

*Measure title:* **Demand Responsive Public Transport Connections in Monza**

*City:* **Monza**      *Project:* **ARCHIMEDES**      *Measure number:* **19**

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## **Executive summary**

The implementation of this measure has not followed what had been scheduled when ARCHIMEDES project was submitted.

During the research stage, a study had been undertaken in order to examine the different DRTS implemented in Italy, so to plan a suitable service for the city of Monza.

As a matter of fact, two very important changes happened during ARCHIMEDES lifetime which, acting as barriers, strongly influenced the achievement of the initial goals of the measure:

- the merging between TPM, a PT company 100% owned by Comune of Monza, and NET, a PT company in which ATM (the company which runs the bus and the metro service in Milan) has a stake, resulted in a delay by NET in devoting resources to the ARCHIMEDES project measures due to pressing administrative accomplishments following the merger.
- The start up of the administrative offices of the new Province of Monza and Brianza, which in 2009 replaced the Province of Milan in the management of the running PT contract, resulted in the lack of a referent for questions relating to public transport, since only on May 1<sup>st</sup> 2011 did the contract pass into the administration of Province of Monza.

This situation did not allow Comune of Monza to operate the amendment to the running contract for public transport in order to implement the service, replacing the night service with the DRTS.

For these reasons, it was decided to implement the measure in a reduced way, aimed at serving only one particular district of the city of Monza and only in particular situations, like important events in the city.

Evaluation activities, after this amendment to the initial implementation of the measure, had to be refocused according to the service actually provided and have been aimed at :

- evaluating reductions in fuel costs and consumptions and costs afforded to activate the shuttle bus on demand service;
- assessing the perception of awareness between citizens of the intention of implementing the DRTS.

**Key result 1** - Considered the limited implementation achieved, also in terms of duration, this experience has shown is that if people are offered an alternative to the use of their own car, especially in difficult traffic conditions and in off –peak hours, they are willing to test it, so in future it will be possible, with a suitable feasibility study, to implement a DRTS in Monza.

**Key result 2** – There has not been a relevant perception of awareness of the measure between citizens, in spite of a strong information campaign, which has been activated through all possible communication channels used by the Municipality (website, SMS, Facebook page, press releases);

**Key result 3** – In spite of this, people expected the service to be reliable, easily accessible and safe. This means that people would appreciate a DRTS if it was implemented according to their expectations. This result can be considered a good starting point for the implementation of a traditional DRTS;

## **A Introduction**

### **A1.1 Objectives**

The measure objectives of the initial planned measure were:

(A) High level / longer term:

- To ensure adequate responsiveness to mobility demand of citizens as well as to encourage modal shift

(B) Strategic level:

- To give all citizens the opportunity to use the Urban PT service, offering a service which is accessible to more people

(C) Measure level:

- (1) To transport passengers from especially poor served areas in order to connect these areas to main PT lines
- (2) To offer PT service in off-peak periods or during holidays in order to make service more efficient in periods of low demand
- (3) To reduce private car traffic

Circumstances explained in A1.2 and A2 have changed the scope of the measure, and the current measure level objective is:

- (1) To test in some special occasions a shuttle bus on demand service in order to transport passengers living in one particular area of the city (San Fruttuoso district) to the location of events in the city in order to avoid the use of private cars in a difficult situation due to major infrastructure works that are interesting the district.
- (2) To investigate the opportunity to provide this kind of service in a more extended way to the whole city, possibly implementing it in future as a real DRTS.

This limited implementation will not allow to achieve high and strategic level objective, but it can be considered a first step towards a deeper study of the subject aimed at assessing the feasibility of a DRTS, to offer citizens a more flexible service, also in view of the particular situation of economic crisis, which is leading policy makers to reduce costs by making PT services more energy and cost-efficient, especially in off-peak hours, when a normal PT service is very expensive although underused.

### **A1.2 Target groups**

- When ARCHIMEDES project was submitted, target groups had been identified within citizens living in peripheral areas of Monza: some areas in the city, like the neighbourhoods of San Rocco, San Donato, Sant'Albino and San Fruttuoso are poorly served by PT lines, which especially in off-peak hours, run only in central areas of the town. Moreover, these districts also suffer from several natural barriers (the river network of river Lambro and Villoresi channel) and artificial obstacles (a network of freeways, the railway), both of which can only be crossed at certain points (bridges, subways, flyovers). This makes access less direct and routes even more complicated.
- More generally, also citizens needing to use PT service in off – peak hours, non – working days and holidays would have been advantaged by the introduction of a DRTS.

- Because of some administrative difficulties which have been met during the planning of the demonstration stage of the measure, it has been decided to implement the measure in a reduced way, aimed at serving only one particular district of the city of Monza and only in particular situations, like important events in the city, for the reasons which will be better explained in Section B4.
- The chosen district is San Fruttuoso district, which is one of the most densely populated of Monza: 6.934 people, representing the 5,63% of the entire Monza population, live in San Fruttuoso, with 1.550 people over 65, which represent the 22,95% of the district population (one of the highest in the peripheral city) and 504 registered immigrants (7,3% of the district population). The district, whose territory is traditionally identified with the area of jurisdiction of the Parish Church, is physically divided from the rest of the urban asset by State Street no. 36, which in Monza is named SP5. It is served by two PT lines which reach the district crossing the route of SP5, while some others remain marginal to the neighborhood, so it is necessary for the residents to cross this very busy street to reach the general PT network. Currently, however, the road is the subject of a major infrastructure project aimed at building a tunnel in the urban part of SS36 in order to reduce through traffic which affects San Fruttuoso district.

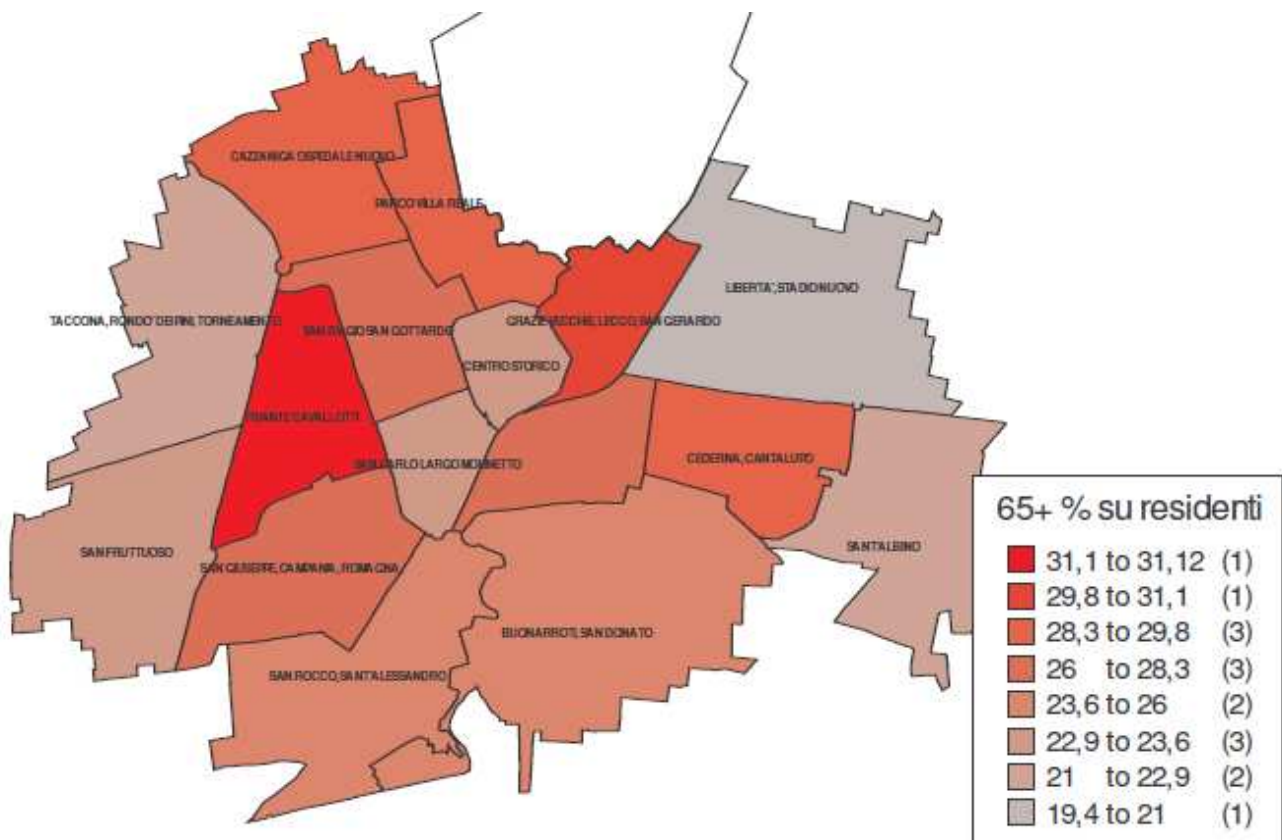


Figure 1 - Monza districts with residents over 65

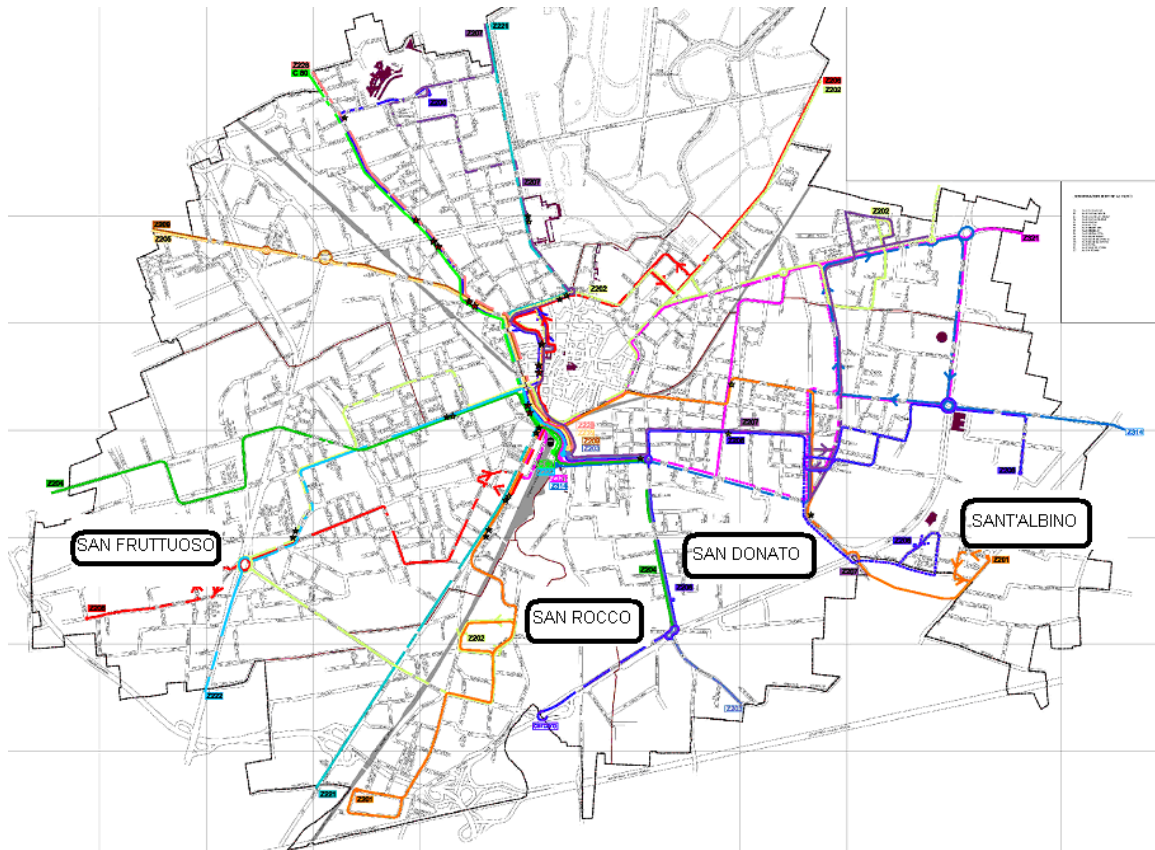


Figure 2 – Monza PT network (urban and suburban lines) with peripheral areas

## A2 Description

Comune of Monza, with the cooperation of NET as a subcontractor, after developing, in the RTD stage, a study to investigate the different implementations of DRTS in Italy, has tested a shuttle bus on demand service connecting San Fruttuoso district only in particular situations, like important events in the city.

### **Task 11.2.5 Public Transport Demand Responsive Connecting Service Design:**

During the reasearch stage, when there still was the intention to activate a DRTS, a study has been undertaken in order to examine the different DRTS implemented in Italy, so to plan a suitable service for the city of Monza.

### **Task 2.13 Demand Responsive Public Transport Connections:**

Due to administrative problems, which will be deeply investigated in the following sections, in the demonstration stage, Comune of Monza has actually implemented the measure in a very limited way, providing a shuttle bus on demand service addressed to San Fruttuoso residents in order to connect the district to the location of one of the most important events in the city (Fireworks for the Patron Saint's Fair), by using normal 12 metres buses of the fleet usually operational in the city in order to reduce costs. The shuttle bus on demand service was also provided during European Female Volley Championship, this time in order to connect the railway station to the Sports Hall where matches were disputed.

## A3 Person in charge for evaluation of this measure

Name of person                      Simonetta Vittoria

Name of organisation	Comune of Monza
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## **B Measure implementation**

### **B1 Innovative aspects**

The innovative aspects of the measure, if it had been implemented as scheduled when ARCHIMEDES project was submitted, were:

- **New mode of transport exploited** - Even though demand responsive service have already been introduced in many European and Italian cities, in Monza such a kind of service has never been investigated, since people are used to a traditional public transport service. This implies that citizens will have to be involved in order to raise awareness and acceptance of this new mode of Transport.
- **Targeting specific user groups** – The implementation of the measure will target users of public transport who use buses also in off-peak hours or during holidays or who live in peripheral areas which are poorly served by main PT lines. Also people who never use public transport in off peak hours or during holidays because of a poor service could decide to leave their private cars in presence of a more efficient service.
- **New organisational arrangements or relationships** – The PT service in Monza is structured with different timetables according to different hours of the day (peak/off-peak hours) and to different typology of days (working/school days, Saturday, Sundays, Holidays). There is also a nocturnal service, operational since November 2007, which has high management costs and is scarcely used by citizens. The introduction of a demand responsive connection service will imply the creation of a more efficient service to citizens, with the aim of bringing about desired impacts.

The limited implementation of the measure has actually implied only the exploitation of a more targeted PT service, aimed at reducing traffic in areas of the city which, because of special events, become a mobility attractor. Moreover, it has been chosen to target a specific group, addressing the shuttle bus on demand service to residents of San Fruttuoso district, taking into account their particular mobility problems, worsened by streetworks on State Street no. 36.

### **B2 Planning of Research and Technology Development Tasks**

#### **Task 11.2.5 Public Transport Demand Responsive Connecting Service Design:**

Aim of the study was to gain best practice examples from other cities or other public transport companies who have implemented Demand Responsive Transport Service and to develop a technical specification for the start-up of a DRT service that will be subsequently demonstrated and evaluated.

Even though demand responsive services have already been introduced in many European and Italian cities, in Monza this kind of service has never been investigated, since people are used to a more traditional public transport service. This may also depend on the fact that, historically, the PT service has always been managed by the company owned by the Municipality, which, as the sole shareholder, restored the deficit arising from the high management's costs.

The study has investigated the possibility to start up a service whose implementation will target users of public transport who use buses in off-peak hours, but also people who never use public transport in off peak hours or during holidays because of the poor service, but who could decide to leave their private cars at home in return for a more efficient service.

After this, the situation of Monza has been investigated, starting from the legal framework which regulates the actual PT service.

### **B3 Situation before CIVITAS**

According to Italian law, the responsibility for PT services rests with the Provinces, which issue tenders and manage contracts with PT companies. Municipalities can only issue tenders for the urban service.

The actual contract running PT Service in Monza was issued by Province of Milan in 2007, following an agreement between Comune of Monza and Province of Milan aimed at having a unique contract for PT service for both the urban and suburban area of Monza, which includes many surrounding cities like Veduggio, Cinisello, Muggiò, Brughierio: as a matter of fact, historically, the PT service for the city of Monza has always extended to the city surroundings, and there was a strong input to maintain this approach.

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

When the ARCHIMEDES project proposal was first submitted in 2007, the idea was to replace the night service, which is very expensive and underused, with a DRTS. The public transport service was then managed by TPM, a PT company 100% owned by Comune of Monza, but in September 2009 TPM merged with NET, a PT company in which ATM (the company which runs the bus and the metro service in Milan) has a stake, so urban lines are now managed by NET.

Immediately after the merging procedure, NET could not devote resources to the ARCHIMEDES project measures due to pressing administrative accomplishments following the merger.

Moreover, in June 2009, Monza became capital of the new Province of Monza and Brianza: administrative offices of the new public body started to be operational, but for almost two years the inheritance process for the Public Transport contract was not completed, so there was no administrative office to refer to for questions relating to public transport.

This situation did not allow Comune of Monza to operate the amendment to the running contract for public transport in order to implement the service, replacing the night service with the DRTS.

Only on May 1<sup>st</sup> 2011 did the contract for PT bus service, previously managed by Province of Milan, pass into the administration of Province of Monza, which will manage it until its expiry date, scheduled in 2014. However, at the moment the Province is not willing to test the Demand Responsive Service, since there is the need to acquire full knowledge of contract terms before facing any modification. Without the Province authorization, it is very hard for Comune of Monza to implement a Demand Responsive service without incurring very high costs.

Due to the described difficulties, it has been decided to implement the measure in the following stages:

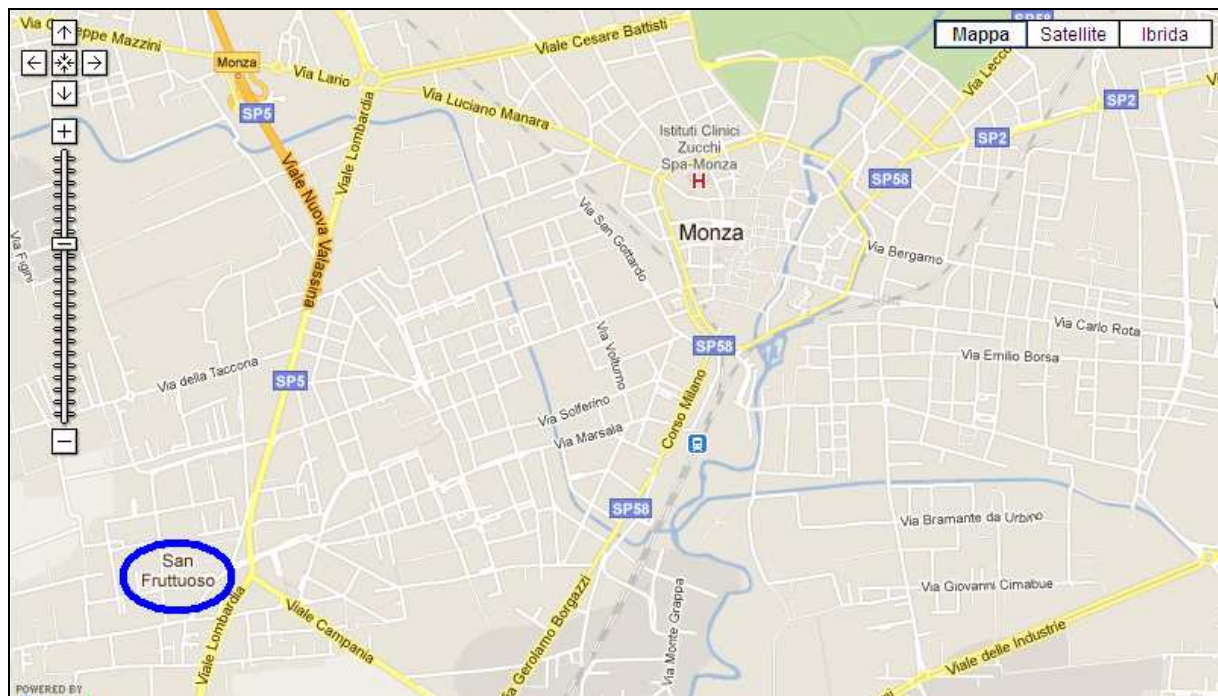
**Stage 1: Traditional DRTS Implementation (M28 – M30)** – An attempt to plan a traditional DRTS, with a call centre for bookings and a bus equipped with an on-board unit to receive journey plan was made, but operational costs were too high for Comune of Monza: actually, NET had presented the following estimate:

- Software for DRTS management - € 6.500
- Communication activities and bus stops preparation - € 2.500
- Call centre activity – 50 € a day
- Bookings management - 500 €
- Bus service – 400 € a day.

Such an estimate was too expensive for Comune of Monza to be sustainable with its own funds

**Stage 2: Planning of a shuttle bus service (M31 – M32)** – For these reasons, although knowing that a reduced implementation would not have allowed the achievement of results comparable with the activation of a traditional DRTS, it has been decided to implement a reduced DRTS, aimed at serving one particular district of the city of Monza and only in particular situations, like important events (concerts, sport events, summer shopping evenings, events for the Monza Patron Saint Fair and initiatives for the Grand Prix in September). One of the aims of this reduced implementation was to show people that, even in difficult situations, public transport may represent the right approach to mobility issues.

The chosen district is San Fruttuoso, a particular area of the city which was historically divided from the rest of the urban asset by State Street no. 36, which in Monza is named SP5 and which can be seen in the following figure.



**Figure 3 - Street network near San Fruttuoso district**

During the past two years, important street works have been in progress in that area. A tunnel in the urban part of SS36 is being built to reduce through traffic which affects the San Fruttuoso district: this tunnel will not create an alternative route, but it will allow traffic directed northbound (towards Seregno, Lecco and Sondrio) to pass below the SS36 without affecting Monza .

These street works have resulted in significant inconvenience for the citizens of the district, as it has been necessary to close several streets to traffic in order to demolish an overpass and to create an alternative viability while digging to build the tunnel, which is going to be the longest urban tunnel in Europe (1.6 km).





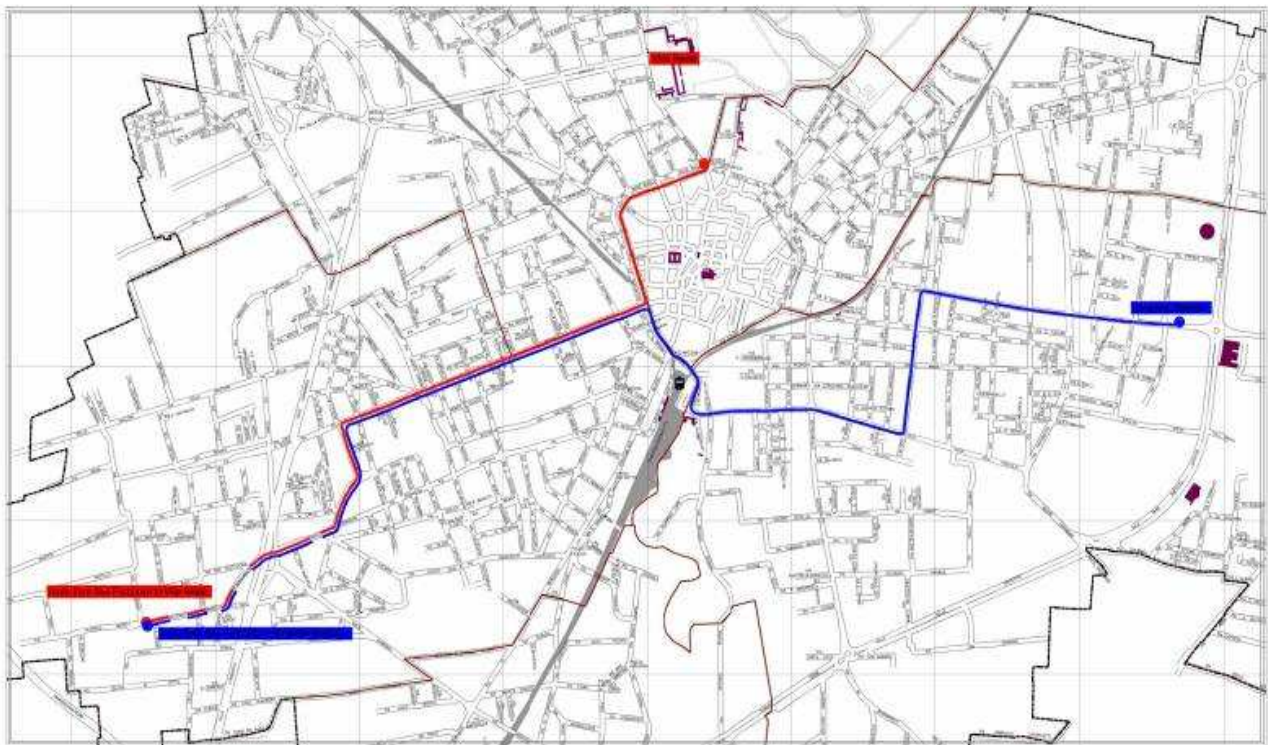
**Figure 4 - Air view of San Fruttuoso district with alternative viability**

As far as the kind of service to activate is concerned, it has been decided to implement a normal shuttle bus service to be booked by telephone or by e-mail. No call centre has been activated, but bookings have been registered by the Mobility and Transportation Office of Comune of Monza. In order to reduce costs, it has been decided to use the normal 12 metres' buses daily used by NET for the urban PT service. In the planning stage of the implementation, the experience achieved by NET in Milan, where it often happens to deal with big events, has been very useful to organize an efficient service even though the decision to turn to a reduced implementation of the measure was taken with little advance.

The bus runs from San Fruttuoso district to the venue of the event for which the service has been activated, along traditional PT routes, and stops at fixed bus stops where customers have asked to get on the bus when booking.

Service is free of charge for the demonstration period in order to attract the largest number of users. The shuttle bus on demand is activated only with a minimum of five bookings, in order to operate efficiently.

**Stage 3: Identification of events (M33)** – Important events occurring in the city of Monza, which could attract many people interested in reaching the venue from San Fruttuoso without using their car have been identified. More specifically, the chosen events were five live concerts by prominent artists and fireworks during Monza Patron Saint Fair held in Villa Reale, along the red route depicted in the following figure, and other traditional events held during the Grand Prix week (live concert and a charity football match, held at the Brianteo stadium of Monza, along the blue route). After the Grand Prix, the European Female Volley Championship at the Sports Hall (blue route) and the Cinema Festival in the cinemas of the city centre (red route), were organized. For all these events there was the intention to activate the shuttle bus on demand, since they were all supposed to attract many people and all could prove useful not only for Monza citizens, but also for visitors coming from outside Monza, to test the new service.



**Figure 5 - Routes of the shuttle bus on demand**

**Stage 4: Information campaign (M33 – M37)** – For each event, strong communication activity was been undertaken in order to inform citizens of the service. A press release has been sent to all local newspapers. NET placed notices on its vehicles and at bus stops served by shuttle buses and put the information on its website. A page has been dedicated to the service both on the Municipality and ARCHIMEDES websites, in order to reach the largest number of citizens. Information was put on Facebook page of the Municipality, where a memorandum was placed in the days before an event in order to remind people to book the shuttle bus in good time.

**Stage 5: Implementation of the service (M33 – M37)** – The first test of the shuttle bus on demand service was made in occasion of the Fireworks for the Patron Saint Fair in June and it was specifically addressed to residents in San Fruttuoso district. The bus started from the traditional terminus in San Fruttuoso at 8.00 p.m. taking customers to the venue of the event and returning them after. Drivers were supplied with the list of bookings, to be able to check if every person was present for both journeys, so not to leave anyone behind, especially on the return journey. The initiative was warmly welcomed, to the extent that 82 passengers were transported and two normal buses had to be activated.

No bookings were made for the live concerts, so the service was not activated. There was the intention to repeat the trial in September for bigger events taking place around the Grand Prix of Monza (e.g. concerts, shows, etc.). However, the whole bus fleet was needed for the Gran Prix itself, an event that always poses a challenge for Monza's mobility management. In fact, part of the city is usually closed to traffic and people from all over the world are encouraged to reach Monza by bus or by train, and special and free shuttle buses take people from the train station and the Park and Ride locations directly to the circuit.

Another occasion for the activation of the service was the European Female Volley Championship, which was held in Monza sports hall, when it was activated for three days in order to reach the location of the matches from the railway station, since many people were coming to Monza from Milan by train. Connection from the railway station to the Sports Hall is not particularly easy, without the implementation of the shuttle bus, people would have come to Monza by car or would have caught a bus (which, by the way, stops rather far from the Sports Hall). For this event the initiative did not achieve the same success gained for the fireworks, and about thirty people were transported for the three matches.

Unfortunately, during the Cinema Festival, no bookings for the service were made, so the total of transported people is of 112.

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

The measure is not related to any other measure.

## **C Impact Evaluation Findings**

### **C1 Measurement methodology**

#### **C1.1 Impacts and indicators**

##### **C1.1.0 Scope of the impact**

The indicators originally chosen when the MLEP was written were directly related to the introduction of the measure as described in the DoW: it had been decided to evaluate the following categories:

Economy –benefits and costs

Energy – fuel consumption

Environment – emissions (the use of smaller buses could reduce emissions)

Society – awareness, acceptance, accessibility and security.

Transport –quality of service and modal split.

Now that, due to the described difficulties, the measure has been implemented in a reduced way, as previously stated, different indicators have been selected to evaluate the impact of the measure. More specifically, the chosen indicators are the following:

Economy – operating costs

Energy – fuel consumption

Environment – emissions

Society – awareness, acceptance and accessibility

Transport –quality and reliability of service

The comparison for economy, energy and environment indicators has not been done between large and small buses (since, in order to reduce costs, normal 12 metres buses daily used for urban PT service have been used for shuttle bus on demand), but between a bus and a mid-size car in city driving, assuming that people who used the bus, if not given this opportunity, would have used their private car.

Also the frequency of data collection has been reviewed, since in the MLEP the idea was to compare the night service to the DRT service, but now that the service has been activated in a reduced way and only for special events, only after data have been collected as far as economy, energy and emissions indicators are concerned .On the other hand, as far as society and transport indicators are concerned, two surveys about PT measures in ARCHIMEDES were held (one before and one after the implementation of the measures): during before survey some questions were also asked in order to know if people were aware that Comune of Monza was implementing a DRTS, and to understand whether they were interested in using it, whether they could find it useful and accessible.

Once the decision of a limited implementation was taken, it was no longer necessary to ask people who had actually used the service if they were aware of its implementation, since the simple fact they had tested it showed they knew about the initiative, even though at the end of the day results were not particularly satisfactory. For this reasons, indicators concerning transport and society have been assessed only as before data. Anyway, questions asked during the survey have been reported in this document together with answers given, to give a complete image of the evaluation approach as far as ARCHIMEDES measures connected to public transport are concerned.

### C1.1.1 Selection of indicators

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
	<b>ECONOMY</b>					
2B		<b>Costs</b>	Operating Costs	Operating costs	Costs per pkm	Euros/pkm, quantitative, derived or measurement
	<b>ENERGY</b>					
3		<b>Energy Consumption</b>	Fuel Consumption	Vehicle fuel efficiency	Fuel used per vkm, per vehicle type	MJ/vkm, quantitative, derived or measurement
	<b>ENVIRONMENT</b>					
8			Emissions	CO2 emissions	CO2 per vkm by type	G/vkm, quantitative, derived
	<b>SOCIETY</b>					
13		<b>Acceptance</b>	Awareness	Awareness level	Awareness of the policies/measures	Index (%), qualitative, collected, survey
14			Acceptance	Acceptance level	Attitude survey of current acceptance of the measure	Index (%), qualitative, collected, survey
15		<b>Accessibility</b>	Spatial Accessibility	Perception of accessibility	Perception of physical accessibility of service	Index(%), qualitative, collected, survey
	<b>TRANSPORT</b>					
18		<b>Quality of Service</b>	Service reliability	Accuracy of timekeeping	Number and percentage of services arriving / departing on time	No and %, quantitative, collected, measurement
19			Quality of service	Quality of service	Perception of quality of service	Index, qualitative, collected, survey

### C1.1.2 Methods for evaluation of indicators

No.	INDICATOR	TARGET VALUE	Source of data and methods	Frequency of Data Collection
2B	Operating Costs	Evaluating operating costs afforded for the organization of the service	Operating costs have been asked to NET in order to evaluate expenditures for the implementation of the service.	Data have been collected in October/November 2011 after the activation of the shuttle bus on demand
3	Fuel consumption	Reducing fuel consumption	The activation of the shuttle bus on demand should reduce fuel consumption since people will not drive to reach the venue of the events. Data have been derived by average consumptions related to covered distances.	Data have been collected in October/November 2011 after the activation of the shuttle bus on demand
8	Emissions	Reducing emissions of CO2	Analysis methods have been used to estimate emissions of shuttle buses used for demand responsive services compared with emissions of cars which would have been used by people if the service had not been activated	Data have been collected in October/November 2011 after the activation of the shuttle bus on demand
14	Awareness	Evaluating users' awareness of the new demand responsive service	Surveys have been organized at bus stops with interviewers who have questioned people about their perception of the new service. The survey covered also qualitative aspects of other measures connected to public transport, like measure 7 (Hybrid Bus) and measure 79 (Improved Traveller Information) The sample considered has been of 240 people, chosen between normal users of PT service. The face to face method has reduced percentage of mistakes in the survey.  As far as questions concerning DRTS, they were just asked in the before survey, since the intention was to demonstrate awareness of citizens about the intention of Comune of Monza to activate the service.	Data have been collected in May 2011
15	Spatial accessibility	Ensuring major accessibility to PT users	It is important to define users' perception of the physical accessibility of service in the areas where the service has been activated.  As far as questions concerning DRTS, they were just asked in the before survey, since the intention was to demonstrate what citizens considered important in order to have an accessible service	Data have been collected in May 2011

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No.	INDICATOR	TARGET VALUE	Source of data and methods	Frequency of Data Collection
18	Service reliability	Improving users' perception of service reliability	<p>With the introduction of a traditional demand responsive service, users would have been provided with a more reliable and more flexible service which will allow them to reduce the use of private cars.</p> <p>As far as questions concerning DRTS, they were just asked in the before survey, since the intention was to demonstrate what citizens considered important in order to have a reliable service</p>	Data have been collected in May 2011
19	Quality of service	Improving general perception of overall quality of PT service	<p>Demand responsive service should be more careful to users' demand and this should improve the general perception of quality of service.</p> <p>In the survey people have been asked what are their expectations about a good quality demand responsive service.</p>	Data have been collected in May 2011

### C1.1.3 Planning of before and after data collection

EVALUATION TASK	INDICATORS INVOLVED	COMPLETED BY (DATE)	RESPONSIBLE ORGANISATION AND PERSON
Calculating operating costs per pkm	Operating Costs	Month 42 (only after data)	Comune of Monza – Simonetta Vittoria
Reducing fuel consumption	Fuel consumption	Month 42 (after data)	Comune of Monza – Simonetta Vittoria
Reducing CO2 emissions	CO2	Month 42 (after data)	Comune of Monza – Simonetta Vittoria

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EVALUATION TASK	INDICATORS INVOLVED	COMPLETED BY (DATE)	RESPONSIBLE ORGANISATION AND PERSON
Evaluating users' acceptance of the new demand responsive service	Awareness	Month 32 (before data)	Comune of Monza – Simonetta Vittoria
Ensuring major accessibility to PT users	Spatial accessibility	Month 32 (before data)	Comune of Monza – Simonetta Vittoria
Improving users' perception of service reliability	Service reliability	Month 32 (before data)	Comune of Monza – Simonetta Vittoria
Improving general perception of overall quality of PT service	Quality of service	Month 32 (before data)	Comune of Monza – Simonetta Vittoria
D12.2 Baseline and first results from data collection	All indicators	Month 34	Comune of Monza – Simonetta Vittoria
D12.3 Draft results template available	All indicators	Month 42	Comune of Monza – Simonetta Vittoria
D12.4 Final version of results template available	All indicators	Month 48	Comune of Monza – Simonetta Vittoria



## **C1.2 Establishing a Baseline**

PT in Monza has been managed by the Company “Trasporti Pubblici Monzesi – TPM” (100% owned by Comune of Monza) until September 2009, after the City Council decided to merge the branch of TPM concerning Public Transport with the Company “Nord-Est Trasporti –NET”, a PT company already operating in Monza, almost totally owned by the Company “Azienda Trasporti Milanesi – ATM” Milan, the largest public PT Operator of the area of Milan.

The Public Transport (PT) service in Monza is structured with different timetables according to different hours of the day (peak/off-peak hours) and to different types of days (working/school days, Saturday, Sundays, Holidays etc). There is also a night time service, operational since November 2007, which has high management costs and is scarcely used by citizens. This service is a development on the previous situation, when the night service was guaranteed using the same lines as the daytime service but with very low frequencies.

Measure no. 19 within the ARCHIMEDES project expects that Monza, with the cooperation of ATM/NET, the PT operator in the urban area of the city, assesses the feasibility on demand responsive bus service, in order to carry on the practical experimental phase of a demand responsive transport (DRT) service during the demonstration stage.

The introduction of a demand responsive connection service implies the creation of a more efficient service to citizens, with the aim of ensuring adequate responsiveness to mobility demand of citizens as well as to encourage modal shift. In addition, this kind of service makes Urban Public Transport more energy-efficient in periods of low demand.

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

The running contract for urban and suburban PT service in Monza will last till November 2014. According to a survey made by Province of Monza and Brianza, it can be said that the total share concerning the service for the urban and suburban area of Monza amounts to 3.360.000 bus/km per year, for a total amount of about € 2.900.000. More specifically, the only night service (from 21,00 to 01,00) covers 103.206 bus/km per year for a total amount of 251.000,00 €. On the other hand, it is impossible to evaluate costs of the holiday service since it is computed in the general count of bus/km.

In a future perspective, it can be assumed that costs for PT service will grow up, if we consider that fuel costs are more and more increasing, mainly because fuel taxes are a major economic lever used by the government to achieve more revenues.

For this reason, in order to avoid that costs of public transport become too high for local authorities, with the risk of increasing fares, it will be necessary to optimize the service by streamlining overlapping routes, on the one hand, and designing innovative services for off peak hours, holidays and in less served areas of the city and of suburban areas, just like DRTS.

Such an approach, even though the implementation of a DRTS can be rather expensive at the beginning, could be included as part of next PT service tender, which will be held by Comune of Monza in 2014 now that it is head of the new Province. In this way, costs can be more easily depreciated with a long term contract (the current contract runs for seven years).

## C2 Measure results

In order to calculate impact indicators, it has been assumed that if people who booked the shuttle bus on demand had not been offered this opportunity, they would have reached the location of the event by their private car. As a matter of fact, experience gained during these events in the city has taught that people are more comfortable in using their own car, but are available to shift to other means of transport if they can avoid traffic or problems in looking for parking. People living in San Fruttuoso district would have surely reached Villa Reale, where fireworks are held, by car because it is actually the most quick and comfortable way, but the opportunity to use a free and easily accessible service has been warmly welcomed also due to the streetworks in progress which made even more difficult mobility from and towards that area of the city. Similarly, as far as European Volleyball Championship is concerned, since connection from the railway station to the Sports Hall is not particularly easy, without the implementation of the shuttle bus, people would have come to Monza by car or would have caught a bus (which, by the way, stops rather far from the Sports Hall). Moreover, it must be considered that both events were planned in the evening, when the frequency of PT in Monza is reduced, especially at the end of the event: for this reason the service was particularly useful for the return journey.

Since it is difficult to imagine the exact number of cars, it has been assumed that the average occupancy of a car is of two people, and calculations of fuel costs, energy savings and emissions have been made on the basis such assumptions, in order to compare them with the use of the bus.

The baseline to calculate indicators is the following:

- Average cost of petrol per litre - € 1,761
- Average cost of Diesel fuel per litre - € 1,718
- Fuel consumption of a mid-size car in city driving – 7 litres for 100 km
- Fuel consumption of a diesel fuelled bus in city driving – 1 litre for 3 km
- CO2 emissions of a mid-size car in city driving - 150 gr of CO2 per km
- CO2 emissions of a diesel fuelled bus in city driving - 600 gr of CO2 per km

The following table compares fuel costs and consumption and CO2 emissions between cars' use and shuttle bus.

EVENT	PEOPLE TRANSPORTED	KM	FUEL COSTS		FUEL CONSUMPTION		EMISSIONS	
			Private car/taxi	Shuttle bus	Private car/taxi	Shuttle bus	Private car/taxi	Shuttle bus
FIREWORKS	82 (average of 40 cars)	10	<b>49.30 €</b> (10 km per 40 cars)	<b>12.02 €</b> (10 km per 2 buses)	<b>28 l</b> per 400 km	<b>71 l</b> per 20 km	<b>60 kg</b> (1,5 kg per car)	<b>12 kg</b> (6 kg per bus)
VOLLEY MATCHES	30 (average of 15 cars)	12	<b>22.18 €</b> (12 km per 15)	<b>20.59 €</b> (12 km per	<b>12.6 l</b> per 180 km	<b>12 l</b> per 36 km	<b>27 kg</b> (1,8 kg per	<b>21,6 kg</b> (7,2 kg per bus)

			cars)	3 buses)			car)	
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## C2.1 Economy

**Table C2.1.1: Costs**

As regards costs for the implementation of the measure, it has been considered how much Comune of Monza has paid for the services activated by NET in the four special events described in the previous sections. The two bus rides organized for the fireworks from San Fruttuoso from Villa Reale cost 300 € each, plus 10% VAT, whilst rides for the European Female Volleyball Championship from the railway station to the Sports Hall cost 330 € each, plus 10% VAT. In this occasion the service was activated for three days in order to reach the location of the matches from the railway station, since many people came to Monza from Milan by train, due to the importance of the event.

It must be reminded that service was free of charge, so, if we split the cost of the service for the number of people who caught the bus, we have that for fireworks (82 passengers for two buses which cost 660 €) each passenger cost to the Municipality about 8 €.

Such an evaluation is not easily affordable for services activated during European Volley Championship, since some people caught the bus to the Sports Hall and return, but others used the service for the only return journey. Anyway, considering that the service was activated three times to transport only 30 people, in these occasions the cost for each passenger was far higher, and definitely less convenient in economical terms for the Municipality

Indicator	Before (date)	B-a-U (date)	After (June-Oct.2011)	Difference: After –Before	Difference: After – B-a-U
No. 2B: Operating Costs	Not applicable	Not applicable	€ 1.590 plus 10% VAT for a total cost of 1.749 €	Not applicable	Not applicable

## C2.2 Energy

Data concerning fuel consumption have been described in the table at the beginning of Section C2, comparing consumptions of shuttle buses to consumptions of private cars.

B-a-U data have not been considered: as a matter of fact, the B-a-U situation can be compared to the before situation, since it has been assumed that, without the activation of the service, people would have used their private car to reach the location of events.

Indicator	Before (using private car)	B-a-U (date)	After (using shuttle bus on demand)	Difference: After –Before	Difference: After – B-a-U
No. 3: Fuel consumption	40,6 l	Not applicable	19 l	- 21,6 l	Not applicable

## C2.3 Environment

For environmental indicators considerations are the same as for energy indicators.

Indicator	Before (using private car)	B-a-U (date)	After (using shuttle bus on demand)	Difference: After –Before	Difference: After – B-a-U
No. 8: CO2 emissions	97 kg	Not applicable	33.6 kg	- 64.6 kg	

## C2.4 Transport

In May 2011, a qualitative survey about measures concerning PT between 240 people was conducted aimed at evaluating core indicators before the start of the implementation stage of the measure. In this survey some questions were asked people concerning implementation of the DRTS, and more specifically if they knew that Comune of Monza was implementing a DRTS, if they would have tested it, and which details were important, according to them, to guarantee a reliable service.

As explained in Section C1.1.0 as far as society and transport indicators are concerned, two surveys about PT measures in ARCHIMEDES were held (one before and one after the implementation of the measures): during before survey some questions were also asked in order to know if people were aware that Comune of Monza was implementing a DRTS, and to understand whether they were interested in using it, whether they could find it useful and accessible.

Once the decision of a limited implementation was taken, it was no longer necessary to ask people who had actually used the service if they were aware of its implementation, since the simple fact they had tested it showed they knew about the initiative, even though at the end of the day results were not particularly satisfactory. For this reasons, indicators concerning transport and society have been assessed only as before data. Anyway, questions asked during the survey have been reported in this document together with answers given, to give a complete image of the evaluation approach as far as ARCHIMEDES measures connected to public transport are concerned

The table below summarizes findings of the survey about quality of service and reliability, whilst results are shown in detail in the following graphs.

Indicator	Before (May 2011)	B-a-U (date)	After (date)	Difference: After –Before	Difference: After – B-a-U
No. 18: Service reliability	<b>143 people</b> ask for detailed information <b>111</b> ask for a reliable service <b>85</b> ask for easy to find tickets <b>31</b> ask for a comfortable journey <b>21</b> ask for safety	Not applicable	Not applicable	Not applicable	Not applicable
No. 19: Quality of service	<b>57,5%</b> think they will use DRTS in future <b>42,1%</b> think they will not	Not applicable	Not applicable	Not applicable	Not applicable

The survey, which was conducted on the 4 most frequented PT urban lines and in some nevralgic locations of the city, has interested 240 people in order to analyze their knowledge and their opinion about public transport improvements in progress in Monza thanks to ARCHIMEDES project, as well as detecting potential interest and perception about measures' development and which of the on going measures are considered mostly impacting on respondents mobility habits on going projects (even if they are not known)

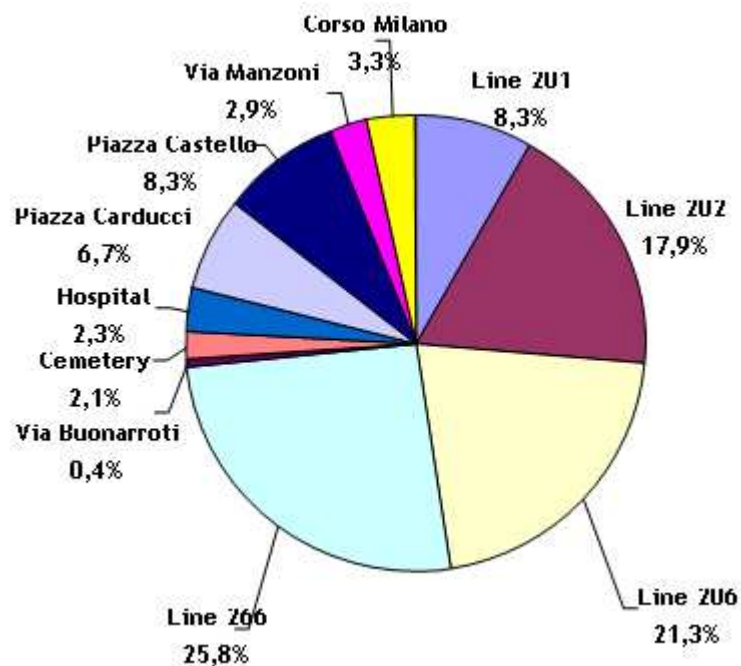
A questionnaire of 23 questions was elaborated by statistic technicians according to Municipality of Monza's requirements and concerned not only measure no. 19, but also measures no. 7, no. 79 and no. 82.

Some questions have also been asked concerning mobility habits of the surveyed people as far as the use of public transport is concerned.

The sample size guarantees the statistic reliability of the survey, according to the following parameters:

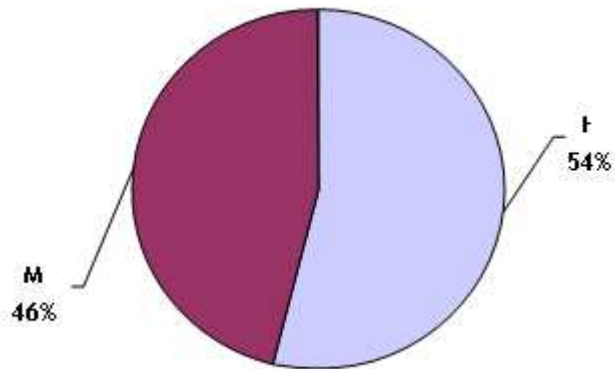
- Significance level: 95%
- Error margin – 5% .

Graph no. 1 shows the percentages of surveyed people for each public transport line and each city location.



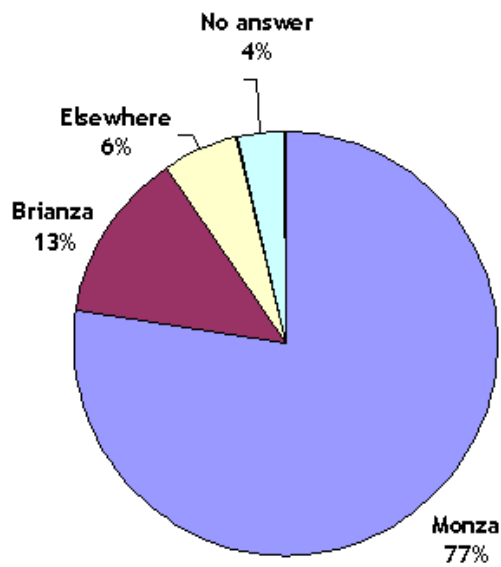
**Graph 1 - Percentage of surveyed people for each PT line and location**

The sample size (240 people) was made up by 46% of males and 54% of females.



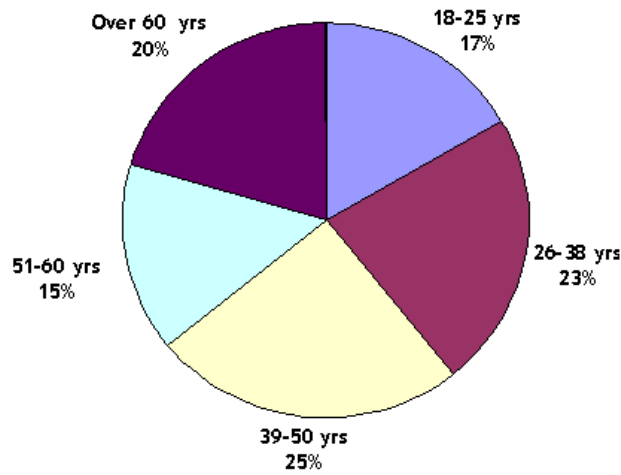
**Graph 2 - Sex of surveyed people**

77% of surveyed people live in the city of Monza, 13% live in Brianza and 6% live elsewhere: 4% of the sample did not answer to the question.



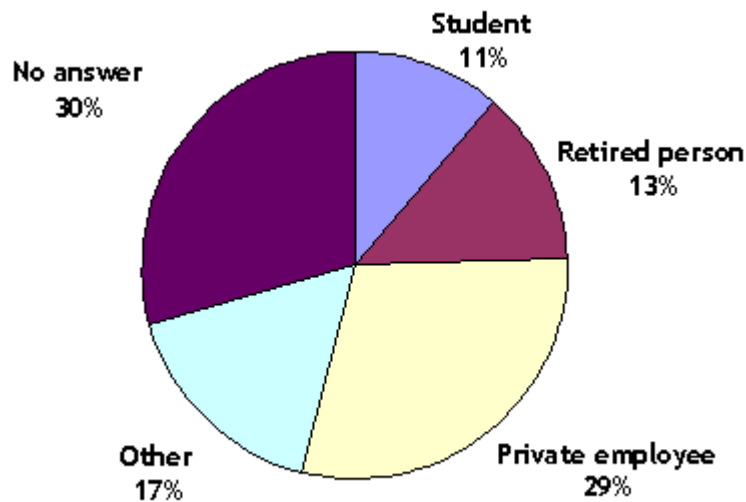
**Graph 3 - Residence of surveyed people**

Age of surveyed people is shown in the below graph.



**Graph 4 - Age of surveyed people**

The following graph shows the professional condition of interviewed people: several different conditions are represented, even though the 30% of surveyed people did not answer.

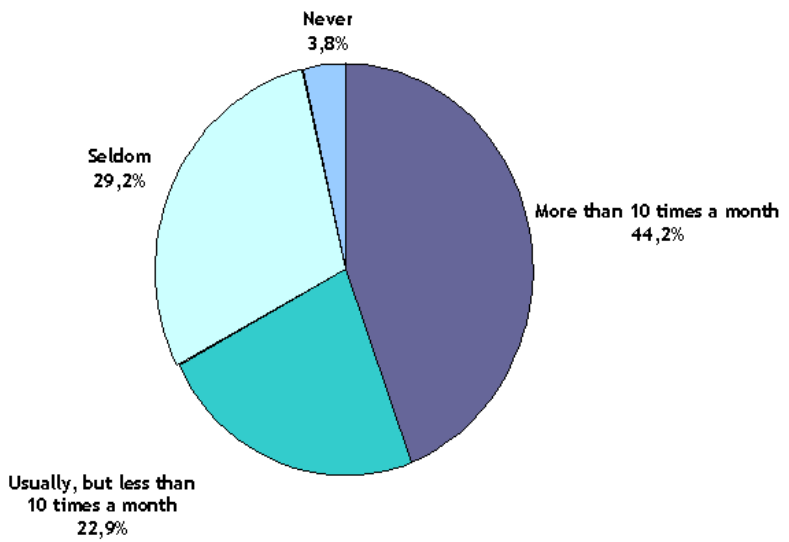


**Graph 5 – Professional condition of surveyed people**

**Table C2.4.1: Mobility habits**

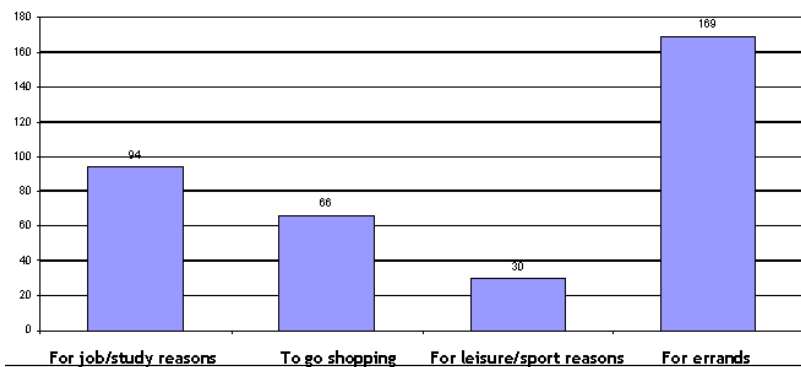
Question asked	Answers
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1. How often do you use public transport?



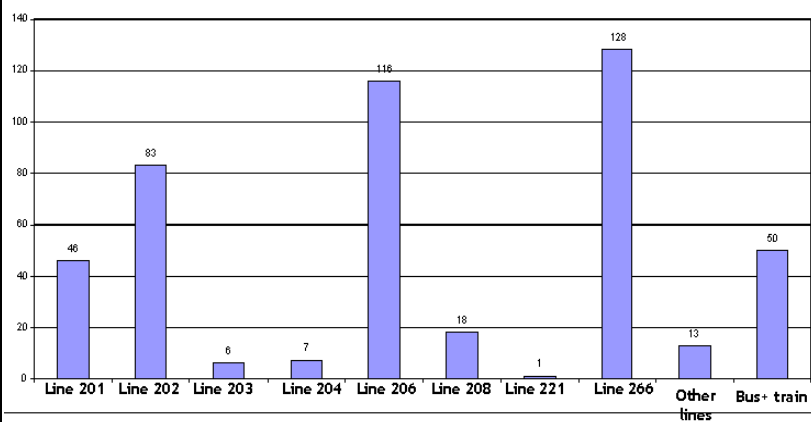
**Graph 6 - Use of PT**

2. Why do you use public transport?



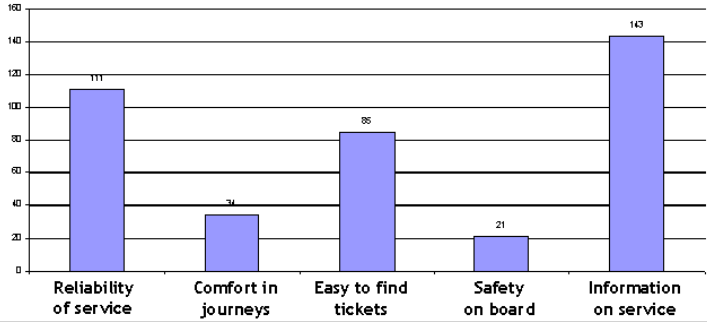
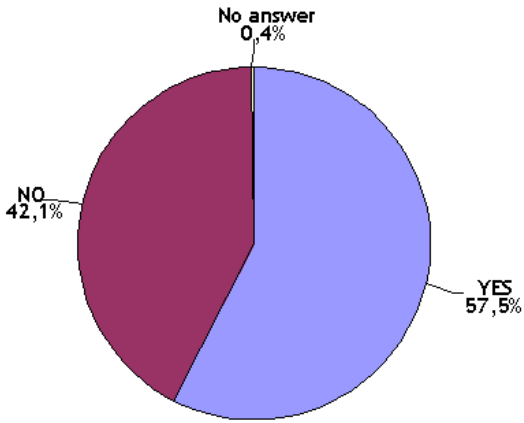
**Graph 7 - Reasons for using PT**

3. Which line do you use more often?



**Graph 8 - Most used PT lines**



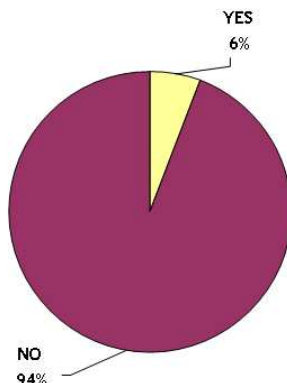
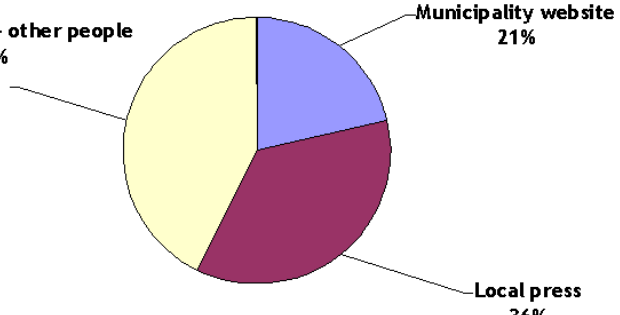
<p>4. What are your expectations about the DRTS?</p> <p><b>INDICATORS NO. 18 and 19 (Perception of reliability and quality of service)</b></p>	 <p style="text-align: center;"><b>Graph 9 – Expectations about DRTS</b></p>
<p>5. Do you think you will use DRTS in future?</p> <p><b>INDICATORS NO. 18 and 19 (Perception of reliability and quality of service)</b></p>	 <p style="text-align: center;"><b>Graph 10- Possibility to use DRTS</b></p>

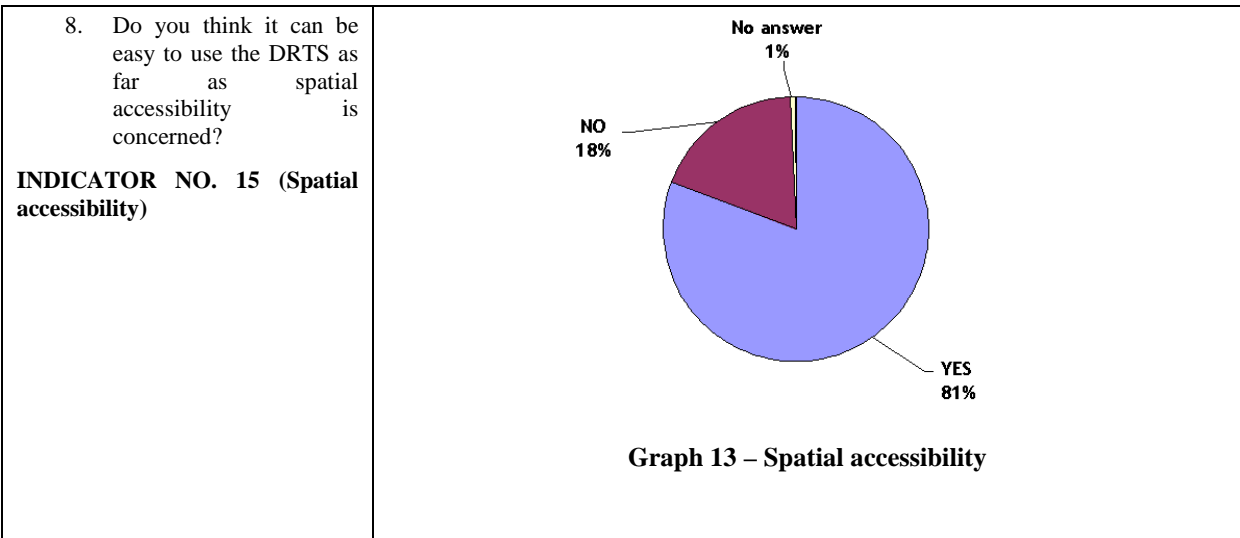
### C2.5 Society

During the before survey some questions have been asked concerning social indicators, in order to test if surveyed people were aware of the intention of Comune of Monza to implement a DRTS and of the requirements they considered of basic importance to have a service which was spatially accessible. Findings are summarized in the below table, whilst graphs below describe in detail results of the survey.

Indicator	Before (May 2011)	B-a-U (date)	After (date)	Difference: After – Before	Difference: After – B-a-U
No. 13: Awareness	<b>94%</b> do not know Comune of Monza wants to implement a Demand Responsive Transport Service	Not applicable	Not applicable	Not applicable	Not applicable

	People who knew about the service (only 14 people) were informed through word of mouth ( <b>43%</b> ), local press ( <b>36%</b> ) or Municipality website ( <b>21%</b> )				
No. 15: Spatial accessibility	<b>81%</b> think the service can be easily accessible	Not applicable	Not applicable	Not applicable	Not applicable

<p>6. Do you know Comune of Monza will implement a DRTS?</p> <p><b>INDICATOR NO. 14 (Awareness)</b></p>	 <p><b>Graph 11 – Awareness of implementation of DRTS</b></p>
<p>7. If you are informed about the DRTS, how did you know?</p> <p><b>INDICATOR NO. 14 (Awareness)</b></p> <p>SAMPLE SIZE FOR THIS QUESTION IS OF 14 RESPONDANTS</p>	 <p><b>Graph 12 – Means of information</b></p>



### C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
2B	Calculating operating costs per pkm	★
3	Reducing fuel consumption	★
8	Reducing CO2 emissions	★
14	Evaluating users’ awareness of the demand responsive service	○
15	Ensuring major accessibility to PT users	★
18	Improving users’ perception of service reliability	★
19	Improving general perception of overall quality of PT service	★
<p><b>NA = Not Assessed    ○ = Not Achieved    ★ = Substantially achieved (at least 50%)</b>  <b>★★ = Achieved in full    ★★★ = Exceeded</b></p>		

Considering that the measure has been only limitedly implemented, it can be stated that some targets, like a reduction in fuel costs and consumptions have been achieved.

Unfortunately, in the before survey a very low perception of awareness between citizens of the intention of implementing the DRTS emerged, even though citizens showed very clear ideas about requirements of a reliable, accessible and good quality service, although such a service had never been tested in Monza.

As far as the limited implementation achieved, also in terms of duration, is concerned, in spite of a strong information campaign, which has been activated through all possible channels usually used by Comune of Monza (press releases, Municipality website and Facebook page, SMS service), it would have been surprising if people had shown a strong awareness of the measure, whilst it would have been irrelevant to interview those who have used the service since their evaluation could only in favour of the implementation. What this experience has shown is that if people are offered an alternative to the use of their own car, especially in difficult traffic conditions and in off –peak hours,

they are willing to test it, so in future it will be possible, with a suitable feasibility study, to implement a DRTS in Monza.

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

An approach for upscaling of the measure is not easy to define since the measure has been implemented only for particular events: whilst for the Fireworks there has been a good response of citizens, the same cannot be said of other events, when not many people have been transported.

On the other hand, it has to be considered that the process of convincing people to abandon their private cars in favour of more sustainable means of transport is long and difficult to achieve, and it must be accompanied by a patient work aimed at changing people mobility habits by developing a new awareness through the cration of new habits.

This means that, whilst for the first time only “pioneers” tested the shuttle bus on demand to reach the location of fireworks, it can be assumed that next June, if the service is organized again, more people will test it, and presumably it will be possible to activate it not only from San Fruttuoso district, but also from some other peripheral areas of the city, exploiting good results of the first time it was activated in order to implement the number of transported people.

Obviously, this evaluation has to be compared with costs occurred to the Municipality to implement the service, in order to develop a CBA, albeit with a minimum level of detail. For instance, having decided not to charge for the service has been very useful to stimulate people to test the novelty; but, this has meant, on the other hand, that some people have not realized that the cost of the service falls on the community. At the end of one of the matches of the European Women’s Volleyball Championship, for instance, just one person caught the bus (instead of the 8 people which had booked the service): in this occasion, the cost of 330 € was paid for only one person, which is not sustainable in terms of cost-benefit analysis.

#### **C5 Appraisal of evaluation approach**

Evaluation activities have been aimed at :

- collecting data about savings caused by a reduced use of private cars in favour of collective transport, even though just for special events, with the aim to pave the way to the future introduction of a more complete DRTS to be activated in off peak hours and holiday or for poorly served areas of the city;
- checking the level of knowledge of the measure implementation between users of public transport;
- checking if costs sustained by the Municipality can be afforded, relating them to the real use of the service.

Results of evaluation activities have been strongly influenced by the very limited implementation level of the measure, but they can anyway provide some useful information about the wish of people to have alternatives to the use of private car and about savings in terms of fuel and emissions that can be achieved with a more complete and wide implementation of DRTS.

#### **C6 Summary of evaluation results**

From the qualitative survey aimed at collecting opinions of citizens about the service, the following results can be considered interesting:

- there has not been a relevant perception of awareness of the measure between citizens, in spite of a strong information campaign, which has been activated through all possible

communication channels used by the Municipality (website, SMS, Facebook page, press releases);

- in spite of this, people expected the service to be reliable, easily accessible and safe. This means that people would appreciate a DRTS if it was implemented according to their expectations. This result can be considered a good starting point for the implementation of a traditional DRTS;
- due to the reduced implementation of the measure, no “official” surveys were made at the end of the service, but bus drivers were asked to question users about their satisfaction, and the result was generally positive: some citizens also posted positive comments on the Municipality Facebook page, especially as far as the service for the Fireworks event is concerned (the service for European Volleyball Championship, having been offered not only to Monza citizens, but also to people coming from outside Monza, has not been surveyed).

As far as impact indicators are concerned, it can be said that sensible savings in terms of fuel costs and consumption and of CO2 emissions have been detected. Even though it was a reduced implementation, results bode well in case of activation of a more structured DRTS.

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

After the short demonstration of the DRTS, it would be premature to activate this kind of service for travel to/from subsequent events in the city.

Nevertheless, the night and holiday PT service is still underused, in spite of its high costs. Thus, in future it will be very important to plan surveys and passengers' counts to understand if the night and holiday service can be replaced with a DRTS. This approach could prove successful, especially considering that central Government funding for the PT service is being further reduced due to the economic crisis: as a consequence, there is a strong need to optimize the service using alternative forms of delivery, especially in off-peak hours and non-working periods, to offer PT users a service that provides all necessary connections, but does not represent a waste of resources.

It will also be important to explain to people that, once the service is activated, costs will occur. Even though in future fare payments could be requested, these will never be enough to fund the service fully. So it is important that people who book the service do use it for better efficiency of the measure and to avoid facing high costs for an underused service.

## D Process Evaluation Findings

### D.0 Focused measure

X	0	No focussed measure
	1	Most important reason
	2	Second most important reason
	3	Third most important reason

### D1 Deviations from the original plan

Deviations from the original plan have been reported in this document.

### D2 Barriers and drivers

#### D.2.1 Barriers

##### Preparation phase

- **Institutional** – In June 2009, Monza became capital of the new Province of Monza and Brianza: administrative offices of the new public body started to be operational, but the inheritance process for the PT contract was not completed for almost two years, so there was no administrative office to refer to for questions relating to PT. This meant the Commune of Monza could not amend the running contract for PT, in order to replace the night service with the DRTS.
- **Organizational** – In September 2009 TPM merged with NET, a PT company in which ATM (the company which runs the bus and the metro service in Milan) has a stake, so urban lines are now managed by NET. Immediately after the merging procedure, NET could not devote resources to the ARCHIMEDES project measures due to pressing administrative requirements following the merger.

##### Implementation phase

- **Institutional** - On May 1st 2011 the contract for PT bus service, previously managed by Province of Milan, passed into the administration of Province of Monza, which will manage it until its expiry date, scheduled in 2014. However, the Province did not want to test the DRTS, since there was a need to acquire full knowledge of contract terms before any modification. Without the Province authorization, it was very hard for Comune of Monza to implement a DRTS without incurring very high costs.
- **Financial** – An attempt to plan a traditional DRTS, with a call centre for bookings and a bus equipped with an on-board unit to receive journey plan was made. Unfortunately, operational costs were too high for Comune of Monza to be sustained with its own funds, especially in periods of economical crisis, when cuts to funds coming from the central government have already led local entities to reduce PT services whilst raising fares.

##### Operation phase

- **Financial** – The service planned for Fireworks was well used by citizens, so the cost of the shuttle bus, even though not particularly cheap, was well distributed among all users. The same cannot be said for the service organized for the European Volley Championship, when less people used the shuttle bus on demand and some of them did not even present on the return journey, although the bus had been booked : in this occasion the service turned out to be very expensive, and this probably was due to the fact that it was for free and people did not understand that community was paying for it.
- **Planning** – The service could have worked better if only more “time Budget” to implement it had been available. The attempt to test the DRTS, even though in a limited way, suffered from the late decision derived from the uncertainty of an administrative referent which address the request to replace the night service with the DRTS. This caused delays in activating a limited demonstration stage, and it was the possible reason of the very limited success of the measure.

## D2.2 Drivers

### Preparation phase

- **Cultural** – In Monza the opportunity to implement a demand responsive transportation service had never been investigated, since people are used to a traditional public transport service. The implementation of the measure, as presented when ARCHIMEDES project was submitted, would have implied citizens’ involvement in order to raise awareness and acceptance of this new mode of transport.
- **Planning** – During the reasearch stage of the measure, an accurate study of experience gained in Italy was made aimed at exploring different kinds of implementation, in order to develop an accurate planning of the service to encounter d citizens’ needs.
- **Financial** – Costs of the night service have become so high that in the preparation phase of the measure the intent was to replace this service, costly and underused, with a DRTS, in order to save money implementing a more flexible and rational service.

### Implementation phase

- **Communication** – Communication campaign was very helpful to disseminate the implementation of the measure, although in a limited way. As a matter of fact, as soon as news was published on local press, on Municipality website and Facebook page, people interested in using the service started phoning or e-mailing asking for further information to book the bus.
- **Cultural** – The intent to show people that alternatives to private car are possible has allowed to find a solution to implement the measure in spite of difficulties met, even though in a reduced way

### Operation phase

- **Involvement** – The strong wish to implement the measure, even though in a reduced way, has been rewarded by Monza citizens, especially for the service activated for Fireworks, since participation has been quite active in spite of the novelty of the service.

- **Planning** – NET management, already used to plan this kind of services in Milan, has been very helpful in organizing the shuttle bus on demand service, exploiting experience achieved in a bigger town where special events are much more frequent than in Monza.

## **D.2.3 Activities**

### **Preparation phase**

- **Planning** – During the development of the study best practice examples from other cities or other public transport companies who have implemented Demand Responsive Transport Service and to develop a technical specification for the start-up of a DRT service that will be subsequently demonstrated and evaluated.

**Institutional** – Many meetings with Province of Milan and Monza were made to explore the opportunity to account this new service in the existing contract for PT Service operations

### **Implementation phase**

- **Planning** – When it became clear that a traditional DRTS would have not been implemented within ARCHIMEDES lifetime, the idea of testing the shuttle bus on demand was immediately followed by meetings with NET management, in order to exploit the experience achieved in Milan, where big events are more frequent than in Monza, to plan the service in a quick and efficient way, so to offer citizens a valid alternative to private car.
- **Communication** – A strong communication campaign was activated to inform citizens about the new service, through press releases, Municipality website and Facebook page and SMS sent to citizens who subscribed the information service set up by the Municipality.

### **Operation phase**

- **Organizational** – After planning the service, it was necessary to set up the booking system for citizens who wanted to use the shuttle bus on demand. This was achieved through Mobility and Transportation office, who worked as a call center collecting both telephone and e-mails bookings.
- **Spatial** – During operation stage, route and stops of the shuttle bus on demand were defined, as well as starting point and pick-up place for the return journey, so to inform citizens about the service. The chosen route followed the normal route already authorized for ordinary PT so to ensure knowledge of the journey and to give the chance of choosing the right stop.

## **D3 Participation of stakeholders**



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

- **Comune of Monza** – Mobility and Transportation Department has coordinated activities for the research stage of the measure, for meetings with Provinces of Milan and Monza and Brianza, and eventually for the limited implementation of the measure, by identifying events and planning the service to be provided with the shuttle bus one demand.
- **NET** – NET, as PT service provider in Monza, has been partner of Comune of Monza in a first stage in presenting an estimate of costs to implement a traditional DRTS, and, during the implementation stage, in planning the limited service which has been activated with the shuttle bus on demand service for special events in the city.

### **D.3.2 Stakeholders**

- **Citizens** – The implementation of the measure, although in a limited way, has been primarily addressed to residents of the San Fruttuoso district in order to offer them an alternative to their private car to attend special events in the city.
- **Provinces of Milan and Monza and Brianza** – When ARCHIMEDES project was submitted, the idea was to share with the local body in charge of PT contract the replacement of the costly and underused PT service with a more flexible

## **D4 Recommendations**

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

- **Importance of RTD stage** – A careful approach to the research stage of the measure is of basic importance to plan a DRTS which is suitable to the needs of the city: situations are different and the service may be more useful in off –peak hours, at night or on holidays, so it is very important, before implementing the service, to deeply investigate requests of PT users, in order to avoid to set up a service which does not encounter the needs of users.
- **Financial issues** - Fuel price is more and more increasing since it is now considered one of the strongest levers for Government to raise incomes. However, latest rises in price of fuel have not been supported by the State or local authority (regions, provinces, cities) through more contractual compensation (in case of call for tenders) or more grants (in case of in house providing) to PT companies: on the contrary, fund transfers from the Central government have been reduced, so it has been necessary, in order to maintain a good standard of the service, to increase fares, whilst rationalizing routes, reducing duplications and reviewing exercise programs in order to focus on more popular routes and timetables. With such a situation, the only way to encourage people to keep on using Public Transport is to offer them better quality and more personalized services, just like a DRTS.

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

As described in this document, this measure has not been implemented according to what had been scheduled when ARCHIMEDES project had been submitted. For this reason, it is rather difficult to offer recommendations as far as the limited implementation achieved is concerned.

What can be highlighted, as a lesson learned, which can prove useful for other cities wanting to follow Monza experience, is that the idea of implementing the DRTS in spite of the running contract which

was managed by an entity other than the Municipality was too optimistic and has actually delayed the demonstration stage which could have been better structured, even though in the same limited way as it has actually been implemented. Nevertheless, some elements of the process which has been activated can be helpful to improve the process of presenting a new kind of PT service to citizens. More specifically:

- **Involvement of citizens** - The strong wish to implement the measure, even though in a reduced way, has been rewarded by Monza citizens, especially for the service activated for Fireworks, since participation has been quite active in spite of the novelty of the service. Citizens living in San Fruttuoso were satisfied of the opportunity offered by Comune of Monza to reach the venue of fireworks without using their private car, since they appreciated the attention given by the Municipality to their difficult mobility situation due to the streetworks in progress in that district of the city.
- **Communication** –Communication strategy has to be the widest possible, so that people are informed about the opportunity that a DRTS represents, both as a more conscious approach to mobility themes, and as far as benefits are concerned in terms of savings resulting from activating a PT service only when needed, especially in this particular moment of economic crisis.
- **Planning** - It was easy to manage bookings through the staff of Mobility and Transportation Office. Due to the novelty of the initiative, the number of phone calls and e-mails received could be dealt with during ordinary job activity. If the service was offered for every event in the city, it would be necessary to activate a call centre to manage bookings.
- **Financial** - For a future implementation, there will be necessary to charge a fare, in order to let people understand the value of the service, so to avoid the risk of reservations without an effective use of the service, which will still needs to be activated and paid.