

**CiViTAS**  
Cleaner and better transport in cities

**MIMOSA**

BOLOGNA • FUNCHAL • GDAŃSK • TALLINN • UTRECHT

## Measure Evaluation Results

### 2.4 - Park & Ride with PT School Service

Claudio Mantero (Horários do Funchal)

André Freitas (Horários do Funchal)

Andreia Quintal (Horários do Funchal)

February 2013



THE CIVITAS INITIATIVE  
IS CO-FINANCED BY THE  
EUROPEAN UNION

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4**

## Executive Summary

The measure consisted of provision of Park&Ride facilities and connecting them to schools. The aims of this measure were to enlarge public transport (PT) offers, to raise awareness on the benefits to use Park&Ride (P&R) facilities and to encourage car drivers to change their mobility behaviour in the city centre of Funchal. Since March 2011, four P&R facilities (MOBI PARQUE) have been operating in peripheral areas of the city. This enabled commuters to park their car in the periphery of the city and to continue travelling by PT services, benefiting from a discount on the ticket price for the driver and one additional passenger. Most of these parking facilities were well-connected to the city centre by the existing PT network of the local public transport operator, Horários do Funchal (HF). Furthermore, two new bus lines were implemented in September 2011 to connect some of the main schools to the P&R facilities (MOBI PARQUE school service). 16 schools (ranging from primary schools to professional schools) were connected to the network, and over 15.000 citizens who either study or work in these schools could benefit from these two new PT routes.

HF was responsible for steering the measure implementation supported by technical assistance from the Municipality of Funchal. The Municipality played a crucial role in the establishment of cooperation with car parking managers and with schools located within the target area. During the entire implementation process, a communication campaign called MOBI PARQUE took place that provided citizens with information on this intermodal mobility option proposed by using P&R facilities. Funchal appreciated the contribution of the city of Utrecht as expert for the preparation of the communication campaign and shared valuable practical knowledge based on the good practice experienced during P&R facilities implementation in Utrecht.

The measure was implemented in the following stages:

**Stage1: Research and development** (October 2008 - February 2011) of the feasibility of P&R

**Stage 2: Launch of MOBI PARQUE** (March 2011), accompanied by a communication campaign

**Stage 3: Launch of two new schools routes** (September 2011) as described above

**Stage 4: Analysis of the most competitive fare for the service and O/D assessment** (Feb. 2010)

**Stage 5: Approval of the communication plan** (December 2010)

**Stage 6: Define all the logistic issues about the service** (January-February 2011)

**Stage 7: Service running** (March 2011)

Impact evaluation was based on the results of several surveys among citizens. 10 phone interviews occurred in April 2011 with *P&R users* (citizens who use the full P&R service) and 21 field interviews were conducted in February 2012 with *P&R route users* (PT passengers)

who use only the buses without using the parking services). Additionally, interviews were conducted during the Expo Madeira, which is a yearly regional exhibition gathering several thousands of citizens from the entire Island of Madeira. This event was a strategic location to reach the residents of neighbourhood cities commuting to Funchal as target groups of the measure. Interviews were conducted in 2010 (before implementation) among 545 citizens and in 2011 (after implementation) among 339 citizens to evaluate the acceptance of the measure. Finally, PT demand along the focused lines and P&R usage rates were analysed by collecting data from the ticketing system validation devices.

Several **key-results** of the impact evaluation put into perspective the achievements of the measure. **Results focusing on financial issues** showed that MOBI PARQUE proved to be financially sustainable: The revenues achieved covered the service costs and generated a small profit which was shared between the PT operator and the parking managers. The PT school services are deployed by mini buses which imply less energy consumption per kilometre and therefore fewer costs. **Nevertheless results on environmental issues** underscored an increase of 24 tons of CO<sub>2</sub> in roughly one year. As opposed to the forecasts, this measure actually increased exhaust emissions since additional buses were operational (but with a low occupancy rate) and a meaningful shift towards softer modes of transport among car users was not achieved during the evaluation period. **Regarding awareness and acceptance** of the measure, key-results comprised that over 75% of surveyed residents and non-residents perceived MOBI PARQUE and school service as useful or very useful before its implementation. This positive feature has however diminished after implementation of the service. Before the implementation people perceived P&R scheme as something else than what was actually implemented in Funchal (in terms of the mix of fares and location of the parking facilities). However, 50% of the surveyed citizens were aware of the MOBI PARQUE service. **Concerning the impacts on PT supply and demand**, an increase of almost 6.000 new PT passengers within a period of one year and two months was observed. Furthermore, the new school routes made a decreasing travel time for most of its users possible for almost 60% of the new PT routes users. However, most of the interviewed citizens were walking to reach their destination prior to the measure and shifted to PT mode after the implementation of the new bus lines. **To conclude**, these key-results showed that the objective to reduce private car use to the benefit of sustainable transport mode in the city centre was not achieved during MIMOSA. Changing user behaviour requires time and the evaluation has been restricted to a period of 15 months only.

The current parking policy in the city centre was a **barrier** for the acceptance of the P&R facilities. Nowadays, the parking facilities located in the inner-city are still more attractive for car drivers than the P&R facilities due to their proximity to the city centre and to their low tariff. Indeed, MOBI PARK tariff is not competitive with the tariffs of the parks in the city centre and some P&R facilities are located too far away from main distribution axes. The commitment of local and regional authorities was a **driver** of the measure, as it facilitated the dialogue between the PT Operator and parking facilities owners. The involvement of such a high-profile group of partners also facilitated the dissemination of the MOBI PARQUE campaign through a wide range of communication channels.

As a **recommendation**, a concept of an integrated city-level parking tariff should be established as an incentive for the car drivers to use the P&R facilities instead of the inner-city parking facilities. Such a special tariff can be addressed to specific target groups as families. Secondly, usage of P&R facilities should be largely promoted. In Funchal, the P&R

facilities can be integrated into the navigation application *Travel Planner Tool* developed and implemented in the frame of MIMOSA (FUN 2.3). Thirdly, it is crucial to identify strategic locations for the choice of parking plots. In the case of Funchal, the parking location did not prove to be appropriate; one alternative could be to implement on-street parking plots for MOBI PARQUE users next to bus stations.

Even though the Municipality of Funchal and the Regional Government considered P&R services as a flagship policy for regional mobility strategy, the objective to promote use of clean modes of transport can only be reached, if supportive actions are carried out to effectively leverage inter-modality on the Island in a long-term perspective.

## A Introduction

### A1 Objectives

The measure objectives are:

(A) High level / longer term:

- This P&R service, specially oriented for families, will increase modal split towards sustainable modes;
- Better quality of life in Funchal.

(B) Strategic level:

- Promotion of intermodality between public and private modes of transport through the integration of P&R and PT on four sites. This mix will be associated with schools needs, creating an attractive option to private transport users;
- A better integration between private car, public transport and school transport needs will lead to a decrease in the traffic congestion and pollution in the city centre.

(C) Measure level:

- (1) Improvement of quality of PT service;
- (2) Increase of user acceptance and awareness of the implementation of Park and Ride and school service by those who work or study in the city of Funchal;
- (3) Decrease traffic congestion and pollution in the city by persuading citizens to leave their car parked outside the city centre and take the bus.

### A2 Description

The Park and Ride system in Funchal, which is known among the locals by its commercial name *MOBI PARQUE*, aims to integrate four relevant parking infrastructures in the public transport, located at the periphery of the city. The parking infrastructures are closely linked to the existing public transport network so it provides good connections to the city centre through regular routes of the PT Operator. This package of parking and public transport service, aiming at the support of intermodality, is delivered with competitive fees.

Map B2 (in the RTD part) presents the location of parking facilities in the urban public transport network. Because the parking facilities location is not perfect, a brief explanation of the advantages and disadvantages that each park comprises is provided in the RTD part.

The P&R service permits the users to park their car and then use the regular public transport service, benefiting from a discount in the public transport tariff for one passenger and one driver. Two fares were available, one less expensive for the parking facilities located further away from the city centre and other more expensive for those who are closest to the inner city. The users must have two cards, one for the parking and one for the public transport. In Park of S. Tiago, however, only one card is necessary, as this card has a bar code within it.

On a second step, the PT Operator had set a special connection to some of the main schools of the city of Funchal, arguably to make this service more appealing to families. This connection is possible since September 2011, with two new routes, which we will hereafter refer as *MOBI PARQUE* School service. 16 schools were located within the itinerary of the two new routes and over 15.000 citizens study or work in those schools.

The scope of the measure is therefore the cross fertilization between the P&R concept and a new complementary action to take children safely and seamlessly to schools. Decrease traffic congestion in the city and improvement of quality of PT are therefore targeted hand in hand with this measure. It was expected that not only the MOBI PARQUE users but also other residents use these bus lines.

## **B Measure implementation**

### **B1 Innovative aspects**

The innovative aspects of the measure are:

- **New conceptual approach, within EU** – The P&R service is completely integrated with urban PT net and includes a brand new school transport (MOBI PARQUE school service), non-existent until now, to link the parking facilities with the main schools of the city. This can make the difference and contribute to decrease the problematic traffic situations in peak hours of the schools.

- **New organisational arrangements or relationships, regional** – The integration between private transport, public transport and school transport needs requires close cooperation between PT Operator, parking managers and some selected schools in order to test this national and European innovation in Funchal.

### **B2 Research and Technology Development**

The RTD activity consisted of the collection of information to support the implementation activities. The following preliminary activities were carried out:

#### ***i. Exchanging ideas with Park and Ride system in Utrecht***

Funchal exchanged information with more experienced partners within MIMOSA. In this case, Horários do Funchal arranged a phone-conference with fellow consortium partner Utrecht, so that some doubts could be discussed and expertise and important tips were provided by the Utrecht partners.

Regarding to the communication, it was recommended by the city consulted to give to the park and ride users some merchandising (for example key rings). It was also suggested to invite some politicians for the launch of the service. Furthermore, Utrecht has presented some advertising posters as suggestion for Funchal.

The main difference between park and ride in Funchal and in Utrecht is that for Funchal only monthly pass tariffs were made available whereas the city of Utrecht had only provided daily tickets.

#### ***ii. Study about the locations of parking facilities***

Horários do Funchal tried to find the best location of parking facilities already existing in the city. Due to the financial problems was not possible to build a new parking facility. The Map B2 presents the location of parking facilities in the urban public transport network. Because parking facilities location is not perfect, a brief explanation of the advantages and disadvantages that each park comprises is provided.

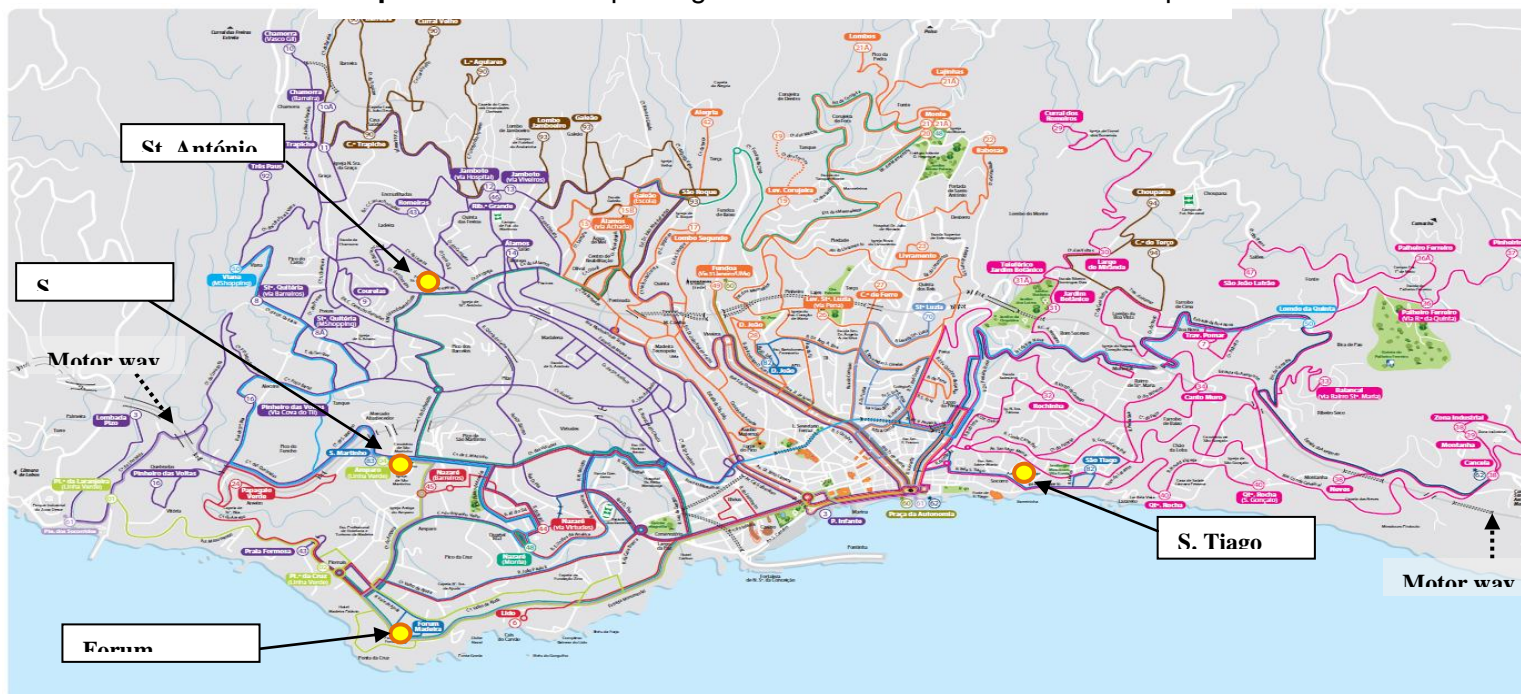
Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

**Map B2: Location of parking facilities and PT urban network map**



**Table A2.1: Advantages and disadvantages of parking facilities**

| Parking facility | Advantages                                                                                                                                                                               | Disadvantages                                                                                                                                                                                                                |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Forum Madeira    | Close to a shopping centre and good public transport connection to the city centre. Convenient for people arriving to Funchal not through the Motorway but rather by the regional route. | Long distance between the motorway and the park (2,45km or 3,20km). It has the most expensive fare.                                                                                                                          |
| S. Martinho      | Close to the motorway. It potentially is the best parking location. Well served by PT                                                                                                    | Long distance between the park and the city centre.                                                                                                                                                                          |
| St. António      | Good frequency of PT lines.                                                                                                                                                              | Long distance between the park and the city centre and bad access from the motorway. It is the only parking facility not connected by the school routes.                                                                     |
| S. Tiago         | Very close to the city centre.                                                                                                                                                           | Long distance between the motorway and the park (2,3km) and also the streets are very narrow and leaning. For persons in shape can easily walk to the city centre instead of taking the bus. It has the most expensive fare. |



**iii. Study of the mobility habits of non-residents that go to Funchal and MOBI PARQUE tariff**

The mobility study of Funchal (2006) stated that only 12% of non residents that commute to Funchal usually pay for parking their car. In the table below the average parking costs are presented.

**Table B2.1 Number of trips per day and average parking tariff of non residents that go to Funchal (prices of 2006)**

| Parking space           | Trips        |                                       | Average monthly price | Average price per hour |
|-------------------------|--------------|---------------------------------------|-----------------------|------------------------|
|                         | n            | % of non residents that go to Funchal |                       |                        |
| On-street (Tariff Zone) | 438          | 2%                                    | 70,40€                | 0,40€                  |
| Public park             | 968          | 5%                                    | 58,08€                | 0,33€                  |
| Private park            | 953          | 5%                                    | 65,12€                | 0,37€                  |
| <b>Total</b>            | <b>2.359</b> | <b>12%</b>                            | <b>63,36€</b>         | <b>0,36€</b>           |

HF has also further studied the costs related with parking in the city centre during the preparation phase of the measure (2010) to check to which extent P&R fees were competitive or not for families. For example, parking in a central Shopping Centre costs 4,5€ per day. Considering a use of 22 days per month, this amounts to a monthly cost of 99€. The first monthly tariff of MOBI PARQUE was 40€ or 55€ (breakdown as following: 20€ of revenues for HF and 20€ or 35€ for the park owners), and a special price of 20€ for one passenger (the monthly the PT pass was 37€ in 2011). In the scope of this agreement, HF does not have to pay a rent for the parking space. It rather has to divide the revenues of park and ride users with the park owners as described before. The next table makes the comparison between tariffs of MOBI PARQUE service and a central car park, considering different types of households.

**Table B2.2 Comparison of tariffs (2010)**

| Number of members of the households | MOBI PARQUE 1 | MOBI PARQUE 2 | Park in the city centre |
|-------------------------------------|---------------|---------------|-------------------------|
| 1                                   | 40€           | 55€           | 99€                     |
| 2                                   | 60€           | 75€           | 99€                     |
| 3                                   | 97€           | 112€          | 99€                     |
| 4                                   | 134€          | 149€          | 99€                     |

MOBI PARQUE 1: Tariff of 40€ for the driver and 20€ for one passenger (St. António or S. Martinho).

MOBI PARQUE 2: Tariff of 55€ for the driver and 20€ for one passenger (Forum Madeira or S. Tiago).

Research has made clear that MOBI PARQUE 1 is cheaper than the central park for families of 3 individuals or less in the case of MOBI PARQUE 1, but MOBI PARQUE 2 is only cheaper for families to up two individuals. However HF couldn't reduce more the tariffs because the parks also didn't want to reduce their revenue (their profit margin).

**iv. MOBI PARQUE school service**

The main innovative topic of Funchal’s Park&Ride measure addresses the new PT service linking 3 of the 4 parking facilities to some important schools in Funchal. This feature gives this measure a family oriented scope.

The two new lines also gave people which do not use P&R a seamless connection which was not an available option before the measure has started. This way, people have the chance to reach their final destination without entering in the city centre and without having to change buses.

The school routes were defined with the intention to cover a maximum number of schools and students, ranging from kindergarten to secondary schools and professional schools.

**Map B2.1 MOBI PARQUE school service and timetables**



For this service Horários do Funchal planned to use mini buses, because the target area (near the main schools) includes very narrow streets, and also because a low demand per trip was estimated, (considering that the hour of entry and exit of classes varies widely, and that some students already used public transport).

**B3 Situation before CIVITAS**

Traffic flow in Funchal centre has increased in the recent years, as a consequence of the construction of better accesses all over the Island, of the private vehicles growth and of the ever-increasing number of parking infrastructures, most of which are in the inner city. The centre of Funchal offered many parking opportunities and a consequent big price competition between car parks was established. So the peripheral car parks lost their potential interest. The consequent mobility congestion, pollution and noise problems have a negative impact on the city’s quality of life and tourist demand. In Funchal there is a motorway which crosses the city and links the west part to the east part of the Island. This motorway in the last five years increased enormously the total number of cars passing through, and it is mostly used to cross/enter the city creating high congestion especially at peak hours.

In 2001, Funchal has tried to develop a park and ride in the city. This experiment was unsuccessful because of several reasons, one of them being bad integration between car park and local public transport net. Car park users complained about the low frequency of the dedicated P&R shuttles and the bad tariff integration between car park service and transport service. On the other hand, the information about the service was insufficient and people started to forget it. The know-how gained on this experience was fully used in the development of the P&R concept developed in the scope of this measure.

The regional policy fully supports the institution of a park and ride solution as a way to reduce energetic consumption and to increase the use of more sustainable means of transport (Energetic Regional Plan 2002). Also the Government program (2007-2011) had the explicit objective to change the actual modal sharing from private vehicle to public transport.

Actually, the local policy strategy for parks set out to differentiate tariffs which benefit those citizens who park their vehicles further from the city centre.

The students in Funchal, if they live 2 kilometres from the school, use public transport. But in some schools (mostly primarily schools) parents brought the pupils to school by car which congests the streets during rush hours.

## **B4 Actual implementation of the measure**

The measure was implemented in the following stages:

**Stage 1: Research and development** (*October 2008 till 2010*) – Analysis of the feasibility of P&R in terms of service demand. The managing team gets forward with proposals for car park facilities which fit better into the scheme. One of the best located parking facilities (Viveiros) decided to quit due to excessive costs related with the maintenance.

**Stage 2: Accessibility assessment in the surroundings of the parking facilities** (*April 2009*) – The PT Operator and the Municipality noticed that some parking facilities lack accessibility by public transport. In one car park (S. Martinho) it was decided to improve the bus stop with on-ground works so than buses can dock in a comfortable and safe bus stop.

**Stage 3: Draft of the communication plan and postponement of the implementation phase** (*July 2009*) – The PT Operator has set out to draft a communication plan, but the implementation of it was blocked by one car park that did not agree with the main message being the money savings. Instead, the manager of this park preferred the environment, but the PT Operator argue that, according to the R&D studies that supported the implementation of this measure, environment weights little in everyday decisions. This delay has led to the decision to postpone the implementation of the service.

**Stage 4: Analyse of the most competitive fare for the service and O/D assessment** (*February 2010*) – PT Operator have sought to understand what would be the most competitive fare considering the prices of the different parking facilities in the city centre. Plus, and in addition, a study derived from the Mobility Study O/D matrix was drafted so to get a grasp on the attractiveness of the current parks and proposal of others. This analysis led to the inclusion of the Santo António car park.

**Stage 5: Approval of the communication plan (December 2010)** – Approval of the last version of the communication plan from the side of PT Operator as well as the car park manager side. Nevertheless, one park struck by imposing a restricted schedule (late opening and early closing), hampering the service implementation. PT Operator and Municipality liaison wanted to move influence and get the tight schedule widened-up and sign-up all four protocols. Regarding the communication campaign for the launch of the service, the local team launched a tender process to purchase the communication materials outlined in stage 7.

**Stage 6: Define all the logistic issues about the service (January-February 2011)** – Definition of all the material and internal systems necessary for service management, and also the procedures for the customer service, namely: final draft of the administrative forms which will have to be filled in by new users; definition of the communication flux between parking facilities managers and the team which is steering the measure; conduction of training to the employees who will deal with the customers.

**Stage 7: Service running (March 2011)** – The communication of the new P&R system began in mid-February, when the PT operator gave some explanations about the service usage rules. The main communication activities were:

- Posters placed in the parking receptions and in the sales and information outlets of Horários do Funchal;
- 25 buses were decorated with bus door campaigns, giving more visibility for drivers;
- Advertisements in regional newspapers;
- Promoters on-street along the motorway main entrances to the city, during rush hour, handing out flyers;
- Mail drop in the municipalities around Funchal;
- Merchandising for those who subscribed the service (key ring, and port cards);
- Promotional video spot in local television and in audio-video panels in the city centre;
- Advertisements through the Facebook account of MIMOSA in Funchal;
- Interviews in the regional television and radio companies with «local champions» (e.g. Bruno Pereira, vice-Mayor and Pac Vice-president).

From March 1<sup>st</sup> (2011) it was possible to use the P&R system. The monthly tariff was:

- MOBI PARQUE Drivers (St. António or S. Martinho) – 40€ (20€ of revenues for HF and 20€ for the park owners);
- MOBI PARQUE Drivers (Forum or S. Tiago) – 55€ (20€ of revenues for HF and 35€ for the park owners).
- MOBI PARQUE Passenger – 20€

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

A special discount of 50% for drivers was applied in the first month of P&R service. Also a key ring and a support to the card were given to the new users.

**Picture B4.1 Distribution of flyers in the main entrances to the city**

**Picture B4.2 Promotional poster**



**Stage 8: Implementation of the two new lines of MOBI PARQUE school service (September 2011)** – The two new routes were launched during the 2011 edition of the European Mobility Week, when the school period began.

**Stage 9: New tariff (February 2012)** – Due to the general inflation and the financial assistance programme set by the European Central Bank, European Commission and the International Monetary Fund, price of P&R monthly tariffs rose and was fixed as follow:

- MOBI PARQUE Drivers (St. António or S. Martinho) – 48€ (28€ of revenues for HF and 20€ for the car park owners).
- MOBI PARQUE Drivers (Forum or S. Tiago) – 60€ (25€ of revenues for HF and 35€ for the car park owners).
- MOBI PARQUE Passenger – 25€

## **B5 Inter-relationships with other measures**

The measure is related to other measures as follows:

- **FUN1.1. Sustainable Fleet** – The MOBI PARQUE school service use mini buses acquired by HF in the frame of Sustainable Fleet measure, because it was expected that the number of passengers would be quite low (as explained in part B2 Research and Technology Development).
- **FUN 2.1. Green PT Line** – One of the new Park and Ride facilities created in the frame of MIMOSA project is located within the Green Line catchment area. So one should expect that traffic flow can be lower due to the effects of this package of actions in the area (where most hotels and job opportunities are located).
- **FUN 2.3. PT Planning Centre** – The management of human resources related with the task of assigning bus drivers to Park&Ride school services was

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

accomplished with GIST, a tool purchased in the frame of FUN 2.3. In addition to this, the tender process to purchase mini buses included, in the technical requirements, a study about the altimetry curve of the new bus lines, because it was planned to use electric or hybrid buses in this service. This analysis was developed with the support of the ArcGis 9.3 purchased in the frame of FUN2.3. Furthermore, and from a communication point of view, it is expected that the final Travel Planner tool will enable route seekers to have access to itineraries combining car and public transport using the MOBI PARQUE facilities.

## C Impact Evaluation Findings

### C1 Measurement methodology

#### C1.1 Impacts and Indicators

The evaluation tasks for Park&Ride with PT School Service measure comprised a wide range of impacts, as it's showed below, covering four big areas MAESTRO assess and granting information on how to collect information, who collects it and when:

**Table C1.1: Specific impact indicators related with Park&Ride with PT School Service**

| Evaluation category | Evaluation sub-category | Impact             | Indicator                                                                         | Description and Source of data                                                                                              | Success quantification                                                                                                                     | Baseline  | After Data collection                                         |
|---------------------|-------------------------|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------|
| Economy             | Benefits                | Operating revenues | <b>1</b> – Revenues with the P&R and PT school service (POINTER core indicator 1) | <b>Data unit:</b> €, quantitative, collected<br><b>Source:</b> PT Operator                                                  | Outline how economically sustainable the measure is in the long term                                                                       |           | March 2011 – June 2012                                        |
|                     | Costs                   | Operating costs    | <b>2</b> – Costs with the P&R and PT school service (POINTER core indicator 2B)   | <b>Data unit:</b> €, quantitative, collected<br><b>Source:</b> PT Operator                                                  |                                                                                                                                            |           | March 2011 – June 2012                                        |
| Environment         | Pollution/ Nuisance     | Emissions          | <b>3</b> – CO2 emissions (POINTER core indicator 8)                               | <b>Data unit:</b> Tones, calculated<br><b>Source:</b> PT Operator                                                           | Final goal: reduce CO2 levels by 2%.                                                                                                       |           | March 2011 – June 2012                                        |
| Society             | Acceptance level        | Acceptance         | <b>4</b> - Measure acceptance level (POINTER core indicator 14)                   | <b>Data unit:</b> %, survey, to understand the usefulness level of a measure<br><b>Source:</b> PT Operator and Municipality | Register a positive and growing percentage of citizens who favourably perceive or approve MOBI PARQUE                                      | July 2010 | July 2011                                                     |
|                     | Awareness level         | Awareness          | <b>5</b> - Measure awareness level (POINTER core indicator 13)                    | <b>Data unit:</b> %, survey, to understand the usefulness level of a measure<br><b>Source:</b> PT Operator and Municipality | At least 50% citizens with knowledge that MOBI PARQUE among those who work/study in Funchal                                                | July 2010 | July 2011                                                     |
| Transport           | Quality of Service      | Quality of service | <b>6</b> – Quality of P&R service (POINTER core indicator 19)                     | <b>Data unit:</b> Index, qualitative, collected, survey<br><b>Source:</b> PT Operator                                       | Contribute to have satisfied users with the P&R service and contribute to a modal shift by reducing travel time among school service users |           | April 2011 (P&R users)<br>February 2012 (school routes users) |

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

| Evaluation category | Evaluation sub-category | Impact    | Indicator                                                        | Description and Source of data                                                                                                                                                     | Success quantification                                                                                    | Baseline | After Data collection  |
|---------------------|-------------------------|-----------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------|------------------------|
|                     | Transport System        | PT demand | <b>7</b> – Number of new PT passengers (City specific indicator) | <b>Data unit:</b> Estimation of the number of new users<br><b>Source:</b> PT Operator will collect this data automatically with the contactless ticketing system and with a survey | Achieve an increase of 100.000 new PT passengers with the introduction of MOBI PARQUE and school service. |          | March 2011 – June 2012 |

Detailed description of the indicator methodologies:

**1 – Revenues with the P&R and PT school service** – This indicator is intended to show the expected economical sustainability of the project. **This indicator is not directly linked with these measure specific objectives, but it is instrumental for them** showing if it is affordable to maintain such a project beyond CIVITAS-MIMOSA. The calculation will be derived from the total amount of revenues that P&R users pay for the service, plus the revenues of the new PT users of the MOBI PARQUE school service. To estimate the revenues related with the introduction of the new PT routes, HF conducted a survey to calculate the total number of new users in the MOBI PARQUE school service on February 2012 (see explanation in indicator 6 description).

**2 – Costs with the P&R and PT school service** – This indicator is intended to show the expected economical sustainability of the project. **This indicator is not directly linked with these measure specific objectives, but it is instrumental for them** showing, if it is affordable to maintain such a project beyond CIVITAS-MIMOSA. The calculation will be derived from the total cost of the new school service. The costs included are labour costs, fuel and maintenance costs.

**3 - Indicator CO2 levels** – This indicator results from the difference between the new mini buses emissions of the school service and the emissions savings of park and ride users. For the emissions of new mini buses, the average emission per kilometre were considered (calculated with the support of AREAM, the regional agency for energy and environment, using the COPERT software) and then multiplied per the kilometres travelled. For the emissions savings of park and ride users, one has considered that each new driver due to the park and ride did not need to drive an average of 6km per day using a car that emitted an average of 180g CO2/km. **This indicator corresponds to the specific objective 3.**

**4 - Measure acceptance level:** This indicator is measured through specific surveys conducted during a relevant event in which CIVITAS-MIMOSA was promoted, Expo Madeira, both in 2010 to a sample of 545 and in 2011 to a sample of 339 individuals. People were asked: “Is a



Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA** Measure number: **FUN 2.4.**

Park and Ride service with direct connection to the schools useful for you?" The target group of this survey are the residents in Madeira Island that work or study in Funchal. **This indicator corresponds to the specific objective 2.**

**5 - Measure awareness level:** This indicator is measured through a specific survey conducted during a relevant event in which CIVITAS-MIMOSA was promoted, Expo Madeira in 2011, to a sample of 339 individuals. People were asked: "Do you know MOBI PARQUE service? If yes, select which are the parking facilities?" They had 7 answers options and only 4 were correct. **This indicator corresponds to the specific objective 2.**

**6 - Quality of service** – It shows the average satisfaction rate among all the drivers/users who had registered for the P&R service right after the beginning of the service (this survey was made by telephone on April 2011, one month after its launch). The satisfaction level was also included in the survey to the PT users of the new school service. This survey was made on-board of the school service on February 2012. **This indicator corresponds to the specific objective 1.**

*P&R Users (sample of 10) were asked:*

- Before using P&R, how did you manage to travel to your usual destinations?
- How do you rank the overall quality of the P&R service in a 1 to 10 scale?

*School service users (sample of 21) were asked:*

- Before using this PT line, how did you manage to travel to your usual destinations?
- Which statement suits you better?
  - I started to use bus more instead of use car
  - I started to use bus less and more car
  - I still use the bus but now it takes less travel time
  - I still use the bus but now it takes more travel time
  - I hadn't change my mobility habits

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA** Measure number: **FUN 2.4.**

**7 - Number of new PT passengers** – The number of new PT passengers is calculated by the number of journeys in PT system made by people who adhered to the P&R scheme – including the driver and the person(s) who have registered as passenger(s) – and have not used PT before this service. To which new school routes is concerned, the methodology was to calculate the number of passengers using the percentage of new PT passengers through a survey and the total number of passengers electronic collected by ticketing system validations. **This indicator corresponds to the specific objective 3.**

***List of potential effects that were not measured***

Following POINTER specific recommendations, Funchal considers very important to think and discuss all possible effects a measure can have. Therefore an impact brainstorming was conducted in July 2011, involving all agents related with the implementation of the measures, which resulted in the list of effects presented below:

**Table C1.2: List of potential effects that were not accessed**

| Impacts category | Effect                                                    | How does it impact              | Why it was not accessed                                                                                                                                                               |
|------------------|-----------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environment      | Air quality                                               | Improve quality of life         | It is not an impact specifically influenced by this measure                                                                                                                           |
|                  | Noise                                                     | Improve quality of life         | Measure impact is too low so it is not possible to evaluate.                                                                                                                          |
| Transport        | Number of transported related accidents near main schools | Increase safety                 | Measure impact is too low so it is not relevant to evaluate.                                                                                                                          |
|                  | Number of unauthorized parked vehicles                    | Increase safety for pedestrians | Not a key objective of the measure.                                                                                                                                                   |
|                  | Traffic levels                                            | Decrease related emissions      | Measure impact is too low. So it is not relevant to evaluate (moreover, traffic levels in Funchal have been decreasing due to non-CIVITAS effects like the national financial crisis) |
|                  | Modal split of the target group                           | Decrease related emissions      | It is a too expensive study for the target group of this measure.                                                                                                                     |

## C1.2 Establishing a Baseline

Baseline data was not considered because no P&R service was implemented before CIVITAS.

## C1.3 Building the Business-as-Usual scenario

Business-as-Usual scenarios were not considered because no P&R service was implemented before CIVITAS.

## C2 Measure results

The results are presented under sub headings corresponding to the areas used for indicators – economy, energy, environment, society and transport.

### C2.1 Economy

#### 1 – Revenues with P&R and PT school service and 2 – Costs with P&R and PT school service

The next table presents the operating revenues and operating costs of Park and Ride. It was considered the period between March 2011 (when the service began), and June 2012 (the end of school period). The school period started at 19<sup>th</sup> September 2011 and ended at 8<sup>th</sup> June 2012, and this corresponds to the first year of MOBI PARQUE school service.

Surprisingly, the survey of P&R users has demonstrated that all the MOBI PARQUE passengers used the public transport before in their trips, whilst a share of 33% of the MOBI PARQUE drivers used the public transport before.

It's also important to notice that the survey of P&R school service users revealed that none of them actually use the Park and Ride service. The new users of this new bus lines only walk, representing 14% of bus lines users. The remaining 86% PT users use to travel by bus before this service was implemented. More detailed information regarding the number of MOBI PARQUE users is presented in the analysis of indicator 7.

**Table C2.1.1: Operating revenues and operating costs (March 2011 – June 2012)**

| <b>Total revenues – costs (€)</b> |                         |                |
|-----------------------------------|-------------------------|----------------|
| <b>Revenues – Park Owners</b>     | MOBI PARQUE Driver      | 2.268          |
| <b>Revenues - HF</b>              | MOBI PARQUE Driver      | 1.928          |
|                                   | MOBI PARQUE Passenger   | 1.310          |
|                                   | New bus line passengers | 1.881          |
| <b>Total revenues</b>             |                         | <b>7.387</b>   |
| <b>Costs</b>                      |                         | <b>29.168</b>  |
| <b>Revenues - costs</b>           |                         | <b>-21.781</b> |

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

The balance between the revenues and costs is negative, due to the costs associated with the new bus lines, namely fuel costs and driver's wages. However, as described in indicator 6 – quality of service, these new bus lines allowed a reduction in the travel time of some public transport users.

The car park owners also have revenues (a part of the MOBI PARQUE driver's tariff). They participate in the income in the frame of a business agreement set with the PT Operator.

The results achieved allow the PT Operator to rethink the overall integration between MOBI PARQUE and the new school routes. If one removes the costs associated with the School routes, one can reasonably realize that the P&R by itself is profitable, because there are not any costs associated and the revenues sum up to 5.506€ (all the revenues are counted less the income from new bus line passengers which in fact were not influenced by the introduction of the MOBI PARQUE service). The profit of MOBI PARQUE is therefore low, but narrowly positive in a one year and three months lifetime, whereas the school service was fairly negative.

Arguably, it will take further time to make people of Funchal acquainted with this new service and the mobility options provided by it and so one can expect that the service can in the future shift or at least tackle such negative economical outcome.

## **C2.2 Energy**

Not applicable.

## **C2.3 Environment**

### **3 - Indicator CO2 levels**

The next table presents the emissions related to P&R service from the beginning of MOBI PARQUE service (March 2011) to the end of the school period (June 2012). The total emissions results from the difference between the new mini buses emissions of the school service and the emissions savings of park and ride users.

**Table C2.3.1: Emissions related with P&R service**

|                                    | CO2 Emissions (tones) |                      |       |
|------------------------------------|-----------------------|----------------------|-------|
|                                    | Mar - Aug 2011        | Sept2011 - June 2012 | Total |
| A - Mini buses emissions exhausted |                       | 22,55                | 22,55 |
| B - Cars emissions not exhausted   | 0,7                   | 0,73                 | 1,38  |
| <b>Total emissions (A-B)</b>       | 0,7                   | 23,28                | 23,93 |

With this measure, additional 22 tonnes of CO2 were emitted. This was due to the new school service which has introduced PT services not provided previously.

This analysis shows that the objective of decreasing pollution in the city has not been accomplished yet. But as assumed before, the PT service can turn out to become more appealing in future so that savings from car emissions might increase and also increase the independence of the private car in the area where the service was introduced.

## C2.4 Society

### Indicator 4 - Measure acceptance level

The acceptance level of the measure was assessed with two surveys conducted in Expo Madeira (2010 and 2011), the most important exhibition of commercial activities in the entire Region. Citizens were asked about their feeling of usefulness regarding to Park & Ride as well as school service. The table below presents the results divided according to those who live in Funchal and those who live outside Funchal, and also divided by the users of public transport and private transport and users of both modes.

To know which mode of transport the respondents use, the following question was asked: "How often do you use this mode of transport: public transport; private transport". It was considered that users of private and public transport are those who said that use the public and private transport more than 4 days per week. That does not mean that they used private and public transport in the same trip, only that they use these different modes weekly.

It is important to highlight that data collected is not of high quality. The sample used for this indicator is not representative for the mobility in Funchal, because the use of private car (in this sample) is clearly more predominant (72% in 2010, 82% in 2011). In the mobility study of Funchal (2006), public transport accounts for 32% of the modal share, whereas private transport accounts for 53% of the modal share. Moreover, those who answer to what extent MOBI PARQUE is usefulness for them are not necessarily aware of what the service implemented in Funchal is about. So, especially in 2010, any single person can have a different concept of what the Funchal P&R scheme can become.

**Table C2.4.1: Feeling of usefulness with regard to MOBI PARQUE and school service (among those who work/study in Funchal)**

| Residence                    |                                  | 2010 (Before) |               |                |               | 2011 (After) |             |                |               | 2011-2010 |      |         |       |
|------------------------------|----------------------------------|---------------|---------------|----------------|---------------|--------------|-------------|----------------|---------------|-----------|------|---------|-------|
|                              |                                  | PuT* (n=88)   | PrT** (n=298) | Put+PrT (n=37) | Total (n=423) | PuT (n=17)   | PrT (n=202) | Put+PrT (n=27) | Total (n=246) | PuT       | PrT  | Put+PrT | Total |
| Funchal                      | Very unuseful                    | 0%            | 3%            | 5%             | 2%            | 0%           | 3%          | 11%            | 4%            | 0%        | 1%   | 6%      | 2%    |
|                              | Unuseful                         | 10%           | 11%           | 5%             | 10%           | 24%          | 6%          | 19%            | 9%            | 13%       | -4%  | 13%     | -1%   |
|                              | Neither useful nor unuseful      | 17%           | 10%           | 8%             | 11%           | 18%          | 24%         | 19%            | 23%           | 1%        | 14%  | 10%     | 12%   |
|                              | Useful                           | 32%           | 37%           | 46%            | 36%           | 35%          | 43%         | 30%            | 41%           | 3%        | 6%   | -16%    | 5%    |
|                              | Very useful                      | 41%           | 40%           | 35%            | 40%           | 24%          | 23%         | 22%            | 23%           | -17%      | -17% | -13%    | -17%  |
|                              | Unuseful and very unuseful ratio | 10%           | 13%           | 11%            | 13%           | 24%          | 10%         | 30%            | 13%           | 13%       | -4%  | 19%     | 0%    |
|                              | Useful and very useful ratio     | 73%           | 77%           | 81%            | 76%           | 59%          | 66%         | 52%            | 64%           | -14%      | -11% | -29%    | -12%  |
| Outside Funchal              |                                  | PuT (n=25)    | PrT (n=92)    | Put+PrT (n=5)  | Total (n=122) | PuT (n=6)    | PrT (n=77)  | Put+PrT (n=10) | Total (N=93)  | PuT       | PrT  | Put+PrT | Total |
|                              | Very unuseful                    | 12%           | 1%            | 0%             | 3%            | 0%           | 3%          | 0%             | 2%            | -12%      | 2%   | 0%      | -1%   |
|                              | Unuseful                         | 0%            | 8%            | 20%            | 7%            | 33%          | 6%          | 20%            | 10%           | 33%       | -1%  | 0%      | 3%    |
|                              | Neither useful nor unuseful      | 24%           | 8%            | 20%            | 11%           | 33%          | 23%         | 40%            | 26%           | 9%        | 16%  | 20%     | 14%   |
|                              | Useful                           | 28%           | 43%           | 40%            | 40%           | 17%          | 48%         | 30%            | 44%           | -11%      | 5%   | -10%    | 4%    |
|                              | Very useful                      | 36%           | 40%           | 20%            | 39%           | 17%          | 19%         | 10%            | 18%           | -19%      | -21% | -10%    | -20%  |
|                              | Unuseful and very unuseful ratio | 12%           | 9%            | 20%            | 10%           | 33%          | 9%          | 20%            | 12%           | 21%       | 0%   | 0%      | 2%    |
| Useful and very useful ratio | 64%                              | 84%           | 60%           | 79%            | 33%           | 68%          | 40%         | 62%            | -31%          | -16%      | -20% | -16%    |       |

\*PuT: Public transport

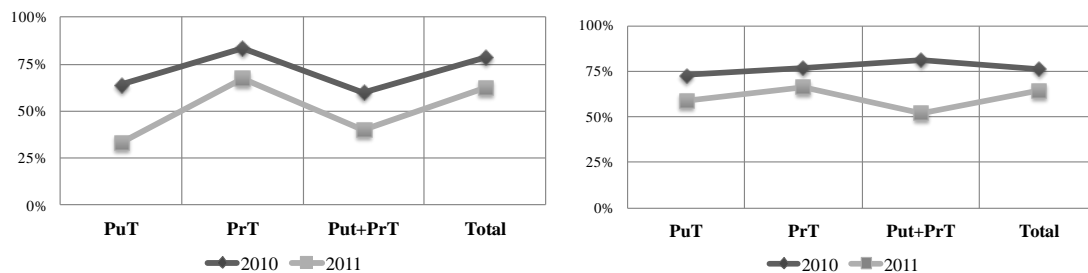
\*\*PrT: Private transport

The main results that this table shows are:

- In total for the residents and non-residents in Funchal the useful and very useful had decreased, although the unuseful and very unuseful ratio is almost the same;
- The non-residents in Funchal that use the private car, as the main target group of the service, revealed a decrease of 16% in the feeling of usefulness.
- In 2011 the users of private transport that live outside Funchal are those who had the bigger feeling of usefulness with regard of MOBI PARQUE, whereas the users of public transport that live outside Funchal are those who had the minor feeling of usefulness.

The next charts represent the main differences for the useful and very useful ratio.

**Chart C2.4.2: Useful and very useful ratio**



**Residents in Funchal**

**Residents outside Funchal**

The primarily intention is to seek the usefulness levels of those who use private car, as they comprise the target group of MOBI PARQUE.

For all the groups analysed, the useful and very useful ratio had decrease in 2011. The decrease was higher in the group of non residents in Funchal that use public transport and also among those who live in Funchal and use public and private modes weekly. The service was implemented only on March 2011, so in 2010 citizens only had the idea of what the service could be. In 2011, citizens seem to be generally disappointed with what the service has become. Nevertheless, one should point out that the majority of the main target group, that is to say, those who only use private modes of transport and live on the outside the city continue to consider the service useful or very useful in 2011. Therefore, there is room left to trigger their attention towards the service and lead them adhere/try the MOBI PARQUE scheme.

A possible reason why public transport users in general regard the service as less useful can rely on the fact that they are more aware of the location of the parking facilities and the connections between them and public transport services to the city centre (which is not perfect as explained in the measure description).

Lastly, the fact that residents outside Funchal commute to the city by bus explains why they do not need this service.

### Indicator 5 - Measure awareness level

In the same survey, people were asked, if they knew the MOBI PARQUE service. Therefore it is possible to characterize the awareness levels of citizens living in Funchal and outside the city with regard to MOBI PARQUE.

**Table C2.4.3: MOBI PARQUE awareness**

| Residence       |     | PuT (n=17)        | PrT (n=202)        | Put+PrT (n=27)        | Total (n=246)        |
|-----------------|-----|-------------------|--------------------|-----------------------|----------------------|
| Funchal         | Yes | 47%               | 56%                | 44%                   | 54%                  |
|                 | No  | 47%               | 41%                | 52%                   | 42%                  |
|                 | NR* | 6%                | 3%                 | 4%                    | 4%                   |
| Outside Funchal |     | <b>PuT (n=6)</b>  | <b>PrT (n=77)</b>  | <b>Put+PrT (n=10)</b> | <b>Total (n=93)</b>  |
|                 | Yes | 50%               | 44%                | 50%                   | 45%                  |
|                 | No  | 50%               | 51%                | 50%                   | 51%                  |
|                 | NR  | 0%                | 5%                 | 0%                    | 4%                   |
| Total           |     | <b>PuT (n=23)</b> | <b>PrT (n=279)</b> | <b>Put+PrT (n=37)</b> | <b>Total (n=339)</b> |
|                 | Yes | 48%               | 53%                | 46%                   | 52%                  |
|                 | No  | 48%               | 43%                | 51%                   | 45%                  |
|                 | NR  | 4%                | 4%                 | 3%                    | 4%                   |

\*Didn't answered to the question

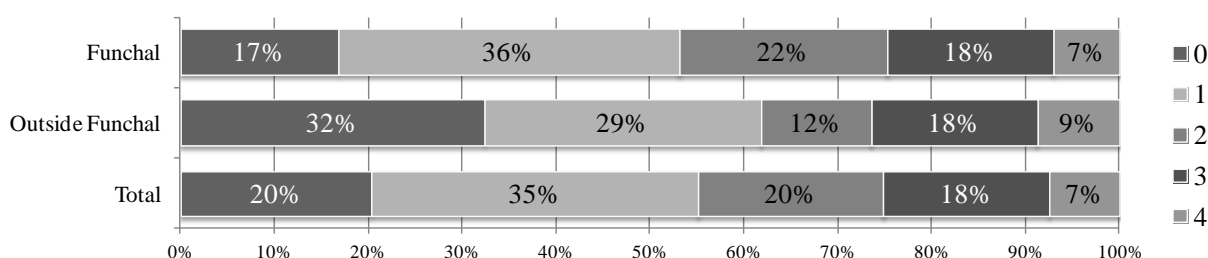
In total, most of people (52%) have heard about MOBI PARQUE service, but the percentage of persons who are not aware of this measure is also relevant. This could be a good result of the promotion campaigns that Horários do Funchal and the Municipality had developed together. So the result somehow mirrors the effect of the communication campaign.

In the overall percentage, the users of private transport (the target group) know a little more the MOBI PARQUE service (more 5%).

The users of private car that live in Funchal are more aware of this service, than those who live outside Funchal. Expo Madeira is a regional event, so some of the people who answered the survey could live in other municipalities too much far from Funchal, and had not seen any information about MOBI PARQUE. Some features of the promotional campaign targeted above all those who live in the municipalities around the city (with drop-mail in the households of these areas). So one can assume that many participants in Expo Madeira were not residents in these municipalities and therefore were not aware that the service was carried out.

To further sought to understand the knowledge citizens are empowered of with regard to MOBI PARQUE, one asked to all of those who said to be aware of MOBI PARQUE, to select which parking facilities was provided to this service users. The next chart shows the correct answers only for the users of private transport, which are the main target group.

**Chart C2.4.4: Knowledge of MOBI PARQUE facilities (private transport users) (n=176)**



Although in general only 7% knows the four parking facilities, it is important to refer to the fact that most of the people know at least one parking facility and can therefore be considered to be well aware of the service. This assumption is grounded on the fact that MOBI PARQUE users must register in one parking facility solely (out of the four the service provides).

To sum it up, most people are aware that MOBI PARQUE was implemented, some of whom even know which parking facility the service serves. Even those who do not know where the parking facilities are located, are aware that the service is provided and this is a first step towards a future interest in this inter-modal option because they can easily make a phone-call or browse in the Internet to know further information about the service.

68% of all the respondents who commute to Funchal from the surroundings by private transport found the idea of P&R useful in 2011, but only 44% were aware of the MOBI PARQUE service.

On the other hand, slightly more than half of the citizens, a total of 52% of the surveyed group, in 2011, deemed to be aware of MOBI PARQUE. Among this group of people, 80% point out correctly at least one of the four parking facilities this service covers. It is important to realise that the sample selected is not totally representative of the population of Madeira and that the small sample size makes the results become barely statistically representative.

Finally, one should highlight the high number of people that said they used public transport and private transport during the week. Even if they do not combine these two modes within the same trip (the question did not enable to understand this characteristic), one can assume that the idea of intermodality is embedded among the citizens of the Region and even increase from 7,7% in 2010 to 10,9% in 2011.

## **C2.5 Transport**

### **Indicator 6 – Quality of P&R service**

The MOBI PARQUE users, both drivers and passengers, declared an average satisfaction level of 8.5 (on a 1 to 10 increase satisfaction scale) with this new service (survey undertaken to a sample of 10 users by phone). This high satisfaction level shows that despite the number of actual users was low, it can increase further in the future, if these satisfied citizens spread the word informally to their fellow colleagues, friends and relatives.

It would be important to better understand the reasons why MOBI PARQUE users are so satisfied with the service. Unfortunately it was not possible to know, if this is because the connection to the city centre is now more convenient than before in terms of time saving.

Fortunately, it was possible to include the question mentioned in the previous paragraph in the survey for the new school service users, and the results are as follow (survey carried out on buses to a sample of 21 users):



**Table C2.5.1: Convenience service of the new school routes (n=21)**

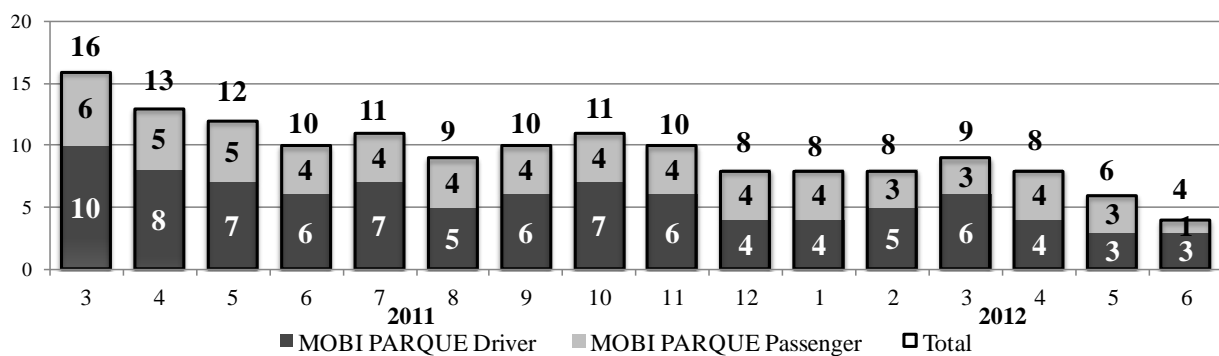
|                                                          |     |
|----------------------------------------------------------|-----|
| I started to use the bus more instead of using the car   | 10% |
| I started to use bus less often and more the car instead | 0%  |
| I still use the bus but now it takes me less travel time | 57% |
| I still use the bus but now it takes me more travel time | 0%  |
| I hadn't changed my mobility habits                      | 14% |
| Didn't answer                                            | 19% |

Be aware that not even one of the new school routes passengers had used MOBI PARQUE, it is noteworthy that for 57% of the users, the introduction of these two new routes led them to save travel time. So the new school route feature has raised high operational costs for the PT Operator on the one hand, but has increased the accessibility of citizens on the other.

**Indicator 7 - Number of new PT passengers per month**

To identify how many new PT passengers this measure has come up with, one has distinguished the MOBI PARQUE service from the new PT school service. The next chart firstly presents the number of persons who subscribed this service.

**Chart C2.5.1: Number of individuals using the MOBI PARQUE service**



The month that gathered more MOBI PARQUE users was the first one, surprisingly. This could be an influence of the 50% fares promotion during the first month. The negative trend for decreased number of users could be derived from different reasons: the disappointment with the service according to locations and fares, the increased number of unemployed persons, the high and aggressive commercial schemes of the parking facilities located in the city centre (not associated with MOBI PARQUE). Therefore the service tariffs could be too expensive. It can also happen that the MOBI PARQUE users had a disappointment with the service, but this characteristic lacks empirical evidence because the satisfaction rate with the service was fairly high as it was possible to assess before in the quality of P&R service indicator.

To estimate the number of new passengers, one took into account the survey to the MOBI PARQUE users (April 2011) and the survey to the MOBI PARQUE school service (February 2012), where it was known that:

- all the MOBI PARQUE passengers used public transport before in their trips;
- 33% of MOBI PARQUE drivers used the public transport before;
- 14% of the passengers of MOBI PARQUE school service (new bus lines) only walk in their trips before, and the other 86% travelled by bus before. Nobody used to take a private transport mode before.

The process of estimation of new PT passengers included the application of the percentages above to the total of passengers registered by the ticketing validation system.

**Chart C2.5.2: Number of new PT passengers per month**

| Year             |                                    | 2011       |            |            |            |            |            |            |              |              |              | 2012         |              |              |              |              |            | Total         |
|------------------|------------------------------------|------------|------------|------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|---------------|
| Month            |                                    | 3          | 4          | 5          | 6          | 7          | 8          | 9          | 10           | 11           | 12           | 1            | 2            | 3            | 4            | 5            | 6          |               |
| New passengers   | Passengers of new lines            |            |            |            |            |            |            | 101        | 454          | 476          | 227          | 499          | 422          | 328          | 323          | 548          | 61         | 3.439         |
|                  | MOBI PARQUE Drivers                | 248        | 184        | 184        | 170        | 173        | 135        | 163        | 231          | 184          | 77           | 98           | 97           | 147          | 83           | 87           | 73         | 2.334         |
|                  | <b>Total</b>                       | <b>248</b> | <b>184</b> | <b>184</b> | <b>170</b> | <b>173</b> | <b>135</b> | <b>264</b> | <b>685</b>   | <b>660</b>   | <b>304</b>   | <b>597</b>   | <b>519</b>   | <b>475</b>   | <b>406</b>   | <b>635</b>   | <b>134</b> | <b>5.773</b>  |
| Total Passengers | Passengers of new lines            |            |            |            |            |            |            | 707        | 3.176        | 3.335        | 1.588        | 3.494        | 2.957        | 2.297        | 2.262        | 3.834        | 424        | 24.074        |
|                  | MOBI PARQUE Drivers                | 372        | 276        | 276        | 255        | 259        | 203        | 244        | 347          | 276          | 116          | 147          | 145          | 220          | 124          | 131          | 110        | 1.860         |
|                  | <b>Total</b>                       | <b>372</b> | <b>276</b> | <b>276</b> | <b>255</b> | <b>259</b> | <b>203</b> | <b>951</b> | <b>3.523</b> | <b>3.611</b> | <b>1.704</b> | <b>3.641</b> | <b>3.102</b> | <b>2.517</b> | <b>2.386</b> | <b>3.965</b> | <b>534</b> | <b>25.934</b> |
|                  | <b>Average passengers per trip</b> | <b>2</b>   | <b>5</b>   | <b>5</b>   | <b>5</b>   | <b>5</b>   | <b>5</b>   | <b>5</b>   | <b>5</b>     | <b>6</b>     | <b>2</b>     | <b>5</b>     | <b>2</b>     | <b>5</b>     | <b>5</b>     | <b>5</b>     | <b>5</b>   | <b>5</b>      |

The passengers of new lines are very irregular because this is a service provided on school days only. The average passengers per trip range between 2 and 6 passengers. So the use of the mini buses is appropriated to this service.

The initial idea of MOBI PARQUE school service was to combine users of MOBI PARQUE and other interested users, but it turned out to be that those who use it have nothing to do with MOBI PARQUE. They hop-on the new school PT routes because they feel that these new connections are convenient for them.

Also more data about the target audience, the users of new bus lines, was collected and will be useful for planning purpose, such as:

- This bus lines are mainly used by women (86%);
- Only 10% of the users are less than 25 years old;
- 14% of the users are students.

## C2.6 Cost-benefit Analysis

Not applicable.

## C3 Achievement of quantifiable targets and objectives

**Table C3.1: Achievement of quantifiable targets and objectives**

| No. | Target | Rating |
|-----|--------|--------|
|-----|--------|--------|

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

|                                                                                                                                                     |                                                                                                                                                                                                                                                                                             |                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 1                                                                                                                                                   | CO2, NOx and PM emissions reduction in at least 2%                                                                                                                                                                                                                                          | <b>O</b> – Co2<br><b>NA</b> – Nox and PM |
| 2                                                                                                                                                   | To have an increase of 5% in number of clients (passengers) in the PT lines due to the P&R service                                                                                                                                                                                          | <b>O</b>                                 |
| 3                                                                                                                                                   | High satisfaction of P&R users with the service.                                                                                                                                                                                                                                            | <b>**</b>                                |
| 4                                                                                                                                                   | Congestion reduction by 10% in the connecting street between the parks and the city centre; the link between P&R facilities and school transport will also reduce the total trips covered by private vehicles in the city centre and reduce the traffic problems near schools in peak hours | <b>NA</b>                                |
| 5                                                                                                                                                   | At least 50% of the target group citizens with knowledge about MOBI PARQUE                                                                                                                                                                                                                  | <b>**</b>                                |
| <b>NA = Not Assessed    O = Not Achieved    * = Substantially achieved (at least 50%)</b><br><b>** = Achieved in full            *** = Exceeded</b> |                                                                                                                                                                                                                                                                                             |                                          |

Even though more accessibility and mobility options are given to locals, the objective of decreasing greenhouse gas emissions has hardly be considered as positive. In fact, despite the MOBI PARQUE by itself does not harm the environment, the effect of the introduction of the school route service (whose users were not considered new PT users mostly) gave a boost to emissions exhausted.

NOx and PM emissions were not measured. However one can assume that the impact of this measure would be negative to what these pollutant is concerned, due to the introduction of more mobility options.

Another clearly defined goal was to increase the number of PT passengers in the network by 5%. Public transport in Funchal transport roughly 25.000.000 passengers per year (2011). The MOBI PARQUE service combined with the new PT routes has contributed to an increase of nearly 5.000 new PT passengers in one year lifespan. So the objective of achieving a 5% increase was far below what was previously envisaged.

In parallel, the satisfaction rate of P&R users was achieved in full and was measured by a survey question asking MOBI PARQUE school service passengers, if they felt that the service has contributed to decrease their travel time when commuting. This could be considered a big success of the measure, if it was not evident that the number of users is low and is becoming even lower as time goes by.

The goal of reducing congestion was not assessed because it would be difficult to show a meaningful traffic reduction derived from the low number of MOBI PARQUE users.

On the other hand, almost half of citizens considered to be the target group, that is, those who live on the surroundings of Funchal and that commute to the city by private vehicle, are acquainted with the MOBI PARQUE service. More than a half is even aware of at least one parking facility which adhered to the service. This high awareness level is a success of the communication approach which pursued the maximum visibility to the service. People with a grasp about the service could find it convenient or useful for any purpose they might have in the future.

## **C4 Up-scaling of results**

Horários do Funchal will further promote the use of the MOBI PARQUE school service, giving more information to the students. This activity could have a good result in the number of passenger of the school services.

As for MOBI PARQUE, the city will seek strategies to introduce a 5<sup>th</sup> parking facility bounded with the service. Within the progress made with the Travel Planner tool (in the scope of the PT Planning Centre measure, FUN 2.3.), an application will be installed to enable consultations about MOBI PARQUE (parking plus public transport) for citizens to realize the added value this service can bring to their lives.

## **C5 Appraisal of evaluation approach**

The objectives of this measure, planned in the beginning of the project, were too ambitious. Therefore, some of the measure goals were not fully achieved.

The low-impact of the measure in terms of changing the habits of the inhabitants towards a mind-set framework like MOBI PARQUE and the new school routes have led also to not assess the aftermath of the measure in terms of traffic congestion and also some pollutants were not calculated as well.

It would be important for evaluation purposes to know, if the MOBI PARQUE service has in some way decreased the travel time for its users as we now know for the new school routes. Unfortunately, it was not possible to add this question in the surveys addressing the MOBI PARQUE users.

The surveys conducted must be considered with care. None has pretensions to be statistically representative either because the sample size is too small (like the surveys conducted inside the bus to the school routes passengers) or not randomly chosen, like the survey conducted in Expo Madeira. Nevertheless these surveys, specially the survey conducted for the MOBI PARQUE school service was very important to understand actual demand and for planning the future of this service.

If Horários do Funchal would have known the preferences of potential users about parking locations before, carrying a survey, the measure might have been even more successful.

If planned in the beginning of the project, and if there was not so many financial problems, a study of Modal Split within MIMOSA project, including all the measures, would grant the opportunity to identify the modal split of the target group after park and ride implementation.

## **C6 Summary of evaluation results**

The key results are as follows:

- **MOBI PARQUE is financially sustainable whereas the new school service costs outweigh the revenues achieved** – Data collected about the financial assets of the measure clearly shows two contrasting features. On the one hand, the MOBI PARQUE which was able to create positive net value of 5.506€ in one year and two months lifetime, whereas, on the other hand, the new school routes operational results have led to a negative net value of 27.287€ in one year of deployment. In times of scarce financial resources, one can realize that the MOBI PARQUE service can progress as it

is, because it is creating added value for both the PT Operator and the park owners. Yet, the school services can only be sustained in time only if its progress is positive and more users are convinced in using these two new routes.

- **Increased transport related emissions by 24 Tons of CO<sub>2</sub> in roughly one year lifetime** – Unlike what previously forecast, this measure has actually increased emissions exhausts because it was not able to create meaningful shifts towards softer modes of transport on the one hand. And because, on the other hand, it introduced a new PT service which is still running with low demand but improving the PT connection for the residents of the catchment area
- **Over 60% of residents surveyed in the frame of a regional-wide event (Expo Madeira) find MOBI PARQUE and the school service as useful for them** – This feature has however diminished with the implementation of the service showing that people perceived a P&R scheme as something else than what was actually implemented in Funchal (in terms of the mix of fares and location of the parking facilities).
- **Half of people surveyed at Expo Madeira are acquainted with the MOBI PARQUE service** – even though people do not use the service, the knowledge that it exists and is being provided can in the future trigger its usage level. But probably for this to happen, the mix of fares and location of the parking facilities, together with the parking policy in the city centre which needs to be further dis-encouraged, have to be rethought.
- **The School Routes have decreased the travel time for most of its users** – The communication plan of this measure was successful and this result can be assumed by the number of citizens aware of MOBI PARQUE. But it seems that formal communication approaches are not sufficient robust to give a boost to the new services implemented within this measure. So word of mouth is necessary to raise the number of PT and MOBI PARQUE users. For this to happen, people need to find in the PT service a convenient choice for their mobility needs. Fortunately, almost 60% of the new PT route users have have pointed out that with these new routes they now arrive in their final destination earlier than before. However, none of the users of this bus lines used private transport before so there is not any modal shift.
- **Almost 6.000 new PT passengers in one year and 2 months lifetime** – It is important to bear in mind that this result could be even higher, if the implementation period was longer and therefore the new bus lines have been able to gather more PT users.

## **C7 Future activities relating to the measure**

The future is to maintain the P&R facilities because there are no extra costs to sustain the service as it is (in the scope of the agreement between the park owners and HF, HF don't have to pay a rent for the parking space, the parts divide the revenues of park and ride drivers). Moreover, there is a policy strategy to provide an extra modal choice for commuters and to incentive co-modality among the region as a sound mobility solution.

Horários do Funchal will also study and consider other possibilities, like expanding the P&R facilities to a 5<sup>th</sup> park and test the feasibility of using parking facilities on the street where

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

parking meters are installed and are right next to bus stops. With this system that would require some liaison with the Municipality and the local police for enforcing, Horários do Funchal could have more revenues, than with a parking facility because there would not be any need to share them with the parking owners.

Regarding to the new school routes, Horários do Funchal will continuously promote these routes, and adjust the frequency to the demand.

## **D Process Evaluation Findings**

### **D.1 Deviations from the original plan**

The deviations from the original plan comprised:

- **Deviation 1: Location of parking infrastructure** – On the original plan, the parking infrastructure was located near the entry/exit of the motorway (Viveiros Park). This car park has 770 parking places and is shared with a big supermarket. Due to many problems arisen in negotiation with this car park, and the high cost for renting it, HF decided to choose other car park infrastructures. Hence the service was actually implemented in 4 car parks, some of which not so close to the entry/exit of the motorway line as one would wish.
- **Deviation 2: Purchase of buses to school service** – The PT Operator did not receive the new buses that were supposed to operate in the school service with a hybrid/electric engine. This feature would have given the measure an innovative scope and would have helped to achieve a positive impact to what exhaust emissions is concerned. The Operator has sought to purchase a fleet of mini and diesel-powered buses that were actually put into motion to be use as two new lines linking parking facilities to the schools. These buses were purchased in 2011 and contributed to some extend to the delays related with the launch of the school routes.
- **Deviation 3: Changes in the budget** – HF subcontracted a service for Integration Ticketing System (7.100 €) which was not in the budget. Plus, some supportive equipment that was planned was not purchased (e.g. real-time information on bus stops), and HF has transferred the budget to a subcontracting for communication activities. The impact of these changes was overly low.
- **Deviation 4: Delays in the implementation** – On the original plan, the service implementation would be set into motion starting from month 22. Due to the continuous delays with the negotiation with car parks, the Park and Ride service was launched only in month 29 (February 2011), thus the implementation period has shrunk.

### **D.2 Barriers and drivers**

#### **D.2.1 Barriers**

##### **Overall barriers**

- **Impending cultural circumstances around co-modality through P&R scheme (3 – Cultural)** – Due to the unsuccessful P&R trial in the past, there has been some reluctance regarding the best way to launch this measure. Intermodality was often regarded by locals as not appealing and time-consuming for a city with the dimension of Funchal (nearly 100.000 inhabitants).
- **Lack of shared sense of urgency among key stakeholders to sustainable mobility (4 – Problem related)** – There is not any shared sense of urgency around Park&Ride from the local/regional authorities. At least, there is not a clear vision on how this measure fits the mobility policies in the Region among

the Regional Government and the Municipality. There are interests at stake in letting citizens driver their car towards the city centre and therefore spending more money on fuel. Taxes on fuel consumption accounts to a big share of the revenues for the Regional Government and thus some central parking facilities had continued to be built during this measure lifetime. In addition to this, the increased number of available parking spaces in the city centre opposed to the reduced number of vehicles circulating (due to the general crisis that sharply rose the fuel price), have established a big competition between parking managers. Last but not least, this has led to the establishment of a dumping price policy among the overall parking industry which threatened this measure's success (it is increasingly affordable to take the private vehicle to the city centre, rather than leaving the car parked on the verge of the city). For example, parking in a shopping mall located right in the city centre used to cost about 120€ in 2008, 99€ in 2010 and costs 55€ in 2012. MOBI PARQUE on the other hand can cost up to 55€ plus 20€ for the passenger (a 2<sup>nd</sup> passenger would already have to pay the full price to ride the LPT system, that is 44€ in 2012). Therefore, MOBI PARQUE has been only useful for commuters that travel alone to the city centre so far.

### **Preparation phase**

- **Impeding strategic relationship between measure steering committee and parking facilities managers** (1 – *Political/strategic*) - Some difficulties in negotiating with car park managers arose at the preparation phase. Car park managers did not agree with the strategy defined for the measure, namely the prices wished-for and the communication messages to target citizens (mainly addressing environment-related teasers).
- **Additional technological requirements** (10 – *Technological*) – Difficult integration of the PT tariff system with the P&R system was responsible for three parking facilities having one single card for P&R users whilst other park users had to use two different cards, one for the parking facility and another one to use the local PT system.
- **Location of parking facilities** (12 – *Other, Infrastructural*) – No survey about the preferences of potential users was made before. This could help to select better the parking facilities. However there were not many solutions and no financial capacity to build another parking facility.

### **Implementation phase**

- **Resistance towards the deployment of a new school PT service** (4 – *Problem related*) – There has been some resistance as to which the new school routes should be implemented, based upon the financial crisis that struck Portugal. This crisis has led to a reduction in the overall number of Km travelled by the PT Operator. Plus, the delays in the purchase of the buses that HF planned to use for this particular service have postponed this important supportive activity to the final year of implementation.



### Operation phase

- **Too much dependency on public funds (including CIVITAS funding) to financially sustain the School service (9 – Financial)** - New mobility services take time to nurture citizens. However, whilst the P&R itself has proved to be a low-budget feature of the overall mobility system (endorsing this scheme beyond MIMOSA does not entail maintenance costs), it will be difficult to further sustain the school routes beyond MIMOSA if they fail to attract new PT users. This is due to the emergent crisis context, characterized by the implementation of plans aimed to downsize the PT supply.

## **D.2.2 Drivers**

### Preparation phase

- **Commitment of key partner on the measures based on political and/or strategic motives (5 – Involvement, communication)** – The Municipality is underling the P&R measure whenever it can as an important tool in the framework of the overall strategy for urban mobility. Furthermore, a policy group attended all the meetings that the PT Operator had with park managers to show that civil servers are supporting the measure in whatever they are capable of. The commitment of the civil servers was instrumental to achieve breakthroughs in the negotiations with the parking facilities managers.

### Implementation phase

- **Constructive partnership arrangements (2 – Institutional)** – Some drivers have arisen during the negotiations with car park managers. In the past, they didn't always agree with the strategy defined for the measure, namely the prices wished-for and the communication messages to target citizens. But now the team that has steered the measure have accomplished a shared platform, differentiating the prices according to the attractiveness of the parking facility and not emphasising the service fees price too much on posters located near parking facilities that belong to shopping malls.

### Operation phase

- **Growing involvement of the Regional Government on the measure (5 – Involvement, communication)** – During the operation phase, the involvement of the Regional Authority in this measure was far clearer. They assumed P&R as a goal for the execution of their government programme 2007-2011 and attended the launch of both the P&R service and the new school routes service

## **D.2.3 Activities**

### Preparation phase

- **Exchange experiences with more experienced partners (7 – Planning)** – Funchal heard what more experience partners have to say. In this case, the PT Operator arranged a telephone-conference with Utrecht, so that they could

answer to Funchal doubts and provide their expertise as well as important tips with regard to logistics and communication issues.

- **Drafting of preparatory/technical planning documents (7 – Planning)** - The communication plan with parking managers was drafted during the planning phase. The steering team which is handling the measure have also drafted the protocols with park managers according to common characteristics and requirements of the new service.
- **Raising the number of parking facilities adhering to MOBI PARQUE to improve service attractiveness (12 – Other, Infrastructural)** - The PT Operator strived to integrate four parking facilities, thus providing a wider number of options for integrating private and public transport.

### Operation phase

- **Involvement of the target group to give a boost to the new school routes (5 – Involvement, communication)** – The PT Operator has come up with a campaign to involve the schools which are located within the catchment area of the two new school routes so as to promote this new service among its students. This is a subset of the multi-level communication campaign that PT Operator has put in force during the operation phase to trigger people's awareness and interest on this scheme.

## **D.3 Participation**

### **D.3.1. Measure Partners**

- **Horários do Funchal**, the public transport operator, is the measure responsible and was responsible for the implementation of Park and Ride service.
- **Municipality of Funchal** supported the deployment of this measure by supporting the communication campaigns, assisting the negotiation with car parks owners and improving the bus stops conditions near the parking infrastructures.

### **D.3.2 Stakeholders**

- **Car parks owners** - they are responsible to control the access to the park of the P&R users and also to support the communication campaigns.
- **Schools located within the school routes catchment area** - A number of schools, nearly 10, ranging from nursery to secondary levels, were involved in the promotion of the new school routes launched in the framework of the measure.

## **D.4 Recommendations**

### **D.4.1 Recommendations: measure replication**

Based on the lessons learnt from the experimentation of MOBI PARQUE and the new school routes in Funchal, the following recommendations can be drawn:

- **Measure replication does not comprehend any financial risks** – Considering that the parking facilities are not rented and that the PT connections to the city centre

are regular PT services, there aren't any maintenance costs to sustain the service. So the solution implemented in Funchal is very sustainable and affordable. It is therefore risk free for follower cities to take up from this experience.

- **Target public of MOBI PARQUE is not the one previously envisaged** – Data collected about the geographic characteristics of MOBI PARQUE users support the idea that this service is more convenient for residents in Funchal than for people coming from the surroundings of Funchal to the city. Probably this has happened due to the location of the parking facilities that adhered to the service, most of which are not near the motor-way. Hence, in the event that follow up cities have P&R facilities inside the city boundaries, it is advisable to consider targeting not only people commuting to the city from Municipalities on the surroundings but also residents in the city where the P&R facilities are located and that can find the service useful for any reason.
- **School routes are more than only supportive actions for MOBI PARQUE** – Even though the school routes were thought to be a supportive action for MOBI PARQUE, many citizens of Funchal that are not enrolled in the MOBI PARQUE scheme have found these new PT connections convenient for themselves. Linking many schools around the city without going straight to the city centre, many citizens from Funchal now stress that they get to their destinations more quickly than before. Cities interested in fostering a strategy combining P&R with school services should design routes that are convenient enough to work independently as if no P&R infrastructure would exist.
- **Ingredients for success** – The experimentation of Funchal has taught that the location of the Parking facilities is one of the keys to have a successful P&R experience. In the case of Funchal there was not too much to choose from, due to topographic and road network constraints. Plus, the fares have to be very appealing to families. A reduced fare to a second passenger would be important to make MOBI PARQUE more successful among families. All in all, it is relevant to stress that the mix of location of parking facilities and the P&R special fare, together with a strong policy of reducing the parking availability in the city centre are the cornerstone for a successful P&R implementation and prevent further unsuccessful actions.
- **Not ignore the importance of feasibility studies for service design** – To prepare a new service in a city, like park and ride, is very important to collect as much important data about the preferences of potential users before implementation. It's important to know, for example, where the potential users live, the preferences of parking locations, how much they are willing to pay for the service, the number of persons that travel together. In the case of Funchal, these studies would have led to a bigger success of the measure and should not be ignored by other cities.

#### **D.4.2 Recommendations: process**

- **Consult more experienced cities** – In the case of Funchal it was of paramount importance to learn what Utrecht had made with a phone-conference which supported the decision-making process. Sharing knowledge about bold urban mobility measures

Measure title: **Park & Ride with PT School Service**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **FUN 2.4.**

is the backing bone behind the CIVITAS programme and this was precisely what Funchal has undertaken.