



# GIRO HELPS TRAM GAIN MOMENTUM IN MULHOUSE

Mulhousians and area residents are getting around much easier these days thanks to a new tram network implemented by Soléa, with the help of GIRO's *HASTUS*<sup>™</sup> software solution.

**S**oléa operates the urban bus, tramway, and tram-train network for the agglomeration of Mulhouse, France. It serves 24 burrows totalling more than 235,000 inhabitants – 112,000 of which reside in downtown Mulhouse. In 2002, Soléa developed a plan to design a new urban tram network that would improve public transit services for the agglomeration, meaning better mobility for passengers, and reduced traffic and improved air quality in the downtown core. By 2006, construction of the tram network had begun – but not before completion of a thorough planning process aided by GIRO's *HASTUS*<sup>™</sup> technology.

## Challenges

Soléa's tram project was ambitious, requiring the deviation of existing bus routes, the development of new tram schedules, and the introduction of new bus routes that operated around the tram network. Consequently, Soléa required a technological solution that not only

enabled them to create numerous planning studies and scenarios but also create and gradually implement revised schedules. GIRO's *HASTUS*<sup>™</sup> solution offered powerful analysis tools, flexibility, and a variety of rail-specific functionalities that would help ensure the success of Soléa's development project.

In preparation for the construction phase of the tram network, Soléa completed in-depth planning studies for new tram lines and services, as well as for redirected bus routes that were required to circumvent construction zones. This also meant that new bus schedules needed to be developed more frequently than usual.

*HASTUS*<sup>™</sup> played an important role in helping Soléa build efficient vehicle and crew schedules and ensure the viability of new tram lines within the planned network. Soléa utilized the software's analysis tools and powerful algorithms to develop and gradually introduce alternative temporary bus routes and schedules that needed to reflect new passenger patterns caused by the construction. In addition, *HASTUS*<sup>™</sup> was used to build new schedules and bus routes for regular bus services that would be implemented once the new tram service was in place.

Another challenge faced by Soléa during the implementation process was maintaining a high-quality service to passengers during the testing phase of the new tram, which monopolised significant resources otherwise used for regular operations. Once again, the flexibility and performance of the new optimisation tools provided by *HASTUS*<sup>™</sup> played a major role in adjusting the work schedules offered to the operators.

GIRO provided Soléa with extensive support, recommendations, and training throughout the implementation process to ensure a smooth transition to the new service offering. With the help of GIRO and *HASTUS*<sup>™</sup> technology, Soléa was able to roll out eight new lines of service in just five months, in addition to creating seven new tramway schedules in two months.

## Project Timeline

- ▶ **2002 to 2006:** Construction of the first two new tram lines
- ▶ **March 2006:** All lines deviated to downtown Mulhouse
- ▶ **May 2006:** Operation of new urban tram network: 2lines, 10.03 km of urban tramway, 24 stations
- ▶ **July 2006:** Revised bus network opened to the public, with reduced service on three lines to free drivers required for tram operations, and to encourage tram use
- ▶ **2009:** Opening of three new stations on Line 1
- ▶ **2010:** Opening of Mulhouse-Thann tram-train line
- ▶ **2013:** Anticipated completion of total urban network

## Results

### Improved mobility and decreased congestion

The convenient placement of new tram stations resulted in certain bus lines being re-routed to bring passengers to the closest tram station rather than into downtown Mulhouse: this significantly decreased traffic congestion and vehicle emissions in the city's core. As an additional mode of transport, the tram has also alleviated the





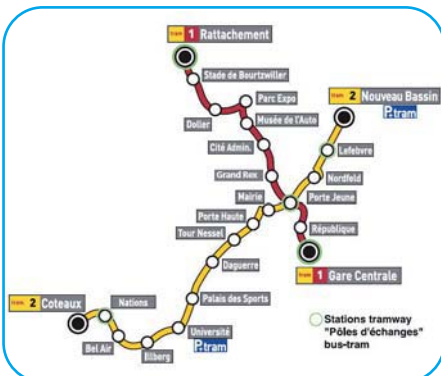
strain that was being placed on the former bus service. Today, Soléa bus routes service the majority of stops they did previously, with the exception of downtown Mulhouse. What's more, bus routes now intersect with the tramway system at five different exchange points, versus only in downtown Mulhouse before. Soléa continues to further adapt its bus routes to ensure the most efficient and passenger-friendly service.

#### Increased revenues

Soléa's revenues rose by 10% in the first seven months of launching the new tram service. In 2009, the increase stands at 27%, and the tram lines account for 52% of the total ridership.

#### Extended service

Since completing the first phase of the tram project in 2007, Soléa has been working to gradually extend tram services to other burrows within the agglomeration, adding a north-south



line towards Bourtwiller and the municipalities of Kingersheim and Wittenheim, and an extension of the east-west line towards Drouot.

Soléa has also added ten regular high-frequency bus routes (lines 10-19) to service the more densely populated burrows, ten additional bus routes to better cover the entire territory serviced by Soléa. Five new major interchanges were added to the network to facilitate passenger transfers for bus-tram transit.

#### HASTUS™ Flexibility

GIRO's *HASTUS™* software is an integrated and modular solution that helps transit authorities and operators greatly improve scheduling, operations, and passenger information. The solution's powerful analysis tools, including the *NetPlan* module for improved connections and reduced travel time, assist in the creation of planning studies and performance analyses, which has proven to help *HASTUS™* clients not only to create the most effective transit networks and schedules but also to respond to tenders in a timely and competitive manner.

The basic *HASTUS™* system provides the required tools to produce efficient vehicle and operator/crew schedules using industry-leading optimisers. Fully integrated modules then work from these schedules to manage daily operations and perform accurate operator timekeeping. Other available modules provide solutions for the essentials of transit operations, including network planning, customer information, and performance analysis. The underlying database, which is easily accessible to other systems through comprehensive integration tools, offers a single, reliable, and complete source of transit operations data.

The *HASTUS™* rail functionalities were one of the main reasons the transit operator opted to implement the newest version of the software to assist in the development of its tram project. Among the capabilities include:

- Infrastructure definition
- Definition of rail-specific constraints, including yard & platform capacities, single tracks, and junction points
- Definition of equipment characteristics
- Rail-specific validations, including movement conflicts and unit balancing
- Management of rail-specific delays
- Coupling and uncoupling
- Vehicle roster creation
- Deadhead variants for unproductive (non-passenger) movement

As a single solution that excels in the areas of planning, scheduling, and operations for multi-modal transit such as bus, tram, and LRT, *HASTUS™* provides many time-saving advantages and cost efficiencies that help to improve quality of service and operations ●

#### About GIRO

Established in 1979, GIRO is a leading provider of software solutions for public transit services including bus, metro, trolley, and commuter rail transportation. The company's *HASTUS™* solution offers comprehensive applications and innovative tools for improved scheduling, operations, planning and analysis, and customer information. *HASTUS™* combines advanced operations research optimization techniques with powerful data management tools that deliver tangible benefits for public transit authorities and private operators alike. Based in Montreal, GIRO serves customers in Africa, Asia, Australia, Europe, North America, and South America.



Contact: Alain Martinais  
 Director, Marketing – *HASTUS™*  
 alain.martinais@giro.ca  
 Tel.: +1 514 383 0404  
 Web: www.giro.ca