

*Measure title:* **Personalised Travel Plans**

*City:* **Donostia–San Sebastián**      *Project:* **ARCHIMEDES**      *Measure number:* **34**

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## Executive Summary

A Personalised Travel Plan (PTP) is a well-established method for encouraging citizens to use more sustainable forms of public transport. The main objective of the Personalised Travel Plans (PTP) is to achieve a reduction in the use of cars and an increase in walking, cycling and the use of public transport. This is done by means of initial data collection, providing the citizens with information on their best option for use of other sustainable means of transport as an alternative to private vehicles and combining this action with incentives such as public transport vouchers or gifts.

Within this measure, the Municipality of Donostia- San Sebastián has developed over 200 PTPs in the main housing districts of the CIVITAS corridor. To do so, the city has undertaken a programme of over 300 house-visits to households in the main housing districts of the CIVITAS Plus corridor, to provide targeted information on sustainable travel modes. The aim was to explore the possibilities that Public Transport offers for their specific trips and what the difference in costs and travel time would be compared to the current situation.

The households whose members declared interest in exploring the alternative were offered a free Public Transport pass for 3 months to try out the service (the pass also included free access to the public bike scheme).

Even though there were 96 participants that decided not to continue with the program after the incentive phase (nearly 30% of all participants), and 31 additional participants were not reached one year after the first assessment, evaluation results reveal a significant success in changing travel behaviour.

One year after the three months trial period finished 82 participants remained using the alternative option provided by the PTP (six months after the trial period started the number of participants who changed their transport habits was 102). This has a significant effect on modal split distribution and transport related emissions. Car usage has considerably decreased among participants in the PTP initiative (12% in Amara and 8% in Antiguu districts), accounting for over 30.000 kg/year CO2 savings.

In both cases, acceptance level towards the initiative is above 96% of the surveyed people, with several participants ready to make a small sacrifice if the alternative transport is environmentally more sustainable (although not perceived as positive for him/her self).

From an economic perspective, the Cost-Benefit Analysis conducted has revealed that PTP would require a four years period of time with an equivalent level of success to achieve a positive economic result (if only monetisable costs and benefits are considered). After this four year period benefits get slightly higher than costs (The benefit to cost ratio after four years is 1,10), and the change of Net Present Value of the measure is 48.896,83 €, which means that the NPV of this measure is higher than the one associated to BaU scenario. This result reveals that PTP require a relatively short time to become a cost-effective measure.

Regarding the process implementation of the measure, in addition to the importance of promotion and awareness raising of the measure, the main lesson learned refers to the need to take into account in the designing phase that there would be a percentage of people who will leave the program during any of its different phases. This is especially important if a specific participants' target is established. In order to reduce those leavings, regular contacts with participants should be maintained and the time between stages should be reduced to the minimum.

## **A Introduction**

### **A1 Objectives and target groups**

#### **A1.1 Objectives**

The measure objectives are:

(A) High level / longer term:

- To reduce congestion and pollution

(B) Strategic level:

- To reduce car use and increase public transport and multi-modal trips
- To change the travel behaviour of citizens that live along the CIVITAS plus corridors

(C) Measure level:

- Personalised Travel Plans for at least 200 households providing targeted information

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

This measure is targeted at changing the travel behaviour of citizens that live along the CIVITAS plus corridors

## **A2 Description**

A Personalised Travel Plan (PTP) is a well-established method for encouraging citizens to use more sustainable forms of public transport. The main objective of the Personalised Travel Plans (PTP) is to achieve a reduction in the use of cars and an increase in walking, cycling and the use of public transport. This is done by means of initial data collection, providing the citizens with information on their best option for use of other sustainable means of transport as an alternative to private vehicles and combining this action with incentives such as public transport vouchers or gifts.

Within this measure, the Municipality of Donostia- San Sebastián has developed over 200 PTP in the two main housing districts of the CIVITAS corridor, namely Antiguo and Amara. To do so, ADS has undertaken a research to develop a programme of over 300 house-visits to households in these two districts, to provide targeted information on sustainable travel modes. The aim was to explore the possibilities that Public Transport offers for their specific trips and what the difference in costs and travel time would be compared to the current situation. Special attention was given to multi-modal trips.

The over 200 households whose members declared interest in exploring the alternative were offered a free Public Transport pass for 3 months to try out the service (the pass also included free access to the public bike scheme).

## **B Measure implementation**

### **B1 Innovative aspects**

The innovative aspects of the measure are:

- **New conceptual approach (at national level).** Personalised Travel Plans for at least 200 house visits to provide targeted information and a discounted or free public transport pass for 3 months.
- **New policy instrument (at national level).** The households that are interested in exploring the alternatives would be offered a discounted or free Public Transport pass for 3 months to try out the service.

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

The Department of Mobility of Donostia-San Sebastián ADS has undertaken a research to develop a programme of house-visits to households in the main housing districts of the CIVITAS Plus corridor, to provide targeted information on sustainable travel modes. The study also determined an appropriate evaluation and monitoring programme.

### **B3 Situation before CIVITAS**

Until now, promotion actions for public transport use were limited to traditional channels like advertising and poster on the street or buses. There are some cases of direct mailings on public transport.

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

The measure was implemented according to the following stages:

- **Stage 1: Planning for Personalised Travel** (September 2008 – November 2010):

First of all, it was decided to focus the application of this measure in the CIVITAS corridor. In particular, Amara and Antiguo districts were selected as target areas for the development of PTPs due to its residential character and its location within the CIVITAS corridor (in the distant edges as of the city centre). Another key element for the selection of these districts was that both neighbourhoods are well served by public transport (routes 5 and 28, which have been enhanced within the project, operate in these areas) and have good infrastructure as regards of both cycle and pedestrian paths. Therefore, the PTP proposals could comprise a real alternative to car use.

After a first round of awareness rising activities, a postal based information campaign, including a survey, was launched among the residents of the two selected neighbourhoods. Follow up activities were developed in order to achieve 300 citizens to take part in the programme (only those citizens who use their car within the city at least for one trip during the week were eligible). Afterwards, house-visits to these same 300 households were organised.

<p><b>¿En qué consiste el proyecto?</b></p> <p>El proyecto pretende realizar un total de 200 Planes de transporte personales.</p> <p>Los planes de movilidad normalmente realizan un análisis general de las necesidades de movilidad actuales y proponen infraestructuras y medidas de gestión para facilitar una movilidad sostenible y solucionar los problemas detectados.</p> <p>En los Planes de transporte personales, se analiza caso por caso las necesidades de movilidad de los participantes. A cada uno de ellos se les propone una forma alternativa de realizar los desplazamientos que actualmente hacen en vehículo privado, y se les proporcionan los medios para que puedan llevar a cabo este cambio modal durante 3 meses.</p> <p>Finalmente se comprueba el nivel de satisfacción con la nueva forma de desplazarse, y después de un periodo de 3 meses, se analiza cuantas personas siguen realizando sus desplazamientos de la forma propuesta.</p> <p>Esta metodología innovadora, permite ver la eficacia real de cada uno de los sistemas propuestos, y analizar de una forma detallada en qué casos los ciudadanos encuentran más dificultades para seguir pautas de <u>movilidad sostenibles</u>.</p>	<p><b>¿Cómo puedo colaborar?</b></p> <p>Colaborar es muy sencillo, tienes que seguir estas pautas.</p> <ol style="list-style-type: none"> <li>1º Rellena la encuesta que está en esta dirección de correo _____ o contesta a las preguntas que te hagan de forma telefónica</li> <li>2º Cuando recibas tu propuesta de desplazamiento alternativo, analiza las ventajas e inconvenientes que te plantea.</li> <li>3º Utiliza el itinerario propuesto a fin de que puedas comparar con conocimiento de causa y ayudarnos a enriquecer las conclusiones del proyecto.</li> <li>4º Responde al encuestador que irá a tu casa una vez hayan pasado los 3 meses de abono gratuito.</li> <li>5º Abónate al sistema de transporte que se te ha planteado, o intenta utilizarlo al máximo número de veces que te sea posible</li> <li>6º Atiende al encuestador que pasara 3 meses después y que te pedirá información que nos ayudará a saber cuales son los resultados del proyecto</li> </ol>
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**¿Qué puedes hacer por la movilidad de tu ciudad?**

- Siempre que puedas, camina. Hacer ejercicio físico es necesario para mantenerse con buena salud, y caminar como mínimo 30 minutos al día es una buena opción. Te sentirás mejor y no hay modo de transporte más sostenible.
- Plantéate el uso de la bicicleta en distancias medias. La ciudad dispone de carriles bici, y esta se adapta muy bien a la circulación por calzadas con velocidad máxima de 30 km/h.
- Utiliza el transporte público si la bicicleta no es para ti una opción.
- Si tu situación te fuerza a usar el coche, intenta llevar a alguien. Un coche lleno es un transporte sostenible.
- No aparques ilegalmente, siempre encontrarás sitio un poco más lejos. Así evitas perjudicar al resto de ciudadanos.
- Conduce de forma eficiente. Interésate por la realización de cursos específicos que ofrecen asociaciones de automovilistas y otras entidades.



**Antecedentes**

Aunque cada vez es mayor el uso la bicicleta o el transporte público para moverse en Donostia, aún en algunas ocasiones, bien por comodidad o por desconocimiento de alternativas, utilizamos el coche para nuestros desplazamientos con lo que ello implica de mayor consumo energético, congestión y contaminación. Por ello, nuestra ciudad se acoge a un proyecto europeo, CIVITAS – ARCHIMEDES, con objeto de conseguir una movilidad aún más sostenible en la ciudad.



El proyecto CIVITAS – ARCHIMEDES, es un ambicioso Plan financiado por la Unión Europea, que engloba una serie de actividades con el objetivo de incrementar la utilización de los modos de transporte sostenibles y aportar servicios de viaje más seguros en áreas urbanas de mediano tamaño. Las 83 medidas del proyecto permitirán cumplir la legislación europea y incrementar la eficiencia energética.

Figure 1.- PTP information leaflet

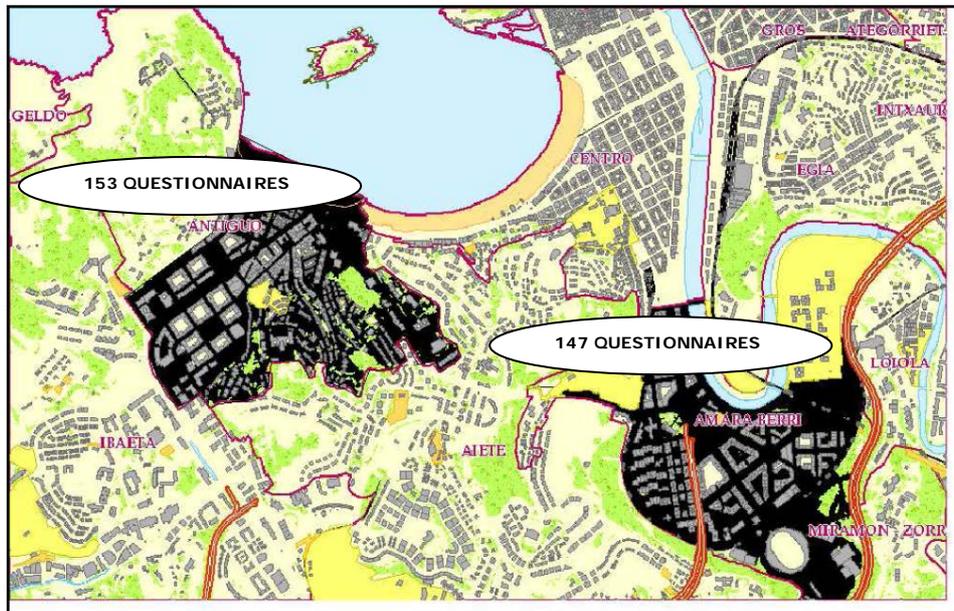


Figure 2.- PTP participants distribution

- **Stage 2: Personalised Travel Plans** (December 2010 – April 2011):

The programmed 300 house-visits provided targeted information on the mobility options for each participant. After the initial collection of data, each case was studied. In this stage, some of the households who initially showed interest in the programme either decided to finally not take part on it or could not be reached after several attempts. Nevertheless, over 200 participants were provided with tailored information about the most advantageous mobility alternatives and were given timetables, fare information and maps of bus routes, cycle paths and pedestrian network, i.e. they were informed about the different sustainable means of transport they can use as an alternative to their private vehicle. Incentives to shift to any of these options were also provided (a free Public Transport pass for 3 months to try out the service, including free access to the public bike scheme).

- **Stage 3: Monitoring and Evaluation** (December 2010 – June 2012):

After 6 months since the trial period started, results in terms of permanent change were assessed by contacting again with the over 200 participants and collecting information on their mobility behaviour at that time. After this first assessment, permanent change was assessed again 18 months after the trial period, also by contacting with the participants and requesting mobility behaviour data from them.

## B5 Inter-relationships with other measures

The measure is related to other measures as follows:

- **Measure DSS16. – High Quality Bus Corridors.** The aim of this measure is to build an optimised and user-friendly environment for public transport modes that will encourage people to use clean, collective transport facilities.

- **Measure DSS 73. – Bus traveller information.** This measure aims to offer the citizen a more attractive public transport system by introducing useful travel information in real time.

Both measures DSS16 and DSS73 contribute to an improved public transport operation and quality of service, making bus services more reliable and attractive to new users, among them those taking part in the PTPs programme, since the selected neighbourhoods are served by the enhanced routes.

## **C Planning of Impact evaluation**

### **C1 Measurement methodology**

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

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

This measure is aimed at promoting public transport use in residential areas by approaching individuals in order to develop tailored public transport advice based on their mobility needs, as well as rising awareness on the benefits of these modes and providing high quality information about available public transport alternatives.

This measure was expected to encourage citizens to make a higher use of collective transport, shifting from private cars to public transport, contributing to the overall goal of reducing the number of cars entering the city.

As a consequence, the measure would contribute to a reduction of transport related emissions and noise, leading to a better health and quality of life for Donostia-San Sebastian citizens.

### C1.1.1 Selection of indicators

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
<b>SOCIETY</b>						
14		Acceptance	Acceptance	Acceptance level	Attitude survey of current acceptance of the measure among the target group	Index (%), qualitative, collected, survey
<b>TRANSPORT</b>						
29		Transport System	Modal split	Average modal split-trips	The travel patterns of the participants will be evaluated	%, quantitative, derived
<b>ENVIRONMENT</b>						
8		Pollution and Nuisance	Emissions	CO2 emissions	CO2 per vkm by type	G/vkm, quantitative, derived
10				NOx emissions	NOx per vkm by type	G/vkm, quantitative, derived
11				Particulate emissions	PM10 and/or PM2.5 per vkm by type	G/vkm, quantitative, derived

### C1.1.2 Methods for evaluation of indicators

No.	INDICATOR	TARGET VALUE	Source of data and methods	Frequency of Data Collection
14	Acceptance level	80% acceptance rate	As a result of the 300 programmed house-visits, the number of citizens willing to test an alternative mobility option was over 200. 6 months after the trial period, results in terms of permanent change were assessed. Finally, in order to have a longer term perspective on the effectiveness of the travel plans, results in terms of permanent change were assessed again after a 18 months. In all cases, mobility behaviour has been collected by directly contacting the participants and requesting mobility behaviour data from them.	3 times during ARCHIMEDES
29	Average modal split- trips	5% reduction in modal share for car users	An ex-ante postal survey was distributed, followed by a personal interview of 300 residents. Mobility patterns, including modal split, of these 300 were recorded. After a 3 months trial period, and 3 more months for further consolidate modal choice, changes in modal split were assessed. Finally, in order to have a longer term perspective on the effectiveness of the travel plans, results in terms of permanent change have also be assessed after a 18 month period. In all cases, mobility behaviour has been collected by directly contacting the participants and requesting mobility behaviour data from them.	3 times during ARCHIMEDES
8, 10, 11	CO <sub>2</sub> , NO <sub>x</sub> , PM emissions	Not defined	Based on the mobility patterns identified with the survey and personal interview, an estimation of the emission associated to current mobility patterns and potential alternatives has been undertaken.	2 times during ARCHIMEDES

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

<b>EVALUATION TASK</b>	<b>INDICATORS INVOLVED</b>	<b>COMPLETED BY (DATE)</b>	<b>RESPONSIBLE ORGANISATION AND PERSON</b>
Acceptance level	14	Month 27-33-45	Ayuntamiento de Donostia-San Sebastián, Leire Aguirre
Average modal split- trips	29	Month 27-33-45	Ayuntamiento de Donostia-San Sebastián, Leire Aguirre
CO <sub>2</sub> , NO <sub>x</sub> , PM emissions	8,10,11	Month 33-45	Ayuntamiento de Donostia-San Sebastián, Leire Aguirre

## C1.2 Establishing a baseline

The development of the measure has been structured in 6 steps, in which the first round of data collection for the evaluation corresponds to Step 2, according to the structure shown below:

- **Step 1:** Preparation of brochures, letters and surveys
- **Step 2:** Initial data collection (participants' survey)
- **Step 3:** Diagnosis and mobility proposals
- **Step 4:** Submission of mobility proposals
- **Step 5:** Three-month incentive period followed by a three-month non-incentive period. Participants' survey and evaluation by the end of this period
- **Step 6:** Twelve-month non-incentive period. Participants' survey and evaluation by the end of this period

As already stated before, although initially there were 300 residents who expressed their interest in participating in the programme, after the initial data collection round (Step 2) some of the either decided to no longer collaborate or could not be reached after several attempts. For calculation purpose, in those cases it has been considered that their mobility behaviour remained as declared in the initial data collection phase.

### Sample selection and statistical significance

The initial plan to target 200 households was extended to 300 participants, in order to achieve greater statistical significance (error rate below 5% for a confidence interval of 95%).

The target universe for the analysis was the population over 18 years old who make at least one trip per week by private car in Donostia – San Sebastian. In particular, the estimated universe is 14,105 people in the neighbourhood of the Antiguu district and 21,663 in Amara, a total of 35,768 people.

**Table 1.- Target universe and survey sample size**

	Estimated universe (*)	Stage 2	
		Survey qty.	% error
<b>Antiguu</b>	14.105	153	7,88
<b>Amara</b>	21.663	147	8,06

\* Population over 18

Considering that about 5,000 households were contacted (3,000 mailbox surveys, 1,000 additional home visits and 1,000 phone calls) and the average household size in San Sebastian is 2.9 people, it can be estimated that 14,500 people have been reached (10,875 over 18 years), among which 300 participants were committed to the programme. Therefore the participation rate is 2.8%. Nevertheless, this figure does not mean that 97% were not interested in participating in the study, as many of them did not fulfil the terms for the study (not using private car or used it to move out of San Sebastian).

In this regard, only 12% of the journeys in Antiguu and 13% in Amara met the “at least one trip per week by car” condition. Therefore, the real participation rate is set at 23%.

## Calculation of emission indicators

For the calculation of emissions and energy consumption, in addition to information regarding the origin and destination of their car trips, participants were also requested to provide detailed information about the characteristics of their usual vehicle (petrol or diesel, year of enrolment, engine).

With this information, energy consumption and emissions for each car trip are estimated. Emissions are calculated according to the values of COPERT IV in the table below, considering the age, type of fuel and the threshold of Euro standards for petrol and diesel cars. Knowing the year of enrolment, the threshold of the last Euro rules application is assumed. The final result is a function of the length of the route.

**Table 2.- Emission factors**

Vehicle type	CO2 (g/km)	Nox (g/km)	PM 2,5 (g/km)
Euro 0 petrol	289,95	2,500	0,0240
Euro I petrol	202,21	0,434	0,0240
Euro II petrol	194,48	0,237	0,0240
Euro III petrol	181,24	0,096	0,0110
Euro IV petrol	170,22	0,061	0,0110
Euro 0 diesel	192,03	0,723	0,2460
Euro I diesel	203,87	0,691	0,0877
Euro II diesel	190,72	0,726	0,0594
Euro III diesel	174,52	0,780	0,0412
Euro IV diesel	153,66	0,601	0,0342

Afterwards, in those trips where car has been substituted by an alternative mode, energy consumption and emission savings are estimated following a similar approach for public transport trips. In particular, the own CTSS (bus company) CO<sub>2</sub> calculation tool (available online at [www.dbus.es](http://www.dbus.es)) is used for GHG emissions, while the following emission factors are used for pollutants:

- NOx: 0,489 g/pass-km
- PM: 0,013 g/pass-km

No fuel consumption or emissions are considered for non-motorized trips.

Since the survey included information regarding the frequency of each trip, fuel consumption and emissions data can be easily converted to yearly amounts by using this figure.

## C2 Measure results

### C2.1 Environment

In the following table results of the Environment indicators are shown. Results from the Amara and Antiguo districts are presented separately.

Besides the previously explained information required, the units used when displaying the values of emissions (kg/year) require knowing the amount of travels that the participant makes per week to extrapolate to travels per year.

The amount shown on each indicator is the sum of emissions generated by the 300 participants. As we will see during the progress of the project, the initial figure of 300 participants will be reduced because some people left the project during its development.

To compare baseline data with the end, it was assumed that participants who have left the project continued with their initial mode of transport, i.e. the private vehicle.

**Table C2.1.1: Pollution and Nuisance**

Indicator (Amara district)	Before (2010)	BaU (2011)	After (1 <sup>st</sup> Semester 2011)	BaU (2012)	After (1 <sup>st</sup> Semester 2012)
<b>8. CO<sub>2</sub> emissions</b>	63.615 kg/year	63.615 kg/year	47.639 kg/year	63.615 kg/year	48.413 kg/year
<b>10. NOx emissions</b>	237,3 kg/year	237,3 kg/year	196,9 kg/year	237,3 kg/year	206,6 kg/year
<b>11. Particulate emissions</b>	17,6 kg/year	17,6 kg/year	12,1 kg/year	17,6 kg/year	12,0 kg/year

Indicator (Amara district)	Difference: 2011 – Before	Difference: 2011 – BaU	Difference: 2012 – Before	Difference: 2012 – BaU
<b>8. CO<sub>2</sub> emissions</b>	-15.976 kg/year	-15.976 kg/year	-15.202 kg/year	-15.202 kg/year
<b>10. NOx emissions</b>	-40,4 kg/year	-40,4 kg/year	-30,7 kg/year	-30,7 kg/year
<b>11. Particulate emissions</b>	-5,4 kg/year	-5,4 kg/year	-5,6 kg/year	-5,6 kg/year

Indicator (Antiguo district)	Before (2010)	BaU (2011)	After (1 <sup>st</sup> Semester 2011)	BaU (2012)	After (1 <sup>st</sup> Semester 2012)
<b>8. CO<sub>2</sub> emissions</b>	52.326 kg/year	52.326 kg/year	36.746 kg/year	52.326 kg/year	39.966 kg/year
<b>10. NOx emissions</b>	165,3 kg/year	165,3 kg/year	141,6 kg/year	165,3 kg/year	142,1 kg/year
<b>11. Particulate emissions</b>	13,7 kg/year	13,7 kg/year	10,3 kg/year	13,7 kg/year	11,0 km/year

Indicator (Antiguo district)	Difference: 2011 – Before	Difference: 2011 – BaU	Difference: 2012 – Before	Difference: 2012 – BaU
<b>8. CO<sub>2</sub> emissions</b>	-15.580 kg/year	-15.580 kg/year	-12.360 kg/year	-12.360 kg/year
<b>10. NOx emissions</b>	-23,7 kg/year	-23,7 kg/year	-23,2 kg/year	-23,2 kg/year
<b>11. Particulate emissions</b>	-3,4 kg/year	-3,4 kg/year	-2,7 kg/year	-2,7 kg/year

As it can be seen in the table above, the modal shift promoted by the PTPs has resulted in a significant reduction in pollutant emissions.

Regarding energy consumption, the reduction in the use of the car has resulted in **7.744 litres** of fuel saved annually in Amara district, while in Antiguo the savings are estimated at **6.135 litres**.

## C2.2 Society

Regarding society impacts, the first analysis refers to the willing of the targeted citizens to take part in the initiative, as well as to their involvement in it.

Regarding the willingness to participate, as already mentioned, in order to achieve 300 participants, 5.000 households were contacted; accounting for a real participation rate of 23% (contacts not meeting the PTP condition were not accounted).

As for the level of involvement, it should be regarded that 96 participants did not continue with the program after the incentive phase (nearly 30% of all participants). Nevertheless, based on the experience from other locations, this was an expected situation. The increased target regarding the number of participants was decided in advance to overcome it.

Following is the assessment of the acceptance indicator defined in the evaluation plan. To get values, which reflect this indicator, the answers of the following questions in the survey are considered:

- *Do you consider the implementation of the Personalised Transport Plans raised from the City council can be positive for you?*
- *Do you consider the implementation of the Personalised Transport Plans raised from the City council can be positive for society?*

In particular, the values used for this indicator are those gathered in the second question, which refers to the society.

**Table C2.2.1: Acceptance**

Indicator (Amara district)	Before (2010)	BaU (2011)	After (1 <sup>st</sup> Semester 2011)	BaU (2012)	After (1 <sup>st</sup> Semester 2012)
14. Acceptance level	93,9%	NOT AVAILABLE	95,9%	NOT AVAILABLE	96,6%

Indicator (Amara district)	Difference: 2011 – Before	Difference: 2011 – BaU	Difference: 2012 – Before	Difference: 2012 – BaU
14. Acceptance level	2,0%	NOT AVAILABLE	2,7%	NOT AVAILABLE

Indicator (Antiguo district)	Before (2010)	BaU (2011)	After (1 <sup>st</sup> Semester 2011)	BaU (2012)	After (1 <sup>st</sup> Semester 2012)
14. Acceptance level	96,7%	NOT AVAILABLE	100%	NOT AVAILABLE	100%

Indicator (Antiguo district)	Difference: 2011 – Before	Difference: 2011 – BaU	Difference: 2012 – Before	Difference: 2012 – BaU
14. Acceptance level	3,3%	NOT AVAILABLE	3,3%	NOT AVAILABLE

Results from the surveys reveal that the acceptance level is very high, being slightly higher in the Antiguo district. In both cases, the initiative has increased its acceptance after the implementation of the PTPs. It should be noted that the surveyed people volunteered to take

part in the initiative, which means that all of them already had a positive opinion regarding the measure, although not necessarily from a society perspective. Nevertheless, it is a remarkable result that this acceptance level increased after they received travel related information and tested their personal transport alternative.

Regarding the first question, the values are also very positive, although slightly lower, with an **86% of the participants in Amara** district who believes that the PTP was positive for him/her-self, and **98% in Antiguo**. The reason for the lower values as compared with the society perspective may be the belief from the participants that his/her travel behaviour was already optimized and they do not believe that there is a more suitable alternative, more economic and with lower travel times.

Overall the results reveal a very positive attitude towards alternative means of transport, with several participants ready to make a small sacrifice if the alternative transport is environmentally more sustainable (although not perceived as positive for him/herself). In this regard, participants' acceptance to a transport mode change is as follows:

- Antiguo district: Before the PTPs were implemented, 86.9% of the participants considered the possibility to change towards bus mode, 22.2% considered using the bike and 19.6% walking instead of a car journey. After the testing period, 40% of the participants continue to make use of the proposed transport alternative.
- Amara district: Before the PTPs were implemented, 93.9%% of the participants considered the possibility to change towards bus mode, 29.9% considered using the bike and 20.4% walking instead of a car journey. After the testing period, 28% of the participants continue to make use of the proposed transport alternative.

### C2.3 Transport

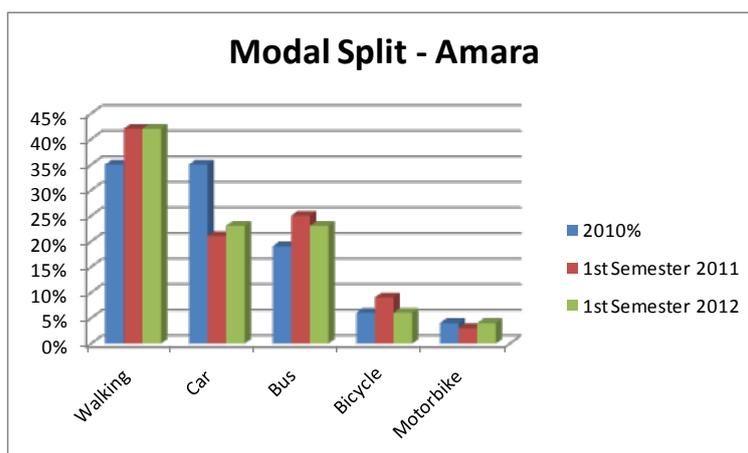
Six months after the three months trial period started, 102 participants had changed their transport behaviour, making use of the alternative option provided by the PTP. After a year from this first assessment 82 participants remained using the alternative option provided by the PTP. This had a significant effect on modal split distribution in the targeted districts.

During the survey, a percentage of participants who had never used public transport was detected (4% in Amara and 11% in Antiguo). By contrast, 73% in Amara and 70% in Antiguo took the bus at least once a month. In this regard, the latter was considered the most suitable group for modal change, since they already knew public transport and did not have any mayor rejections to its use and were willing to use it as long as they would be convinced public transport would be more advantageous. Considering all trips made by the participants, modal split has changed as follows:

**Table C2.3.1: Modal Split**

Indicator (Amara district)	Before (2010)	BaU (2011)	After (1 <sup>st</sup> Semester 2011)	BaU (2012)	After (1 <sup>st</sup> Semester 2012)
<b>29. Average modal split- trips</b>	Walking 35% Car 35% Bus 19% Bicycle 6% Motorbike 4%	Walking 35% Car 35% Bus 19% Bicycle 6% Motorbike 4%	Walking 42% Car 21% Bus 25% Bicycle 9% Motorbike 3%	Walking 35% Car 35% Bus 19% Bicycle 6% Motorbike 4%	Walking 42% Car 23% Bus 23% Bicycle 9% Motorbike 3%

Indicator (Amara district)	Difference: 2011 –Before	Difference: 2011 – BaU	Difference: 2012 –Before	Difference: 2012 – BaU
<b>29. Average modal split- trips</b>	Walking +8% Car -14% Bus +6% Bicycle +3% Motorbike -1%	Walking +8% Car -14% Bus +6% Bicycle +3% Motorbike -1%	Walking +8% Car -12% Bus +4% Bicycle +3% Motorbike -1%	Walking +8% Car -12% Bus +4% Bicycle +3% Motorbike -1%

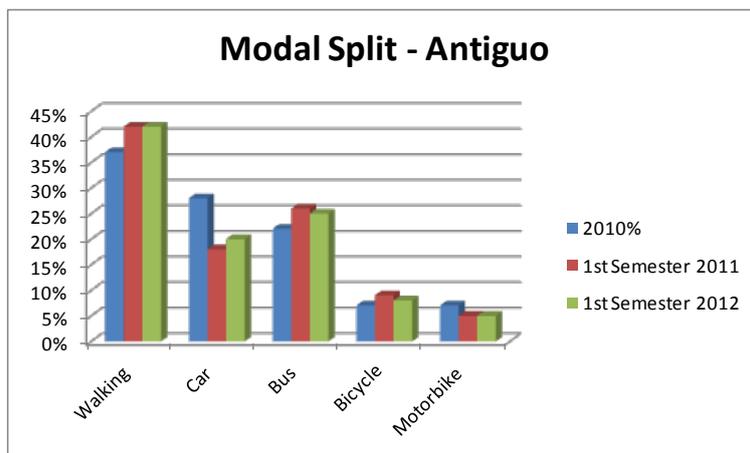


**Graph 1.- Modal split - Amara**

As it can be seen, there is a significant reduction in the number of trips made by car or motorbike among the residents of the Amara district, while non-motorized modes and public transport has considerably increased their modal share. A slight decrease from modal shift away from car has been experienced in 2012 compared with the year before.

Indicator (Antiguo district)	Before (2010)	BaU (2011)	After (1 <sup>st</sup> Semester 2011)	BaU (2012)	After (1 <sup>st</sup> Semester 2012)
<b>29. Average modal split- trips</b>	Walking 37% Car 28% Bus 22% Bicycle 7% Motorbike 7%	Walking 37% Car 28% Bus 22% Bicycle 7% Motorbike 7%	Walking 42% Car 18% Bus 26% Bicycle 9% Motorbike 5%	Walking 37% Car 28% Bus 22% Bicycle 7% Motorbike 7%	Walking 42% Car 20% Bus 25% Bicycle 8% Motorbike 5%

Indicator (Antiguo district)	Difference: 2011 –Before	Difference: 2011 – BaU	Difference: 2012 –Before	Difference: 2012 – BaU
<b>29. Average modal split- trips</b>	Walking +5% Car -10% Bus +4% Bicycle +2% Motorbike -2%	Walking +5% Car -10% Bus +4% Bicycle +2% Motorbike -2%	Walking +5% Car -8% Bus +3% Bicycle +1% Motorbike -2%	Walking +5% Car -8% Bus +3% Bicycle +1% Motorbike -2%



**Graph 2.- Modal split - Antiguo**

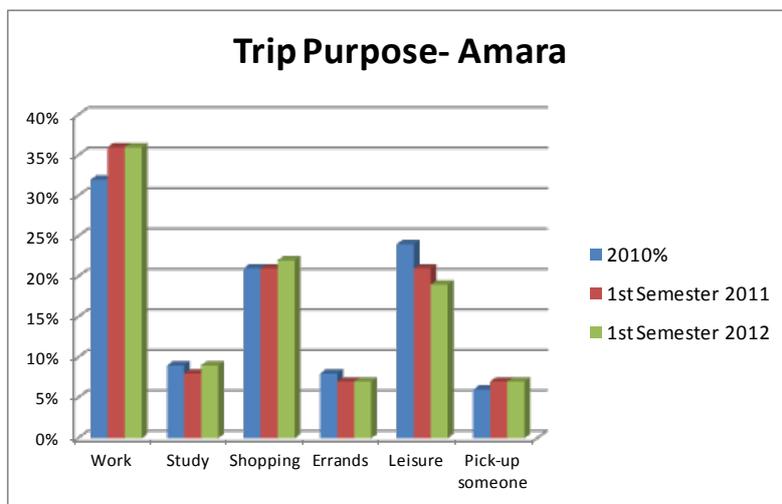
Although slightly lower in relative terms, the Antiguo district also accounts for a significant reduction in the number of trips made by car or motorbike among its residents, while non-motorized modes and public transport has considerably increased their modal share.

These changes in modal split have a link to transport costs. Considering only the costs associated to the use of the different means of transport (i.e. excluding external costs), it is estimated that the achieved modal shift to alternative modes of transport has resulted in more than 52,000€ saved per year for the citizens (28,275€ in Amara and 24.029€ in Antiguo).

**Distribution of trips by purpose**

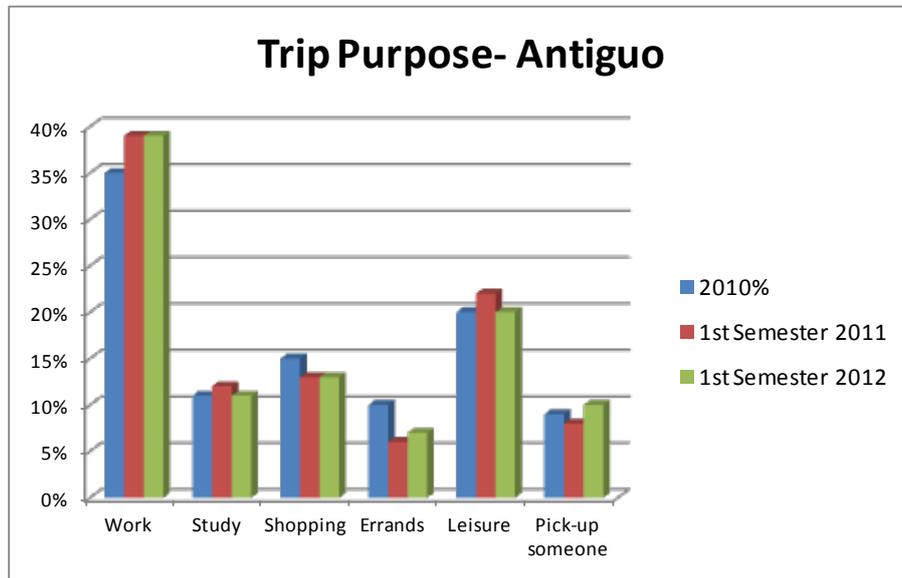
It is assumed that the overall distribution of trip purposes remains the same regardless of the change in the mode of transport. But in order to assess which kind of trips have been transferred to an alternative mode, the distribution of trip purposes among car user has been assessed.

- Amara: in this district, recurrent trips to work and study represented 41% of all car trips before the implementation of PTPs, while after its development these trips have increased to 45% of all car trips. According to the survey, most trips shifted to an alternative mode of transport correspond to leisure trips.



**Graph 3.- Trip purpose - Amara**

- Antiguo: before the PTPs were implemented, work and study trips accounted for 46% of all car trips, while after the implementation of the measure, these trips represents a 50% of all car trips. According to the survey, most trips shifted to an alternative mode of transport correspond to shopping trips and those to run errands and pick-up someone.

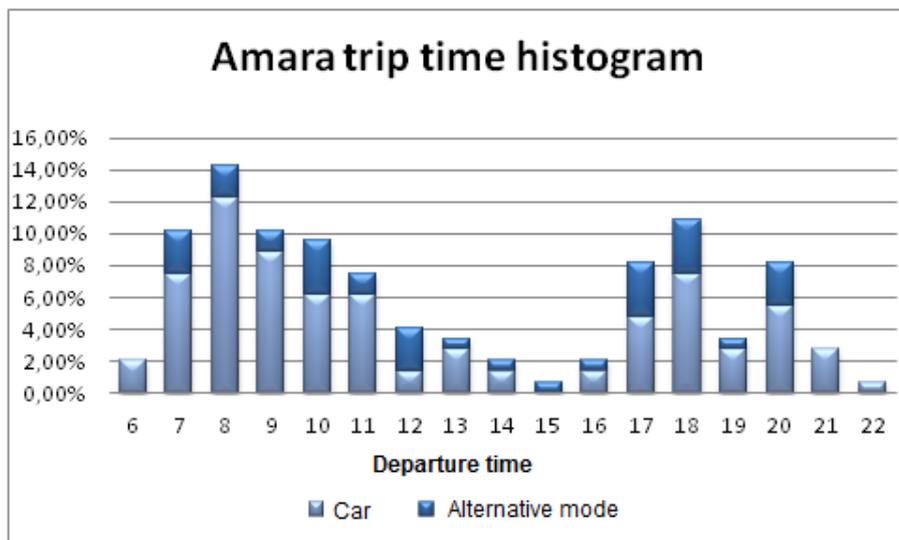


Graph 4.- Trip purpose - Antiguo

**Distribution of trips by mode of transport and time**

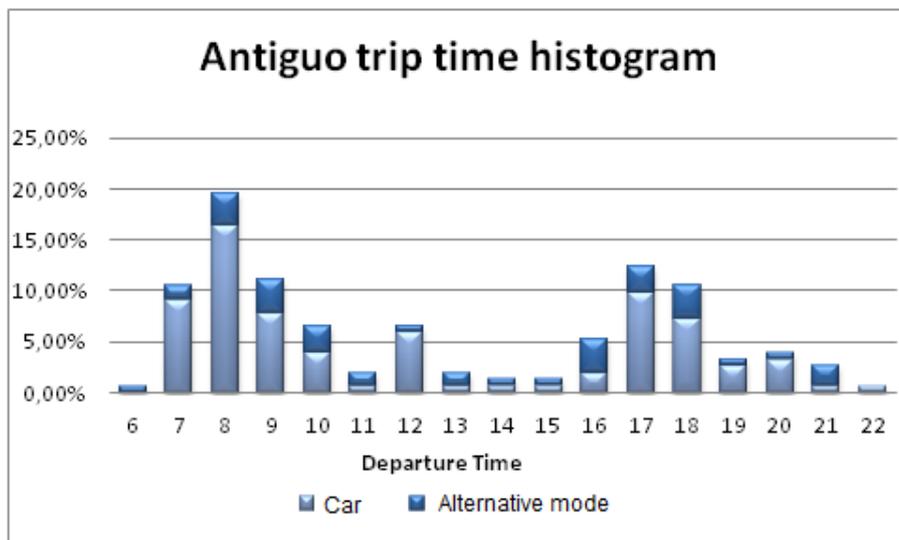
Although the analysis regarding trip purpose distribution revealed that most trips shifted to alternative modes of transport correspond to non-recurrent trips (leisure, shopping, etc.), overall there are no major differences in the time pattern between car trips and alternative mode trips.

- Amara: in concordance with the above analysis regarding trips purpose, around 45% of all trips are made between 7am and 10am, manly for recurrent reasons such as work and study.



**Graph 5.- Trip time histogram - Amara**

- Antiguo: nearly half of the trips are made between 7am and 10am, a figure that matches with the distribution of work and study mobility of the previous indicator.



**Graph 6.- Trip time histogram - Antiguo**

In both cases it can be seen how most of the trips using an alternative mode of transport take place during peak hours, thus contributing to a reduced congestion.

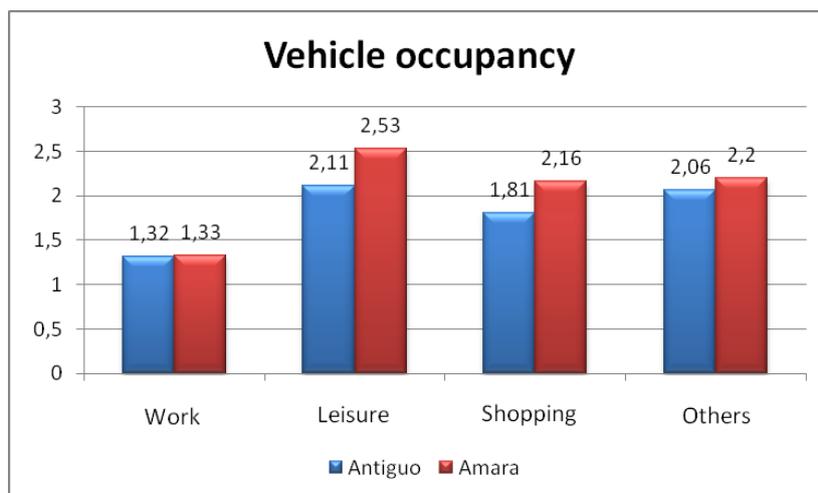
**Complementary information**

Private car use

The average year of registration of participants’ vehicles is 2002.

54% of the vehicle fleet is motorised by diesel and 46% by petrol.

Average vehicle occupancy depending on the reason for travel is as follows:



**Graph 7.- Vehicle occupancy**

### Public transport use

- Antiguoo: 46% of the participants make bus transfers. They make an average of 4 trips and 5 trips with the bus-pass a week.
- Amara: 29% of the participants make bus transfers. They make an average of 3,5 trips and 0,9 trips with bus-pass a week.

### Bicycle use

- Antiguoo: 32% of participants use their own bicycles while only 2% of participants use public bicycle service.
- Amara: 13% of participants use their own bicycles while 4% of participants use public bicycle service.

### Lifts and mechanic ramps use

- Antiguoo: 32% of participants use lifts or mechanic ramps and an additional 28% is aware of the system, although not use it regularly.
- Amara: 34% of participants use lifts or mechanic ramps and an additional 19% is aware of the system, although not use it regularly.

## **C2.4 Cost benefit analysis**

The CBA of this measure focuses on the promotion of public transport and non-motorized modes in residential areas by approaching individuals to develop tailored mobility advice based on their particular needs.

While costs associated to the measure mostly corresponds with the investment needs for awareness raising activities and the provision of tailored alternatives, including incentives during the alternative mode trial phase; benefits are driven by the modal shift towards more sustainable modes of transport achieved by the measure, which results in energy and emissions savings, as well as an economic benefit associated to a reduced car use (i.e. reduced vehicle maintenance costs and fuel, as compared to the cheaper costs of public transport and non-motorized modes).

An assessment of travel time in both scenarios has also been conducted which has resulted in overall time losses due to the shift towards public transport and active modes, usually slower modes than car. This is accounted as an economic cost associated to the measure.

### **C2.4.1 Evaluation period for CBA**

Evaluation period for CBA is usually determined according to the amortization period or technical life of the measures implemented. In this case the measure comprises tailored advice (i.e. service provision) and there are no infrastructural developments, fleet renewal or technological components being implemented. Therefore is not easy to determine the project's life (which is able to continue as long as there are funds available and political will). Given this uncertainty, an alternative approach has been used. CBA approach has been used to determine the period required to achieve economic profit of it (i.e. time needed to achieve a positive Cost-to-Benefit ratio).

A reference case is required for comparison with the CIVITAS measure. The BaU scenario is used for that purpose. If this measure would not be implemented, modal shift towards more sustainable modes of transport would not be achieved and mobility patterns would follow the

same patterns as experienced in previous years, characterised by a public transport use will follow the same pattern as experienced in previous years, characterised by decreasing commercial speeds and reliability in public transport services and increased car use, leading to higher pollutant and carbon emissions.

Following EU recommendations a discount rate of 3.5% is used for the analysis.

**C2.4.2 Method and values for monetisation**

As a first step in the monetisation of the expected impacts of the measure, the main parties affected by the measure are identified. It is expected that the implementation of this measure will affect the following stakeholders:

**Table 3.- CBA: Involved agents and implications**

Agent	Implications
City Administration	Responsible for the awareness raising campaign, as well as the development of the Personalised Travel Plan, including incentives during the alternative mode trial phase.
Alternative users	The use of alternative modes of transport provides benefits in terms of reduced cost of travelling. On the contrary, time losses are also accounted, which comprise a cost factor (it should be noted that not all participants who change their modal behaviour lose time, although the overall balance is negative).
Motorized Users	Due to modal shift from private car to public transport or non-motorized modes, traffic congestion is expected to decrease. Therefore, car and public transport users would benefit for reduced travel times. Nevertheless this effect is not likely to happen since it is widely accepted that exceeding road capacity induce more traffic, both from new users and from actual drivers who change their routes to avoid congestion, especially in a context of increased motorized mobility patterns.
Society	Donostia-San Sebastian citizens benefit from an improvement on air quality and less noise due to the reduced emissions derived from an increase in the use of public transport and non-motorized modes, and the corresponding decrease in private car use.

Prior to its monetization, the main impacts of the measure are synthesized in the following table in the form of cost and benefits affecting the above referred parties:

**Table 4.- CBA: benefits and costs**

Agent	Cost	Benefit
City Administration	– Capital costs: awareness raising activities and the development of personalised travel plans (including incentives)	
Alternative users		– Reduced travel costs – Time savings
Society		– Better air quality – Less carbon emissions

Following is a brief description on how the impacts have been assessed and monetised, including the reference values used for its conversion to money values where applicable:

- Capital costs: calculated as the investment made by the municipality in promoting the initiative and raising awareness in order to achieve the required number of participants, including the incentives provided to the participants to test the alternative proposed mode, as well as the subcontracting of the development of the survey campaigns and the personalised travel plans.

No capital costs are associated to the reference case.

It has been considered that after the CIVITAS project, equivalent future PTP campaigns will take place (with the same capital costs associated).

- Operating costs: corresponds to the cost associated to the use of the selected mode of transport. For car users, vehicle maintenance and fuel costs are considered. While for public transport (including DBizi service), the corresponding fare is accounted. Non-motorized or active modes are considered free of charge.

These costs are calculated based on the mileage accounted for each mode of transport in both the CIVITAS scenario and the reference case. As already stated before, after the initial data collection round some participants decided to no longer collaborate or could not be reached after several attempts. For calculation purpose, in those cases it has been considered that their mobility behaviour remained as declared in the initial data collection phase.

For the BaU scenario it is considered that all participants' mobility behaviour remained as declared in the initial data collection phase.

- Time savings: an average value of time of 15€/h has resulted from the calibration of a transport demand model for the city within other CIVITAS measures. This value has been considered within the CBA for the monetisation of time savings.
- Modal split: this indicator has resulted from the survey campaigns developed in the framework of the PTP initiative. As already stated before, after the initial data collection round some participants decided to no longer collaborate or could not be reached after several attempts. For calculation purpose, in those cases it has been considered that their mobility behaviour remained as declared in the initial data collection phase.

For the BaU scenario it is considered that all participants' mobility behaviour remained as declared in the initial data collection phase.

- CO<sub>2</sub> and pollutant emissions: these indicators have also resulted from the mobility survey conducted as part of the PTP initiative. In addition to modal shift, the survey revealed the distance travelled by each participant and trip frequency, which are the basis for energy consumption and emissions calculation.

The following sources have been used for the monetisation of these impacts:

**Table 5.- Cost factors for emissions**

Pollutant	Cost factor	Value year	Source
CO <sub>2</sub>	25 €/tonne (2010) 40 €/tonne (2020)	-	IMPACT 2008 (Central value)
HC	400 €/tonne	€ 2000	IMPACT 2008 (CAFÉ)
NO <sub>x</sub>	2600 €/tonne	€ 2000	IMPACT 2008 (CAFÉ)
PM <sub>10</sub>	119900 €/tonne	€ 2000	IMPACT 2008 (HEATCO Metropolitan / Urban)
PM <sub>2,5</sub>	299600 €/tonne	€ 2000	IMPACT 2008 (HEATCO Metropolitan / Urban)

### **C2.4.3 Life time cost and benefit**

#### Capital costs:

- CIVITAS scenario: the municipality of Donostia-San Sebastian has invested 48.486,22 € in the development of the PTP, which includes promoting and raising awareness regarding the initiative, as well as subcontracting a specialized consultancy for the survey campaigns and the development of the tailored advise. In addition, the incentives provided to the participants to test the alternative proposed mode accounted for 22.977€

It has been considered that after the CIVITAS project, equivalent future PTP campaigns will take place, with the same level of investment required, although updated according to inflation.

- Reference case: No capital costs are associated to the reference case.

**Table C2.4.1 Capital cost in the evaluation period (not discounted)**

	Cases for comparison	Cost (e.g. €200,000)
Year 1	CIVITAS measure	71.463,22
	Reference case (or BAU)	0,00
Year 2	CIVITAS measure	72.034,93
	Reference case (or BAU)	0,00
Year 3	CIVITAS measure	74.195,97
	Reference case (or BAU)	0,00
Year 4	CIVITAS measure	75.976,68
	Reference case (or BAU)	0,00
Year 5	CIVITAS measure	77.496,21
	Reference case (or BAU)	0,00
Year 6	CIVITAS measure	79.046,13
	Reference case (or BAU)	0,00
Year 7	CIVITAS measure	80.627,06
	Reference case (or BAU)	0,00
Year 8	CIVITAS measure	82.239,60
	Reference case (or BAU)	0,00

Operating costs:

- CIVITAS scenario: The mileage accounted for each mode of transport in both the CIVITAS scenario and the reference case has been addressed, considering that mobility behaviour from participants who decided to no longer collaborate or could not be reached after several attempts remained as declared in the initial data collection phase.
- Reference case: For the BaU scenario it is considered that all participants' mobility behaviour remained as declared in the initial data collection phase.

It should be noted that only car trips were initially addressed by PTP, although modal shift towards the alternative proposed mode was assessed in the subsequent survey campaigns.

While in the situation before the measure was implemented, participants accounted for 294.743 km by car, one year after the implementation of the measure the mobility behaviour was as follows:

- 243.464 km by car
- 42.432 km by bus

- 2.184 km by DBizi
- 520 km cycling
- 1.664 km walking

The following cost factors have been used for the calculation of operating costs:

- Car: fuel prices are applied to a consumption pattern of 10 l/100 km, plus 0,50 € per km for maintenance, taxes, etc.
- Public transport: 0,63 € for daily trips; 0,74 € for weekly trips; 0,36 € per trip for over 65 years old users; 0,63 € per trip for under 24 years old users.
- DBizi: 20 € annual fee
- Walking and cycling are considered free of charge

In the following table, only operational costs savings are accounted:

**Table C2.4.2 Operating costs in the evaluation period (not discounted)**

	Cases for comparison	Cost (e.g. €200,000)
Year 1	CIVITAS measure	0,00
	Reference case (or BAU)	52.304,00
Year 2	CIVITAS measure	0,00
	Reference case (or BAU)	105.444,86
Year 3	CIVITAS measure	0,00
	Reference case (or BAU)	162.912,31
Year 4	CIVITAS measure	0,00
	Reference case (or BAU)	222.429,61
Year 5	CIVITAS measure	0,00
	Reference case (or BAU)	283.597,76
Year 6	CIVITAS measure	0,00
	Reference case (or BAU)	347.123,66
Year 7	CIVITAS measure	0,00
	Reference case (or BAU)	413.077,15
Year 8	CIVITAS measure	0,00
	Reference case (or BAU)	481.529,93

Journey times:

- CIVITAS scenario: according to the survey conducted among participants, 16.920,8.
- Reference case: according to the survey conducted among participants, 15.548 hours are spent yearly in travelling.

An average value of time of 15 €/h has resulted from the calibration of a transport demand model for the city within other CIVITAS measures. This value has been considered within the CBA for the monetisation of time savings.

In the following table, only time losses are accounted:

**Table C2.4.3 Costs from journey times (not discounted)**

	Cases for comparison	Cost (e.g. €200,000)
Year 1	CIVITAS measure	20.592,00
	Reference case (or BAU)	0,00
Year 2	CIVITAS measure	41.513,47
	Reference case (or BAU)	0,00

Year 3	CIVITAS measure	64.138,31
	Reference case (or BAU)	0,00
Year 4	CIVITAS measure	87.570,18
	Reference case (or BAU)	0,00
Year 5	CIVITAS measure	111.651,98
	Reference case (or BAU)	0,00
Year 6	CIVITAS measure	136.662,02
	Reference case (or BAU)	0,00
Year 7	CIVITAS measure	162.627,80
	Reference case (or BAU)	0,00
Year 8	CIVITAS measure	189.577,55
	Reference case (or BAU)	0,00

**Emissions:**

Emission volumes for the CIVITAS and Reference scenario have been calculated based in modal shift, distance travelled, trip frequency and vehicle characteristics, resulting from the mobility survey conducted as part of the PTP initiative

The following cost factors have been used for the monetisation of these impacts:

**Table 5.- Cost factors for emissions**

Pollutant	Cost factor
CO <sub>2</sub>	25 €/tonne (2010)
	40 €/tonne (2020)
HC	400 €/tonne
NO <sub>x</sub>	2600 €/tonne
PM10	119900 €/tonne
PM2,5	299600 €/tonne

**Table 21: Cost factors for emissions**

In the following table, only emission savings are accounted:

**Table C2.4.4 Costs from environmental emissions (not discounted)**

	Cases for comparison	Cost (e.g. €200,000)
Year 1	CIVITAS measure	0,00
	Reference case (or BAU)	2.051,20
Year 2	CIVITAS measure	0,00
	Reference case (or BAU)	4.208,21
Year 3	CIVITAS measure	0,00
	Reference case (or BAU)	6.567,42
Year 4	CIVITAS measure	0,00
	Reference case (or BAU)	9.065,95
Year 5	CIVITAS measure	0,00
	Reference case (or BAU)	11.692,77
Year 6	CIVITAS measure	0,00
	Reference case (or BAU)	14.467,41
Year 7	CIVITAS measure	0,00
	Reference case (or BAU)	17.391,80
Year 8	CIVITAS measure	0,00
	Reference case (or BAU)	20.467,92

**C2.4.4 Compare the lifetime costs and benefits**

**Table C2.4.5 Lifetime cost/benefit of CIVITAS measure (discounted)**

	Capital cost	Operating costs	Costs from journey times	Costs from environmental emissions	Total cost	Total Benefit	Cumulated cost
Year 1	71.463,22	0,00	20.592,00	0,00	92.055,22	0,00	92.055,22
Year 2	69.598,96	0,00	40.109,63	0,00	109.708,60	0,00	109.708,60
Year 3	69.262,74	0,00	59.873,80	0,00	129.136,54	0,00	129.136,54
Year 4	68.526,61	0,00	78.983,28	0,00	147.509,89	0,00	147.509,89
Year 5	67.533,47	0,00	97.298,25	0,00	164.831,72	0,00	164.831,72
Year 6	66.554,72	0,00	115.065,75	0,00	181.620,48	0,00	181.620,48
Year 7	65.590,16	0,00	132.297,82	0,00	197.887,99	0,00	197.887,99
Year 8	64.639,58	0,00	149.006,24	0,00	213.645,83	0,00	213.645,83
Total	543.169,47	0,00	693.226,79	0,00	1.236.396,26	0,00	1.236.396,26

**Table C2.4.6 Lifetime cost/benefit of the reference measure/case (discounted)**

	Capital cost	Operating costs	Costs from journey times	Costs from environmental emissions	Total cost	Total Benefit	Cumulated cost
Year 1	0,00	52.304,00	0,00	2.051,20	92.055,22	0,00	92.055,22
Year 2	0,00	101.879,10	0,00	4.065,90	109.708,60	0,00	109.708,60
Year 3	0,00	152.080,39	0,00	6.130,76	129.136,54	0,00	129.136,54
Year 4	0,00	200.618,77	0,00	8.176,97	147.509,89	0,00	147.509,89
Year 5	0,00	247.139,06	0,00	10.189,57	164.831,72	0,00	164.831,72
Year 6	0,00	292.268,80	0,00	12.181,17	181.620,48	0,00	181.620,48
Year 7	0,00	336.038,53	0,00	14.148,24	197.887,99	0,00	197.887,99
Year 8	0,00	378.478,18	0,00	16.087,60	213.645,83	0,00	213.645,83
Total	0,00	1.760.806,82	0,00	73.031,41	1.833.838,23	0,00	1.833.838,23

### C2.4.5 Summary of CBA results

For the summary of CBA results the changes in benefits and costs between the two scenarios are assessed. Time losses have been considered an economic cost, while reduced operating costs and emission savings account as benefits resulting from the implementation of the CIVITAS measure, therefore accounted as such in this summary.

As it can be seen in the table below, four years are required in order to achieve a positive economic result from the measure (if only monetisable costs and benefits are considered).

**Table C2.7.7 Lifetime changes in costs and benefit (discounted)**

	Changes in Costs	Changes in benefits	Net cash flow	Cumulative cash flow
Year 1	92.055,22	54.355,20	-37.700,02	-37.700,02
Year 2	109.708,60	105.945,00	-3.763,60	-41.463,62
Year 3	129.136,54	158.211,15	29.074,61	-12.389,01
<b>Year 4</b>	<b>147.509,89</b>	<b>208.795,73</b>	<b>61.285,84</b>	<b>48.896,83</b>
Total	478.410,25	527.307,07		

After a four year period, the change of Net Present Value of Personalised Travel Plans is 48.896,83 €, which means that the NPV of this measure is higher than the one associated to BaU scenario.

The benefit to cost ratio (BCR) after four years is 1,10 which means that benefits are slightly higher than costs. This result reveals that PTP require a relatively short time to become a cost-effective measure.

### C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
1	80% acceptance rate towards PTPs	***
2	5% reduction in modal share for car users	***
<b>NA = Not Assessed    O = Not Achieved    * = Substantially achieved (at least 50%)</b> <b>** = Achieved in full    *** = Exceeded</b>		

### C4 Upscaling of results

Up-scaling this measure would mean that every home in Donostia-San Sebastián would be approached in order to develop personalized travel plans in each of them. This may not a realistic approach in the short term, given the economic dimension of the measure. But the measure could be gradually transferred to other residential areas in other urban corridors.

Nevertheless, results achieved in Amara and Antiguo districts cannot be directly transferred to other neighbourhoods since modal split and fuel consumption and emission savings are dependent on the initial car use levels and specific trip characteristics in each particular district, therefore *ad hoc* surveys would be required for that purpose.

### C5 Appraisal of evaluation approach

Overall, it is considered that the evaluation approach is in concordance with the measure objectives, and data collection procedures adequate.

## **C6 Summary of evaluation results**

This measure is aimed at promoting public transport use in residential areas by approaching individuals in order to develop tailored public transport services based on their mobility needs, as well as rising awareness on the benefits of these modes and providing high quality information about available public transport alternatives.

Even though there were 96 participants that decided not to continue with the program after the incentive phase (nearly 30% of all participants), and 31 additional participants were not reached one year after the first assessment, evaluation results reveal a significant success in changing travel behaviour.

One year after the three months trial period finished 82 participants remained using the alternative option provided by the PTP (six months after the trial period started the number of participants who changed their transport habits was 102. This has a significant effect on modal split distribution and transport related emissions. Car usage has considerably decreased among participants in the PTP initiative (12% in Amara and 8% in Antiguo), accounting for over 30.000 kg/year CO<sub>2</sub> savings.

In both cases, acceptance level towards the initiative is above 96% of the surveyed people, with several participants ready to make a small sacrifice if the alternative transport is environmentally more sustainable (although not perceived as positive for him/her self).

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

Due to its promising results, the initiative is intended to be repeated if funds are available in the future, although there is not a specific plan for it so far.

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## D Process Evaluation Findings

### D0 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

The deviations from the original plan comprised:

- **Number of participants** – The initial plan to target 200 households was extended to 300 participants, in order to achieve greater statistical significance (error rate below 5% for a confidence interval of 95%).

### D2 Barriers and drivers

#### D2.1 Barriers

The main barriers encountered for the development of this measure are:

##### Preparation phase

- **Political/Strategic:** Co-operation with CTSS-DBUS is required in order to provide attractive public transport solutions and incentives.

##### Implementation phase

- **Involvement/Communication:** The success of the measure will depend on the willingness of the citizens to participate in the personal sessions.
- **Technological:** Constructive measures are subject to uncertainties ranging from tendering procedures to weather conditions. The potential risk for delays is high, increasing public opposition levels.

##### Operation phase

- **Cultural:** Mobility patterns and lifestyles among parents may difficult the use of the provided alternative mobility solutions..

#### D2.2 Drivers

As for the drivers, the main ones affecting the measure are:

##### Preparation phase

- **Positional:** The measure is part of an overall strategy towards sustainable mobility in the city. Improvements in public transport services, road safety and non-motorized infrastructure will ease the implementation of this measure.

### **Implementation phase**

- **Financial:** The availability of CIVITAS funding has been a significant opportunity to develop these measures.
- **Institutional:** The strong participative culture in municipal issues in Donostia-San Sebastian may ease the required citizen involvement.

### **Operation phase**

- **Cultural:** Concern about environmental issues is steadily growing among the citizens. CIVITAS developments, among others, are changing public attitude towards sustainable mobility.

## **D2.3 Activities**

In order to handle the above referred barriers and/or to make use of the drivers, the following activities were taken during the implementation of the measure:

### **Preparation phase**

- **Political/Strategic:** On-going dialogue with CTSS-DBUS in order to explain the long term benefits of the measure and provide an attractive discounted public transport pass.
- **Planning:** Research on travel behaviour and modal choice to develop a programme of house-visits to households in the CIVITAS Plus corridors has been developed.

### **Implementation phase**

- **Involvement/Communication:** Continuous awareness rising and marketing efforts are being developed.
- **Operation phase**
  - **Organizational:** Follow-up activities have been carried out in order to encourage participation in the measure.

## **D3 Participation**

### **D.3.1 Measure partners**

Following there is a brief description of all project partners and its level of involvement with the measure:

- **ADS Department of Mobility - City of Donostia-San Sebastian** - Responsible for the development of a programme of 300 house-visits to households. Leading role.
- **Doymo (Consultant)** – Surveys, field data collection and development of the PTPs. Principle participant.

### **D.3.2 Stakeholders**

- **CTSS –public transport company** – Agreed to provide incentives to PTPs participants and helped elaborate the tailored information regarding public transport services
- **DBIZI – Bike sharing scheme** – Agreed to provide incentives to PTPs participants
- **Bicycle Observatory** - Helped elaborate the tailored information regarding cycling alternatives

## **D4 Recommendations**

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

- **Focus area selection:** In order to favour a potential shift towards more sustainable modes of transport, the focus areas selected may combine a mainly residential character with a good supply of public transport services and high quality non-motorized infrastructures with the aim to offer a competitive alternative to participant's current transport mode.
- **Participants' selection:** In the participants searching process it is desirable to find those who mainly use private car since energy and environmental savings will be more relevant if the modal shift proposals are accepted. A modal shift proposal from bus to bicycle or walking will not report as many benefits as in the previous cases.
- **Questionnaire design and procedure:** Target objectives and performance indicators should be clear defined before designing the questionnaires in order to include all relevant information for its calculation, reducing the need for estimations. In the same context, it is important to foresee different ways to fill in the questionnaire (face to face visits, by phone, by internet..) so that this part of the project will be the least uncomfortable as possible for the participant.

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

- **Information campaign including incentives:** In order to guarantee a high degree of involvement among targeted participants it is important to undertake a massive information campaign to raise awareness about the initiative and its associated benefits and goals. A key element of this information campaign is the existence of a reward (incentive) for those taking part in the action, which may foster the interest of potential participants.
- **Free card incentives.** When offering an incentive in form of free cards, it is desirable that its use should not only be restricted to the analyzed trips made by the participants, but it should be open to all services offered by the mode of transport in question, so he/she can use it for other trip purposes in his/her daily lives, so in this way the deterrent effect towards the private vehicle can be increased further more.

- **Number of participants:** As it has been seen during the development of the project, there are a percentage of people who leave the program during its different phases. Therefore, this issue should be taken into account in the designing phase of the project, especially if a specific participants' target is established. In order to reduce those leavings, regular contacts with participants should be maintained and the time between stages should be reduced to the minimum.
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