Measure title: **New Public Transport Network**

City: **Vitoria-Gasteiz** *Project:* **CiViTAS MODERN** *Measure number:* **02.01**

0 Executive summary

The measure introduces an integrated, revolutionary and totally new public transport network, becoming the previous one, based on 18 buses lines, to one new network with 1 tram line and 9 bus lines. This measure is the key factor of the city strategic mobility framework, supplementing the new distribution of Vitoria-Gasteiz based on superblocks concept.

The new public transport network improves the system due to:

- Increasing the frequency of buses on working days.
- Increasing the commercial speed of buses.

Apart from that, it is implemented a huge ad-hoc campaign in order to minimize the negative impact on public transport users during the transition to the new integrated network. The campaign is focusing on participation programs with local stakeholders. This includes: "ambassador group" with stakeholders, dissemination tents, information service on buses and bus-stops, media campaign, etc.

The impacts of implementation have been evaluated by analysing operating revenues and costs, and considering service data as vehicle speed, frequency and journey time. Finally, through a face-to-face survey to users of bus it has been evaluated the percentage of users approving the measure and its awareness.

The main results of the measure evaluation were:

- It is achieved high levels of acceptance (70%), awareness (89%) and quality of service (6,74), but the increase is low compared to ex-ante situation.
- It is achieved high frequency on weekdays (11 min instead of 20 min), even on weekends (16 min instead of 26 min on Saturday, 21 min instead of 27 min on Sunday).
- It is achieved a marked increase of average speed (12,73 km/h instead of 10,77 km/h, an 18%).

After the implementation of this measure, the improvement of the public transport service has been important, especially in terms of frequency and travel times, which has achieved in full the objectives. The commercial speed of public transport has been markedly increased with the new network. This improvement of the public transport service has been reflected in a slight improvement in the perception of the transport system and the measure.

However, the contribution on making public transport more (economically) sustainable has been discreet because it has been increased the revenues due to an increase of the demand, but total costs have been increased as well. The CBA demonstrates most of the benefits are private benefits, benefits that enjoy users of private car passing to bus due to time and fuel savings, however public benefits (benefits that enjoy all society) are lower than cost of implementation the measure. Apart from that, there is a change of trend in safety values, in 2010 and 2011 it has increased the number of injured caused by transport accidents.

This measure has achieved better results thanks to the implementation of the measure about Traffic Light Regulation for the New PT Network and Superblocks Model because the new traffic light regulation enhanced the operation of public transport services. Mobility policy should be a set of measures pushing into the same direction, increasing the results and benefits.

In summary, it can be stated that mobility policies should be constituted by a set of measures pushing into the same direction, increasing the results and so benefits. This is the great added valued coming from projects like CiViTAS.

A Introduction

A1 Objectives

The measure objectives are:

(A) High level / longer term:

- To stimulate high-quality and energy-efficient collective passenger transport.
- To influence travel behaviour and modal choice through mobility management plans, marketing, communication, education and information campaigns.
- To develop safe and secure roads and infrastructure and means of travels.
- To introduce mobility services promoting new forms of more energy-efficient vehicle use and/or ownership, and less car dependent lifestyles.

(B) Strategic level:

- To make public transport more attractive to citizens through a better service.
- To attract new users of public transport from private vehicles.
- To reduce environmental impacts of transport due to a more efficient network of public transport and a decrease of use of cars.
- To reduce traffic congestion thank to a decrease of use of cars.

(C) Measure level:

(1) To minimize the negative impact on PT users during the transition to the new integrated network by implementing an ad-hoc campaign, achieving a level of acceptance up to 70%.

(2) To increase public transport frequency from 20 minutes to 15 minutes on working days. Thus, significantly decreases the waiting time making it as flexible as the car.

(3) To increase public transport commercial speed up to 20%. Thus, reduced travel time, making public transport competitive with the private vehicle.

A2 Description

The measure implemented an integrated, revolutionary and totally new public transport network, modifying the previous one, based on 18 bus lines, to one new network of 1 tram line and 9 conventional bus lines. This measure is the key factor of the city strategic mobility framework, supplementing the new segmentation based on superblocks concept.

This new public transport network, combined with the new bicycle lanes grid and the new pedestrian pads, they contribute to change Vitoria-Gasteiz citizens' mobility behaviour.

Tramline starts to operate on the 23rd of December of 2008, the first time in Vitoria-Gasteiz. The initial setting up of this tramline imply certain risks within, among which was reckoned an increase of accident rate and a poor acceptance level of the new means of transport users.

In order to palliate this effect, it has been considered as necessary to inform citizens about the effects of the tram setting up, with the main aim of making them used to its presence, and making them aware of the new behaviour it requires. In this topic, it has been essential the cooperation with the tram operator, Euskotran, delivering some brochures and leaflets that they are distributed to the citizens of the city. A mass media campaign has also been implemented, that is, a marquee installation in the city centre as a special space dedicated to the beginning of tram and a campaign for safer and more sustainable transport campaign.

Apart from the tram, the entire bus network has been reorganized. Before CiViTAS, the public transport network consisted of 18 conventional bus lines. This network had been growing in a disorganized way: extending the routes and adding new lines to connect new urban developments.

So, this measure wanted to improve the public transport system to:

- Increase the frequency.
- Increase the commercial speed.

To achieve this, the bus network has been reorganised by decreasing bus lines from 18 to 9 (see Figure A2.1) with improved quality of service, using the main corridors of the city and supporting transfers between lines.

Figure A2.1: New network design

In addition, the whole associated bus infrastructure such as bus stops, platforms to approach the bus stop, reserved lanes, traffic light priority has been improved.

Figure A2.2 shows the situation of bus network before and after CiViTAS, in order to compare the size of the measure:

	Old network	**New network**
Frequency	20 mins	10 mins
Commercial speed	10,77 km/hr	12,73 km/hr
Estimated time journey savings		Until 10 mins
Average comsumption of bus	56,56 litres/100 km	53,03 litres/100 Km
Estimated CO2 emmisions savings		421,5 tn/year
PT users: results comprise bus network (18 bus lines) before the measure and bus network (9 bus lines) + tramway line after the measure	Year 2007: 12.043.308 Year 2008: 12.753.829	Year 2009: 15.045.760 Year 2010: 18.068.519 Year 2011: 19.306.719
Bus drivers	222	278
Bus fleet	70	87

Figure A2.2: Comparison between old and new network

B Measure implementation

B1 Innovative aspects

The innovative aspects of the measure are:

- **New mode of transport exploited, locally** – Implementation of a tramline for the first time at Vitoria-Gasteiz.
- **New conceptual approach, regionally** – All the public transport network was redesigned to obtain straighter and more direct itineraries on the aim to achieve a network with less lines, with higher frequency and speed, but maintaining coverage and operational costs.

B2 Research and Technology Development

In this measure, the largest research and technology development effort is about identifying, analyzing and facing the important elements and risk factors to introducing a new mode of transportation in the city. The transport system and the citizens are used to a system of mobility that changes drastically with the arrival of the tramway.

In the first place, it is necessary to analyze the new public transport network impact over cars, buses, tram, bicycles and pedestrians mobility.

After this preliminary study, it is important to evaluate the required techniques and skills to face the identified key and resisting factors. To address with the maximum guarantees this process is carried out a state of the art and is analyzed experiences of the effects of radical transport transition in other cities.

These experiences are based on the effects of the tram setting up in other cities and the previous information campaigns they have made, including accident rates and best practices. A relevant collaboration is the recommendations received from Skånetrafiken and the representatives from the municipality of Malmö (Sweden) that implemented a new transport network in the last years.

Skånetrafiken is responsible for public transport on city buses in 10 major cities, region buses and trains in Skåne.

They strongly recommend focusing on participation programs with local stakeholders to define the educational campaign project in the best way. Collaboration and support of neighbourhood associations is necessary and fundamental in this stage of the project.

In this line, an “ambassador group” was created to deal the target and produced more material to the educational campaign.

The “ambassador group” was formed consisting of representatives from TUVISA, municipality of Vitoria-Gasteiz and the Environmental Studies Centre (CEA). The ambassador group was trained and then sent to different Neighbourhood Association and local Councils to contrast with them the Sustainable Mobility Plan, the new bus lines, the location of 146 new bus stops and their most relevant journeys/transfers.

As a result of those meetings changes in routes and bus stops were implemented in the final design of the new transport network.

B3 Situation before CiViTAS

The previous public transport network was exclusively based on 18 conventional bus lines (see Figure B3.1). The quality of service could be improved becoming the previous characteristics of the public transport system with the implementation of the measure:

- Increasing the frequency.
- Passing from the lineal operation to network operation.
- Improving the understanding of service.
- Increasing the commercial speed.

In addition, the new superblocks model implementation conduces to the need of redesigning the overall public transport network due to the new hierarchy of streets in the city.

The new tramway line is other factor that supports the change of bus network.

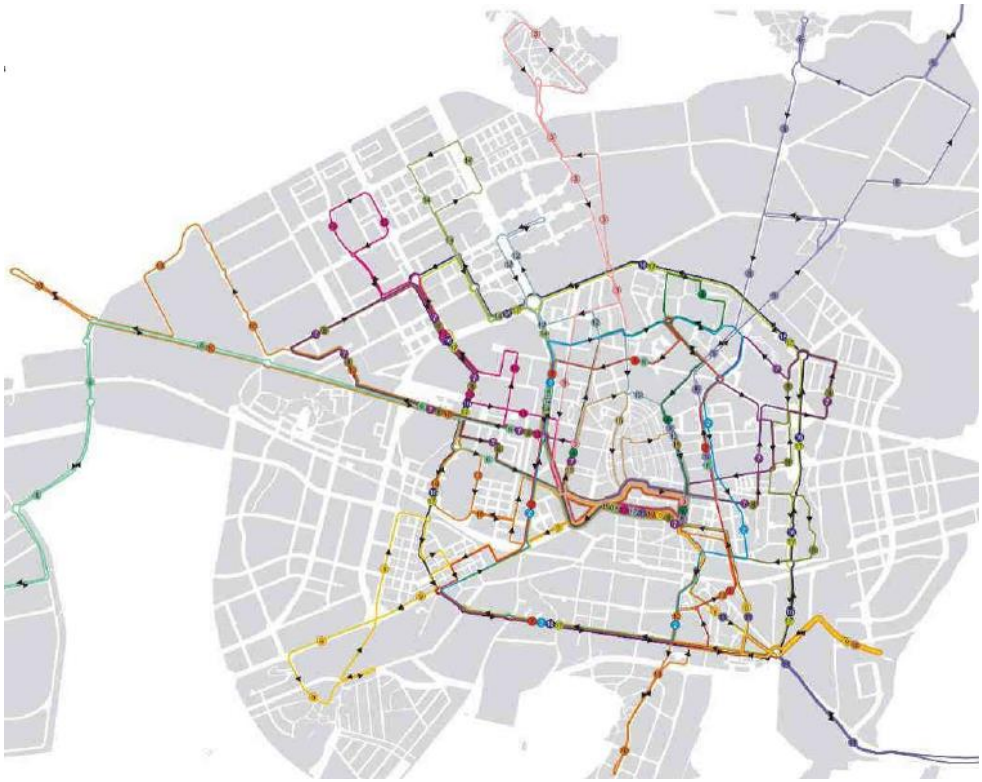


Figure B3.1: Original network design

B4 Actual implementation of the measure

The measure is implemented in the following stages:

Stage 1: Relocation of bus stops *(October 2009 - December 2009)*

The activities developed on this stage are:

1.1 Place bus-stops in new locations with temporarily furniture *(October 2009) – Special furniture is created with a big three-dimensional advertisement in the top*

area with the text in Spanish and Basque, "NEW BUS-STOP from 30th of October". No other information is included at this step because the purpose of the activity is to remark the new bus-stop location.

1.2 Personalisation of new bus-stops *(19th - 22nd October 2009) – The temporarily furniture mention in the previous step is completed with the basic details of the bus stop in the central area, such us:*

- *Code and name*
- *Coloured iconography of the line/s covered by every bus-stop: Each line is linked with a specific colour that is use in every public document (maps, leaflets, guidelines, pocket information, etc.*
- *Coloured detailed information of the line/s covered by every bus-stop: code and name of the line/s, frequencies, first/last service, possible connections with other lines, etc.*
- *Prices, uses and basic rules.*
- *Useful information of the main methods of payment, including the new BAT Card with contactless technology.*

1.3 Indicate bus-stops to disappear *(23rd October 2009) – Personalised stickers are created for those bus-stops to be disappeared (118 different units) with the reference of code and name of the nearest bus-stop.*

85 stickers are designed under shelters dimension criteria, leaving the rest for sticks.

The stickers are made with special removable glue to facilitate the relocation of the bus-stop furniture to disappear in the new locations.

1.4 New bus-stop shelters installation *(October 2009 – November 2009) – In order to relocate as quickly as possible the total amount of shelters to the new places there are prioritised the work to be done just in the basements.*

Figure B4.1: New bus-stop shelters installation

Relocated shelter's information is updated to the new design standards with the following structure:

Front side:

- *Code and name of the bus-stop*
- *Global map of day services/network*
- *Coloured detailed information of the line/s covered by every bus-stop: code and name of the line, frequencies, first/last services, possible connections with other lines, etc.*
- *Space reserved for "public notices"*

Back side:

- *Global map of night services/network*
- *Prices, uses and basic rules*
- *Useful information of the main methods of payment, including the new BAT Card with contactless technology*

Figure B4.2: New bus-stop shelter's information

1.5 New bus-stop sticks implementation *(October 2009 – November 2009) – In a similar way as mentioned for shelters a relocation of new bus-stops sticks has to be done before the change of the transport network.*

The existing temporarily furniture with required information for users in all new locations allows us to execute implementation in a second phase, starting after 14/04/2010.

Relocated stick's information has to be updated to the new design standards with the following structure:

Figure B4.3: New bus-stop stick's information

Front side:

- *Code and name of the bus-stop*
- *Coloured iconography of the line/s covered by every bus-stop*
- *Coloured detailed information of the line/s covered by every bus-stop: code and name of the line, frequencies, first/last services, possible connections with other lines, etc.*

Back side:

- *Space reserved for "public notices"*
- *Prices, uses and basic rules*
- *Useful information of the main methods of payment, including the new BAT Card with contactless technology.*

1.6 Information updating in shelter equipped bus-stops without relocation *(28th October 2009) – The panel information with the detail of the new network is replaced from 12:00 to 20:00 p.m. of the 28th of October following the structure detailed in activity 8.4 in 102 shelters. To make this change possible in so little time additional magnetic panels are bought.*

1.7 Information updating in stick equipped bus-stops without relocation *(28th October 2009) – The front side panel information with the most relevant details of the new network is replaced from 12:00 to 20:00 p.m. of the 28th of October in 37 sticks. The back panel information with public notices, price, uses and basic rules and methods of payments is replaced 2 weeks later.*

1.8 Bus-stop information verification *(29th October 2009) – Three teams checked the information of every bus stop to ensure the appropriate and accurate data from 10 p.m. of 29th to 4:00 a.m. of 30th of October.*

1.9 Shelter's top side personalization *(9th – 20th October 2009) – The top side panel information is personalized with the code/name of the bus-stop together with the Coloured iconography of the line/s covered by every bus-stop is replaced from 9th to 20th of October in 220 shelters.*

Figure B4.4: New bus-stop shelters top side

1.10 Removing the temporarily furniture from the disappeared bus-stops *(16th – 25th February 2010) – Activity scheduled from 9th to 15th of December at the beginning is postponed from 16th to 25 of February.*

Stage 2: Bus lanes segregation *(October 2009)*

3050 metres of bus lane and queue jumpers at busy junctions are implemented in 10 different locations, two of them against the normal street direction.

- *Portal de Gamarra. Against the normal street direction, concluded on 30th of October at 4a.m*
- *Portal de Betoño. Against the normal street direction, concluded on 30th of October at 5:20a.m*

- *Portal de Foronda.*
- *Juan de Garay.*
- *Honduras*
- *Reyes Católicos.*
- *Judizmendi. DC*
- *Portal de Villareal.*
- *Los Herrán.*
- *Salbatierrabide.*

Figure B4.5: Coexistence bus-tramway

Two downtown corridors with a total length of 1520 metres were also implemented for the exclusive use of public transport, services and residents.

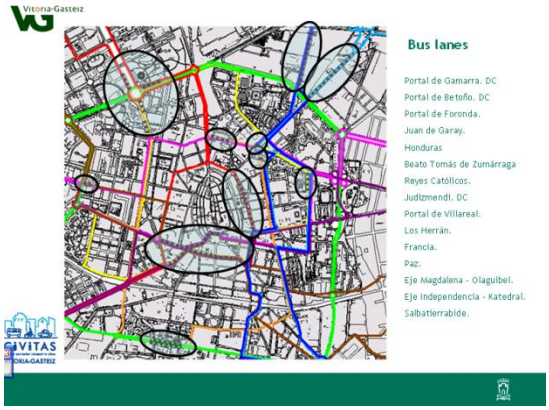


Figure B4.6: New bus platforms

Stage 3: Traffic light priority *(October 2009 and April – May 2010)*

Traffic light priority first phase implementation is made on 10 junctions to facilitate the incorporation of the bus to perpendicular streets 4 seconds before the rest of the cars (achieved by 29th of October 22:00hrs). For this, the bus has a specific lane between 25 and 100 meters before the intersection.

New regulation of traffic light is implemented in 17 junctions to give priority to public transport (buses green wave) in 4 main roads/corridors of the city. Some problems appear in the implementation process so the regulation is working on trial since 14/04/10 with final implementation on 10/05/2010.

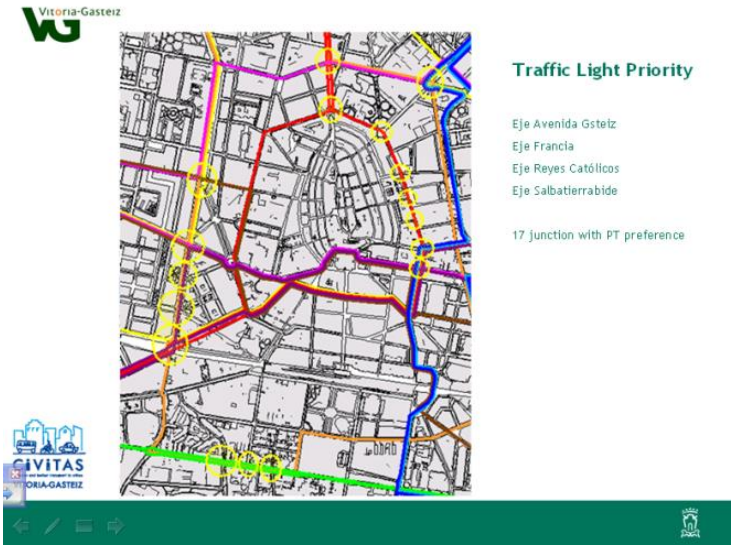


Figure B4.7: New traffic light priority

Stage 4: Platforms *(October 2009)*

The acquisition and implementation of 1395 metres of prefabricated platforms in 93 locations improve the accessibility of the new public transport network.

These platforms are implemented from 29 of September to 28 of October.

Figure B4.8: Platforms for buses

During the platform implementation process some problems appear with the difference between road and pavement level in 18 different locations. Small distances imply access inclinations higher than allowed by legal restriction of the local accessibility law. The Municipality approves additional funds to implement those locations with non-prefabricated platforms during the year 2010.

Taking into account that there are 76 locations with existing platforms or with special pavement designs that permit the implementation of non regulation bus-stops in pavement close to the vehicles roads it could be said that the new bus network started on 30th of October with platforms in 55% of the bus-stops with the compromise of increase that percentage to 61% during year 2010.

Stage 5: Communication campaign *(October – December 2009)*

The following activities are made to manage the transition to the new integrated network, minimising the negative impacts on the public transport users:

5.1 Information tents: *(640 hours)*

The city is divided in 8 different areas, selecting 10 different popular locations in each area to install on them mobile tents with personal giving information of the new network, recommendations and leaflets.

13.757 people participate in the different tents organised in different places of the city from 19th to 29th of October.

Figure B4.9: Information campaigns in tents

5.2 Information on buses before the network change: *(23rd to 29th of October)*

The week before the new network implementation there is a testing bus on each of the 9 new lines to be open.

This initiative was intended to disseminate the new network to the citizens under a free of charge criteria.

Those buses are running continuously from 7:00 to 22:00 hours and they are used by 6.520 people.

Personal on-board give information, recommendation and leaflets 8 hours by day, with a total of 720 hours.

Figure B4.10: Information campaign in bus

5.3 Information at bus-stops after the network change:

Volunteer citizens rotate in bus-stops from 30th of October to 21st of November.

It is the first time that the Municipality chose that implication of their citizens and it has to be remark the good results of the experience; a total of 101 volunteers were giving information, recommendations and leaflets in different bus-stops of the new network during 2845 hours.

The volunteer's support is higher during the first week in operation of the new network.

Figure B4.11: Information campaign in street

5.4 Dissemination materials:

Several and personalised dissemination material, line maps and leaflets are design and distributed in accordance with the recommendation of the Municipality of Malmö and Skånetrafiken in order to reinforce the dissemination activities and materials. Within the collaborative framework of CiViTAS project, is worked closely with this city, which also had a project to improve public transport.

The information demand of leaflets, maps and the rest of material is bigger that expected, being necessary second editions of materials.

The main dissemination material used is:

- *5.000 pocket map of the new network distributed in the European Mobility Week*
- *125.000 lines guide, 92.000 of them posted to particular houses with the municipal monthly magazine*
- *50.000 pocket lines guide (z-card)*
- *175.000 day public transport leaflets*
- *50.000 night public transport leaflets*
- *Detailed neighbourhood dossiers with information of public transport, bus-stop, connections between lines, most relevant journeys, transfer to city centre, hospitals and university, etc.*

5.5 Media campaign:

Specific campaign is designed to communicate the new public transport network on radio, local newspapers, municipal gazette, website, buses and on-street furniture (streetlight banners, shelters, municipal electronic devices, etc.).

The campaign starts on 19th of October until 16th of December of 2009 including 871 radio advertisement, 10 newspaper advertisement, 3 monographic in municipal magazine, 2 banners in digital newspapers (2 months), 12 radio quiz shows based on new public transport network, 42 buses (6 weeks), 120 stickers in bus-stops (5 weeks) with the attached planning:

Additional events with dissemination purposes are also held, such as an Informative Journalist Breakfast with the presentation of the Communication Campaign of the Mobility Plan (15 of June) or the launching tent in the central Fueros Square with political representatives, citizens, technicians and media (30th of October).

Stage 6: Free bus transport service during the first week on operation of the network *(October 2009)*

In order to disseminate the new transport network to the citizens the bus service is free during the first running week of the new network together with the special testing buses the week before the change (see activity 5.2).

Stage 7: New Public Transport Network in Metro website

The new public transport network of Vitoria-Gasteiz is included in Nanika/Metro web-last October. This site offers the possibility of calculate public transport routes on PDA and smartphones.

New Technologies Department is also working in the integration with Google transit website.

Stage 8: New Public Transport Network Presentation in Los Fueros Square *(30th October 2009)*

The official presentation of the new public transport Network is made on 30th of October at 12:00 a.m. in a centric Square of the City with opening speech the Mayor of Vitoria-Gasteiz, Basque Government transport Counsellor and the President of TUVISA.

B5 Inter-relationships with other measures

The measure is related to other measures as follows:

- **Measure no. 03.04. Traffic Light Regulation for the New PT Network and Superblocks Model** – Traffic lights regulation will contribute to make more fluent traffic for the private vehicles in the main roads, but giving some privileges to public transport in order to make it more attractive than the private vehicles.
- **Measure no. 05.01. Superblocks Model** – Same as for the previous one, restrictions to private transport in the city centre made increasing the number of passengers of public transport.

C Evaluation – methodology and results

C1 Measurement methodology

C1.1 Impacts and Indicators

No.	Impact	Indicator	Source	Date exante	Observations	Date expost	Observations
1	Economy	Average operating revenue	PT operator	Jan 2009 - Oct 2009	The new PT network started in Nov 2009	Jan 2010 - Oct 2010	The data collection period must be similar (Jan - Oct)
2	Economy	Average operating cost	PT operator	Jan 2009 - Oct 2009		Jan 2010 - Oct 2010	
13	Society	Awareness level	PT users survey	Oct 2009		Oct 2010	
14	Society	Acceptance level	PT users survey	Oct 2009		Oct 2010	
19	Transport	Quality of service	PT users survey	Oct 2009		Oct 2010	
20	Transport	Injuries and deaths caused by transport accidents	Local police	Feb 2010	The yearbook 2009 is published in Feb 2010	Feb 2011 Sep 2012	The yearbook 2011 has been published in Sep 2012
23	Transport	Average PT vehicle speed	PT operator	May 2009		May 2010	The data collection period must be similar (May)
101	Transport	Service frequency	PT operator	May 2009		May 2010 May 2011	
102	Transport	Average journey time	PT users survey	Oct 2009		Oct 2010 May 2011	

Figure C1.1.1: Indicators

- **Indicator 1** (*Average operating revenue*)

  Unit: €/passenger

  Using data coming from the urban transport operator TUVISA, it's possible to extract data concerning transport operations as sales, costs, number of passengers, number of kilometres travelled, etc. These data are collected monthly by the transport operator to monitoring the company.

  In order to calculate this indicator, it's used the revenue generated by ticket sales (B) and the number of passengers (C). The indicator follows this formula:

  A = B / C

  Where:

  A = Average operating revenue (€/passenger)

  B = Total revenues (€)

  C = Total passenger

  This measure is implemented in October 2009, so data relates to the period between January 2009 and October 2009 as regards the previous situation. In order to analyse the measure's impact, new data is taken in October 2010 (from January 2010 to October 2010).

- **Indicator 2** (*Average operating cost*)

  Unit: €/passenger

Using data coming from the urban transport operator TUVISA, it's possible to extract data concerning transport operations as sales, costs, number of passengers, number of kilometres travelled, etc. These data are collected monthly by the transport operator to monitoring the company.

In order to calculate this indicator, it's used the total costs (B) and the number of passengers (C). The indicator follows this formula:

A = B / C

Where:

A = Average operating cost (€/passenger)

B = Total costs (€)

C = Total passenger

The passenger data is obtained from the card validations of passengers on the bus. Rates are € 1.05 for occasional users, 0.53 € for frequent users and € 0.10 for seniors and the disabled

Total costs are defined as the investments costs (D) plus the operating costs (E) as follows:

B = D + E

Where:

B = Total costs (€)

D = Investments costs (€).Depreciation are considered. Thus, investment is divided between the years of life

E = Operating costs (€)

This measure is implemented in October 2009, so data relates to the period between January 2009 and October 2009 as regards the previous situation. In order to analyse the measure's impact, new data has been taken in October 2010 (from January 2010 to October 2010).

- **Indicator 13** (*Awareness level*)

Unit: % citizens know measure

Data are obtained through surveys to public transport users before and after the implementation of the measure. This survey is composed of several questions related to the mobility by bus and the impact of this measure in transport users. There are 300 face to face interviews.

To get a qualitative (assessment of service and knowledge of changes) and quantitative (travel time) view, in October 2009, 300 surveys were conducted in three major stops in Vitoria-Gasteiz.

The representativeness of the sample is as follows:

Statistical universe (bus passengers)	42.199
Surveys	300
Statistical confidence interval	95%
% error p=0,5	5,64%
% error p=0,25	4,88%

- Coherence analysis by logical distance travelled and analysis cases top/under deviation standard.
- Program for analysis of cases: SPSS.

The used survey model is shown in the Annex 1.

In order to calculate this indicator, it's used the following question in the survey:

10.1 Did you know that at the end of October 2009 there is/was a modification and expansion of the new bus network within the project CiViTAS?

No

Yes

If Yes, how do you appreciate it (1 = very negative; 10 = very positive)?

The survey is carried out in October 2009 (ex-ante data collection) as regards the previous situation. In order to analyse the measure's impact, a new survey is carried out in October 2010 (ex-post data collection).

- **Indicator 14** (*Acceptance level*)

Unit: Index of the "perception" of acceptance (1 to 10)

Data are obtained through surveys to public transport users before and after the implementation of the measure. This survey is composed of several questions related to the mobility by bus and the impact of this measure in transport users. Methodology of data collection is explained before because it is the same survey.

The used survey model is shown in the Annex 1.

In order to calculate this indicator, it's used the following question in the survey:

10.1 Did you know that at the end of October 2009 there is/was a modification and expansion of the new bus network within the project CiViTAS?

No

Yes

If Yes, how do you appreciate it (1 = very negative; 10 = very positive)?

The survey is carried out in October 2009 (ex-ante data collection) as regards the previous situation. In order to analyse the measure's impact, a new survey is carried out in October 2010 (ex-post data collection).

- **Indicator 19** (*Quality of service*)

Unit: Index of the "perception" of service quality (1 to 10)

Data are obtained through surveys to public transport users before and after the implementation of the measure. This survey is composed of several questions related to the mobility by bus and the impact of this measure in transport users. Methodology of data collection is explained before because it is the same survey.

The used survey model is shown in the Annex 1.

In order to calculate this indicator, it's used the following question in the survey:

9. In general and in relation to current bus service, from low to high, value importance (0 = unimportant, 10 = very important) and satisfaction level (1 = very unsatisfied, 10 = very satisfied) of the following:

- *Meet schedule*
- *Frequency*
- *Commuting Time*
- *Staff support*
- *The probability to go sit*
- *Cleaning*
- *The price*

The survey is carried out in October 2009 (ex-ante data collection) as regards the previous situation. In order to analyse the measure's impact, a new survey is carried out in October 2010 (ex-post data collection).

- **Indicator 20** *(Injuries and deaths caused by transport accidents*)

  Units: victims, knocking downs

  Using data coming from municipality, it's possible to extract data concerning transport accidents occurred on Vitoria-Gasteiz. These data are collected yearly by the municipality. The information is in the statistical yearbooks of local police.

  This measure is implemented in October 2009. In order to know the previous situation, it is collected data of injuries and deaths caused by transport accidents in 2009 (ex-ante data collection). In order to analyse the measure's impact, new data is collected from the yearbook 2010 and 2011 (ex-post data collection).

- **Indicator 23** (*Average PT vehicle speed*)

  Unit: km/h

  Using data coming from the urban transport operator TUVISA, it's possible to extract data concerning transport operations as vehicle speed, frequency, timetables, line length, etc.

  This measure is implemented in October 2009. In order to know the previous situation, data of average vehicle speed is taken following the schedules provided by the company in May 2009. In order to analyse the measure's impact, new data is taken from the schedules provided by the company in May 2010. The schedules of buses are constant in 2011 and 2012.

- **Indicator 101** (*Service frequency*)

  Unit: Minutes

  Using data coming from the urban transport operator TUVISA, it's possible to extract data concerning transport operations as vehicle speed, frequency, timetables, line length, etc.

  This measure is implemented in October 2009. In order to know the previous situation, data of bus frequency is taken following the schedules provided by the company in May 2009. In order to analyse the measure's impact, new data is taken from the schedules provided by the company in May 2010. The schedules of buses are constant in 2011 and 2012.

- **Indicator 102** (*Average journey time*)

  Unit: Minutes

  Data is obtained through surveys to public transport users. Methodology of data collection is explained before.

  The used survey model is shown in the Annex 1.

  In order to calculate this indicator, it's used the following question in the survey:

  8. How long does it usually take to you to make this journey trip?
  1. waiting for the bus ... ...
  2. inside the bus ... ...
  3. in supplementary means of transport ...

  The survey has been carried out in October 2009 (ex-ante data collection) as regards the previous situation. In order to analyse the measure's impact, a new survey is carried out in October 2010 (ex-post data collection).

C1.2 Establishing a Baseline

It is considered the period from January 2009 to October 2009 as the baseline, after opening the new tram line in December 2008 but before the new bus network in November 2009. The measure results are obtained from TUVISA statistics report for indicators 1, 2, 23 and 101; from a public transport user's survey for the indicator 13, 14, 19 and 102; and from police statistics report for indicator 20.

- **Indicators 1, 2, 23 and 101** (*Average operating revenue, Average operating cost, Average PT vehicle speed, Service frequency*)

  The transport company TUVISA provided accounting information on both the costs of operating the service, including depreciation, and revenues, from the number of passengers. Similarly, it is provided information on commercial bus speed and frequency of service.

  The results of baseline for each indicator are:

Before	**2009**
Total revenues (Jan 2009 - Oct 2009)	3.317.961,00 €
Total passenger (Jan 2009 - Oct 2009)	8.379.557
Average operating revenue (Jan 2009 - Oct 2009)	0,40 €

Before	**2009**
Investment costs (Jan 2009 - Oct 2009)	1.494.155,55 €
Operating costs (Jan 2009 - Oct 2009)	13.507.645,17 €
Total costs (Jan 2009 - Oct 2009)	15.001.800,72 €
Total passenger (Jan 2009 - Oct 2009)	8.379.557
Average operating cost (Jan 2009 - Oct 2009)	1,79 €

Before	2009
Average PT vehicle speed (km/h)	10,77

Before	2009
Service frequency (weekdays)	20 min

Figure C1.2.1: Ex-ante indicator value

- **Indicators 13, 14, 19 and 102** (*Awareness level, Acceptance level, Quality of service, Average journey time*)

  The survey model is detailed in Annex 1, and the ex-ante results are showed in Annex 2.

  The results of baseline for each indicator are:

Before	2009
Awareness level	57%

Before	2009
Acceptance level (1-10)	6,74

Before	2009
Quality of service (1-10)	6,57

Before	2009
Average journey time	35 min

Figure C1.2.2: Ex-ante indicator value

- **Indicator 20** *(Injuries and deaths caused by transport accidents*)

  Using data coming from municipality, it's possible to extract data concerning transport accidents occurred on Vitoria-Gasteiz. These data are collected yearly by the municipality. The information is in the statistical yearbooks of local police.

  The results of baseline (2009) for this indicator are:

Before	2009
Injuried caused by transport accidents	495

Figure C1.2.3: Ex-ante indicator value

C1.3 Building the Business-as-Usual scenario

- **Indicators 1 and 2** (*Average operating revenue, Average operating cost*)

In order to know the B-a-U scenario for this indicator, it has been used the available historical data because we know the annual series data of the last few years. Thus, it is easy to make extrapolation to the next few years.

The indicator 1 is the ratio between total revenues and total passengers. And the indicator 2 is the ratio between total costs and total passengers. Therefore, the number of passengers in PT is crucial to assess the impact of this measure.

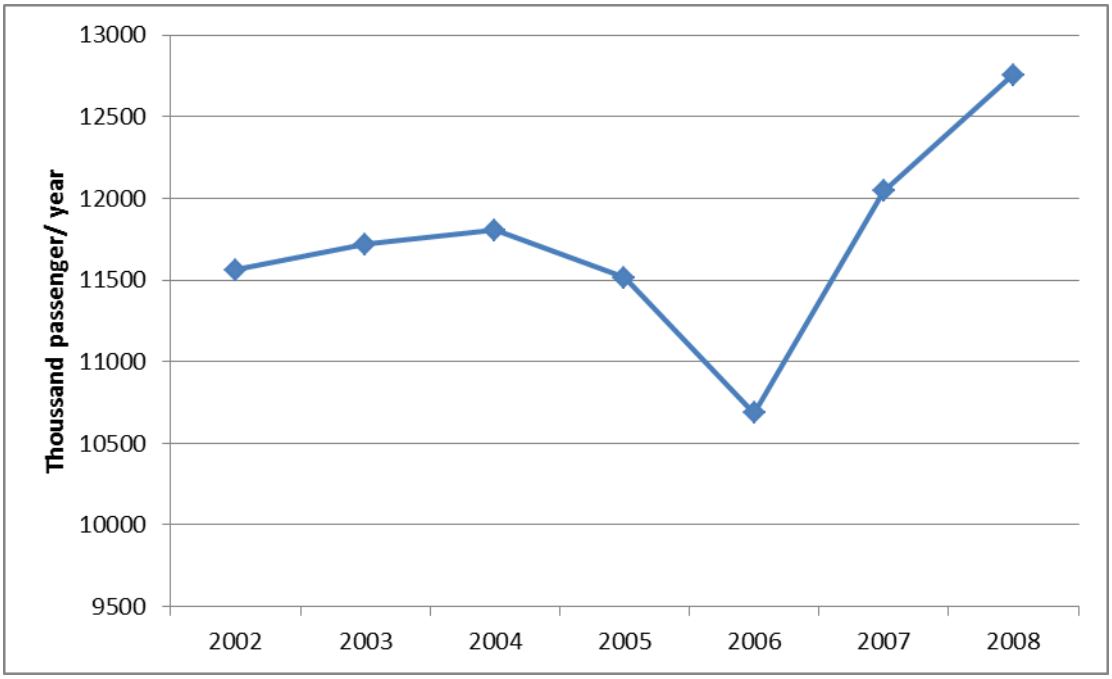


Figure C1.3.1: Historical evolution of public transport (buses) demand

The chart shows the evolution of the number of passengers from 2002 until 2008, that is before the implementation of the measure. The evolution of number of passengers is slightly positive due to the rise of the Vitoria-Gasteiz inhabitant's mobility. But in 2006 it was produced a high decrease in the number of passengers due to important strikes in 2006 on TUVISA (bus company of Vitoria), so this value is not used in the B-a-U scenario. Moreover, in 2007 it was implemented new lines of bus.

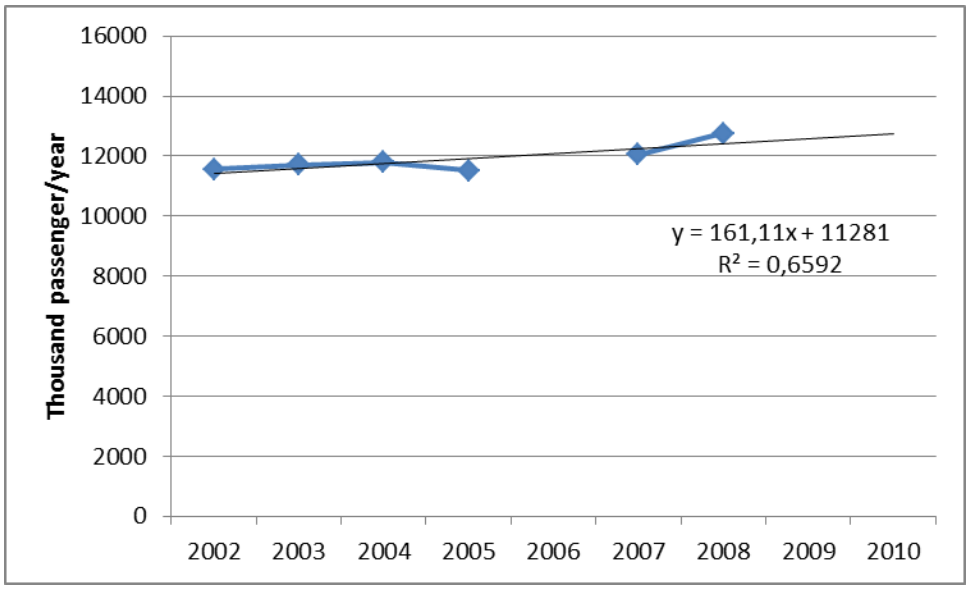


Figure C1.3.2: B-a-U evolution of public transport (buses) demand

The value of R2 is 0,6592. By developing a trend line forecast up to 2010, it has been an annual increase of 2%.

Also, it is necessary to know the relationship between sales and passengers. For this reason it has been used this chart from TUVISA statistic report. The value of R2 is 0,9304.

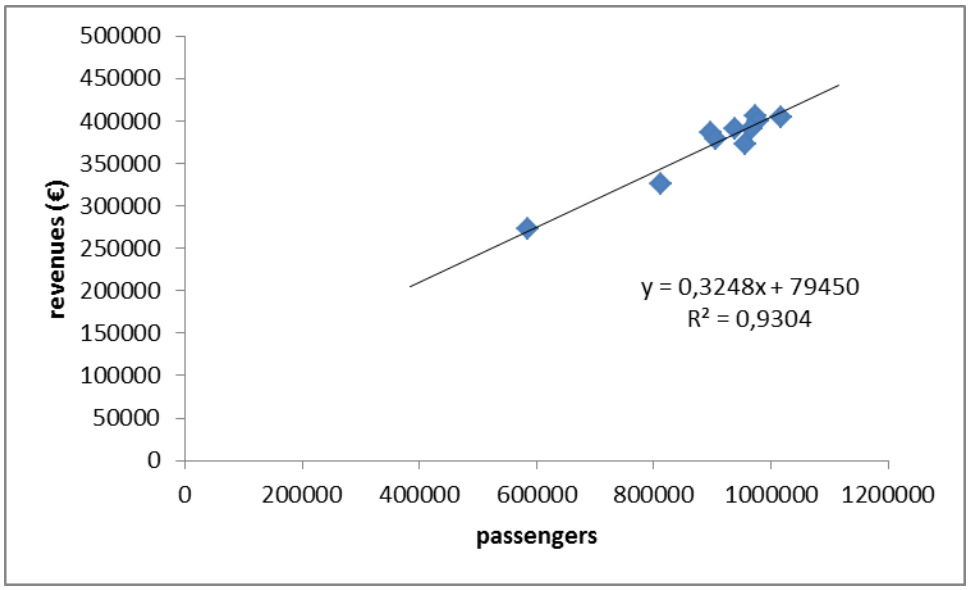


Figure C1.3.3: Relationship between demand and revenues in public transport (buses) in Vitoria-Gasteiz

The average cost is assumed constant, as it was in 2009. Therefore, the results of BAU scenario for these indicators are:

Business-as-Usual	**2010**
Total passenger (Jan 2009 - Oct 2009)	8.379.557

Business-as-Usual	**2010**
Trend of passenger	2,05%
Total passenger (Jan 2010 - Oct 2010)	8.551.338
Total revenues (Jan 2010 - Oct 2010)	3.385.979,20 €
Average operating revenue	0,40 €

Business-as-Usual	**2010**
Total passenger (Jan 2009 - Oct 2009)	8.379.557
Trend of passenger	2,05%
Total passenger (Jan 2010 - Oct 2010)	8.551.338
Total costs (Jan 2010 - Oct 2010)	15.001.800,72 €
Average operating cost	1,75 €

Figure C1.3.4: B-a-U indicator value

- **Indicator 13** (*Awareness level*)

  The change in awareness level of the measure is obtained after setting up the measure. Therefore, if this measure wasn't implemented, the awareness level would be as before. It is considered that there are no effects of other factors that have any influence on this indicator. In this case the Business-as-Usual scenario is similar to the baseline situation.

Business-as-Usual	**2010**
Awareness level	57%

Figure C1.3.5: B-a-U indicator value

- **Indicator 14** (*Acceptance level*)

  The change in acceptance level of the measure is obtained after setting up the measure. Therefore, if this measure wasn't implemented, the acceptance level would be as before. It is considered that there are no effects of other factors that have any influence on this indicator. In this case the Business-as-Usual scenario is equal to the baseline situation.

Business-as-Usual	**2010**
Acceptance level (1-10)	6,74

Figure C1.3.6: B-a-U indicator value

- **Indicator 19** (*Quality of service*)

  The change in the quality of service level of the measure is obtained after setting up the measure. Therefore, if this measure wasn't implemented, the quality of service would be as before. It is considered that there are no effects of other factors that have any influence on this indicator. In this case the Business-as-Usual scenario is equal to the baseline situation.

Business-as-Usual	**2010**
Quality of service (1-10)	6,57

Figure C1.3.7: B-a-U indicator value

- **Indicator 20** *(Injuries and deaths caused by transport accidents*)

  For the B-a-U scenario of this indicator, we have the historical data of victims due to transport accidents in Vitoria-Gasteiz from 2003. The next chart shows a downward trend. This curve is parallel to the national road safety indicators.

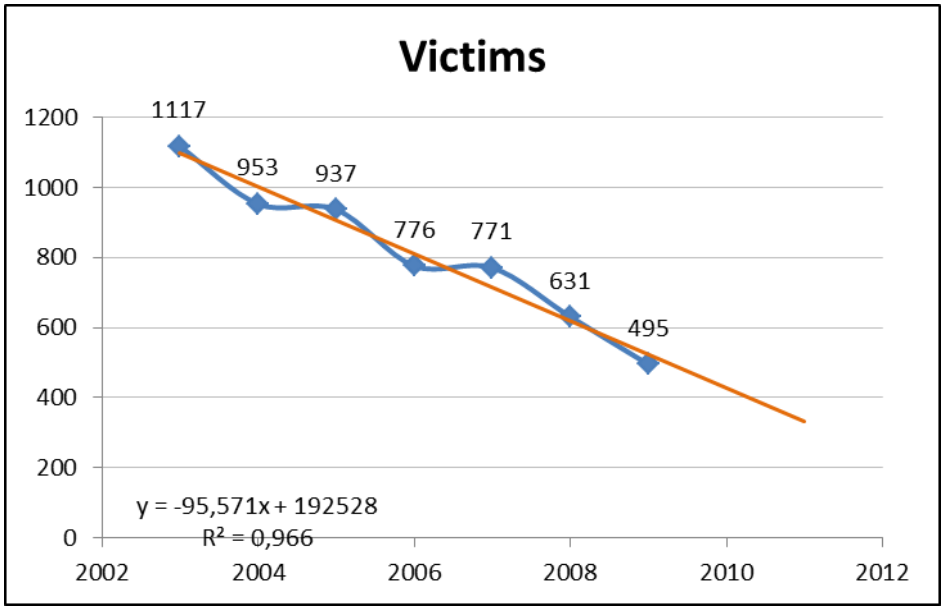


Figure C1.3.8: Historical and B-a-U evolution of victims due to transport accidents in Vitoria-Gasteiz

The value of R2 is 0,966. If it makes a trend forecast for 2010, it is obtained a result of 430 injuried caused by transport accidents.

The result of B-a-U scenario is:

Business-as-Usual	**2010**
Injured caused by transport accidents	430

Figure C1.3.9: B-a-U indicator value

Apart from the downward trend showed in the chart, it is expected a modal transfer from private vehicles to PT due to the implementation of this measure, so as cars are more unsecure than PT, it is expected a more pronounced downward trend of this indicator than the current slope of the curve.

- **Indicator 23** (*Average PT vehicles speed*)

  The easiest way to face the B-a-U scenario for average speed of vehicles (private cars and buses without reserved platforms or lanes) is to consider the assumption of constant values, but it is not the most accurate method. So, we consider that speed of traffic is function of the amount of traffic in the streets, that is, it depends on congestion.

The evolution of the average speed keeps an inverse relationship with the traffic flow in the whole city. That is, the more veh-km done the less speed of those vehicles. However, the function is not linear, but it follows a 3rd grade function as the figure show below.

This function is obtained from the data of city of Madrid due to this an assumption difficult to obtain for each city. A big city as Madrid provides specific and deep studies related to mobility that can be extrapolated to other similar cities. We consider that the characteristics related to social and economical level in Madrid and Vitoria-Gasteiz are similar, so the relationship between traffic flow in the whole city and average speed in the whole city is provided by Madrid studies.

The value of R2 is 0,9876, so we can confirm this assumption of relationship between traffic flow in the whole city and average speed in the whole city.

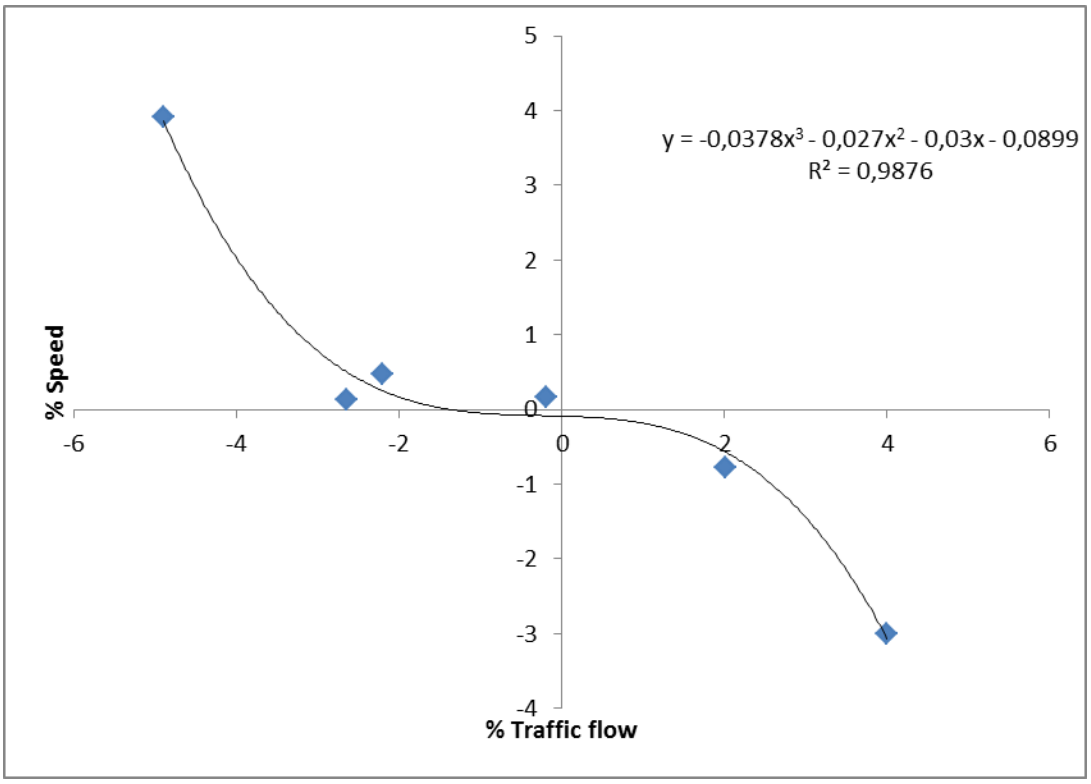


Figure C1.3.10: Relationship between traffic flow and average speed in the whole city in Madrid

For the Business-as-Usual scenario has been used extrapolation from historical data on vehicle traffic in Vitoria-Gasteiz.

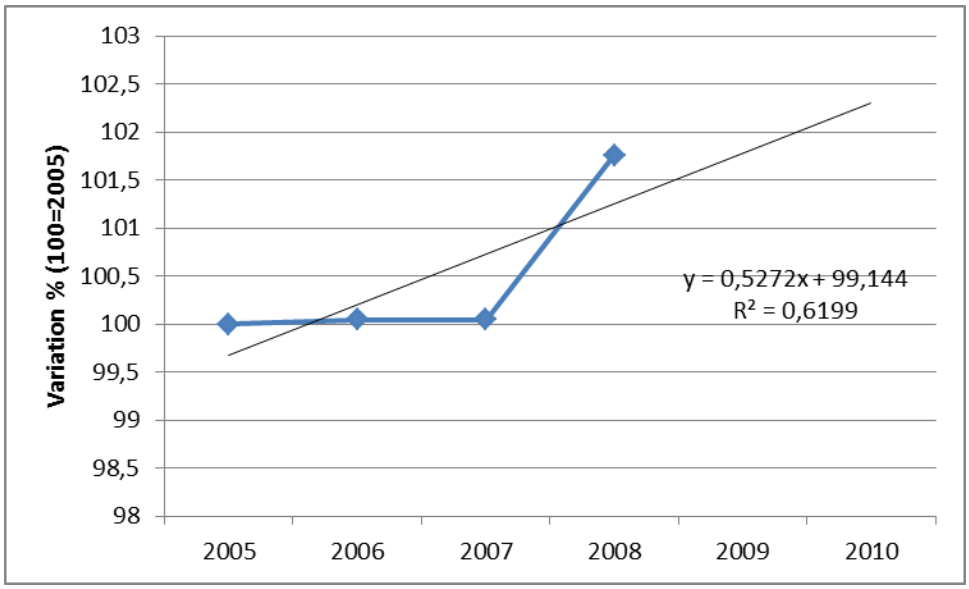


Figure C1.3.11: Historical and B-a-U evolution of traffic flow in Vitoria-Gasteiz

The traffic counts were done from 2005 to 2009, but the date of 2009 is invalid because it is a weird data. The traffic in 2009 was affected by the economic situation of that year and the impact of opening the new tram in the city centre. Therefore this year has not been considered. As the Figure C1.3.11shows, the traffic flow is generally growing due to the rise of motorised journeys during the last few years.

The value of R2 is 0,6199. If it makes a trend forecast for 2010, it is obtained a result of 102,3% relative to 2005, that is, an annual increase of traffic flow of 0.52%. Therefore, without applying the measure, in 2010 the average vehicle speed would be -0.12% lower than in 2009, obtaining this value from the graph of relationship between traffic flow in the whole city and average speed in the whole city.

Business-as-Usual	**2010**
Trend of traffic flow	0,52%
Trend of traffic speed	-0,12%
Average PT vehicle speed (km/h)	10,76

Figure C1.3.12: B-a-U indicator value

- **Indicators 101 and 102** (*Service frequency*, *Average journey time*)

The change in these indicators is obtained after setting up the measure. Therefore, if this measure wasn't implemented, the service frequency and average journey time would be as before. It is considered that there are no effects of other factors that have any influence on this indicator. In this case the Business-as-Usual scenario is similar to the baseline situation.

Business-as-Usual	**2010**
Service frequency (weekdays)	20 min

Business-as-Usual	2010
Average journey time	35 min

Figure C1.3.13: B-a-U indicator value

C2 Measure Results

The results are presented under subheadings corresponding to the areas used for indicators: economy, transport and society.

C2.1 Economy

In the same way as for the baseline, it has been obtained the results of the indicators after implementing the measure (2010). These are the results of indicators 1 and 2:

After	2010
Total revenues (Jan 2010 - Oct 2010)	3.726.918,00 €
Total passenger (Jan 2010 - Oct 2010)	9.029.254
Average operating revenue (Jan 2010 - Oct 2010)	0,41 €

After	2010
Investment costs (Jan 2010 - Oct 2010)	1.368.967,19 €
Operating costs (Jan 2010 - Oct 2010)	14.181.041,56 €
Total costs (Jan 2010 - Oct 2010)	15.550.008,75 €
Total passenger (Jan 2010 - Oct 2010)	9.029.254
Average operating cost (Jan 2010 - Oct 2010)	1,72 €

Figure C2.1.1: Ex-post indicator value

It has been calculated total costs including operations and investment costs and then, it has been divided by the number of passengers between January and October in 2009 (ex-ante) and 2010 (ex-post). Remember that this measure was implemented in October 2009. The result is positive because revenues were increased and costs were decreased per passenger.

However, total costs have increased, that is, there has been a decline in the average cost by increasing passenger amount. It should have been lower operating costs also, due to a new and simple network. In short, it has been an effective measure but not an efficient measure.

The table of results of the indicators is as follows.

Indicator	Before (2009)	B-a-U (2010)	After (2010)	Difference: After - Before		Difference: After - B-a-U	
1. Average operating revenue	0,40 €	0,40 €	0,41 €	0,02 €	4%	0,02 €	4%
2. Average operating cost	1,79 €	1,75 €	1,72 €	- 0,07 €	-4%	- 0,03 €	-2%

Figure C2.1.2: Economy results

Sustainability is based on three pillars: environment, society and economy. The contribution of the measure to a less expensive public transport service has been discreet. The difference between the after situation and the before situation is only 8% (4% less cost + 4% more revenues). However, the important thing is the reorganization of the service with more frequency, more speed and more quality perception by users.

C2.2 Transport

In the same way as for the baseline, it has been obtained the results of the indicators after implementing the measure (2010 and 2011). These are the results of the indicators 19, 20, 23, 101 and 102:

After	**2010**
Quality of service (1-10)	6,74

After	**2010**
Injuried caused by transport accidents	669

After	**2010**
Average PT vehicle speed (km/h)	12,73

After	**2010 and 2011**
Service frequency (weekdays)	11 min

After	**2010 and 2011**
Average journey time	30 min

Figure C2.2.1: Ex-post indicator value

The quality of the service after its introduction is high, from the quantitative point of view (high frequency and average speed) and qualitative (high value of the service by citizens). The passenger has shown a greater level of satisfaction after the change in the PT network.

The assessment of the service function has been performed in the importance given to each aspect before and after the measure.

	Satisfaction before	Satisfaction after
Timetable fulfilment	6,64	6,84
Frequency	6,42	7,23
Travel duration	6,45	6,95
Customer service	6,54	6,32
Chance to sit	6,67	6,94
Cleanliness	6,88	6,73
Price	6,42	6,15
Average	**6,57**	**6,74**

Figure C2.2.2: Survey results

The survey model is detailed in Annex 1, and the ex-post results are showed in Annex 3.

The table of results of the indicators is as follows.

Indicator	Before (2009)	B-a-U (2010/2011)	After (2010/2011)	Difference: After - Before		Difference: After - B-a-U	
19. Quality of service (1-10)	6,57	6,57	6,74	0,17	3%	0,17	3%
20. Injuried caused by transport accidents	495	430	669	174	35%	239	56%
23. Average PT vehicle speed (km/h)	10,77	10,76	12,73	1,96	18%	1,97	18%
101. Service frequency (weekdays)	20 min	20 min	11 min	-9 min	-45%	-9 min	-45%
102. Average journey time	35 min	35 min	30 min	-5 min	-14%	-5 min	-14%

Figure C2.2.3: Transport results

Results are positive in regard to the operation of transport system in Vitoria-Gasteiz. There are improvements in quality of service, it has increased significantly the commercial speed, and it has been reduced both frequency and travel time by 9 and 5 minutes respectively. In fact, improvements in commercial speed and frequency are strongly related to quality of service perception by users.

However, injuries from traffic accidents have increased significantly. But the reason is a new way to count injuries that takes into account mild wounded that they were not take into account previously. This indicator would be unreliable to assess this measure. Anyway, the influence of a new public transport network in safety is diffused. Of course, buses are safer than cars, so the more public transport is used spite of cars, the more conditions for safety there are.

In order to properly evaluate the accidents indicator and to check if increasing of injuries in 2010 is only due to a new way to collect the data, it has been taken into account the ex-post result in 2011, when the methodology of data collection was the same than 2010. Figure C2.2.4 shows the results taken from the statistical yearbook of local police 2011 (published in summer 2012).

After	**2011**
Injured caused by transport accidents	812

Figure C2.2.4: Ex-post indicator value

The amount of injured in 2011 is higher than 2010, so there is a real problem with the change of trend of the last years, and the worse result of 2010 (ex-post) than 2009 (ex-ante) is not only a problem with the methodology of data collection.

C2.3 Society

In the same way as for the baseline, it has been obtained the results of the indicators after implementing the measure (2010). These are the results of the indicators 13 and 14:

After	**2010**
Awareness level	89%

After	**2010**
Acceptance level (1-10)	6,97

Figure C2.3.1: Ex-post indicator value

The level of awareness and acceptance of the project are higher than ex-ante situation.

The table of results of the indicators is as follows.

Indicator	Before (2009)	B-a-U (2010)	After (2010)	Difference: After - Before		Difference: After - B-a-U	
13. Awareness level	57%	57%	89%	32%	56%	32%	56%
14. Acceptance level (1-10)	6,74	6,74	6,97	0,23	3%	0,23	3%

Figure C2.3.2: Society results

Both the awareness level and the acceptance level have increased after the implementation of this measure, especially awareness. The improvement in the quality of service in public transport is strongly perceived by users, so the awareness level is so high. However, the increase of acceptance is not high, only a 3%. This situation could be consequence of a high level of previous system, or sociological conditions of people of Vitoria-Gasteiz.

C2.4 Cost Benefit Analysis

Evaluation period for CBA

It has made a cost-benefit analysis to quantify the positive externalities generated by this measure. The lifetime of the measure is 10 years. It is a period enough to consider the consolidation of the measure and its impact in the mobility behaviour of the citizens (people are getting used to the new public transport services). However, the measure can have impact for a longer period than the evaluation period of this CBA.

The discount rate used is 3,5%, following the suggestion of Guide to Cost-Benefit Analysis of investment projects (EC DG Regional Policy, 2008).

Method and values for monetization

The considered cost is the operation cost (in this case, it is the cost of service of bus network), and other cost are discounted (for example the investment necessary in new buses) due to that these cost don't have influence in the result of this measure. We know the values for 2009 (13.507.645,17 €) and 2010 (14.181.041,56 €), so we can calculate the extrapolation of next years similar to 2010. So, the cost of the CiViTAS measure over the reference situation is the difference between the operation cost in 2010 and the operation cost in 2009 (673.396,39 €).

There are some positive externalities in terms of:

- Economic benefits due to the increase of the passengers and consequently revenues (public benefit – monetised). It is assumed an increase of passengers following the B-a-U scenario, which is 2,05% per year. The average operating revenues is assumed constant due to remaining the fares, so the benefit of the CiViTAS measure over the reference situation is the difference between 0,41 €/passenger after the measure and 0,40€/passenger before the measure.
- Journey time savings for old users of public transport due to the improvement of buses network (private benefit –monetised). It is assumed that 75% of ex-post passengers are old users of bus. The difference between ex-post and ex-ante situation is 5 minutes less of travel time (an average time saving related to waiting time and travel time). The values of travel time saving are recommended by the Handbook on estimation of external cost in the transport sector (IMPACT, 2008), that is, 17,93 €/h in work trips and 6,12 €/h in non work trips. It is assumed a share of work trips of 38%, so the average travel time saving is 10,61 €/h. So, with 2010 factor prices, it is 13,14 €/h, it is constant during the evaluation period. It is assumed that other time journeys as walking time or journey time for the rest of car users don't change.

passengers before by bus (%)	75%
travel time saving (h)	0,0833
work trips share (%)	38%
work trips (€/h)	17,93
non work trips (€/h)	6,12
average travel time saving (€2002/h)	10,61
average travel time saving (€2010/h)	13,14
average travel time saving (€2010/passenger)	0,82

Figure C2.4.1: CBA assumptions

- CO2 emissions savings (public benefit – monetised). It is assumed that 15% of new passengers are old users of car. It is assumed a value of CO2 tonne of 25€ recommended by the Handbook on estimation of external cost in the transport sector (IMPACT, 2008), following the evolution of the value of CO2 tonne during the evaluation period. It is not considered an increase of CO2 emissions due to higher number of buses operating, because it is a small value and it could be compensated by the increase of commercial speed.
- NOx and small particles emissions savings (public benefit – monetised). It is assumed that 15% of new passengers are old users of car. It is assumed a constant cost of 3,44 €/tn NOx and 127,63 €/tn in 2010 factor prices. It is not considered an increase of pollutant emissions due to higher number of buses operating, because it is a small value and it could be compensated by the increase of commercial speed.

passengers before by car (%)	15%
emission NOx (g/km)	0,526
emission PM2,5 (g/km)	0,0326
emission saving NOx (€2000/tn)	2,60
emission saving PM2,5 (€2000/tn)	96,40
length of trip (km)	6,00
average emission saving (€2000/passenger)	0,0000041
average emission saving (€2010/passenger)	0,0000054

Figure C2.4.2: CBA assumptions

- Economic benefits due to the reduction of use of fuel (private benefit – monetised). It is assumed that 15% of new passengers are old users of car. It is assumed an average fuel consumption of 10,0 l/100 km. The price of the fuel is 1,5€/l, it is constant during the evaluation period.
- Economic benefits due to the reduction of oil dependence (public benefit – not monetised).
- Economic benefits due to the increase of safety related to a lower use of cars (public benefit – not monetised).

Other assumption is that the average emission of a car is similar to the park fleet distribution that exists in the city of Madrid, that is 169,15 g CO2/km, 0,526 g NOx/km and 0,0326 g PM2,5/km. These values are constant during the evaluation period.

This data is obtained from the data of city of Madrid due to this an assumption difficult to obtain for each city. A big city as Madrid provides specific and deep studies related to mobility that can be extrapolated to other similar cities. We consider that the characteristics related to social and economical level in Madrid and Vitoria-Gasteiz are similar, so the distribution fleet in Vitoria-Gasteiz can be assumed as the Madrid one.

		emission factors (g/km)		
	% vehicles	CO2	Nox	PM 2,5
Cars	**89%**	**169,15**	**0,526**	**0,0326**
Euro 0 gasoline	0,8%	289,95	2,500	0,0240
Euro I gasoline	2,7%	202,21	0,434	0,0240
Euro II gasoline	3,2%	194,48	0,237	0,0240
Euro III gasoline	9,9%	181,24	0,096	0,0110
Euro IV gasoline	10,1%	170,22	0,061	0,0110
Euro 0 diesel	0,6%	192,03	0,723	0,2460
Euro I diesel	1,2%	203,87	0,691	0,0877
Euro II diesel	2,5%	190,72	0,726	0,0594
Euro III diesel	18,7%	174,52	0,780	0,0412
Euro IV diesel	39,2%	153,66	0,601	0,0342

Figure C2.4.3: CBA assumptions

Life time cost and benefit

The calculations for the CBA are below.

	Total passenger	Average operating cost (€/passenger)	Average operating revenues (€/passenger)	CO2 central value IMPACT (€)
2009	8.379.557	1,79	0,40	-
2010	9.029.254	1,72	0,41	25,00
2011	9.214.354	1,69	0,41	26,50
2012	9.403.248	1,65	0,41	28,00
2013	9.596.015	1,62	0,41	29,50
2014	9.792.733	1,59	0,41	31,00
2015	9.993.484	1,56	0,41	32,50
2016	10.198.350	1,52	0,41	34,00
2017	10.407.416	1,49	0,41	35,50
2018	10.620.768	1,46	0,41	37,00
2019	10.838.494	1,43	0,41	38,50
2020	11.060.683	1,41	0,41	40,00

Figure C2.4.4: CBA calculations

The tables of results of the CBA for each item are showed below.

	Operation cost	**Values**
Year 1	CiViTAS measure	14.181.041,56 €
2010	Reference case (or B-a-U)	13.507.645,17 €
Year 2	CiViTAS measure	14.181.041,56 €
2011	Reference case (or B-a-U)	13.507.645,17 €
Year 3	CiViTAS measure	14.181.041,56 €
2012	Reference case (or B-a-U)	13.507.645,17 €
Year 4	CiViTAS measure	14.181.041,56 €
2013	Reference case (or B-a-U)	13.507.645,17 €
Year 5	CiViTAS measure	14.181.041,56 €
2014	Reference case (or B-a-U)	13.507.645,17 €
Year 6	CiViTAS measure	14.181.041,56 €
2015	Reference case (or B-a-U)	13.507.645,17 €
Year 7	CiViTAS measure	14.181.041,56 €
2016	Reference case (or B-a-U)	13.507.645,17 €
Year 8	CiViTAS measure	14.181.041,56 €
2017	Reference case (or B-a-U)	13.507.645,17 €
Year 9	CiViTAS measure	14.181.041,56 €
2018	Reference case (or B-a-U)	13.507.645,17 €
Year 10	CiViTAS measure	14.181.041,56 €

	Operation cost	**Values**
2019	Reference case (or B-a-U)	13.507.645,17 €

Figure C2.4.5: Operation cost in the evaluation period

	Fuel consumption benefits	**Values**
Year 1	CiViTAS measure	1.218.949,29 €
2010	Reference case (or B-a-U)	- €
Year 2	CiViTAS measure	1.243.937,75 €
2011	Reference case (or B-a-U)	- €
Year 3	CiViTAS measure	1.269.438,47 €
2012	Reference case (or B-a-U)	- €
Year 4	CiViTAS measure	1.295.461,96 €
2013	Reference case (or B-a-U)	- €
Year 5	CiViTAS measure	1.322.018,93 €
2014	Reference case (or B-a-U)	- €
Year 6	CiViTAS measure	1.349.120,32 €
2015	Reference case (or B-a-U)	- €
Year 7	CiViTAS measure	1.376.777,29 €
2016	Reference case (or B-a-U)	- €
Year 8	CiViTAS measure	1.405.001,22 €
2017	Reference case (or B-a-U)	- €
Year 9	CiViTAS measure	1.433.803,75 €
2018	Reference case (or B-a-U)	- €
Year 10	CiViTAS measure	1.463.196,72 €
2019	Reference case (or B-a-U)	- €

Figure C2.4.6: Fuel consumption benefits in the evaluation period

	Revenues benefits	**Values**
Year 1	CiViTAS measure	3.701.994,14 €
2010	Reference case (or B-a-U)	3.611.701,60 €
Year 2	CiViTAS measure	3.777.885,02 €
2011	Reference case (or B-a-U)	3.685.741,48 €
Year 3	CiViTAS measure	3.855.331,66 €
2012	Reference case (or B-a-U)	3.761.299,18 €
Year 4	CiViTAS measure	3.934.365,96 €
2013	Reference case (or B-a-U)	3.838.405,82 €
Year 5	CiViTAS measure	4.015.020,46 €
2014	Reference case (or B-a-U)	3.917.093,14 €
Year 6	CiViTAS measure	4.097.328,38 €
2015	Reference case (or B-a-U)	3.997.393,54 €
Year 7	CiViTAS measure	4.181.323,62 €
2016	Reference case (or B-a-U)	4.079.340,11 €
Year 8	CiViTAS measure	4.267.040,75 €

	Revenues benefits	**Values**
2017	Reference case (or B-a-U)	4.162.966,58 €
Year 9	CiViTAS measure	4.354.515,08 €
2018	Reference case (or B-a-U)	4.248.307,40 €
Year 10	CiViTAS measure	4.443.782,64 €
2019	Reference case (or B-a-U)	4.335.397,70 €

Figure C2.4.7: Revenues benefits in the evaluation period

	Journey time savings	**Values**
Year 1	CiViTAS measure	7.417.004,06 €
2010	Reference case (or B-a-U)	- €
Year 2	CiViTAS measure	7.569.052,65 €
2011	Reference case (or B-a-U)	- €
Year 3	CiViTAS measure	7.724.218,23 €
2012	Reference case (or B-a-U)	- €
Year 4	CiViTAS measure	7.882.564,70 €
2013	Reference case (or B-a-U)	- €
Year 5	CiViTAS measure	8.044.157,27 €
2014	Reference case (or B-a-U)	- €
Year 6	CiViTAS measure	8.209.062,50 €
2015	Reference case (or B-a-U)	- €
Year 7	CiViTAS measure	8.377.348,28 €
2016	Reference case (or B-a-U)	- €
Year 8	CiViTAS measure	8.549.083,92 €
2017	Reference case (or B-a-U)	- €
Year 9	CiViTAS measure	8.724.340,14 €
2018	Reference case (or B-a-U)	- €
Year 10	CiViTAS measure	8.903.189,11 €
2019	Reference case (or B-a-U)	- €

Figure C2.4.8: Journey time savings in the evaluation period

	Air pollutant savings	**Values**
Year 1	CiViTAS measure	48,53 €
2010	Reference case (or B-a-U)	- €
Year 2	CiViTAS measure	49,52 €
2011	Reference case (or B-a-U)	- €
Year 3	CiViTAS measure	50,54 €
2012	Reference case (or B-a-U)	- €
Year 4	CiViTAS measure	51,57 €
2013	Reference case (or B-a-U)	- €
Year 5	CiViTAS measure	52,63 €
2014	Reference case (or B-a-U)	- €
Year 6	CiViTAS measure	53,71 €

	Air pollutant savings	Values
2015	Reference case (or B-a-U)	- €
Year 7	CiViTAS measure	54,81 €
2016	Reference case (or B-a-U)	- €
Year 8	CiViTAS measure	55,93 €
2017	Reference case (or B-a-U)	- €
Year 9	CiViTAS measure	57,08 €
2018	Reference case (or B-a-U)	- €
Year 10	CiViTAS measure	58,25 €
2019	Reference case (or B-a-U)	- €

Figure C2.4.9: Air pollutant savings cost in the evaluation period

	CO2 savings	Values
Year 1	CiViTAS measure	34.364,21 €
2010	Reference case (or B-a-U)	- €
Year 2	CiViTAS measure	37.172,80 €
2011	Reference case (or B-a-U)	- €
Year 3	CiViTAS measure	40.082,10 €
2012	Reference case (or B-a-U)	- €
Year 4	CiViTAS measure	43.095,05 €
2013	Reference case (or B-a-U)	- €
Year 5	CiViTAS measure	46.214,70 €
2014	Reference case (or B-a-U)	- €
Year 6	CiViTAS measure	49.444,14 €
2015	Reference case (or B-a-U)	- €
Year 7	CiViTAS measure	52.786,56 €
2016	Reference case (or B-a-U)	- €
Year 8	CiViTAS measure	56.245,24 €
2017	Reference case (or B-a-U)	- €
Year 9	CiViTAS measure	59.823,55 €
2018	Reference case (or B-a-U)	- €
Year 10	CiViTAS measure	63.524,93 €
2019	Reference case (or B-a-U)	- €

Figure C2.4.10: CO2 savings cost in the evaluation period

Summary of CBA results

The results suggest that the measure produces a NPV of 89.518.000 € over 10 years (in 2010 prices), based on a one-to-one comparison between the B-a-U case and the new public transport network. Most of the benefits are private benefits, that is benefits that enjoy users of private car traspasing to bus due to time and fuel savings. In fact, public benefits (benefits that enjoy all society) are less than cost of implementation the measure.

Year	Operation cost (€)	Fuel consumption benefits (€)	Revenues benefits (€)	Journey time savings (€)	Air pollutant savings (€)	CO2 savings (€)	Total cost (€)	Total benefit (€)	Cumulated total benefit (€)	Net cumulated total benefit (€)	Net cumulated private benefit (€)	Net cumulated public benefit (€)
2010	-673.396,39	1.218.949,29	90.292,54	7.417.004,06	48,53	34.364,21	-673.396,39	8.760.658,63	8.087.262,24	8.087.262,24	8.635.953,35	-548.691,11
2011	-673.396,39	1.243.937,75	92.143,54	7.569.052,65	49,52	37.172,80	-673.396,39	8.942.356,25	8.268.959,86	8.268.959,86	8.812.990,40	-544.030,53
2012	-673.396,39	1.269.438,47	94.032,48	7.724.218,23	50,54	40.082,10	-673.396,39	9.127.821,81	8.454.425,42	8.454.425,42	8.993.656,70	-539.231,28
2013	-673.396,39	1.295.461,96	95.960,15	7.882.564,70	51,57	43.095,05	-673.396,39	9.317.133,43	8.643.737,04	8.643.737,04	9.178.026,66	-534.289,62
2014	-673.396,39	1.322.018,93	97.927,33	8.044.157,27	52,63	46.214,70	-673.396,39	9.510.370,86	8.836.974,47	8.836.974,47	9.366.176,21	-529.201,73
2015	-673.396,39	1.349.120,32	99.934,84	8.209.062,50	53,71	49.444,14	-673.396,39	9.707.615,50	9.034.219,11	9.034.219,11	9.558.182,82	-523.963,71
2016	-673.396,39	1.376.777,29	101.983,50	8.377.348,28	54,81	52.786,56	-673.396,39	9.908.950,44	9.235.554,05	9.235.554,05	9.754.125,57	-518.571,52
2017	-673.396,39	1.405.001,22	104.074,16	8.549.083,92	55,93	56.245,24	-673.396,39	10.114.460,48	9.441.064,09	9.441.064,09	9.954.085,14	-513.021,05
2018	-673.396,39	1.433.803,75	106.207,68	8.724.340,14	57,08	59.823,55	-673.396,39	10.324.232,20	9.650.835,81	9.650.835,81	10.158.143,89	-507.308,08
2019	-673.396,39	1.463.196,72	108.384,94	8.903.189,11	58,25	63.524,93	-673.396,39	10.538.353,96	9.864.957,57	9.864.957,57	10.366.385,84	-501.428,27
										Total	**89.517.989,69**	**94.777.726,57**	**-5.259.736,89**

Figure C2.4.11: Lifetime cost/benefit of CiViTAS measure

C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
1	To minimize the negative impact on PT users during the transition to the new integrated network by implementing an ad-hoc campaign, achieving a level of acceptance up to 70%. *It is achieved high levels of acceptance (70%), awareness (89%) and quality of service (6,74), but the increase is low compared to ex-ante situation.*	**
2	To increase public transport frequency from 20 minutes to 15 minutes on working days. Thus, significantly decreases the waiting time making it as flexible as the car. *It is achieved high frequency on weekdays (11 min instead of 20 min), even on weekends (16 min instead of 26 min on Saturday, 21 min instead of 27 min on Sunday).*	***
3	To increase public transport commercial speed up to 20%. Thus, reduced travel time, making public transport competitive with the private vehicle. *It is achieved a marked increase of average speed (12,73 km/h instead of 10,77 km/h, an 18%).*	**

NA = Not Assessed O = Not Achieved * = Substantially achieved (at least 50%)
**** = Achieved in full *** = Exceeded**

Figure C3.1: Achievement of objectives

C4 Up-scaling of results

The measure has been implemented on the whole city so there is not a similar plan to expand this kind of measure to other areas of the city.

C5 Appraisal of evaluation approach

The creation of a new network of transport is a large-scale performed in the municipality, this action have a lot of impacts on all activities of the city. The implementation of the measure involves different aspects like economy, society, energetic and transports. For this reason it is necessary to analyze several indicators in every field.

It could be interesting to analyze other minor impacts but also related to the implementation of this measure as environmental factors, traffic levels, freight movements and energy. Although they are covered by other measures in more detail and it's not very related with this measure.

Some of the indicators selected previously are eliminated or changed by others due to the difficult of data collection. This is the case of capital cost.

Other problems during the evaluation process are:

- For average operating revenue and cost, the ex-ante data collection period has some constraints because in December 2008 is carried out the tramway and in October 2009 is carried out the new public transport network, so the period is not a entire year but 10 months. The ex-post data collection period must be similar (from January to October).
- For injuries and deaths caused by transport accidents, the data collection is base in the local police yearbook which is published in February of next year. However the yearbook 2011 is not already published, so it is not possible to analyze the evolution of impact of the measure in this indicator after 2010.
- For injuries and deaths caused by transport accidents, the way to count injuries is changed from 2009 (ex-ante) to 2010 (ex-post) because in 2010 takes into account mild wounded that they were not take into account previously. This indicator would be unreliable to assess this measure.

C6 Summary of evaluation results

The key results are as follows:

- **Key result 1** – The improvement of the transport service is reflected in a slight improvement in the perception of the transport system and the measure. However, the amount of the improvements of this measure is not equally reflected in the acceptance by society.
- **Key result 2** – The improvement of the transport service is important, especially in terms of frequency and travel times, which fall 9 and 5 minutes respectively. Frequency on weekdays is 11 min instead of 20 min, 16 min instead of 26 min on Saturday, and 21 min instead of 27 min on Sunday.
- **Key result 3** – The commercial speed of public transport is markedly increased with the new network. Other CiViTAS measure as 3.04. Traffic Light Regulation for the New PT Network supports this great result.
- **Key result 4** – There is a change of trend in safety values, in 2010 and 2011 it has increased the number of injured caused by transport accidents.
- **Key result 5** – The CBA demonstrates most of the benefits are private benefits, that is benefits that enjoy users of private car passing to bus due to time and fuel savings, however public benefits (benefits that enjoy all society) are lower than cost of implementation the measure.
- **Key result 6 –** This measure has achieved better results due to the implementation of the measure 3.04 Traffic Light Regulation for the New PT Network and Superblocks Model because the new traffic light regulation enhanced the operation of public transport services
- **Key result 7 –** The new public transport network has increased the revenues due to an increase of the demand, but total costs have been increased as well, so the contribution on making public transport more (economicaly) sustenaible has been discreet.

C7 Future activities relating to the measure

Since this is a far-reaching measure and it is established in the whole area of the city, no additional steps or extensions are planned. The new transport network will continue to use as after implantation of this measure. Only minor modifications to optimize the service were carried out in October 2010 (changed the itinerary of a line, time regulations, improved bus stops, etc.).

However, it is planned to monitor and assess the development of the measure and the impacts on the indicators, especially the economic ones. The goal is to become sustainable the exploitation of the public transport network, highly important due to the current economic situation in Europe. This must be achieved through the reduction of costs and not only by increasing passengers.

D Process Evaluation Findings

D0 Focused measure

1	Most important reason	The measure fits into the city policy towards sustainable urban transport and / or towards sustainability in general
2	Second most important reason	The expected impact on the transport system, environment, economy and/ or society / people is very high
3	Third most important reason	The measure fits into the EU policy towards clean urban transport (five pillars of the EU Green Paper)

D1 Deviations from the original plan

- **Deviation 1** – It was changed the path of a bus line to give a better coverage to an important park and ride. This change did not produce a decrease of frequency or quality of service.
- **Deviation 2** – Period of regulations of timetables in circular lines were established in dense areas to benefit a high number of passengers. This produced a better service for these users because buses start the service on time.
- **Deviation 3** – During the planning of new public transport network, some stops were slightly moved to improve the public transport coverage.
- **Deviation 4** – Double platforms stops have been installed with several lines to improve service and regularity of the lines.
- **Deviation 5** – The period dedicated to dissemination was longer than original plan because it was very important the information campaign. Also, the removing of old bus stops were delayed 2 months. This produces a higher visibility and publicity of the measure.

D2 Barriers, drivers and activities

D2.1 Barriers

Preparation phase

- **Problem related –** Complexity of the problem to be solved, lack of shared sense of urgency among key stakeholders to sustainable mobility: The change of bus network in the whole city is a risky and technically difficult measure, because the inertias of the previous situation are great. The previous situation is not bad but it can be improved, so the implementation of this measure is not prioritary and it can be delayed.
- **Institutional –** Impeding administrative structures, procedures and routines, impeding laws, rules, regulations and their application, hierarchical structure of organizations and programs: This measure has great significance in the city, so there are many actors involved. Some of these agents are different City Council departments with different structures and work methodology, so the development of the work is very rigid. It also has a great impact on workers of the bus company, because the changing their work processes.

Implementation phase

- **Involvement, communication –** Insufficient involvement or awareness of key stakeholders, insufficient consultation, involvement or awareness of citizens or users: A measure with so much deep impact in the city, requires a huge process of information and public participation. These actions need strong support from all stakeholders in the city.
- **Technological –** Additional technological requirements, technology not available yet, technological problems: In the installation of prefabricated platforms in bus stops, problems appeared due to the difference elevation between platform and sidewalk, which did not comply with the accesibility law. Then, new funds were approved to build platforms not prefabricated.

Operation phase

- **Institutional –** Impeding administrative structures, procedures and routines, impeding laws, rules, regulations and their application, hierarchical structure of organizations and programs: This measure has a great impact on workers of the bus company, because the changing their work processes.

D2.2 Drivers

Preparation phase

- **Political, strategic** – Commitment of key actors based on political and strategic motives, presence of sustainable development agenda or vision, positive impacts of a local election, coalition between key stakeholders due to converging believes in directions of solution: The Sustainable Mobility Plan of Vitoria-Gasteiz is a project shared by all stakeholders, which is also supported by the Sustainable Mobility Agreement. This measure is part of the proposed actions of Sustainable Mobility Plan, so all stakeholders pulling in the same direction. The government of the City Council believes in the project and its opportunity.
- **Institutional** – Facilitating administrative structures, procedures and routines, facilitating laws, rules, regulations and their application, facilitating structure of organizations and programs: The measure is part of the Sustainable Mobility and Public Space City Plan. This multidisciplinary strategy has involved various departments of the City Council and has provided an environment of collaboration and work between them. When this measure is performing, there are administrative procedures and routines that are useful for their development.
- **Organizational** – Constructive partnership arrangements, strong and clear leadership, highly motivated key measure persons, key measure persons as 'local champions': This is one of star measures of Sustainable Mobility and Public Space City Plan (with the introduction of the tram in the city), so it has been a clear leadership in politicians and technicians to support their development.

Implementation phase

- **Involvement, communication** – Constructive and open involvement of policy key stakeholders, constructive and open consultation and involvement or citizens or users: The communication campaign has been very powerful and it has been extended over the time, so citizens can know in detail the impact of the measure. Also, the public transport is a highly visible element in the city so this has helped the advertising of the measure among citizens. An example of this motivation among the citizens is the massive voluntary collaboration of information to users.

- **Planning** – Accurate technical planning and analysis to determine requirements of measure implementation, accurate economic planning and market analysis to determine requirements for measure implementation, thorough user needs analysis and good understanding of user requirements: Technicians knew that the speed in changing public transport network was key to the success of the measure, so they did the best to transform the public transport system in one night.

Operation phase

- **Positional** – The measure concerned is part of a (city) program and/or a consequence of the implementation of a sustainable vision, exchange of experiences and lessons learned with other measures or cities: This measure has been favored within the CiViTAS project as an integrated developed of several actions in the city because synergies have been achieved by other measures. In this case, the measure 3.04 Traffic Light Regulation for the New PT Network and Superblocks Model has supported in an important way to the success of this measure, because the new traffic light regulation enhanced the operation of public transport services.
- **Financial** – Availability of public funds (including CiViTAS funding) and subsidies, willingness of the business community to contribute financially: The success of the measure has been enhanced by the increase of OTA fares. OTA (acronym in Basque of regulated parking) is an important tool to manage the private vehicle demand in the city. At the same time of implementation of the measure, OTA fare was highly increased, so drivers were more in favor of using public transport.
- **Technological** – New potentials offered by technology, new technology available: During the operation phase it has been very important the use of the SAE for public transport in order to coordinate the new traffic light regulation with public transport services. The SAE is a set of solutions that combine different technologies to improve service and transportation management. These technologies include a GPS locator, a central processing unit and a communications system to be transmitted the position of the vehicle (bus or tramway) to the control center in real time (or a configurable frequency).

D2.3 Activities

Preparation phase

- **Political, strategic** – Development of vision on sustainable development or sustainable mobility, development of a program towards sustainable development or sustainable mobility, discourse with key stakeholders (politicians, etc.) about the sustainability problems to be solved: This measure is included in the Sustainable Mobility Plan, so there is a high awareness by politicians and social stakeholders of the need to promote the sustainable mobility. There were several meetings among different City Council departments and politicians to analyze problems to be solved. Many activities were carried out to explain the problem, and there were several proposals to integrate the work into the organizational structures of City Council.
- **Institutional** – Analysis of and/or proposals to change impeding rules, structures, legislation, organizational structures, etc.: This measure is included in the development of proposals of Sustainable Mobility Plan, so there was a great support and collaboration between different departments of the City Council.
- **Involvement, communication** – Consultation of target groups by workshop, conference, focus group, expert meeting, face-to-face interviews or questionnaires, telephone interviews or questionnaires or web based questionnaires, public awareness campaign about the sustainability problems to be solved, bringing together key stakeholders to discuss the sustainability problems to be solved (sharing different viewpoints), public awareness campaign about the measure

through media activities, involvement of key stakeholders (politicians, etc.) in the measure: Important processes of participation and information were carried out by workshop, conference, focus groups, public awareness campaigns about the measure. This improves the involvement of key stakeholders in the measure.

Implementation phase

- **Organizational** – Activities to raise the competences of the measure partners (for example, special courses, etc.), activities to raise the motivation of the measure partners (for example, extra measure meetings): The powerful media campaign was able to involve all citizens in the process of the new public transport network. The great presence of volunteers explaining the new network in buses and stops facilitated this citizen's support.
- **Financial** – Raising or attempting to raise additional 'time budget' for the measure, conduct the economic and technical planning as well as analysis to determine requirements of measure implementation, conduct market analysis to determine requirements for measure implementation, thoroughly analyzing user needs analysis to better understand the user requirements: In order to speed up the works of installation of new bus stops, foundations of new bus stops were built previously, so when the new bus stops were installed the process was very agile. A lot of magnetic panels were used to change the user information quickly.

Operation phase

- **Positional** – Put the measure concerned into a running sustainability program (combined with the strategic actions), activities to exchange experiences with other measures / cities (workshop, conference, focus group etc): This measure has achieved better results due to the implementation of the measure 3.04 Traffic Light Regulation for the New PT Network and Superblocks Model because the new traffic light regulation enhanced the operation of public transport services.
- **Technological** – Raising or attempting to raise additional technical resources for the measure (all kind of equipment), all kind of actions to solve technological problems: During the operation phase it has been used the SAE. Therefore, a widely information is processed in the control center where can be made decisions in order to improve the operation of public transport service.

D3 Participation

D3.1 Measure Partners

- **Measure partner 1** – TUVISA: Public transport (urban buses) operator in Vitoria-Gasteiz. Leading role. TUVISA is the Bus Transport Company of Vitoria-Gasteiz, founded in 1967, with the total capital share belonging to the city council. The main activity is the regular service of collective urban buses transport within the urban area of Vitoria-Gasteiz. Secondary activities are the management of three municipal parking lots of the city and the co-management of the municipal tow service. The company cooperate with the traffic and transport department of the municipality with fuel and lubricants supply and vehicles maintenance and reparations. The company fleet is 87 buses, and covers a network of 146 km with 9 lines by day. Six lines cover the night service on Friday and Saturday nights. The night network is 46 kilometres.
- **Measure partner 2** – AVG: Vitoria-Gasteiz City Council. Principle participant. The City Council manage the town located in the centre of the province of Álava. Its area is 276.81 km2. Vitoria-Gasteiz has tripled its population in recent decades. The city participates in CiViTAS project in MODERN consortium. During 2012, it is European Green Capital.

- **Measure partner 3** – CEA: Environmental Studies Centre of Vitoria-Gasteiz City Council. Principle participant. The CEA was born in the late eighties, with the aim of develop strategies of environmental training. They arose the first graduate program focused on environmental technician training. The action lines became more diversified progressively towards other specialties: GIS, remote sensing, environmental service to companies, evaluation of environmental impacts, etc. Also, CEA has promoted relations with university and research centres, taking shape in dissertations, publications and numerous collaborations in teaching, research, consultancy and project directions. Currently, CEA's mission is to ensure the sustainability of Vitoria-Gasteiz, promoting the sustainable development.
- **Measure partner 4** – RACVN: Royal Automobile Club of Euskadi and Navarra. Occasional participant. The RACVN was born with the aim of promoting, protecting and defending motorists, seeking partners for the greatest number of advantages and benefits, organizing and promoting tourism and auto races, competitions, exhibitions and other companies for the development of motorsports. The role is to evaluate this measure.

D3.2 Stakeholders

The Sustainable Mobility Agreement was written and signed in 2007 by different social stakeholders of the city of Vitoria-Gasteiz integrated in the Citizens' Forum on Sustainable Mobility (platform of citizen participation in mobility). This consensus document aims to define the framework for new patterns of mobility, and therefore, for a model city in which urban travels do not threaten to health or quality of life, urban environment or local economy development.

These stakeholders involved in the Sustainable Mobility Agreement are stakeholder for this measure:

- **Stakeholder 1** – Government of City Council.
- **Stakeholder 2** – Local Parties in the city.
- **Stakeholder 3** – Technical Departments of City Council (Environment, Mobility, Urbanism, etc.).
- **Stakeholder 4** – Ombudsman or People Defender.
- **Stakeholder 5** – Taxi Association.
- **Stakeholder 6** – Residents Association.
- **Stakeholder 7** – Cyclists and Rollers Association.
- **Stakeholder 8** – Ecologist Association.
- **Stakeholder 9** – Students and Educational Association.
- **Stakeholder 10** – Transport and Technological Companies.

D4 Recommendations

D4.1 Measure replication

- **Complexity of the measure** – This measure is technically more difficult than it seems at first view because the previous system of public transport has worked and grown since many years ago, assuming a series of inertia and defects that have been covered by new bus lines or services. This has made the public transport more complicated and inefficient. When the decision to improve the system of public transport in the city is taken, you can not achieve the proposals

objectives by changing a few "blackspots", but the entire organization of the system must be changed.

- **Goods results but high cost of implementation** – Therefore, this is a measure that can be applied in cities where public transport network has grown as a disordered accumulation of lines that have generated a complicated and inefficient public transport system. This measure save operating costs and hopefully increase operating incomes due to an increase of demand. It has clear economic benefits, but however, in order to change the public transport network, it must face significant additional costs: human and technical resources devoted to planning new public transport network, and especially the campaign of public information and the participation of social partners and stakeholders.
- **Need of political and strategic decision** – Changing the entire system of public transport in a city is a measure with much impact, which requires a political and strategic decision very strong, and the support of all stakeholders. This point is critical because everyone must believe in the project and go in the same direction. There is a risk that this measure is used by the parties as political confrontation. In this sense it is strongly recommended to sign previously an agreement between all stakeholders such as the Sustainable Mobility Agreement of Vitoria-Gasteiz.
- **Synergies with other measures multiply the results** – Such measures should be part of an overall strategy for sustainable mobility and its impact depends on the implementation of other measures to discourage private car use. In this sense, this measure is part of the proposals of Sustainable Mobility Plan of Vitoria-Gasteiz, so that synergies are achieved between them and the impacts of them are multiplied. However, in Vitoria-Gasteiz it should have implemented more decisive measures to discourage car use as the extension of the zone of the regulated parking in streets.
- **Quickly impacts after the implementation** – The transport and economic objectives are obtained quickly after its introduction, for example, increased demand, operating cost reduction, increased frequency, etc., so this type of measure is very attractive for replication in other European cities.

D4.2 Process

- **Bus system is not as flexible as it seems**– Changing the former public bus transport network to a new and totally different one turns out to be harder and more complex than theoretically supposed.
- **Important dissemination after the implementation** – Despite the strong effort in communicating the changes, there is still a feeling of awareness of citizens or users. One conclusion is to strength, once more, the communication campaign after the changing of the network.
- **Agreement of stakeholders towards sustainable mobility is essential for success** – It is important that all stakeholders are involved and support this measure because it has many impacts and can become controversial. In this sense it is recommended to sign an agreement with all stakeholders, such as the Sustainable Mobility Agreement of Vitoria-Gasteiz.
- **Sustainable Urban Mobility Plan (SUMP) as the route map + CiViTAS as the push = synergy** – The combination of the CiViTAS project with the Sustainable Mobility and Public Space Plan of Vitoria-Gasteiz has favoured synergic effects on both projects boosting the cooperation among the different CiViTAS partners and local administration.
- **Implementation must be as short as possible** – The planning and preparation phase is very important, so it is necessary to put attention to make the change of pubic transport network

system in the shortest time possible, to avoid as far as possible the impact to users. In Vitoria-Gasteiz, this was achieved in one only night.

- **High financial benefits but important resources in planning** – The negative economic situation can support the implementation of this measure, due to the expected benefits (operating cost savings, increases of revenues, etc.). But keep in mind that it must assign significant resources to the planning phase and public information campaign.
- **Synergies with other measures multiply the results** – Mobility policy should be a set of measures pushing into the same direction, increasing the results and benefits. This is the great benefit of projects like CiViTAS. In this case, the measure has been supported by measure 3.04 Traffic Light Regulation for the New PT Network and Superblocks Model.

ANNEX 1: SURVEY MODEL

INTERVIEWER NAME

PLACE: DAY: TIME:

1. Why have you come to this area?
   1.Procurement 5. Labor
   2. Managements 6. Entertainment (specify)
   3. Steps (Work) 7. Other (specify)
   4. School 8. back home

2. How often do you do this trip?
   1. Each day 3. Once a week
   2. 2-3 times a week 4. Occasionally

3. What public transport line do you use?.....

4. Where are you going?
   Street .....
   Outside the town, which?.....

5. How far away is the stop from the place where you have been?

6. How far away is your destination from the stop where you will get out of bus?

7. Do you use other means of transport in this displacement in addition to this bus?
   No
   Yes 1. Another bus. Which one? .....

   2. Tram 3. Car 4. Bike 5. Other ... ...

8 . How long does it usually take to you to make this journey trip?
   1. waiting for the bus ... ...

   2. inside the bus ... ...
   3. in supplementary means of transport …

9. In general and in relation to current bus service, from low to high, value importance (0 = unimportant, 10 = very important) and satisfaction level (1 = very unsatisfied, 10 = very satisfied) of the following:

   Meet schedule

   Frequency

   Commuting Time

   Staff support

   The probability to go sit

   Cleaning

   The price

10.1 Did you know that at the end of next October will be operational a modification and expansion of the new bus network within the project CIVITAS?

No
Yes

If Yes, how do you appreciate it (1 = very negative; 10 = very positive)?

11. Why haven't you used the car for this trip?

1. I do not have de DL
2. I have no car
3. No free parking
4. Public transport is safer
5. It is slower
6. It is more uncomfortable
7. Other (specify) ……

12. Sex 1. Men 2. Women

13. Age ....

14. Occupation .....

ANNEX 2: EX-ANTE SURVEY RESULTS

1. Why have you come to this area?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Procurement	48	16,0	16,1	16,1
	Managements	44	14,7	14,7	30,8
	Steps	3	1,0	1,0	31,8
	School	45	15,0	15,1	46,8
	Labor	87	29,0	29,1	75,9
	Entertainment	19	6,3	6,4	82,3
	Other	6	2,0	2,0	84,3
	Back home	47	15,7	15,7	100,0
	Total	299	99,7	100,0	
Missing	System	1	,3		
Total		300	100,0		

2. How often do you do this trip?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Each day	178	59,3	59,5	59,5
	2-3 times per week	40	13,3	13,4	72,9
	Once a week	12	4,0	4,0	76,9
	Occasionally	69	23,0	23,1	100,0
	Total	299	99,7	100,0	
Missing	System	1	,3		
Total		300	100,0		

3. What public transport line have you travelled in?

3. What public transport line have you travelled in?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6	2,0	2,0	2,0
10	2	,7	,7	2,7
11	1	,3	,3	3,0
12	8	2,7	2,7	5,7
14	26	8,7	8,7	14,3
15	2	,7	,7	15,0
18	63	21,0	21,0	36,0
19	1	,3	,3	36,3
3	6	2,0	2,0	38,3
4	60	20,0	20,0	58,3
5	1	,3	,3	58,7
6	1	,3	,3	59,0
7	37	12,3	12,3	71,3
8	1	,3	,3	71,7
9	2	,7	,7	72,3
Abetxuki	1	,3	,3	72,7
Algorta	2	,7	,7	73,3
Armetia	1	,3	,3	73,7
Arrieniega	1	,3	,3	74,0
Bilbao	4	1,3	1,3	75,3
cementerio	3	1,0	1,0	76,3
Circunvalacion 2	6	2,0	2,0	78,3
Donosti	3	1,0	1,0	79,3
Durango	1	,3	,3	79,7
Llodio	2	,7	,7	80,3
Murguia	1	,3	,3	80,7
Perif erica	38	12,7	12,7	93,3
Sansamer	1	,3	,3	93,7
Union	13	4,3	4,3	98,0
Zabalgana	1	,3	,3	98,3
Zabalgon	1	,3	,3	98,7
Zaramaga	4	1,3	1,3	100,0
Total	300	100,0	100,0	

5. How far away is the stop from the place where you have been? (m)

Measure title: **New Public Transport Network**

City: **Vitoria-Gasteiz** *Project:* **Civitas Modern** *Measure number:* **02.01**

Statistics

5. How far away is the stop from the place where you have been? (m)

N	Valid	267
	Missing	2
Mean		592,53
Std. Deviation		580,243
Sum		158205

5. How far away is the stop from the place where you have been? (m)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	1	,4	,4	,4
	20	1	,4	,4	,7
	25	1	,4	,4	1,1
	30	1	,4	,4	1,5
	50	4	1,5	1,5	3,0
	60	1	,4	,4	3,4
	70	7	2,6	2,6	6,0
	90	1	,4	,4	6,4
	100	6	2,2	2,2	8,6
	120	6	2,2	2,2	10,9
	150	14	5,2	5,2	16,1
	180	9	3,3	3,4	19,5
	200	29	10,8	10,9	30,3
	240	2	,7	,7	31,1
	250	5	1,9	1,9	33,0
	300	25	9,3	9,4	42,3
	350	3	1,1	1,1	43,4
	360	2	,7	,7	44,2
	400	25	9,3	9,4	53,6
	420	2	,7	,7	54,3
	500	22	8,2	8,2	62,5
	600	20	7,4	7,5	70,0
	650	2	,7	,7	70,8
	700	16	5,9	6,0	76,8
	750	2	,7	,7	77,5
	800	6	2,2	2,2	79,8
	900	8	3,0	3,0	82,8
	1000	8	3,0	3,0	85,8
	1200	6	2,2	2,2	88,0
	1300	1	,4	,4	88,4
	1400	4	1,5	1,5	89,9
	1500	7	2,6	2,6	92,5
	1700	3	1,1	1,1	93,6
	1800	4	1,5	1,5	95,1
	2000	9	3,3	3,4	98,5
	2700	1	,4	,4	98,9
	3000	2	,7	,7	99,6
	4000	1	,4	,4	100,0
	Total	267	99,3	100,0	
Missing	System	2	,7		
Total		269	100,0		

6. How far away is your destination from the stop where you will get out of bus? (m)

Statistics

6. How far away is your destination from the stop where you will get out of bus? (m)

N	Valid	269
	Missing	0
Mean		394,50
Std. Deviation		445,565
Sum		106120

6. How far away is your destination from the stop where you will get out of bus? (m)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	1	,4	,4	,4
	20	5	1,9	1,9	2,2
	30	2	,7	,7	3,0
	40	1	,4	,4	3,3
	50	8	3,0	3,0	6,3
	60	12	4,5	4,5	10,8
	70	8	3,0	3,0	13,8
	80	1	,4	,4	14,1
	100	10	3,7	3,7	17,8
	120	8	3,0	3,0	20,8
	150	32	11,9	11,9	32,7
	180	13	4,8	4,8	37,5
	200	27	10,0	10,0	47,6
	250	4	1,5	1,5	49,1
	300	30	11,2	11,2	60,2
	350	7	2,6	2,6	62,8
	400	24	8,9	8,9	71,7
	420	2	,7	,7	72,5
	500	16	5,9	5,9	78,4
	560	1	,4	,4	78,8
	600	9	3,3	3,3	82,2
	650	1	,4	,4	82,5
	700	11	4,1	4,1	86,6
	750	1	,4	,4	87,0
	800	9	3,3	3,3	90,3
	900	7	2,6	2,6	92,9
	1000	7	2,6	2,6	95,5
	1200	1	,4	,4	95,9
	1400	2	,7	,7	96,7
	1500	3	1,1	1,1	97,8
	1700	1	,4	,4	98,1
	1800	1	,4	,4	98,5
	2000	2	,7	,7	99,3
	3600	2	,7	,7	100,0
	Total	269	100,0	100,0	

7. Do you use other means of transport in this displacement in addition to this bus?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	132	49,1	49,3	49,3
	Bus	5	1,9	1,9	51,1
	Tramway	63	23,4	23,5	74,6
	Car	44	16,4	16,4	91,0
	Bicycle	18	6,7	6,7	97,8
	Buas + tramway	1	,4	,4	98,1
	Metro	1	,4	,4	98,5
	Taxi	4	1,5	1,5	100,0
	Total	268	99,6	100,0	
Missing	System	1	,4		
Total		269	100,0		

8. How long does it usually take to you to make this journey trip? (total time in min)

Statistics

8. How long does it usually take to you to make this journey trip? (total time in min)

N	Valid	256
	Missing	13
Mean		35,41
Std. Deviation		16,077
Sum		9066

8. How long does it usually take to you to make this journey trip? (total time in min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12	1	,4	,4	,4
	15	3	1,1	1,2	1,6
	16	2	,7	,8	2,3
	17	2	,7	,8	3,1
	18	7	2,6	2,7	5,9
	19	3	1,1	1,2	7,0
	20	8	3,0	3,1	10,2
	21	3	1,1	1,2	11,3
	22	12	4,5	4,7	16,0
	23	9	3,3	3,5	19,5
	24	6	2,2	2,3	21,9
	25	14	5,2	5,5	27,3
	26	5	1,9	2,0	29,3
	27	15	5,6	5,9	35,2
	28	8	3,0	3,1	38,3
	29	4	1,5	1,6	39,8
	30	23	8,6	9,0	48,8
	31	2	,7	,8	49,6
	32	3	1,1	1,2	50,8
	33	4	1,5	1,6	52,3
	35	23	8,6	9,0	61,3
	36	4	1,5	1,6	62,9
	37	5	1,9	2,0	64,8
	38	4	1,5	1,6	66,4
	39	4	1,5	1,6	68,0
	40	17	6,3	6,6	74,6
	41	3	1,1	1,2	75,8
	42	2	,7	,8	76,6
	43	4	1,5	1,6	78,1
	44	1	,4	,4	78,5
	45	15	5,6	5,9	84,4
	47	4	1,5	1,6	85,9
	50	7	2,6	2,7	88,7
	52	4	1,5	1,6	90,2
	55	10	3,7	3,9	94,1
	60	2	,7	,8	94,9
	61	1	,4	,4	95,3
	65	3	1,1	1,2	96,5
	70	3	1,1	1,2	97,7
	75	1	,4	,4	98,0
	80	1	,4	,4	98,4
	85	1	,4	,4	98,8
	105	1	,4	,4	99,2
	120	1	,4	,4	99,6
	150	1	,4	,4	100,0
	Total	256	95,2	100,0	
Missing	System	13	4,8		
Total		269	100,0		

8.1 Time walking (min)

Statistics

8.1 Time walking (min)

N	Valid	261
	Missing	8
Mean		8,62
Std. Deviation		7,129
Sum		2250

8.1 Time walking (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	4,5	4,6	4,6
	2	27	10,0	10,3	14,9
	3	24	8,9	9,2	24,1
	4	7	2,6	2,7	26,8
	5	60	22,3	23,0	49,8
	6	4	1,5	1,5	51,3
	7	11	4,1	4,2	55,6
	8	6	2,2	2,3	57,9
	9	1	,4	,4	58,2
	10	53	19,7	20,3	78,5
	12	8	3,0	3,1	81,6
	13	1	,4	,4	82,0
	14	1	,4	,4	82,4
	15	18	6,7	6,9	89,3
	18	1	,4	,4	89,7
	20	12	4,5	4,6	94,3
	25	4	1,5	1,5	95,8
	30	10	3,7	3,8	99,6
	45	1	,4	,4	100,0
	Total	261	97,0	100,0	
Missing	System	8	3,0		
Total		269	100,0		

8.2 Time waiting for the bus (min)

Statistics

8.2 Time waiting for the bus (min)

N	Valid	262
	Missing	7
Mean		8,05
Std. Deviation		7,221
Sum		2109

8.2 Time waiting for the bus (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	2,6	2,7	2,7
	2	27	10,0	10,3	13,0
	3	14	5,2	5,3	18,3
	4	4	1,5	1,5	19,8
	5	98	36,4	37,4	57,3
	6	1	,4	,4	57,6
	7	4	1,5	1,5	59,2
	8	7	2,6	2,7	61,8
	10	64	23,8	24,4	86,3
	15	20	7,4	7,6	93,9
	20	8	3,0	3,1	96,9
	25	1	,4	,4	97,3
	30	3	1,1	1,1	98,5
	40	1	,4	,4	98,9
	45	1	,4	,4	99,2
	50	1	,4	,4	99,6
	60	1	,4	,4	100,0
	Total	262	97,4	100,0	
Missing	System	7	2,6		
Total		269	100,0		

8.3 Time inside the bus (min)

Statistics

8.3 Time inside the bus (min)

N	Valid	257
	Missing	12
Mean		17,79
Std. Deviation		8,017
Sum		4573

8.3 Time inside the bus (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	2	,7	,8	,8
	4	1	,4	,4	1,2
	5	8	3,0	3,1	4,3
	7	2	,7	,8	5,1
	8	3	1,1	1,2	6,2
	10	46	17,1	17,9	24,1
	12	2	,7	,8	24,9
	15	78	29,0	30,4	55,3
	17	1	,4	,4	55,6
	18	3	1,1	1,2	56,8
	20	53	19,7	20,6	77,4
	25	28	10,4	10,9	88,3
	30	23	8,6	8,9	97,3
	35	2	,7	,8	98,1
	40	1	,4	,4	98,4
	45	2	,7	,8	99,2
	50	1	,4	,4	99,6
	60	1	,4	,4	100,0
	Total	257	95,5	100,0	
Missing	System	12	4,5		
Total		269	100,0		

8.4 Time in supplementary means of transport (min)

Statistics

8.4 Time in supplementary means of transport (min)

N	Valid	20
	Missing	249
Mean		12,60
Std. Deviation		6,676
Sum		252

8.4 Time in supplementary means of transport (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	1	,4	5,0	5,0
	5	2	,7	10,0	15,0
	6	1	,4	5,0	20,0
	8	1	,4	5,0	25,0
	9	1	,4	5,0	30,0
	10	5	1,9	25,0	55,0
	15	6	2,2	30,0	85,0
	20	1	,4	5,0	90,0
	25	1	,4	5,0	95,0
	30	1	,4	5,0	100,0
	Total	20	7,4	100,0	
Missing	System	249	92,6		
Total		269	100,0		

9.1.a Meet schedule importance

Statistics

9.1.a Meet schedule importance

N	Valid	297
	Missing	3
Mean		8,57
Std. Deviation		2,435
Sum		2546

9.1.a Meet schedule importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	2,0	2,0	2,0
	1	3	1,0	1,0	3,0
	2	4	1,3	1,3	4,4
	3	6	2,0	2,0	6,4
	4	6	2,0	2,0	8,4
	5	12	4,0	4,0	12,5
	6	13	4,3	4,4	16,8
	7	14	4,7	4,7	21,5
	8	22	7,3	7,4	29,0
	9	29	9,7	9,8	38,7
	10	182	60,7	61,3	100,0
	Total	297	99,0	100,0	
Missing	System	3	1,0		
Total		300	100,0		

9.1.b Frequency importance

Statistics

9.1.b Frequency importance

N	Valid	297
	Missing	3
Mean		8,14
Std. Deviation		2,489
Sum		2417

9.1.b Frequency importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	1,3	1,3	1,3
	1	3	1,0	1,0	2,4
	2	8	2,7	2,7	5,1
	3	6	2,0	2,0	7,1
	4	8	2,7	2,7	9,8
	5	20	6,7	6,7	16,5
	6	16	5,3	5,4	21,9
	7	20	6,7	6,7	28,6
	8	41	13,7	13,8	42,4
	9	26	8,7	8,8	51,2
	10	145	48,3	48,8	100,0
	Total	297	99,0	100,0	
Missing	System	3	1,0		
Total		300	100,0		

9.1.c Commuting time importance

Statistics

9.1.c Commuting time importance

N	Valid	298
	Missing	2
Mean		7,96
Std. Deviation		2,365
Sum		2373

9.1.c Commuting time importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	,7	,7	,7
	1	4	1,3	1,3	2,0
	2	6	2,0	2,0	4,0
	3	7	2,3	2,3	6,4
	4	4	1,3	1,3	7,7
	5	26	8,7	8,7	16,4
	6	24	8,0	8,1	24,5
	7	30	10,0	10,1	34,6
	8	42	14,0	14,1	48,7
	9	30	10,0	10,1	58,7
	10	123	41,0	41,3	100,0
	Total	298	99,3	100,0	
Missing	System	2	,7		
Total		300	100,0		

9.1.d Staff support importance

Statistics

9.1.d Staff support importance

N	Valid	298
	Missing	2
Mean		7,45
Std. Deviation		2,668
Sum		2219

9.1.d Staff support importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	2,0	2,0	2,0
	1	9	3,0	3,0	5,0
	2	7	2,3	2,3	7,4
	3	8	2,7	2,7	10,1
	4	7	2,3	2,3	12,4
	5	31	10,3	10,4	22,8
	6	19	6,3	6,4	29,2
	7	39	13,0	13,1	42,3
	8	44	14,7	14,8	57,0
	9	30	10,0	10,1	67,1
	10	98	32,7	32,9	100,0
	Total	298	99,3	100,0	
Missing	System	2	,7		
Total		300	100,0		

9.1.e Probability to sit importance

Statistics

9.1.e Probability to sit importance

N	Valid	298
	Missing	2
Mean		7,30
Std. Deviation		2,595
Sum		2175

9.1.e Probability to sit importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	,3	,3	,3
	1	8	2,7	2,7	3,0
	2	11	3,7	3,7	6,7
	3	12	4,0	4,0	10,7
	4	9	3,0	3,0	13,8
	5	31	10,3	10,4	24,2
	6	30	10,0	10,1	34,2
	7	43	14,3	14,4	48,7
	8	38	12,7	12,8	61,4
	9	17	5,7	5,7	67,1
	10	98	32,7	32,9	100,0
	Total	298	99,3	100,0	
Missing	System	2	,7		
Total		300	100,0		

9.1.f Cleaning importance

Statistics

9.1.f Cleaning importance

N	Valid	298
	Missing	2
Mean		7,88
Std. Deviation		2,449
Sum		2349

9.1.f Cleaning importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	,7	,7	,7
	1	3	1,0	1,0	1,7
	2	13	4,3	4,4	6,0
	3	7	2,3	2,3	8,4
	4	1	,3	,3	8,7
	5	16	5,3	5,4	14,1
	6	40	13,3	13,4	27,5
	7	29	9,7	9,7	37,2
	8	32	10,7	10,7	48,0
	9	34	11,3	11,4	59,4
	10	121	40,3	40,6	100,0
	Total	298	99,3	100,0	
Missing	System	2	,7		
Total		300	100,0		

9.1.g Travel pricing importance

Statistics

9.1.g Travel pricing importance

N	Valid	296
	Missing	4
Mean		7,49
Std. Deviation		2,831
Sum		2216

9.1.g Travel pricing importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	3,3	3,4	3,4
	2	16	5,3	5,4	8,8
	3	14	4,7	4,7	13,5
	4	11	3,7	3,7	17,2
	5	25	8,3	8,4	25,7
	6	23	7,7	7,8	33,4
	7	23	7,7	7,8	41,2
	8	21	7,0	7,1	48,3
	9	34	11,3	11,5	59,8
	10	119	39,7	40,2	100,0
	Total	296	98,7	100,0	
Missing	System	4	1,3		
Total		300	100,0		

9.2. Satisfaction

	Satisfaction before
Timetable fulfilment	6,64
Frequency	6,42
Travel duration	6,45
Customer service	6,54
Chance to sit	6,67
Cleanliness	6,88
Price	6,42
Average	6,57

10.1 Did you know that at the end of next October will be operational a modification and expansion of the new bus network within the project CIVITAS?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	124	41,3	41,9	41,9
	Yes	172	57,3	58,1	100,0
	Total	296	98,7	100,0	
Missing	System	4	1,3		
Total		300	100,0		

10.2 Bus modification assessment (1=negative, 10=positive)

Statistics

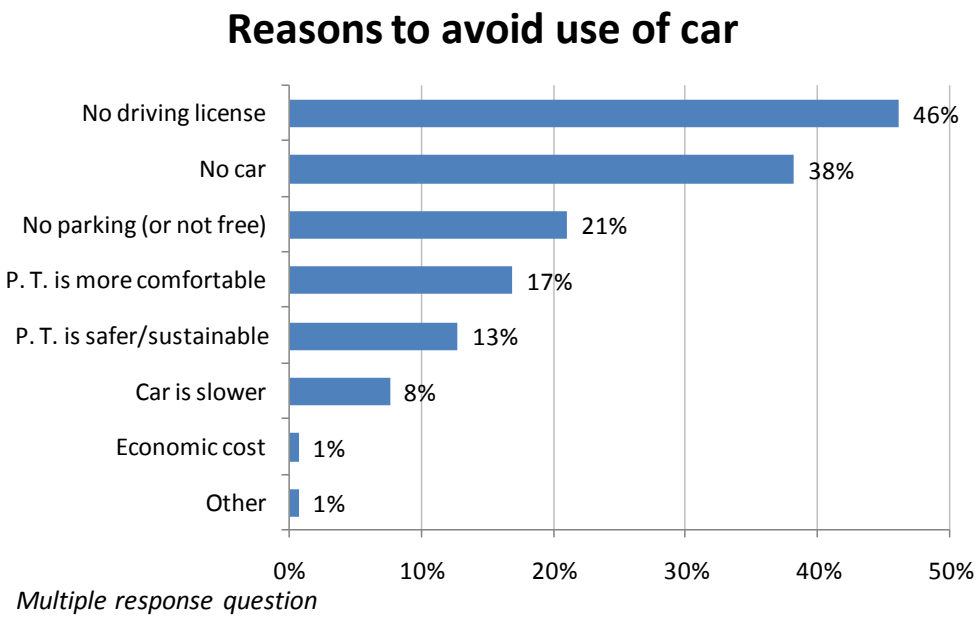
10.2 Bus modification assessment (1=negative, 10=positive)

N	Valid	270
	Missing	30
Mean		6,74
Std. Deviation		3,025
Sum		1820

10.2 Bus modification assessment (1=negative, 10=positive)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	,3	,4	,4
	1	29	9,7	10,7	11,1
	2	9	3,0	3,3	14,4
	3	7	2,3	2,6	17,0
	4	8	2,7	3,0	20,0
	5	29	9,7	10,7	30,7
	6	30	10,0	11,1	41,9
	7	43	14,3	15,9	57,8
	8	18	6,0	6,7	64,4
	9	10	3,3	3,7	68,1
	10	86	28,7	31,9	100,0
	Total	270	90,0	100,0	
Missing	System	30	10,0		
Total		300	100,0		

11. Why you have not used the car for this trip?



Multiple response question

12. Sex

12. Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	61	20,3	20,5	20,5
	Female	237	79,0	79,5	100,0
	Total	298	99,3	100,0	
Missing	System	2	,7		
Total		300	100,0		

13. Age

Statistics

13. Age

N	Valid	299
	Missing	1
Mean		40,72
Std. Deviation		16,567
Sum		12174

Measure title: **New Public Transport Network**

City: **Vitoria-Gasteiz** *Project:* **Civitas Modern** *Measure number:* **02.01**

13. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	13	2	,7	,7	,7
	14	5	1,7	1,7	2,3
	15	3	1,0	1,0	3,3
	16	5	1,7	1,7	5,0
	17	4	1,3	1,3	6,4
	18	7	2,3	2,3	8,7
	19	8	2,7	2,7	11,4
	20	1	,3	,3	11,7
	21	10	3,3	3,3	15,1
	22	5	1,7	1,7	16,7
	23	4	1,3	1,3	18,1
	24	4	1,3	1,3	19,4
	25	5	1,7	1,7	21,1
	26	6	2,0	2,0	23,1
	27	4	1,3	1,3	24,4
	28	4	1,3	1,3	25,8
	29	4	1,3	1,3	27,1
	30	13	4,3	4,3	31,4
	31	4	1,3	1,3	32,8
	32	8	2,7	2,7	35,5
	33	5	1,7	1,7	37,1
	34	3	1,0	1,0	38,1
	35	4	1,3	1,3	39,5
	36	5	1,7	1,7	41,1
	37	12	4,0	4,0	45,2
	38	8	2,7	2,7	47,8
	39	2	,7	,7	48,5
	40	6	2,0	2,0	50,5
	41	3	1,0	1,0	51,5
	42	16	5,3	5,4	56,9
	43	10	3,3	3,3	60,2
	44	6	2,0	2,0	62,2
	45	11	3,7	3,7	65,9
	46	5	1,7	1,7	67,6
	47	9	3,0	3,0	70,6
	48	5	1,7	1,7	72,2
	49	6	2,0	2,0	74,2
	50	4	1,3	1,3	75,6
	51	2	,7	,7	76,3
	52	2	,7	,7	76,9
	53	3	1,0	1,0	77,9
	54	3	1,0	1,0	78,9
	55	1	,3	,3	79,3
	56	6	2,0	2,0	81,3
	57	2	,7	,7	81,9
	58	5	1,7	1,7	83,6
	60	2	,7	,7	84,3
	62	7	2,3	2,3	86,6
	63	2	,7	,7	87,3
	65	10	3,3	3,3	90,6
	66	3	1,0	1,0	91,6
	67	2	,7	,7	92,3
	69	4	1,3	1,3	93,6
	70	5	1,7	1,7	95,3
	71	3	1,0	1,0	96,3
	72	1	,3	,3	96,7
	75	5	1,7	1,7	98,3
	78	1	,3	,3	98,7
	79	1	,3	,3	99,0
	80	2	,7	,7	99,7
	81	1	,3	,3	100,0
	Total	299	99,7	100,0	
Missing	System	1	,3		
Total		300	100,0		

14.a Current profession class

14.a Current profession class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unemployed	31	10,3	10,5	10,5
	Pensioner	36	12,0	12,2	22,6
	Non-qualified worker	94	31,3	31,8	54,4
	Qualified worker	46	15,3	15,5	69,9
	Freelance/Shopkeeper	3	1,0	1,0	70,9
	Student	51	17,0	17,2	88,2
	Director/Businessman	4	1,3	1,4	89,5
	Homemaker	31	10,3	10,5	100,0
	Total	296	98,7	100,0	
Missing	System	4	1,3		
Total		300	100,0		

ANNEX 3: EX-POST SURVEY RESULTS

1. Why have you come to this area?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Procurement	46	17,5	18,3	18,3
	Managements	27	10,3	10,8	29,1
	Steps	14	5,3	5,6	34,7
	School	14	5,3	5,6	40,2
	Labor	58	22,1	23,1	63,3
	Entertainment	11	4,2	4,4	67,7
	Other	20	7,6	8,0	75,7
	Back home	61	23,2	24,3	100,0
	Total	251	95,4	100,0	
Missing	System	12	4,6		
Total		263	100,0		

2. How often do you do this trip?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Each day	156	59,3	62,4	62,4
	2-3 times per week	51	19,4	20,4	82,8
	Once a week	12	4,6	4,8	87,6
	Occasionally	31	11,8	12,4	100,0
	Total	250	95,1	100,0	
Missing	System	13	4,9		
Total		263	100,0		

3. What public transport line have you travelled in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		14	5,3	5,3	5,3
	1	36	13,7	13,7	19,0
	2	44	16,7	16,7	35,7
	2 1	1	,4	,4	36,1
	3	15	5,7	5,7	41,8
	3 0 9	1	,4	,4	42,2
	3 4	2	,8	,8	43,0
	3 9	9	3,4	3,4	46,4
	4	52	19,8	19,8	66,2
	4 6	6	2,3	2,3	68,4
	4 o 6	1	,4	,4	68,8
	5	2	,8	,8	69,6
	6	48	18,3	18,3	87,8
	6 4	3	1,1	1,1	89,0
	7	15	5,7	5,7	94,7
	8 4	1	,4	,4	95,1
	9	11	4,2	4,2	99,2
	9 3	1	,4	,4	99,6
	Zumaquera	1	,4	,4	100,0
	Total	263	100,0	100,0	

5. How far away is the stop from the place where you have been? (m)

Statistics

5. How far away is the stop from the place where you have been? (m)

N	Valid	226
	Missing	37
Mean		515,99
Std. Deviation		424,715

5. How far away is the stop from the place where you have been? (m)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	3	1,1	1,3	1,3
	14	1	,4	,4	1,8
	20	1	,4	,4	2,2
	30	2	,8	,9	3,1
	50	7	2,7	3,1	6,2
	80	1	,4	,4	6,6
	83	12	4,6	5,3	11,9
	100	6	2,3	2,7	14,6
	120	1	,4	,4	15,0
	166	15	5,7	6,6	21,7
	200	18	6,8	8,0	29,6
	249	10	3,8	4,4	34,1
	250	1	,4	,4	34,5
	300	6	2,3	2,7	37,2
	332	5	1,9	2,2	39,4
	400	1	,4	,4	39,8
	415	58	22,1	25,7	65,5
	500	8	3,0	3,5	69,0
	581	3	1,1	1,3	70,4
	664	2	,8	,9	71,2
	833	36	13,7	15,9	87,2
	1000	1	,4	,4	87,6
	1248	19	7,2	8,4	96,0
	1663	4	1,5	1,8	97,8
	1666	3	1,1	1,3	99,1
	2081	2	,8	,9	100,0
	Total	226	85,9	100,0	
Missing	System	37	14,1		
Total		263	100,0		

6. How far away is your destination from the stop where you will get out of bus? (m)

Statistics

6. How far away is your destination from the stop where you will get out of bus? (m)

N	Valid	220
	Missing	43
Mean		394,25
Std. Deviation		383,696

ɜ. How far away is your destination from the stop where you will get out of bus? (m)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	16	6,1	7,3	7,3
	20	4	1,5	1,8	9,1
	24	1	,4	,5	9,5
	30	1	,4	,5	10,0
	40	1	,4	,5	10,5
	50	12	4,6	5,5	15,9
	83	10	3,8	4,5	20,5
	100	9	3,4	4,1	24,5
	125	1	,4	,5	25,0
	150	1	,4	,5	25,5
	166	31	11,8	14,1	39,5
	200	7	2,7	3,2	42,7
	249	13	4,9	5,9	48,6
	250	2	,8	,9	49,5
	300	2	,8	,9	50,5
	332	4	1,5	1,8	52,3
	415	50	19,0	22,7	75,0
	500	4	1,5	1,8	76,8
	581	2	,8	,9	77,7
	664	1	,4	,5	78,2
	747	1	,4	,5	78,6
	833	37	14,1	16,8	95,5
	883	1	,4	,5	95,9
	1248	5	1,9	2,3	98,2
	1663	2	,8	,9	99,1
	2496	2	,8	,9	100,0
	Total	220	83,7	100,0	
Missing	System	43	16,3		
Total		263	100,0		

7. Do you use other means of transport in this displacement in addition to this bus?

Do you use other means of transport in this displacement in addition to th bus?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	213	81,0	88,4	88,4
	Bus	7	2,7	2,9	91,3
	Tramway	10	3,8	4,1	95,4
	Car	6	2,3	2,5	97,9
	Bicycle	4	1,5	1,7	99,6
	Other	1	,4	,4	100,0
	Total	241	91,6	100,0	
Missing	System	22	8,4		
Total		263	100,0		

8. How long does it usually take to you to make this journey trip? (total time in min)

Statistics

8. How long does it usually take to you to make this journey trip? (total time in min)

N	Valid	246
	Missing	17
Mean		29,61
Std. Deviation		11,646

Measure title: **New Public Transport Network**

City: **Vitoria-Gasteiz** *Project:* **Civitas Modern** *Measure number:* **02.01**

. How long does it usually take to you to make this journey trip? (total tim in min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6	1	,4	,4	,4
	7	3	1,1	1,2	1,6
	10	5	1,9	2,0	3,7
	11	2	,8	,8	4,5
	12	2	,8	,8	5,3
	13	1	,4	,4	5,7
	15	14	5,3	5,7	11,4
	16	3	1,1	1,2	12,6
	17	5	1,9	2,0	14,6
	19	2	,8	,8	15,4
	20	21	8,0	8,5	24,0
	21	2	,8	,8	24,8
	22	7	2,7	2,8	27,6
	23	5	1,9	2,0	29,7
	24	1	,4	,4	30,1
	25	23	8,7	9,3	39,4
	26	2	,8	,8	40,2
	27	7	2,7	2,8	43,1
	28	7	2,7	2,8	45,9
	29	1	,4	,4	46,3
	30	41	15,6	16,7	63,0
	31	1	,4	,4	63,4
	32	10	3,8	4,1	67,5
	33	3	1,1	1,2	68,7
	34	2	,8	,8	69,5
	35	21	8,0	8,5	78,0
	36	1	,4	,4	78,5
	37	6	2,3	2,4	80,9
	38	1	,4	,4	81,3
	39	1	,4	,4	81,7
	40	10	3,8	4,1	85,8
	41	1	,4	,4	86,2
	42	4	1,5	1,6	87,8
	43	3	1,1	1,2	89,0
	45	10	3,8	4,1	93,1
	46	1	,4	,4	93,5
	47	1	,4	,4	93,9
	48	1	,4	,4	94,3
	50	3	1,1	1,2	95,5
	52	1	,4	,4	95,9
	55	4	1,5	1,6	97,6
	62	1	,4	,4	98,0
	65	3	1,1	1,2	99,2
	70	1	,4	,4	99,6
	75	1	,4	,4	100,0
	Total	246	93,5	100,0	
Missing	System	17	6,5		
Total		263	100,0		

8.1 Time walking (min)

Statistics

8.1 Time walking (min)

N	Valid	190
	Missing	73
Mean		9,35
Std. Deviation		7,402

8.1 Time walking (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	4,2	5,8	5,8
	2	18	6,8	9,5	15,3
	3	3	1,1	1,6	16,8
	4	3	1,1	1,6	18,4
	5	49	18,6	25,8	44,2
	6	2	,8	1,1	45,3
	7	9	3,4	4,7	50,0
	8	4	1,5	2,1	52,1
	10	45	17,1	23,7	75,8
	12	3	1,1	1,6	77,4
	13	2	,8	1,1	78,4
	14	1	,4	,5	78,9
	15	13	4,9	6,8	85,8
	16	2	,8	1,1	86,8
	17	3	1,1	1,6	88,4
	20	11	4,2	5,8	94,2
	22	1	,4	,5	94,7
	25	5	1,9	2,6	97,4
	30	2	,8	1,1	98,4
	40	2	,8	1,1	99,5
	45	1	,4	,5	100,0
	Total	190	72,2	100,0	
Missing	System	73	27,8		
Total		263	100,0		

8.2 Time waiting for the bus (min)

Statistics

8.2 Time waiting for the bus (min)

N	Valid	187
	Missing	76
Mean		6,80
Std. Deviation		3,750

8.2 Time waiting for the bus (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	1,1	1,6	1,6
	2	7	2,7	3,7	5,3
	3	5	1,9	2,7	8,0
	5	107	40,7	57,2	65,2
	6	1	,4	,5	65,8
	7	3	1,1	1,6	67,4
	8	5	1,9	2,7	70,1
	10	45	17,1	24,1	94,1
	13	4	1,5	2,1	96,3
	15	4	1,5	2,1	98,4
	20	1	,4	,5	98,9
	25	1	,4	,5	99,5
	30	1	,4	,5	100,0
	Total	187	71,1	100,0	
Missing	System	76	28,9		
Total		263	100,0		

8.3 Time inside the bus (min)

Statistics

8.3 Time inside the bus (min)

N	Valid	209
	Missing	54
Mean		16,56
Std. Deviation		7,628

8.3 Time inside the bus (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	,4	,5	,5
	4	1	,4	,5	1,0
	5	3	1,1	1,4	2,4
	6	1	,4	,5	2,9
	7	6	2,3	2,9	5,7
	8	3	1,1	1,4	7,2
	9	1	,4	,5	7,7
	10	47	17,9	22,5	30,1
	11	1	,4	,5	30,6
	12	5	1,9	2,4	33,0
	13	5	1,9	2,4	35,4
	15	55	20,9	26,3	61,7
	17	8	3,0	3,8	65,6
	20	38	14,4	18,2	83,7
	23	2	,8	1,0	84,7
	25	10	3,8	4,8	89,5
	27	1	,4	,5	90,0
	30	12	4,6	5,7	95,7
	35	4	1,5	1,9	97,6
	37	1	,4	,5	98,1
	40	3	1,1	1,4	99,5
	50	1	,4	,5	100,0
	Total	209	79,5	100,0	
Missing	System	54	20,5		
Total		263	100,0		

8.4 Time in supplementary means of transport (min)

Statistics

8.4 Time in supplementary means of transport (min)

N	Valid	13
	Missing	250
Mean		15,85
Std. Deviation		7,925

8.4 Time in supplementary means of transport (min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	1	,4	7,7	7,7
	10	4	1,5	30,8	38,5
	13	1	,4	7,7	46,2
	15	2	,8	15,4	61,5
	18	1	,4	7,7	69,2
	20	2	,8	15,4	84,6
	25	1	,4	7,7	92,3
	35	1	,4	7,7	100,0
	Total	13	4,9	100,0	
Missing	System	250	95,1		
Total		263	100,0		

9.1.a Meet schedule importance

Statistics

9.1.a Meet schedule importance

N	Valid	241
	Missing	22
Mean		8,95
Std. Deviation		1,150

9.1.a Meet schedule importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	,4	,4	,4
	5	1	,4	,4	,8
	6	1	,4	,4	1,2
	7	19	7,2	7,9	9,1
	8	56	21,3	23,2	32,4
	9	66	25,1	27,4	59,8
	10	97	36,9	40,2	100,0
	Total	241	91,6	100,0	
Missing	System	22	8,4		
Total		263	100,0		

9.1.b Frequency importance

Statistics

9.1.b Frequency importance

N	Valid	241
	Missing	22
Mean		8,83
Std. Deviation		1,140

9.1.b Frequency importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	,4	,4	,4
	6	2	,8	,8	1,2
	7	24	9,1	10,0	11,2
	8	75	28,5	31,1	42,3
	9	45	17,1	18,7	61,0
	10	94	35,7	39,0	100,0
	Total	241	91,6	100,0	
Missing	System	22	8,4		
Total		263	100,0		

9.1.c Commuting time importance

Statistics

9.1.c Commuting time importance

N	Valid	241
	Missing	22
Mean		8,83
Std. Deviation		1,207

9.1.c Commuting time importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	4	1,5	1,7	1,7
	6	4	1,5	1,7	3,3
	7	25	9,5	10,4	13,7
	8	59	22,4	24,5	38,2
	9	52	19,8	21,6	59,8
	10	97	36,9	40,2	100,0
	Total	241	91,6	100,0	
Missing	System	22	8,4		
Total		263	100,0		

9.1.d Staff support importance

Statistics

9.1.d Staff support importance

N	Valid	241
	Missing	22
Mean		8,52
Std. Deviation		1,432

9.1.d Staff support importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	,4	,4	,4
	4	2	,8	,8	1,2
	5	7	2,7	2,9	4,1
	6	9	3,4	3,7	7,9
	7	31	11,8	12,9	20,7
	8	64	24,3	26,6	47,3
	9	46	17,5	19,1	66,4
	10	81	30,8	33,6	100,0
	Total	241	91,6	100,0	
Missing	System	22	8,4		
Total		263	100,0		

9.1.e Probability to sit importance

Statistics

9.1.e Probability to sit importance

N	Valid	243
	Missing	20
Mean		8,26
Std. Deviation		1,711

9.1.e Probability to sit importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	2	,8	,8	,8
	4	3	1,1	1,2	2,1
	5	16	6,1	6,6	8,6
	6	20	7,6	8,2	16,9
	7	30	11,4	12,3	29,2
	8	54	20,5	22,2	51,4
	9	33	12,5	13,6	65,0
	10	85	32,3	35,0	100,0
	Total	243	92,4	100,0	
Missing	System	20	7,6		
Total		263	100,0		

9.1.f Cleaning importance

Statistics

9.1.f Cleaning importance

N	Valid	241
	Missing	22
Mean		8,90
Std. Deviation		1,143

9.1.f Cleaning importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	2	,8	,8	,8
	6	7	2,7	2,9	3,7
	7	16	6,1	6,6	10,4
	8	60	22,8	24,9	35,3
	9	59	22,4	24,5	59,8
	10	97	36,9	40,2	100,0
	Total	241	91,6	100,0	
Missing	System	22	8,4		
Total		263	100,0		

9.1.g Travel pricing importance

Statistics

9.1.g Travel pricing importance

N	Valid	243
	Missing	20
Mean		9,11
Std. Deviation		1,240

9.1.g Travel pricing importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	,4	,4	,4
	4	1	,4	,4	,8
	5	4	1,5	1,6	2,5
	6	2	,8	,8	3,3
	7	9	3,4	3,7	7,0
	8	52	19,8	21,4	28,4
	9	43	16,3	17,7	46,1
	10	131	49,8	53,9	100,0
	Total	243	92,4	100,0	
Missing	System	20	7,6		
Total		263	100,0		

9.2. Satisfaction

	Satisfaction after
Timetable fulfilment	6,84
Frequency	7,23
Travel duration	6,95
Customer service	6,32
Chance to sit	6,94
Cleanliness	6,73
Price	6,15
Average	6,74

10.1 Did you know that at October of last year was been modificatied and expansioned the bus network within the project CIVITAS?

10.1 Did you know that at October of last year was been modificatied and expansioned the bus network within the project CIVITAS?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	235	89,4	89,4	89,4
	No	28	10,6	10,6	100,0
	Total	263	100,0	100,0	

10.2 Bus modification assessment (1=negative, 10=positive)

Statistics

10.2 Bus modification assessment (1=negative, 10=positive)

N	Valid	234
	Missing	29
Mean		6,97
Std. Deviation		2,363

10.2 Bus modification assessment (1=negative, 10=positive)

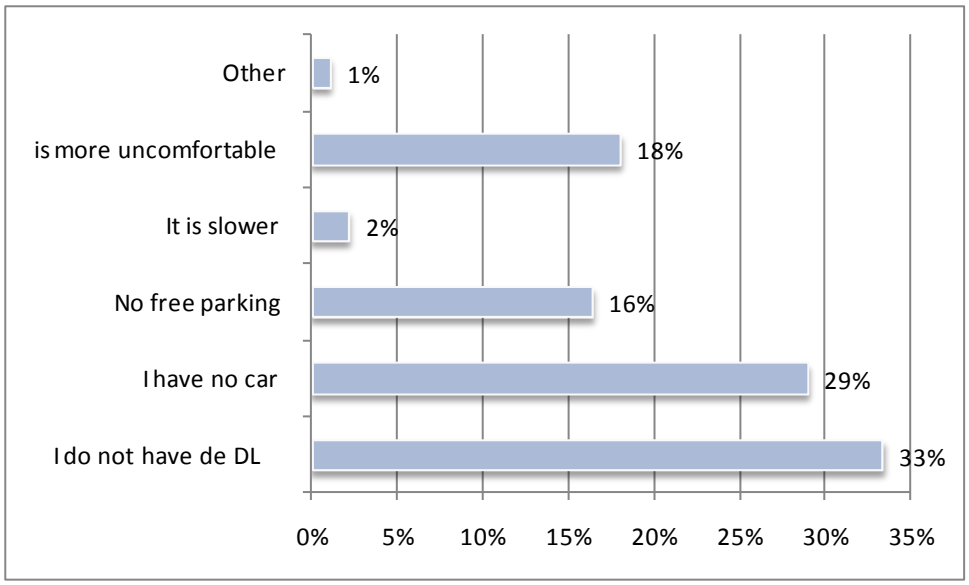
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	2,7	3,0	3,0
	2	6	2,3	2,6	5,6
	3	13	4,9	5,6	11,1
	4	10	3,8	4,3	15,4
	5	25	9,5	10,7	26,1
	6	19	7,2	8,1	34,2
	7	1	,4	,4	34,6
	7	32	12,2	13,7	48,3
	8	64	24,3	27,4	75,6
	9	19	7,2	8,1	83,8
	10	38	14,4	16,2	100,0
	Total	234	89,0	100,0	
Missing	System	29	11,0		
Total		263	100,0		

Before the remodeling, wich way was using to do this displacement?

Before the remodeling, wich way was using to do this displacement?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tramway	1	,4	,5	,5
	Car	29	11,0	15,1	15,6
	On food	14	5,3	7,3	22,9
	Bicycle	4	1,5	2,1	25,0
	Bus	144	54,8	75,0	100,0
	Total	192	73,0	100,0	
Missing	System	71	27,0		
Total		263	100,0		

11. Why you have not used the car for this trip?



12. Sex

12. Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	51	19,4	21,3	21,3
	Female	188	71,5	78,7	100,0
	Total	239	90,9	100,0	
Missing	System	24	9,1		
Total		263	100,0		

13. Age

Statistics

13. Age

N	Valid	252
	Missing	11
Mean		47,83
Std. Deviation		17,711

Measure title: **New Public Transport Network**

City: **Vitoria-Gasteiz** *Project:* **Civitas Modern** *Measure number:* **02.01**

13. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12	1	,4	,4	,4
	14	2	,8	,8	1,2
	16	1	,4	,4	1,6
	17	3	1,1	1,2	2,8
	18	1	,4	,4	3,2
	19	1	,4	,4	3,6
	20	3	1,1	1,2	4,8
	21	3	1,1	1,2	6,0
	22	1	,4	,4	6,3
	23	2	,8	,8	7,1
	24	4	1,5	1,6	8,7
	25	3	1,1	1,2	9,9
	26	4	1,5	1,6	11,5
	27	5	1,9	2,0	13,5
	28	4	1,5	1,6	15,1
	29	5	1,9	2,0	17,1
	30	9	3,4	3,6	20,6
	31	4	1,5	1,6	22,2
	32	8	3,0	3,2	25,4
	33	6	2,3	2,4	27,8
	34	6	2,3	2,4	30,2
	35	2	,8	,8	31,0
	36	2	,8	,8	31,7
	37	2	,8	,8	32,5
	38	4	1,5	1,6	34,1
	39	2	,8	,8	34,9
	40	6	2,3	2,4	37,3
	41	1	,4	,4	37,7
	42	6	2,3	2,4	40,1
	43	5	1,9	2,0	42,1
	44	4	1,5	1,6	43,7
	45	8	3,0	3,2	46,8
	46	9	3,4	3,6	50,4
	47	11	4,2	4,4	54,8
	48	4	1,5	1,6	56,3
	49	1	,4	,4	56,7
	50	4	1,5	1,6	58,3
	51	2	,8	,8	59,1
	52	3	1,1	1,2	60,3
	53	6	2,3	2,4	62,7
	54	5	1,9	2,0	64,7
	55	5	1,9	2,0	66,7
	56	1	,4	,4	67,1
	57	3	1,1	1,2	68,3
	58	3	1,1	1,2	69,4
	59	2	,8	,8	70,2
	60	3	1,1	1,2	71,4
	61	2	,8	,8	72,2
	62	2	,8	,8	73,0
	63	1	,4	,4	73,4
	64	2	,8	,8	74,2
	65	4	1,5	1,6	75,8
	66	5	1,9	2,0	77,8
	67	9	3,4	3,6	81,3
	68	5	1,9	2,0	83,3
	69	1	,4	,4	83,7
	70	10	3,8	4,0	87,7
	71	5	1,9	2,0	89,7
	72	7	2,7	2,8	92,5
	73	3	1,1	1,2	93,7
	75	3	1,1	1,2	94,8
	76	3	1,1	1,2	96,0
	77	2	,8	,8	96,8
	78	1	,4	,4	97,2
	81	2	,8	,8	98,0
	82	3	1,1	1,2	99,2
	83	1	,4	,4	99,6
	84	1	,4	,4	100,0
	Total	252	95,8	100,0	
Missing	System	11	4,2		
Total		263	100,0		

14.a Current profession class

Statistics

14.a Current profession class

N	Valid	220
	Missing	43
Mean		3,08
Std. Deviation		1,551

14.a Current profession class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-qualified worker	41	15,6	18,6	18,6
	Qualified worker	41	15,6	18,6	37,3
	Unemployed	57	21,7	25,9	63,2
	Pensioner	49	18,6	22,3	85,5
	Freelance/Shopkeeper	7	2,7	3,2	88,6
	Student	22	8,4	10,0	98,6
	Director/Businessman	3	1,1	1,4	100,0
	Total	220	83,7	100,0	
Missing	System	43	16,3		
Total		263	100,0		