, after only one year of operation.

Global experts

Knowledge sharing for continuous improvement and growth

Using Transdev's knowledge management tool –expert.net– our global expertise and experience in the design, planning, integration and operation of BRT systems are in constant evolution. From Bogotá to Paris, experts share progress, best practices, benchmarks and solutions to deliver direct benefits to our clients and passengers.

Transamo, more than 20 years by your side

A unique background in assisting clients and managing complex public transit projects

The go-to partner for project managers and Transit Authorities, Transamo –a Transdev subsidiary– excels at providing comprehensive support for transit projects. Since its creation in 1994, Transamo has become the benchmark for project management –not only supplying support services, but also helping introduce key changes in mobility systems. From the reintroduction of light rail to the development and promotion of BRT, Transamo’s team of specialists has helped cities evolve, catalyze change, and transform urban environments.



Bringing projects to life

Transamo’s highly experienced, multidisciplinary team of experts includes engineers, geographers, urban planners, and data scientists. As transit projects vary considerably in type, context and objectives, the team’s flexible structure means that it can adapt quickly and effectively to client requirements and concerns. Transamo’s mobility department has the ability to carry out all of the studies and investigations required to set the stage for a public transport project and ensure its success.

From concept to reality

With more than twenty years of experience managing transport infrastructure projects on behalf of local Transit Authorities, Transamo has built up unique know-how in project management, combining technical expertise, legal and regulatory control, public procurement, consulting and management of complex projects. Transamo supports its clients in bringing their projects to life by guaranteeing their feasibility and operability, and by managing them in compliance with quality, cost and deadline objectives.

From the complete project management mandate to specific expertise and consulting missions, Transamo offers a tailor-made response to the requirements of each Transit Authority, with decision-making tools that enable better choices when managing urban mobility. Transamo’s most notable BRT references include Mettis (Metz), Line T3 (Le Mans), Neobus (Nouméa), and the Amiens Metropolitan Area network, in France.

Tomorrow is today’s agenda

Today, urban mobility can’t afford to concentrate on only one transit mode or route. Economic factors, environmental concerns, the expansion of urban sprawl, and the lengthening of daily commutes all influence transit networks. Today’s planners must account for economic factors and existing installations as they apply a rationale based on optimization and system integration, and take a sustainable, global approach to mobility issues. Transamo adopts this approach to develop solutions that are in line with client demand and budget needs. That is what being a partner means.

The T Zen concept was developed in the Île-de-France region more than 10 years ago as a response to finding a structured means of transport that provides an intermediate level of service between buses and heavier modes of transport. T Zen is an innovative, five line BRT system delivering a transit solution that meets high standards of regularity, reliability and comfort, minimizes environmental impact and optimizes public resources. Transamo supported Île-de-France Mobilités from the start of this new system, assisting with the definition, development and implementation of the T Zen concept. Several expert missions have been carried out on ongoing or completed projects. Works include the development of a reference book for the T Zen spatial intervention, overall project management assistance for T Zen 3, project management assistance for operations and maintenance of T Zen 4 and 5, and feedback delivery to the Transit Authority for the T Zen 1 project.

As an operator and global integrator of mobility,
**Transdev gives people the freedom to move whenever
and however they choose.**

We are proud to provide 11 million passenger trips everyday thanks to efficient, easy to use and environmentally-friendly transportation services that connect people and communities.

Our approach is rooted in long-term partnerships with businesses and public authorities, and in the relentless pursuit of the safest and most innovative mobility solutions.

We are a team of people serving people, and mobility is what we do.

We are the mobility company.



Nantes (France)

BusWay – Clean, efficient and attractive transit



Contract facts

TRANSIT AUTHORITY
Nantes Métropole

OPERATOR
SEMITAN, a public-private company

START OF CONTRACT
Renewed in 2010

ACTIVITIES MANAGED
Light rail
Bus
BRT BusWay
Chronobus
River shuttles

Key figures

NETWORK
24 municipalities served
630,000 total residents
524 km²

RIDERSHIP
145 million trips

STAFF
1,892 employees,
including 1,216 drivers

BUSWAY LINE
Launched in
November 6, 2006
1 line, 15 stations
7 km, including 6.7 km of
dedicated two-way lanes
6 park-and-ride locations
with a total of 1,280 parking
spaces

SERVICE
From 4:45am to 0:45am,
extended to 2:45am
on Saturday nights
Average frequency: every 3
minutes during peak periods,
every 6-7 minutes at other times

RIDERSHIP
Busway 42,000 trips/day

TOTAL KILOMETERS
960,000 km in 2017

BUSWAY VEHICLES
23 Citaro CNG articulated buses
120 passenger capacity per bus

Context

For nearly 30 years, Nantes has been recognized as a leader in sustainable transportation. In 2013, the city was named the European Green Capital by the European Commission – an award honoring cities that demonstrate exemplary commitment to urban development that respects the environment. Since then, the city has kept up with its commitment to advancing mobility and building a sustainable future for its citizens.

Transdev's answer

Technical expertise

Transdev provided expertise to help Nantes Métropole define the most appropriate solution for meeting the objectives of the BusWay System. Project management of the operation was led by SEMITAN – a public-private company, with Nantes Métropole and Transdev as the main shareholders. The BusWay has been used as an effective tool for further developing Nantes' sophisticated, highly integrated transit network.

Consistently performing

BusWay is a high-performing system that provides comparable or even slightly better levels of service compared to light rail. The system offers:

- › dependable travel times thanks to right-of-way lanes and priority at all crossroads;
- › high levels of frequency, reliability and on-time arrivals, and extended operating hours;
- › full accessibility for all passengers;
- › a seamless ticketing system for the whole Nantes conurbation;
- › AFNOR-certified customer service standards, including stations with information displays and ticket vending machines.

A comfortable, appealing, environmentally friendly service

The majority of Citaro buses used on the BusWay run on compressed natural gas, resulting in very low emissions and minimal noise pollution. Congestion and pollution in the city has also been reduced with the introduction of 1,280 parking spaces over four Park and Ride locations directly adjacent to the BusWay line, perfectly interconnected from an accessibility point of view.

Objectives

- › Create a high-quality BRT line to serve the southern portion of the city that acts as a catalyst for restructuring the city's transport network.
- › Deliver high levels of service through the creation of a high-frequency, high-speed, high-regularity BRT line that is easily identifiable and accessible for all.
- › Further deploy the Sustainable Urban Mobility Plan, the city's key planning document in terms of mobility.

Real-time information for improved integration of the Busway line

Making effective integration with other transport services is critical, therefore:

- › all stops have real-time information screens showing current wait times; the system also features audio information at stations and buttons that activate auditory crosswalk signals to facilitate access to the visually and hearing impaired;
- › all buses have a passenger information system showing time, line direction and next station, as well as flat screens displaying connections and a dynamic line diagram with audio announcements;
- › interchanges display real-time information on traffic and transfer conditions, and a driver information system guarantees connections.

Urban renewal

Through Busway, SEMITAN connects the North and South banks of the Loire River, passing through the Nantes island. The project has been used as a tool to transform the city, creating bustling hubs, new residential and employment centers and green urban landscapes along the line.

E-Busway

With the introduction of the first electric BRT vehicles, the e-BusWay, SEMITAN continues to innovate towards more sustainable mobility and demonstrates that zero emissions BRT transit is possible. With a gradual transition towards this new technology, the BusWay fleet will be 100% carbon free by 2020.

Results

- › 92.5% customer satisfaction rate.
- › From 2000 to 2008, the city of Nantes' automobile traffic decreased by 12% and public transportation ridership increased by 26%.
- › From 2017 to 2018, the network saw a 7% increase in ridership, confirming the long-lasting positive dynamic brought by the BRT.

Bogotá (colombia)

TransMilenio –A transit system that transformed the city



Contract facts

TRANSIT AUTHORITY
TransMilenio S.A., an entity of the Bogotá District

OPERATOR
Transdev-Fanalca

CONTRACT START
2000

CONTRACT DURATION
Renewed in 2018

Key figures

SYSTEM
115.5 km of dedicated lanes
136 stations
9 bus depots
11 routes
Commercial speed of 24 km/h

RIDERSHIP
2.5 million passengers/day

VEHICLES
Approximately 2,000 articulated buses, including 440 operated by Transdev
Each bi-articulated vehicle has a length of 27 m and a passenger capacity of 250

Context

In Bogotá, 80% of the population uses public transport to get around the city. Prior to the introduction of the TransMilenio system, more than 28,000 buses crawled through the city streets at commercial speeds of just 8 km/h. Each year, more than 3,000 traffic accidents involving buses caused a high level of human losses and material damages.

To address this situation, the Bogotá authorities engaged an operating consortium to establish a Bus Rapid Transit (BRT) system that would structure and rationalize public transport in the city.

Transdev's answer

Dedicated infrastructure and systems

The TransMilenio system delivers important time savings for passengers and continues to attract new people to the network. Dedicated infrastructure and systems are at the heart of its success, including:

- › a central 4-lane corridor at ground level for exclusive use of articulated buses;
- › stations with an enclosed central platform only accessible to passengers via walkways;
- › an automatic real-time information system that alerts passengers of imminent arrivals and destinations served.

Redesigning the urban space

The TransMilenio system has supported the enhancement of many public spaces throughout the city, including the:

- › installation of 230 km of new bicycle paths;
 - › rehabilitation of 300,000 m² of pavement;
 - › planting of thousands of trees;
 - › restriction of private car use during rush hours.
- Today, 5% of trips in Bogotá are made by bicycle. BRT stations at each end of a line have extensive bicycle parking facilities to encourage cyclists to use the system. There are currently nine bicycle parking facilities, with 2,187 parking spaces.

World-leading environmental measures

In 2006, TransMilenio's Clean Development Mechanism (CDM) became the first mass transportation project in the world to have a methodology approved and registered by the United Nations under the Kyoto Protocol.

Objectives

The objectives of the TransMilenio BRT system are to:

- › free up the super-congested urban environment;
- › increase use of public transport;
- › improve the system's performance and image.

TransMilenio S.A.'s monitoring process aims to maintain a high standard of gas emission reductions while operating this massive transportation system in Bogotá.

A pioneering approach delivering ongoing increases in quality

Transdev has played a major role in the development of the TransMilenio system since its inauguration in 2000. This includes the recent introduction of new 27 m long, bi-articulated vehicles to increase capacity on the highly popular network. Transdev was the first to introduce 10 bi-articulated vehicles on the system, demonstrating the feasibility of the concept and allowing for large-scale deployment of a high-capacity fleet. Accessibility on the system has also been improved through:

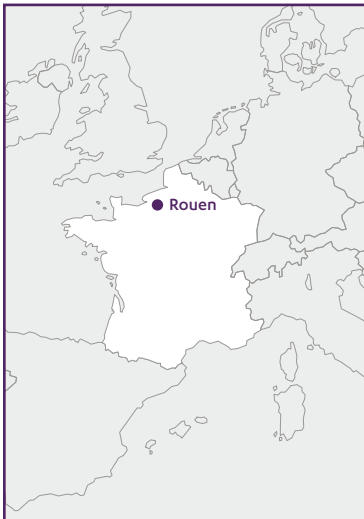
- › a clear hierarchy of station types –from individual stations located every 500 m to interconnected BRT stations providing transfers within the TransMilenio system;
- › transit centers located at the outskirts of the city, bringing together feeder lines, BRT lines, metropolitan coach lines, pedestrians and cyclists; these ensure smooth transfers while reducing congestion and accidents;
- › real-time electronic displays at each station announcing the arrival time of the next bus, although it is rarely necessary to check due to the short headway between vehicles;
- › station attendants who are on hand to guide passengers and provide information.

Results

- › Average journey time has fallen from 1 hour and 30 minutes to 35 minutes.
- › Average commercial speed is 24 km/h, which is two to three times higher than speeds achieved in mixed traffic.
- › The system is currently transporting 2.5 million passengers per day, and ridership has increased every year since launching of the service in 2000.

Rouen (France)

TEOR – Continued technical innovation



Contract facts

TRANSIT AUTHORITY
Métropole Rouen Normandie

OPERATOR
TCAR, a Transdev subsidiary

CONTRACT START
1994

CONTRACT DURATION
31 years

Key figures

417,000 people served

SYSTEM
3 BRT lines since 2001, and
a 4th opening on 25 May 2019
2 tram lines
24 fixed bus routes
33 school lines

BRT
37 km of infrastructure
64 stops

BRT RIDERSHIP IN 2017
63,000 passengers/day
16.5 million trips

BUS + TRAM
54.6 million trips

**KILOMETERS TRAVELED
(BUS & LIGHT RAIL)**
14.33 million km/year

VEHICLES
218 buses
79 optically-guided
articulated BRT buses
27 trams

STAFF (BUS & LIGHT RAIL)
1,138 employees
including 693 drivers

Context

Rouen's Transit Authority decided to create three Bus Rapid Transit (BRT) routes to enhance the city's transit system and benefit residential and business communities.

The municipality set itself the goal of increasing ridership –focusing on a light rail and BRT system to reorganize urban space and deliver consistently high levels of transport service on both sides of the Seine River.

Transdev's answer

Technical success that sets the standard

The TEOR network uses the best available technology to ensure the system's success, including:

- › vehicles equipped with an optical guidance system which helps guide the bus into specially constructed station platforms, ensuring accuracy and regularity of curbside stops at stations;
- › upgrades to intersections, including a traffic light priority system, which has increased commercial speed by 15%;
- › the use of biofuels, leading to a 30% reduction in annual consumption of diesel fuel, and a 15% reduction in greenhouse gas emissions.

World-class customer service

High levels of customer service are a hallmark of BRT systems. In Rouen, the TEOR network uses a fully integrated contactless card ticketing system for all mobility services. Service on the ground is supported by a powerful set of online and mobile web platforms including:

- › SMS ticketing providing an easy and streamlined way of accessing the service;
- › real-time schedule and disruption information;
- › latest generation trip planner software;
- › additional customer service initiatives include a full-service commercial agency in the center of the city and Transdev's proprietary customer feedback and request system, "Listen", to ensure fast and accurate answers to customer queries.

Objectives

The objectives of the Transport Est-Ouest Rouennais (TEOR) lines are to:

- › ensure integrated operation of the light rail and optically guided buses, while continuously improving the technology used;
- › monitor service quality to attract and retain passengers;
- › anticipate the expectations of customers and non-customers alike.

A testing ground of innovation

Transdev is the only privately run public transport operator participating in the European Bus System of the Future (EBSF) project, which aims to transform the image of bus travel through the development of innovative designs and solutions for vehicles, infrastructure and operations.

On the TEOR system, the focus has been on accessibility. Buses have been specially equipped with:

- › a horizontal optical guidance system to complement the vertical guidance already used to ensure a smooth arrival at the curbside;
- › automated suspension units which adjust the level of the vehicle to the curb and deploy a seamless mini-ramp that ensures perfect access for wheelchair users and persons with reduced mobility.

Close collaboration throughout the project between Transdev, equipment manufacturers and network stakeholders has seen the creation of a solution that delivers major advancements in accessibility. The solution is set to become fully commercialized and rolled out on other networks.

Urban revitalization

Rouen is capitalizing on the success of the TEOR network to revitalize the city through a strategic transit-oriented development approach. A new Eco Quartier has been planned that will be a green central urban district between the city center, the Seine and the port. A new TEOR line will connect this exciting new development with the rest of the city.

Results

- › Passenger surveys show equally positive passenger satisfaction and perception for the LRT and BRT.
- › BRT increased its ridership by 60% over 10 years.
- › 95% satisfaction rate for online services.

Île-de-France (France)

T Zen – Reinventing the bus in Île-de-France



Contract facts

TRANSIT AUTHORITY
Île-de-France Mobilités

OPERATOR
Transdev Île-de-France

ACTIVITIES MANAGED

- Urban transit system for Sénart
- Intercity routes
- T Zen-1 BRT Corbeil Essonne - Lieusaint/Moissy

Key figures

THE T ZEN SYSTEM
14.7 km of lines including 9.6 km dedicated lanes
23 priority signals
14 stations including 2 dedicated lanes

RIDERSHIP
About 5,000 passengers/day

- 23 priority signals
- 14 stations including 2 dedicated lanes

DISTANCE TRAVELED
1 million km/year

VEHICLE FLEET
10 BRT EEV/EuroV compliant buses

STAFF
42 bus drivers
and 6 inspectors

Context

Quality of life in the Greater Paris area is highly dependent on mobility services and inhabitants' ability to travel with ease from home to work to leisure activities.

In recent years, Île-de-France Mobilités has seen an impressive increase in demand for public transit, and noted that there was a sharp contrast among the ridership rates in Paris, which is densely populated, suburban areas near the city, where almost 40% of commuters use their car, and more remote suburbs, where 80% of people commute by car.

Transdev's answer

Technical and project management expertise

Transamo – a Transdev subsidiary – supported Île-de-France Mobilités in the establishment of the T Zen network by providing project management and operational support including advice on the selection of rolling stock, co-management of work at the new maintenance center, system maintenance and reorganization of bus services.

The T Zen system offers:

- › real-time information displays on-board vehicles and at each bus station;
- › greater transport integration, as arrival times of the T Zen are synchronized with connecting train and RER departures, information that is available at stations and on-board vehicles;
- › full accessibility at stations, vehicles for persons with special needs, including automatic sliding doors that open laterally, and means for delivering information to disabled customers, including the visually and hearing impaired;
- › a video surveillance system.

A pioneer in its field, T Zen is a highly efficient people mover that can handle up to 2,400 passengers an hour – nearly 35% more than conventional buses. With dedicated lanes and right of way at traffic lights on every route, vehicles can run at up to 70km/h, helping ensure high service frequency and a full roster of departure times.

Objectives

The T Zen concept was created by Île-de-France Mobilités as a way to attract people to change their traveling habits. T Zen is an innovative BRT network aimed at delivering:

- › a transport solution on par with light rail in terms of service performance by consistently achieving high standards of regularity, reliability and comfort;
- › a mode of transport that minimizes environmental impact;
- › a way to optimize public resources.

Comfortable and easy to use

Passengers on the T Zen network are moved by a fleet of innovative and comfortable vehicles. The distinctive branding and easily recognizable, highly accessible stations have contributed to making the system the backbone of the local transit network.

Urban renewal

T Zen 1 – the first T Zen line introduced in July 2011 and operated by Transdev – runs a distance of 14.7 km between the Corbeil-Essonnes and Lieusaint/Moissy train stations. This line, which includes a 9.6 km dedicated lane, has connected two very busy RER commuter rail stations and transformed the urban landscape.

The high service capability of the T Zen network appeals to businesses, individuals and families along its path. Work has been done to create space in nearby avenues and to provide new pedestrian areas.

Minimized environmental impact

T Zen buses are equipped with Euro V and EEV-compliant engines, and are serviced at a green technical center with solar panels on the roof, natural gas heating, and a water recycling system.

Results

- › Reduction of travel times between the two RER stations from 48 to 30 minutes.
- › New line serving a downtown and a business district, enabling further development of these two areas with enhanced attractiveness.
- › 82 million euros total investment for the 14.7 km high-frequency line, a cost-effective approach to mass transit.

Chalon-sur-Saône (France)

Zoom –BRT for medium-sized cities



Contract facts

TRANSIT AUTHORITY
Le Grand Chalonnais

OPERATOR
Société des Transports de l'Agglomération Chalonnaise (STAC), a Transdev subsidiary

CONTRACT START
2013

CONTRACT DURATION
6 years

Key figures

POPULATION SERVED
115,000 inhabitants

SYSTEM
1 BRT line, 1/3 of which is allocated to dedicated sites
4 other urban lines use the bus corridor in the city center
14 suburban bus routes
1 electric shuttle serving downtown
1 paratransit service
On-demand transportation

STAFF
100 employees
including 76 drivers

BRT FLASH LINE
6 km of line (including 1/3 on dedicated lanes)
15 stops
6 vehicles

BRT RIDERSHIP
More than 5,000 passengers/day
Total ridership in 2017:
3.64 million trips

DISTANCE COVERED
BRT: 300,850 km
System total: 3,330,000 km

Context

The Transit Authority of the Greater Chalon area made the decision to modernize its public transit system by developing transportation services that would give customers a genuine alternative to private cars. The master plan for transit routes, which was revamped in January 2016, was structured around a new BRT network.

Objectives

The objectives of the BRT network in Chalon-sur-Saône were to:

- › diversify use by targeting new passenger segments and change the image of a system that was previously used mainly for school bus services;
- › integrate the BRT service design with the overall transit-oriented development plans for the greater Chalon area;
- › promote new transit services through a targeted sales strategy.

Transdev's answer

Effective and integrated transit solutions

The Chalon-sur-Saône metropolitan area's 110,000 inhabitants are spread over 39 cities and villages, with just 44,000 living in the city of Chalon itself. Despite its size, the introduction of a BRT system presented the opportunity to bring about operational efficiency gains and better intermodality across the existing transit network in the region. Transdev worked in partnership with the Transit Authority to manage all aspects of this new BRT system, from designing a hierarchical and fully integrated network to developing highly effective and innovative marketing campaigns to attract customers.

Accessible, integrated and reliable service

Service on the Zoom network runs every 10 minutes during peak hour and every 15 minutes during off-peak periods. Service hours run from 5:50am to 9:15pm Monday to Friday, with Sunday service running from 8:00am to 9:15pm. Arrivals are regular and on time thanks to the development of dedicated lanes and intersections with traffic signal priority systems. The network supports increased intermodality, with 40% more service to the rail station on the Dijon-Lyon line.

Excellence in customer service

Passengers traveling on the Zoom network have easy access to real-time information through Visiotrans, Transdev's proprietary passenger information system that is accessed through a mobile application. Through the application, passengers can consult schedules, create tailor-made itineraries, store favorites and receive traffic information. They can locate the nearest stop or make a Transport on Demand booking. Wi-Fi is provided onboard all six vehicles. Dedicated vehicles –redesigned to be more like a tram, with three door openings– capitalize on the dedicated bus lanes and priority at intersections across the network to deliver regular and on-time service. Fully accessible stops are equipped with real-time schedules and disruption information.

Proactive sales and marketing strategies

Transdev implemented a dynamic sales and marketing strategy to boost awareness of the service and its advantages, including:

- › a targeted marketing campaign aimed at attracting occasional and regular users on two main routes, including the Zoom BRT line. This campaign resulted in 2,000 new users and 150 new subscribers;
- › an ambitious strategy for the deployment of employee transportation programs, which involved Transdev signing an agreement with six local companies and the Transit Authority;
- › a new ticketing system in 2017 with the implementation of an e-shop.

Results

- › 30% ridership growth in the first 18 months of service.
- › 93% of customers are satisfied with the BRT system –the overall satisfaction rate for the entire network is 91%.
- › Average commercial speed has increased by 25% from 13.5 km/h to 17 km/hr.

State of New York (u.s.A.)

Hudson Link – Coordinated,
high-quality regional BRT service



Contract facts

TRANSIT AUTHORITY
New York State Department of
Transport (NYSDOT)

OPERATOR
Transdev

CONTRACT START
2019

CONTRACT DURATION
6 years, with two 3-year options

Key figures

NETWORK (PHASE 1)
5 lines – 19 bus shelters, 25 stops
24 mile distance between
Rockland and Westchester
Counties
2 park-and-ride locations
Connections to Metro North
Railway and New Jersey Transit
for train services to Manhattan

RIDERSHIP
Average 27,400 passengers per
month
Estimated 328,800 passengers
per year

SERVICE
Limited Stop Commuter Bus
Rapid Transit

TOTAL MILES
133,000 miles per month
Estimated 1,596,000 miles per
year

VEHICLES
31 Prevost X3-45 45' commuter
coach buses
57 passenger capacity per bus

STAFF
7 senior managers
11 supervisors
8 coordinators
6 maintenance
66 operators

Context

The Lower Hudson Transit Link (LHTL) connects major concentrations of residential, employment, commercial, entertainment, medical, and educational land uses and provides key connections to existing bus and rail systems. The new service replaces an aging, poorly maintained fleet and inefficient routes while providing many service enhancements including new vehicles, high-quality shelters with passenger amenities, an easy-to-understand route structure, frequent service, and distinctive branding that creates a unique Hudson Link identity. LHTL is part of an Integrated Corridor Management (ICM) system that will optimize the operation and performance of the highway corridor. ICM uses technology and operational coordination to manage traffic flow on roadways and adapt to conditions in real time to reduce traffic congestion.

Transdev's answer

Enhanced training

Transdev trains bus operators using its proven Operator Development Program (ODP), which emphasizes vehicle operations as well as customer interactions and sensitivity. Our enhanced ODP for this operation also includes comprehensive training on the technologies integrated into the buses, from on-board WiFi, to automatic passenger counters, bus stop announcements, turn-by-turn GPS, automatic vehicle location, fare collection equipment and other features.

Grassroots marketing

During the start-up period prior to the launching of service, Transdev participated in the many festivals and public events held throughout the region to spread the word about LHTL. Transdev offered LHTL branded re-usable grocery bags, pens and other promotional items that promoted the many uses of the system.

Improved fare convenience

Transdev provides its "GoMobile" vehicle tracking and fare payment smartphone application. It allows customers to purchase their fares with a credit card on their phone and have it validated by a scanner or the operator on-board the bus. In addition, GoMobile informs passengers about bus arrival, delays or

Service Objectives

- › Set the highest possible levels of reliability and safety for the new system.
- › Improve the availability, accessibility and quality of transit service in the Lower Hudson Valley.
- › Reduce travel times along the busy I-287 corridor for buses and all other vehicles.
- › Increase and improve access to jobs, housing, medical facilities, commercial precincts, schools, and other transportation systems.
- › Increase the attractiveness, use and quality of regional inter-county transit services.
- › Complement investments made in building the Governor Mario M. Cuomo Bridge.

re-routing. Transdev also provides options to pay with credit card at Parkeon pay stations at major shelters or cash on-board the bus.

A highly efficient maintenance approach

Transdev will provide service for the LHTL from a facility located just 0.8 miles from where the service starts and finishes. This approach will significantly reduce deadhead, cost and vehicle wear and tear. Our facilities include seven bays, which allow us to maintain multiple vehicles at the same time. Door and ceiling heights and bay lengths are sufficient to accommodate maintenance, cleaning and fueling of the Prevost X3-45 coaches, including lifting the vehicles to perform under-vehicle inspections and maintenance, as well as oil and tire changes.

Responsive to service needs

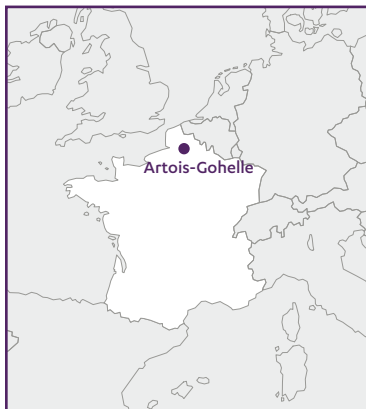
The initial plans developed by the planners contracted by the State of New York designed routes that required passengers to transfer from one route to another at a common location. Transdev worked with the State to create a through-route during peak periods and provided new run cuts and schedules within a short time.

Results

- › The service started operations on October 29, 2018 and has attracted almost 30,000 passengers per month from the beginning of operations.
- › By building synergies with adjacent locations and providing consistent service reliability, training standards and technology platforms, Transdev has been able to expand passengers' perception of the service from a local BRT to a regional network.
- › Ridership is expected to grow as the service increases in popularity and the area attracts residents.

Artois-Gohelle (France)

TADAO Bulles Lines – Comfortable, fully accessible, high-performing BRT



Contract facts

TRANSIT AUTHORITY
SMT Artois-Gohelle

OPERATOR
Transdev Artois-Gohelle

CONTRACT START
2017, with the first BRT services starting in April 2019

CONTRACT DURATION
6 years

Key figures

NETWORK
6 BRT lines
2 in Lens
4 in Béthune

SERVICE
Between 8 and 15 minute headways from 5am to 11pm

SYSTEM
100 km of dedicated lanes

STAFF
500 employees

Context

The introduction of the Bulles BRT lines is part of a commitment made by the French State, the Hauts-de-France region and the city of Artois-Gohelle to revitalize this former mining basin in the north of France. This revitalization is based on three key pillars – industrial growth, cultural and social engagement, and a more well-developed urban environment. Mobility is at the heart of each of these pillars, and is a key element to creating real change in the region. As part of this revitalization, the SMT Artois-Gohelle, with support from the European Investment Bank and the European Union, decided to introduce a BRT system to complement the TADAO network and enable fast and easy movement between urban centers.

Transdev's answer

Hierarchical network with strong integration

The introduction of six new BRT lines has presented a unique opportunity to restructure and simplify the existing TADAO network. Creating a simple hierarchy of bus services with primary and secondary lines allows for greater optimization through the reduction of redundant lines, reduced travel times and more direct routes. A fully integrated, rechargeable, contactless ticketing system facilitates greater intermodality for passengers.

The Bulles lines form the backbone of the hierarchical, highly integrated TADAO network, which also provides traditional bus, school bus, last mile and bike sharing services. The existing TADAO network moves more than 13 million people each year, averaging 49,000 trips on a typical day.

World-class environmentally friendly and highly sustainable solutions

The Bulles Line 6 is the first bus line in France to be operated exclusively by an entirely hydrogen-powered fleet – an exciting achievement that is a true reflection of the region's commitment to deliver a clear and forward-looking environmental policy for sustainable mobility. Hydrogen engines are considered to be the cleanest technology, requiring no fossil fuels or batteries, and producing no harmful emissions. The buses on Line 6 will be fuelled by a hydrogen plant that uses an electrolysis system to create hydrogen and dioxygen from water. This production unit will operate with green electricity sourced exclusively from sustainable guaranteed sources.

In addition, Lines 1 and 2 are operated with

Objectives

The objectives of the Bulles lines are to:

- › promote clean and sustainable public transport;
- › better connect people and businesses within the region, while reducing car use;
- › improve the mobility of local populations in the context of sustainable development;
- › deliver reliable, regular and high quality service that is accessible for all;
- › promote the development of new information technologies and means of communication.

hybrid articulated vehicles that are similar in style to light rail vehicles with multiple entry points and ticket machines at the stations.

Harnessing technology to deliver a high performing network

The introduction of the Bulles lines involves a vast modernization plan, including the:

- › creation of 100 km of BRT lines, transit priority upgrades at over 200 intersections, and the construction of four new depots;
- › supply of 70 new vehicles that are better equipped, bigger, more welcoming, and more accessible than traditional buses;
- › introduction of 350 real-time passenger information panels;
- › interoperability of ticketing systems with the regional rail network.

On most high frequency routes, buses arrive every 8 to 15 minutes. Journey times are guaranteed as buses have priority at crossroads and use dedicated bus lanes in areas of high congestion. An average commercial speed of 20km/h results in shorter travel times. Dynamic information systems provide passengers with visual and audio information on the buses and at stations.

Urban development

Transdev creates spaces where mobility choices converge and pedestrian-friendly hubs for living, working, and entertaining serve as gateways to an integrated transit system. LEMON, Transdev's experimental mobility laboratory, reinvents open partnerships and puts citizens at the forefront of city planning. Through interventions and ideation workshops, citizens are invited to co-construct urban spaces, transforming them into mobility crossroads.