

1.5. Vallibús Connecta't (ES)

Vallibús Connecta't is a DRT service with a mixed scheme, consisting of on-demand and scheduled bus transport services, to serve the lower density areas of the Vallirana municipality, within Barcelona Metropolitan Area, where the public transport has low demand levels



1.5.1 About Vallirana, Spain

<u>Country</u>	<u>Region</u>	<u>Target Area</u>	<u>Population</u>	<u>Population density</u>
Spain	Catalonia	23,88 Km ²	15.658 inh.	656 inh./Km ²

Vallirana is a residential municipality located in a mountainous territory and served by an irregular road network, which makes the public transport service difficult to operate.

In 2022 the population was 15.658 inhabitants, having grown 5,25% from 2018. The seasonal population was 14.368. The majority of the population is between 40 and 54 years old. Moreover, 17% of the Vallirana population is more than 65 years old and the ageing index is 101,94. This was one of the most important aspects to identify the most suitable services and technical solutions to be provided to the citizens.



Figure 13 – View of Vallirana

The municipality is located in the Ordal mountains, within the Garraf massif, which provides great conditions for climbing and caving.

1.5.2 Description of the Mobility Solution

Not less than 5 years ago, the lower density areas of the Vallirana municipality (Barcelona Metropolitan Area), were characterised by an inefficient transport system with limited mobility options; people had to rely on private car to satisfy their mobility needs and desires.

In order to overcome this problem, in 2018 the city council decided to restructure the regular bus public transport service into a mixed scheme, consisting of on-demand and scheduled bus transport services, with the aim of better answering to the dispersed demand, improving ridership and bus occupancy, and thus

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reducing the operating costs. The fixed routes were kept during the peak-period, while an on-demand scheme was implemented for the off-peak period.

The DRT service was implemented by the city council and provided by a private PT operator.

Target user groups and needs

The target user groups are mainly the residents of peripheral areas. Given the fact that the service is implemented in the off-peak period, the most suitable targets are the non-employed population, such as the young and elder people.

In fact, most of the students use the public transport to travel from home to school (and vice versa), as well as elderly people, who use the public transport to travel to health services, among others.

Involved Bodies

The main involved bodies in the organisation and operation of the service are:

- Ajuntament de Vallirana, which is the transport authority, responsible for the regulation, funding and contracting of the transport services;
- Soler-i-Sauret, the Vallirana transport services provider, which is responsible for the transportation service and for managing the Shotl platform;
- Shotl, the technology provider for the pooling/on-demand platform.

Mobility services provided/addressed

The DRT service is provided by a private company - Soler-i-Sauret (PT Operator that was the concession holder of the former lines replaced by the flexible services).

The service is operated with two minibuses (16 seats plus the driver). The price of the on-demand transport service is the same as the standard bus service, and the regular transport cards are applied. Users have to pay or validate the card on board. The service includes three lines, covering 87 stops (see figure 12). It connects residential areas on the boundaries of the Municipality with the town centre, and acts as feeders to conventional bus lines allowing the passengers to reach the interchange bus terminal (for longer-distance services, e.g. to Barcelona).

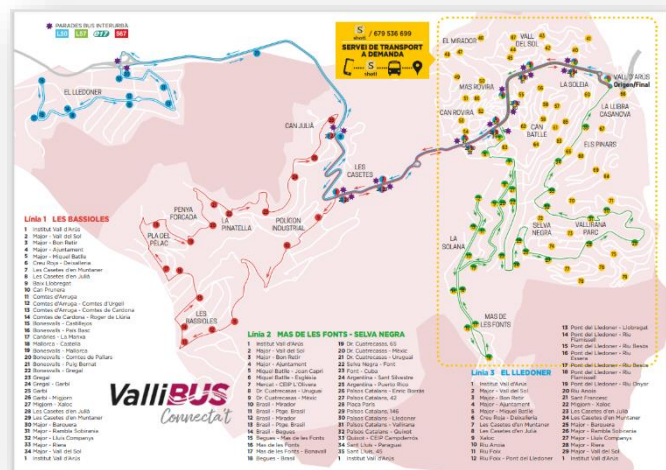


Figure 14 – DRT service (Vallibus) route map

Ridership and other key metrics/results

The DRT service started its operation just before the COVID-19 pandemic. According to the information collected by the surveys and counts undertaken, the ridership increased 64% from August 2018 to November 2019. The demand in 2019 (pre-pandemic period) was 14.499 passengers, with an average of 52 users on working days and 22 users on Saturdays. In 2022, the demand was around 15,5 thousand passengers. These figures show a relatively quick recovery from the impact of the pandemic on the DRT demand.

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Due to the Vallirana orography, most of the trips have origins in the city centre (down the hill) and destinations in the residential areas (up the hill), since passengers are more likely to walk from their homes to the centre, then to use the service on their way back.

The service should be reserved by the App service or by a phone call. At the beginning of the service and for a month afterwards, a member of staff gave assistance to the passengers onboard, helping on downloading the App and showing how to book the service. The users can book the trips up to 7 days in advance, choosing 15-minute slots. The route is planned in real time upon a user request. The user receives a notification on the App with the time and place for the pick-up. Shorter waiting and travel times are now experienced by the users, comparing to the former solution (regular PT solution).

Any online survey has been conducted by the municipality on the DRT service.

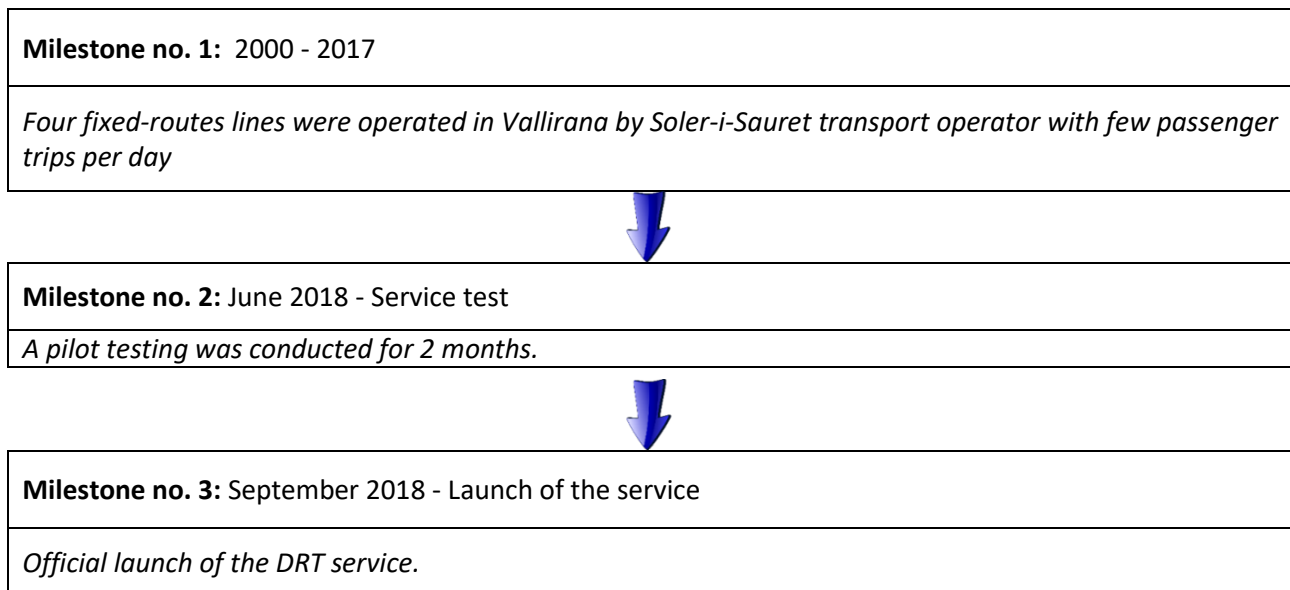
Supporting technologies

The technology for the on-demand platform is provided by Shotl. The platform consists of a management module and different interfaces:

- A passenger App for the service reservation, which provides the pick-up time and the estimated arrival time, after collecting the number of passengers and the origin and destination of the trips. Users are also provided with navigation information on walking directions to the pick-up point and from the drop-off point to their final destination.
- The driver App, which provides navigation instructions to pick-up the passenger at the stop and to drive to the final drop-off point. The machine-learning algorithms ensure the routes are fully dynamic and adjusted in real-time, based on traffic and demand.
- The Management module provides web interface for fleet and operation management, including service reporting.

The ticketing system is integrated with the system operated for the conventional service.

1.5.3 Timelines and Milestones



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**Milestone no. 4:** 2022 – 2023 - Future plans

The municipality is planning to incorporate taxi services in order to expand the routes, to serve more stops and to give a better service to persons with reduced mobility.

1.5.4 Long-term assessment

Success, Durability and Expansion

The service is still ongoing though it has not been expanded due to capacity constraints. The municipality aims to expand the service but it hasn't been able to purchase an additional vehicle. Therefore, the municipality is planning to incorporate taxi services in order to expand the routes, to serve more stops and to give a better service to persons with reduced mobility.

The municipality has delegated the operation and management of the service. The operating costs of the DRT service are covered as follows:

- 15 % from the ticketing revenues
- 5% from external funds
- 80 % from the municipality budget. The service is financed by the municipality

Funding and Financing

The service is mostly funded by the Municipality of Vallirana. Given the fact that the service was operated in a regular basis, the investment on the on-demand service was very low. The municipality already had the vehicles, and no further investment was required. The Vallibús operating costs were around 370 K€ in 2022, which includes the regular transport service as well.

Regarding investment and operating costs, the platform cost is 13K€/year. The services are outsourced to a private company - Soler-i-Sauret (PT Operator that was the concession holder of the former lines that have been replaced by the on-demand service). The business model is a concession, in which the operator is compensated by the municipality for the service provided, plus the income from the ticketing revenues.

Why is it considered a Good Practice?

Limited mobility options were provided in the lower density areas of the Vallirana municipality. The GP designed and introduced a demand responsive service, without pre-defined timetables. The route is planned in real time upon a user request via the service user friendly App or website. Shorter waiting and travel times are now experienced by the users, comparing to the former solution (regular PT solution).

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1.5.5 Transferability considerations

CONTEXT PECULIARITIES	TRANSFERABILITY CONDITIONS
<p>Area with poor PT services, low-demand or with population at risk of social exclusion due to a lack of mobility options. The service has been implemented as on-demand service in the off-peak period to connect the peripheral areas with low demand to the city centre.</p>	<p>The main conditions to implement this service are:</p> <ul style="list-style-type: none"> • Carry out a feasibility study to identify the rides/lines transporting few passengers per day and identify the most suitable solution. • Estimate service requirements, in particular for what concerns the number of drivers and buses necessary to satisfy the transport demand in different periods of the day • Carry out market research to identify possible IT platform with good functionalities for the end users and the back office.
DIFFICULTIES ENCOUNTERED/WEAKNESS	LESSONS LEARNT
<p>The main difficulty reported is related to the novelty of the service, due to the uncertainty of the authority on contracting the transport service and to the replacement of a conventional service, which is in operation for years, for a completely different scheme.</p>	<p>The replacement of an ineffective conventional PT services by flexible services in low-demand periods, which provides a more tailored and sustainable service.</p> <p>The flexibility of the service is a key factor for its success.</p> <p>The implementation of technological solutions (platform) that provides added value for all stakeholder through dedicated interfaces.</p>

References for further details

Organization: Ayuntamiento de Vallirana
 Contact Person: Martinez Morales Eva Maria
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Main data sources:

<https://ruralsharedmobility.eu/demonstrators/vallibus-connectat/>
https://www.elbaixllobregat.cat/sites/default/files/arxiu/PWP_JORDI_URREA_Vallibus_a_demanda.pdf
https://ruralsharedmobility.eu/wp-content/uploads/2020/07/ShotI_Vallirana_-SMARTA.pdf

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