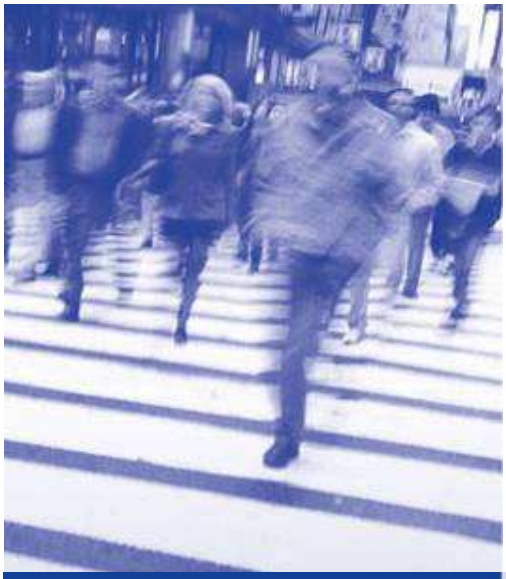

CiViTAS
Cleaner and better transport in cities

ARCHIMEDES
AALBORG • BRIGHTON & HOVE • DONOSTIA - SAN SEBASTIÁN • IAŞI • MONZA • ÚSTÍ NAD LABEM

Donostia – San Sebastian

R46.1 Road Safety Studies in Donostia – San Sebastian

Donostia – San Sebastian

April 2010

THE CIVITAS INITIATIVE
IS CO-FINANCED BY THE
EUROPEAN UNION

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Contents

1. Introduction

1.1 Background CIVITAS

CIVITAS - cleaner and better transport in cities - stands for CIty-VITAlity-Sustainability. With the CIVITAS Initiative, the EC aims to generate a decisive breakthrough by supporting and evaluating the implementation of ambitious integrated sustainable urban transport strategies that should make a real difference for the welfare of the European citizen.

CIVITAS I started in early 2002 (within the 5th Framework Research Programme);
CIVITAS II started in early 2005 (within the 6th Framework Research Programme) and
CIVITAS PLUS started in late 2008 (within the 7th Framework Research Programme).

The objective of CIVITAS-Plus is to test and increase the understanding of the frameworks, processes and packaging required to successfully introduce bold, integrated and innovative strategies for clean and sustainable urban transport that address concerns related to energy-efficiency, transport policy and road safety, alternative fuels and the environment.

Within CIVITAS I (2002-2006) there are 19 cities clustered in 4 demonstration projects, within CIVITAS II (2005-2009) 17 cities in 4 demonstration projects, whilst within CIVITAS PLUS (2008-2012) 25 cities in 5 demonstration projects are taking part. These demonstration cities all over Europe will be funded by the European Commission.

Objectives:

- to promote and implement sustainable, clean and (energy) efficient urban transport measures
- to implement integrated packages of technology and policy measures in the field of energy and transport in 8 categories of measures
- to build up critical mass and markets for innovation

Horizontal projects support the CIVITAS demonstration projects & cities by :

- Cross-site evaluation and Europe wide dissemination in co-operation with the demonstration projects
- The organisation of the annual meeting of CIVITAS Forum members
- Providing the Secretariat for the Political Advisory Committee (PAC)
- Development of policy recommendations for a long-term multiplier effect of CIVITAS

Key elements of CIVITAS

- CIVITAS is co-ordinated by cities: it is a programme “of cities for cities”
- Cities are in the heart of local public private partnerships
- Political commitment is a basic requirement
- Cities are living ‘Laboratories' for learning and evaluating

1.2 Background ARCHIMEDES

ARCHIMEDES is an integrating project, bringing together 6 European cities to address problems and opportunities for creating environmentally sustainable, safe and energy efficient transport systems in medium sized urban areas.

The objective of ARCHIMEDES is to introduce innovative, integrated and ambitious strategies for clean, energy-efficient, sustainable urban transport to achieve significant impacts in the policy fields of energy, transport, and environmental sustainability. An ambitious blend of policy tools and measures will increase energy-efficiency in transport, provide safer and more convenient travel for all, using a higher share of clean engine technology and fuels, resulting in an enhanced urban environment (including reduced noise and air pollution). Visible and measurable impacts will result from significantly sized measures in specific innovation areas. Demonstrations of innovative transport technologies, policy measures and partnership working, combined with targeted research, will verify the best frameworks, processes and packaging required to successfully transfer the strategies to other cities.

1.3 Participant Cities

The ARCHIMEDES project focuses on activities in specific innovation areas of each city, known as the CIVITAS corridor or zone (depending on shape and geography). These innovation areas extend to the peri-urban fringe and the administrative boundaries of regional authorities and neighbouring administrations.

The two Learning cities, to which experience and best-practice will be transferred are Monza (Italy) and Ustí nad Labem (Czech Republic). The strategy for the project is to ensure that the tools and measures developed have the widest application throughout Europe, tested via the Learning Cities' activities and interaction with the Lead City partners.

1.3.1 Leading City Innovation Areas

The four Leading cities proposed in the ARCHIMEDES project are:

- Aalborg (Denmark);
- Brighton & Hove (UK);
- Donostia-San Sebastian (Spain); and
- Iasi (Romania).

Together the Lead Cities in ARCHIMEDES cover different geographic parts of Europe. They have the full support of the relevant political representatives for the project, and are well able to implement the innovative range of demonstration activities proposed.

The Lead Cities are joined in their local projects by a small number of key partners that show a high level of commitment to the project objectives of energy-efficient urban transportation. In all cases the public transport company features as a partner in the proposed project.

2. Donostia – San Sebastian

The city of Donostia -San Sebastian overlooks the sea and, with a bit more than 180,000 inhabitants, keeps a human scale. Some people consider the balanced combination of small mountains, manor buildings, and sea as the setting for one of the most beautiful

cities in the world. We have a tradition in favouring pedestrians, cyclists and public transport.

For about twenty years, the city has been enforcing a strong integrated policy in favour of pedestrians, bicycles and public transport. Considering walking and cycling as modes of transport, has led to the building of a non-motorised transport network for promoting this type of mobility around the city.

Likewise, the city has extended its network of bus lanes. The city holds one of the higher bus-riding rates, with around 150 trips per person per year.

2.1 Objectives in CIVITAS

The CIVITAS project is a perfect opportunity to expand our Sustainable Urban Transport Strategy. With the package of CIVITAS measures Donostia-San Sebastian wants to:

- Increase the number of public transport users
- Decrease the number of cars entering in the city centre
- Increase the use of the bicycle as a normal mode of transport
- Maintain the high modal share of walking
- Reduce the number of fatal accidents and accidents with heavy injuries
- Reduce the use of fossil fuels in public transport.

3. Background to the Deliverable

This deliverable (R46.1) is related to measure 46 of the CIVITAS ARCHIMEDES project, which covers Safe Districts and 30 Kilometre Zones in Donostia - San Sebastián.

The measure is aimed at increasing road safety by reducing the average speed of motorised vehicles and providing safe crossing points for pedestrians and cyclists. This is an innovative measure that takes advantage of the opportunity made available by recent changes to Spanish law regarding 30 kilometre per hour zones.

The measure covers two tasks:

- A research task, including a review of best practice to prepare the designs for all the road safety demonstration elements implemented in the Donostia - San Sebastián as part of CIVITAS ARCHIMEDES, namely.
  - Safe districts and 30 kilometre zones;
  - Road safety pact with the citizens; and
  - Installation of radar systems.
- Implementation of Safe districts and 30 kilometre zones (the other safety related actions are to be implemented in measure 47).

3.1 Summary Description of the Task

Task 11.5.2 (Road Safety Studies) consists of the development of the plans necessary for the following three road safety actions in the Donostia – San Sebastián CIVITAS Plus corridor, including a summary of the best practices necessary for preparing the designs (implementation is not included in this research and planning task.)

- Firstly, the project for implementing the so-called safe districts and 30 kph zones at different points of the city. These zones are a support for the coexistence of motor vehicles, pedestrians and bicycles and an incentive for the more sustainable modes

by givin them greater status locally. It is likely that in the not too distant future, pedestrians and bicycle traffic will increase to form a significant proportion of the total.

- Secondly, the City Council's fulfilment of the Civic Road Safety Pact, involving the organisations most relevant to local mobility actcivities and represneting different groups of society. The measures to be taken are fairly specific and require the involvement of different actors from within the city. 30 different associations have participated in the development of the Civic Road Safety Pact.
- Finally, the study of the installation of a radar network in the city of the city of Donostia - San Sebastián for improving road safety.

The relevant follow-up is also considered in the studies, providing input to the evaluation plan, so that maximum transfer of the results is attained.

4. Road Safety Studies

4.1 Introduction

The new mobility culture means the expressions of our present lifestyle and culture - which in practice mean dependence on cars and motorised vehicles - must be reviewed. If we do not encourage a new mobility culture we will never be able to open up paths to reducing our dependence on cars and other non-sustainable means of transport. The three aspects included in Task 11.5.2 are based on different issues that have previously been developed in Donostia-San Sebastián, in its commitment to and development of sustainable mobility.

The need for encouraging means of mobility other than private cars was already discussed in the 2010 Strategic Plan for the city of Donostia - San Sebastián, objective D.1, strategy D.1.2 "Configuring an integrated, sustainable, metropolitan-scale transport system, promoting public transport and alternatives to private cars". Sustainability is a concept that must not be overlooked in the future, and it will be linked to mobility whether we like it or not.

With respect to 30 kph zones, apart from the strategies of creating a network of cycle paths and pedestrianising / traffic calming in the city, an initial attempt has already been made on several roads in the Gros district with a view to achieving predominance of sustainable forms of mobility over non-sustainable ones. This policy is continuing with measures such as the planning and construction of additional kilometres of cycle paths and the promotion of vertical transport in the city. This will inevitably support the increased use of means of transport other than cars and motorcycles.

As regards the Civic Road Safety Pact, the Donostia-San Sebastián Road Safety Strategy was published in 2004, as the first step towards drawing up the 2006-2009 Road Safety Plan. With the new Pact, the idea is to take a step further and generate a participatory process for renewing the plan's lines of action, which will mean road safety commitment from the citizens and mobility agents.

Developing a sustainable mobility policy to promote the use of less dangerous means of transport (pedestrians and bicycles) and public transport - which is the means of motorised transport with the lowest risk – also allows comprehensive road safety targets to be attained. So, even if the measures taken are perceived as being apparently

unconnected, all of them are or should be coordinated and geared towards improving mobility in the city and the safety of its residents.

Lastly, the installation of speed cameras in the city, despite being an undesirable measure in many ways; for reasons such as the citizens' belief that it is clearly a fine-collection measure or the expense and maintenance costs this equipment implies for the municipality, it has been acknowledged as a necessary measure due to the frequent accidents occurring as a result of the failure to observe the speed limits in several areas of the city. The first speed camera was installed in the Paseo de la Concha and it led to a notable reduction in the speed of vehicles on this road. At present, roads such as Avenida José Elosegi, Calle Sibilia or Avenida de Tolosa, where two of the radars will be installed, are among the city's main accident black spots and it is clear that speed is the reason behind most of these accidents.

4.2 Description of the Work Done

4.2.1 30 Zones

The integration of the aforementioned lines of work with traffic coexistence projects, including the creation of environmental areas and reduced speed limits, was almost a natural step in the traffic calming process. Each of these practices meets with feasibility and efficiency problems in certain urban contexts. The cost and the rigidity of the system, together with heavy maximum traffic flows, make it difficult for coexistence roads to be created; the traditional approach to environmental areas does not solve the problem of traffic speed within them; and speed limit regulations have been seen to be not observed unless changes are made to the road's characteristics.

In pursuit of more extensive, more flexible and less costly solutions, the implicit integration of these three pre-existing practices gave rise to the creation of so-called '30 areas' or '30 zones', i.e. roads or areas in which traffic speed is limited to 30 kilometres an hour and where there is a road design that helps to oblige compliance with this regulation. This road category initially included some districts where it was only speed limit signage that marked and encouraged the 30 zone. However, due to the low traffic calming efficiency of this option, the possibility of including this formula as a genuine 30 kph zone had to be ruled out, with the concept being reserved for areas in which physical road design measures are implemented in addition to signage.

The entire range of traffic calming options was tested out under the designation of "30 kph zone", from total road redesign with a view to traffic coexistence to merely installing vertical traffic signs indicating the speed limit. The pioneer countries were Denmark and Holland, the latter passing specific legislation for application of the zones in 1983.

In the Dutch 30 kph zone model the pedestrians cannot freely use the entire area between buildings but they continue to have considerable freedom and ease of movement as they can cross the road wherever they like. Devices for reducing motorised traffic speed make use of the experience obtained in the coexistence areas, although in this case the project designers have more room for choice. The maximum traffic intensities permitted in them are 200 vehicles at rush hour for the ordinary roads in the area, with the recommendation that 400 vehicles should not be exceeded at rush hour on the access roads to the area. This new road management formula has been extremely successful. In the late 1980s, practically all municipalities in Holland had at least one area of this kind and the possibilities for their expansion were still huge

(Loiseau-van Baerle, 1991, de Wit, 1993), while in 2002, 50% of the residential streets in the whole country were 30 kph zones (SWOV, 2004).

In the 1980s, 30 kph zones became extensive in central Europe and Scandinavia and were gradually extending to the other European countries. Germany was perhaps the country that most enthusiastically welcomed and extended the 30 kph zones at the outset, particularly after their official acceptance as a road management formula; an acknowledgement which was made provisionally in 1985 and definitively in 1990. By 1993, in the federal state of North Rhine-Westphalia alone there were 15,000 areas of this type or with stricter limitations (Kniola, 1993).

In 1991 a number of German cities such as Heidelberg or Freiburg had 30 kph zones in all their residential areas, with the only exception of main roads (McClintock, 1992). A similar situation occurred in the city of Zurich, Switzerland, in 1995, where the 30 kph zone concept had previously been extended to an entire urban district (Stadtplanungsamt, s.f.). At present, a large number of European cities such as Graz (Austria) and Stockholm (Sweden) have turned the entire road network into 30 kph zones, except for main roads - 60-80% of the total roads. This possibility of extending the 30 kph zones to the whole network of residential areas or to entire districts in a city increases the capacity for a change of mobility model in these areas, dispelling the possibility of the conflicts being diverted to the edges of the re-planned areas.

In Donostia–San Sebastián the 30 kph zones will be in areas of the city in which, for different reasons, it is difficult to exceed this speed, or where it is a hazard for coexistence. The aim is to promote the coexistence of the four main mobility actors: pedestrians, public transport, bicycles and motor vehicles. Naturally the priority will be to favour sustainable transport as far as possible, so that noise and emissions can be reduced. Another of the main objectives, in conjunction with the Road Safety Pact, will be to promote safety and reduce the accident rate.

The entry signage will be sufficiently clear for the people entering the areas to be aware that they are in a 30 kph zone. The project is sufficiently ambitious for these objectives to be attained in the areas it is established in.

4.2.2 Civic Road Safety Pact

As a result of the human body's vulnerability to traffic accidents, Donostia-San Sebastián City Council is currently holding a series of meetings with the city's social agents involved in all aspects of mobility, with a view to reaching a series of general agreements for improving road safety in the city.

Thirty associations of different types (political parties, professional associations of caterers and traders, taxi companies, public car park promoters, residents' associations, the Chamber of Commerce, the School of Architecture, the Architects' Association, etc.) are currently taking part in drawing up the plan.

The pact is structured around the following general lines:

- Public road design
- Road safety education
- Post-accident care
- Conditioning and services
- Monitoring and Control
- Communication and Campaigns

- Development of the municipal policy for sustainable mobility
- Specific action for accident black spot roads

As part of this process, conducted by the Mobility Department of the Donostia–San Sebastián City Council, contributions have been made by the various participants in the meetings. The organisations invited to take part were actively involved in the meetings, and contributions were also made regarding the text of the pact.

4.2.3 Speed Camera Installation

As we have already mentioned, the installation of speed cameras is a measure that is unpopular with many drivers, but has been considered necessary in different areas of the city as a result of vehicles speeding in these areas.

A network of 6 speed cameras has been installed in the city (in Avenida de Tolosa, Calle Doctor Begiristain, Calle Fernando Sasiain, Paseo Otxoki, Calle Sibilia and Avenida José Elosegi), in addition to the one already installed in Paseo de la Concha. It is considered the most suitable measure for preventing accidents and accident black spots. All the areas the speed cameras have been installed in are of a high residential density. There are different social facilities in some of the areas such as elderly people's homes, children's play parks, study centres or university buildings, and some of them are traditional areas for strolls where fatal accidents have occurred in recent years. The areas have been chosen in accordance with the recommendations of the Municipal Police and the residents of the districts themselves.

Resident involvement has been of key importance for the installation of the speed cameras. Despite the fact that the speed cameras are a clearly unpopular measure for drivers, the residents have actually asked for more of them to be installed. The exact spots where they have been installed are those where the highest number of speeding offences have been recorded.

4.3 30 ZONES

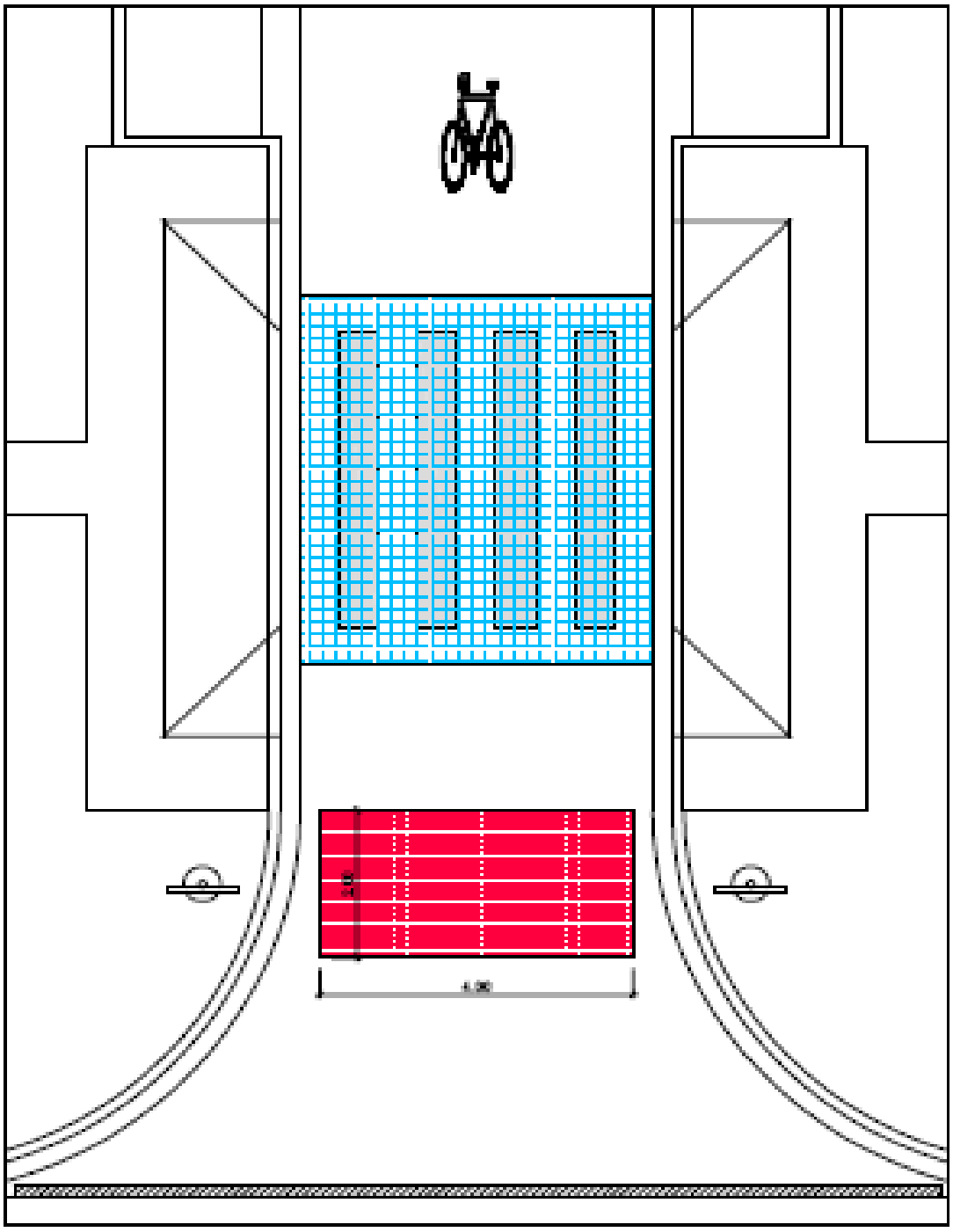
The 30 kph zone intervention basically consists of creating access and exit roads to them from the main road network, creating "gates" for subsequent installation of the corresponding regulatory traffic signs for entering and leaving the 30 kph zone. To make the entry points more noticeable, a stainless steel gate has been designed, consisting of a tree well and two side posts, to which the specific vertical traffic sign is attached. The steel tree well contains an actual tree pit in which a bay laurel tree is planted.

Additionally, the entry points will have:

- a stretch of lowered kerb extending across the road to indicate the change of zone,
- a stripe marked in red paint perpendicular to the traffic flow direction as signage on the road surface,
- a section of cobbled effect tarmac, either on the zebra crossing or between the studded strips on the pedestrian crossings controlled by traffic lights, in order to produce a rumble effect in passing vehicles.

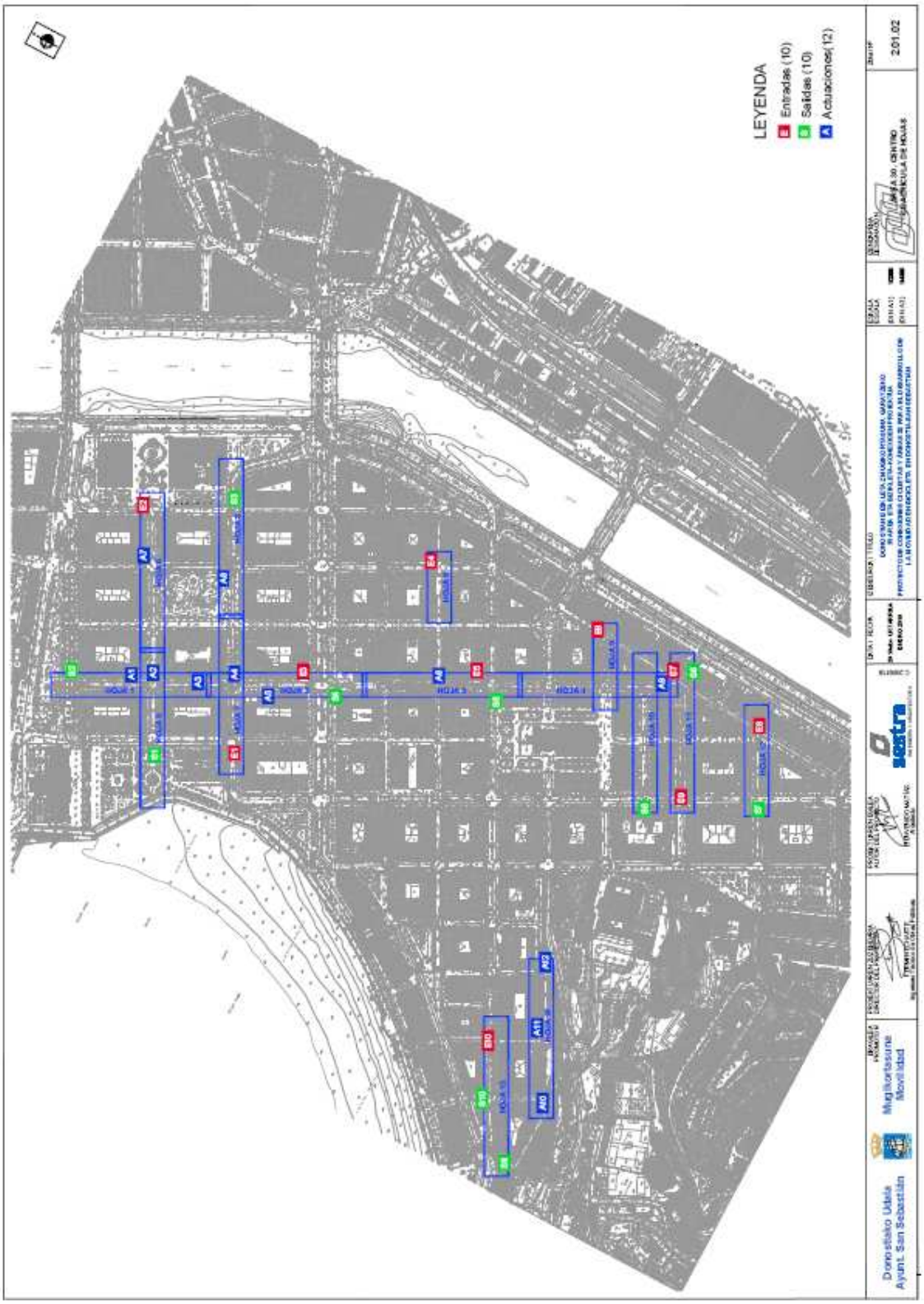
The intermediate zebra crossings will be signalled with a printed strip on the asphalt, which the drivers will see before they drive over it so that they will reduce their speed and remember they are driving through a 30 kph zone. The road marking will reinforce the 30 kph speed limit imposed and remind drivers of the presence of bicycles on the road.

If the road in question is used by public transport, as is the case with Calle Matía, no raised traffic calming features will be installed on the pedestrian crossings so as not to interfere with bus transit.



ACTUACIÓN DE ENTRADA AL AREA 30

A) 30 ZONE IN THE CITY CENTRE


LEYENDA
Entradas (10)
Salidas (10)
Actuaciones(12)
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The project consists of implementing 30 kph zones through traffic calming measures in the Donostia - San Sebastián city centre, more specifically in the following areas bounded by main roads:

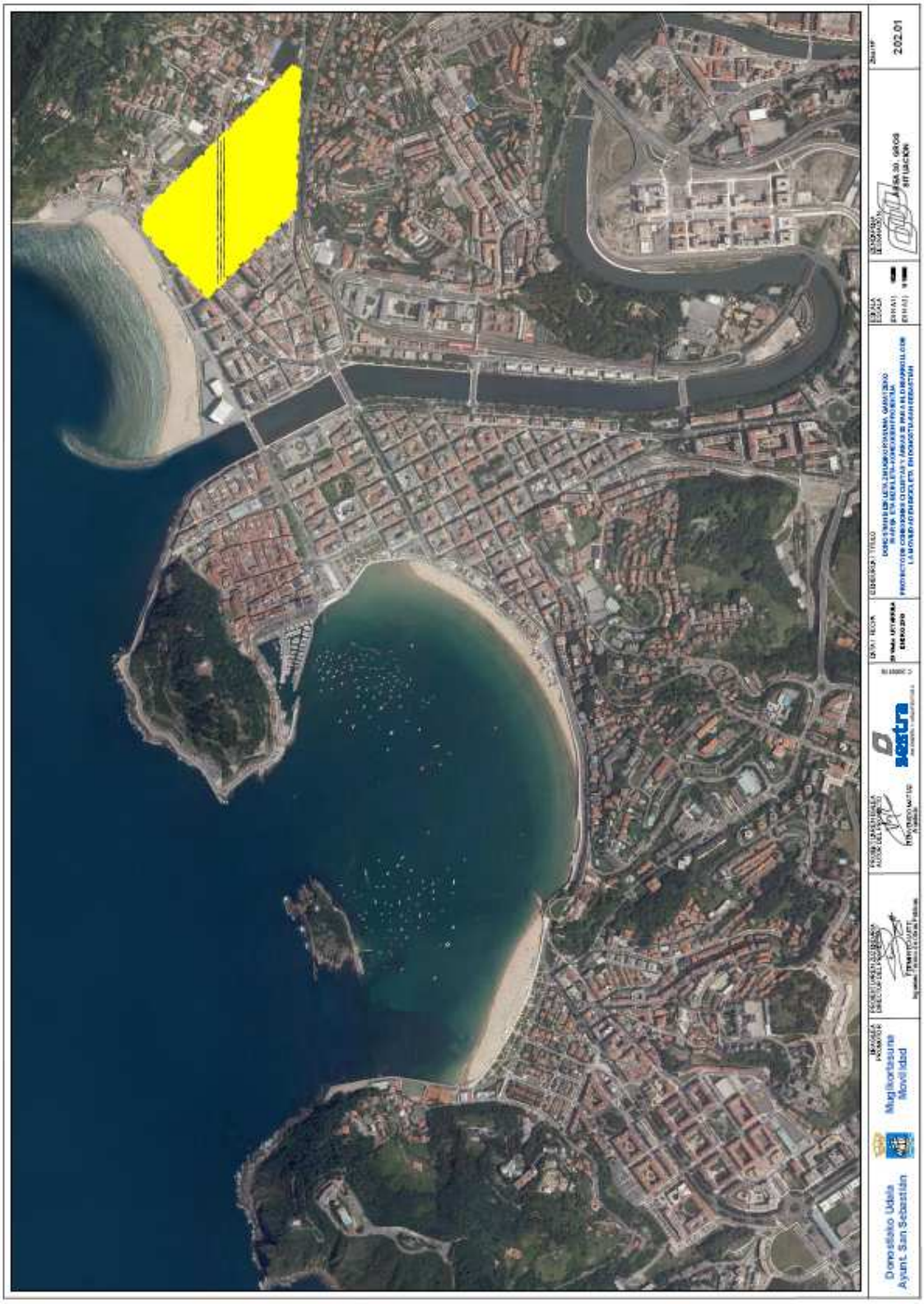
- 30 zone 1: a triangular area bounded by Calles Urbieta, Prim and San Martín. The project includes work on Calles Larramendi, Moraza, Fuenterrabía and Reyes Católicos.
- 30 zone 2: bounded by Calles Libertad, Hernani, Boulevard and Okendo. The project includes work on Calles Garibai, Hernani, Andía, Peñaflorida and Bengoetxea.
- 30 zone 3: bounded by Calles Easo, San Martín and San Bartolomé. The project includes work on Calles Lertsundi, Marina and San Bartolomé.

This action will be accompanied by significant measures such as the new Cervantes car park and the subsequent building of a residential area here. It is also linked to the plans for building additional kilometres of cycle paths.

B) GROS

The project consists of implementing 30 kph zones through traffic calming measures in the Gros district. Although some work of this type has already been done in the district, it has not been sufficient in view of the present traffic situation, and the behaviour of pedestrians and cyclists is not as anticipated in a 30 kph zone. The current idea is to modify the road users' behaviour with a much more ambitious intervention project.

The 30 kph areas will be bounded by the following main roads: Avenida de Navarra, Calle Ategorrieta, Gran Vía, Calle Secundino Esnaola and Paseo de Colón. Two 30 kph zones will thus be generated along Calle Secundino Esnaola. The project also includes work on Calles Segundo Izpizua, Birmingham, José María Soroa, José Arana, Claudio Delgado, Marino Tabuyo and Rentería.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Donostiako Udala
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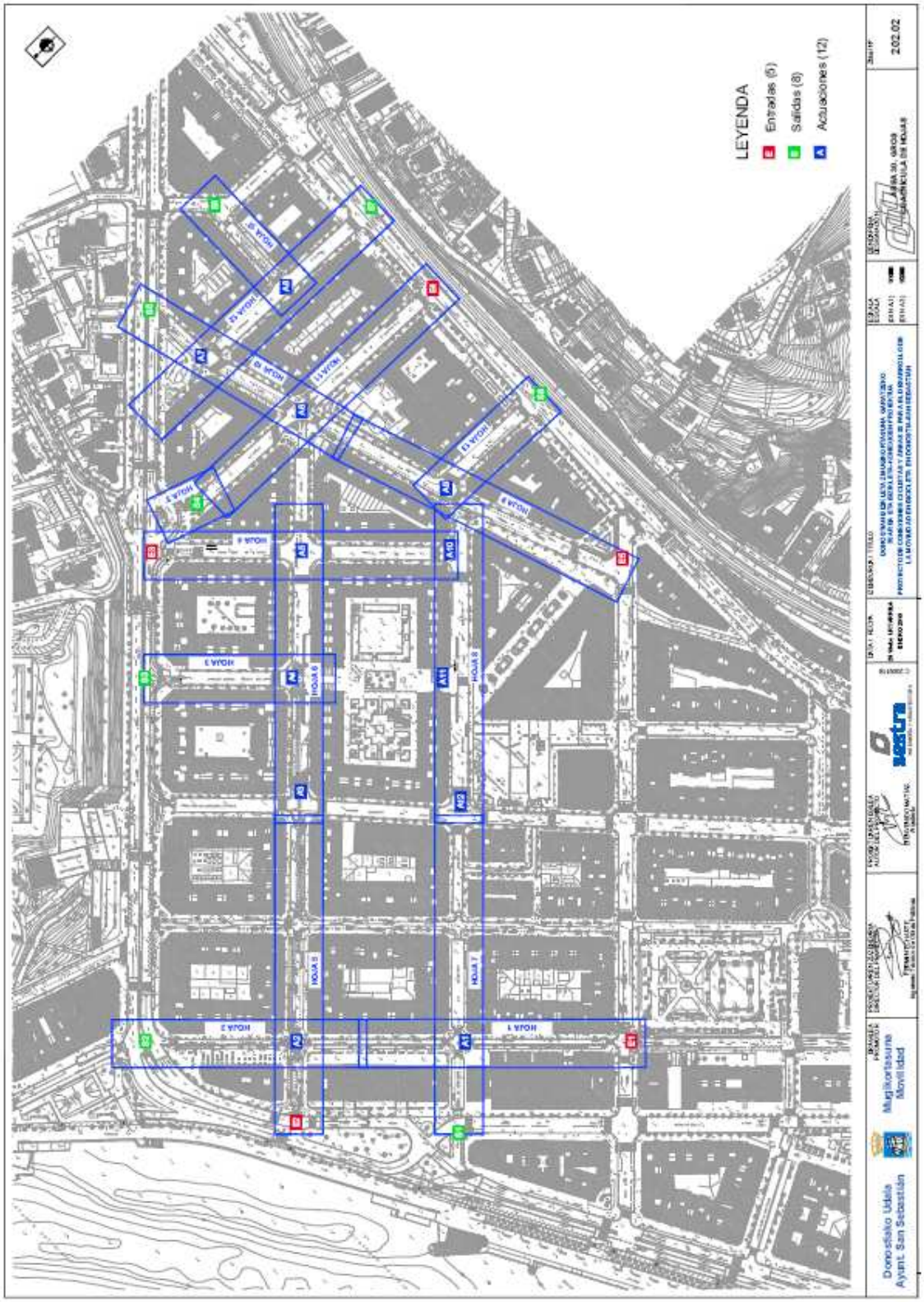
Mugikortasuna
Movilidad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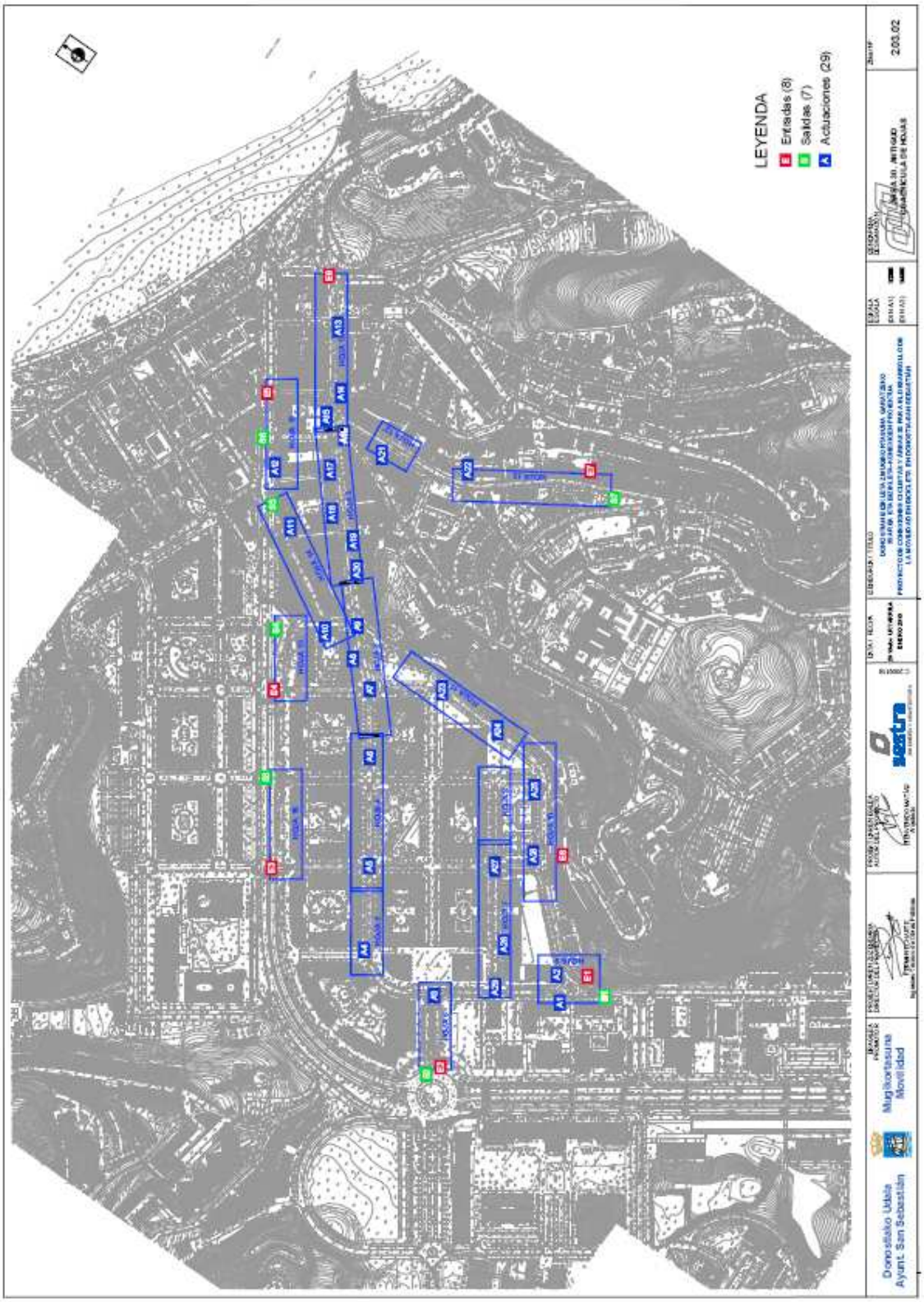
Entradas (6)
Salidas (8)
Actuaciones (12)
202.02
Donostiako Udala
Ayunt. San Sebastián

C) ANTIGUO


LEYENDA
Entradas (8)
Salidas (7)
Actuaciones (29)
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Donostiako Udala
Ayunt. San Sebastián
Mugikortasuna
Movilidad

The project consists of implementing 30 kph zones through traffic calming measures in the Antiguo district of Donostia - San Sebastián, in the flat area located south-east of the axis formed by Avenida de Zumalacárregui and Avenida de Tolosa. Calle Matía and the stretch of Avenida de Zarautz until it joins Calle Resurrección María de Azkue will form part of the 30 kph zone. The project also includes work on Calles Matía, Sukia, Ondarbide, Serrano Anguita, Maestro Guridi, Juan de Garay, Bentaberri, Karmelo Etxegarai, Antonio Arzak, Antonio Gaztañeta, Elías Salaberria, Resurrección María de Azkue, Bertsolari Xalbador and Paseo de Heriz. If the road in question is used by public transport, as is the case for Calle Matía, the pedestrian crossings will not have any raised traffic calming features so as not to interfere with bus transit.

4.4 Speed Cameras

5 new speed camera boxes have been installed in the city of Donostia–San Sebastián.

Each location differs with regard to the characteristics of the surrounding area and the reasons for its installation. The location of the present radars and the possibility of future radar installations were decided after having studied the traffic problems in the area, the accident rate data and the technical feasibility.

It may come as a surprise that no devices of this type have been installed on some of the roads with the highest accident rate (Calle San Martín, Avenida de la Libertad, Calle Urbieta or Calle Easo). The reason is that the main reasons for accidents occurring on these roads is not in fact vehicle speeding but other factors such as the high traffic density or the large number of pedestrians. It has also been taken into account that many of the areas in which the speed cameras have been installed are areas with few traffic lights, meaning coercive measures need to be taken.

It is an obvious and well-known fact that these speed cameras can be easily disabled by painting the transparent area of the box. Cleaning and anti-vandalism measures are therefore included in the camera maintenance contract.

The technology of the camera installed on Avenida José Elósegi is different from that of the others, and its function is to detect vehicles driving through a red light on the pedestrian crossing it is installed on. It does not measure the speed the vehicles are travelling at as the other cameras do.

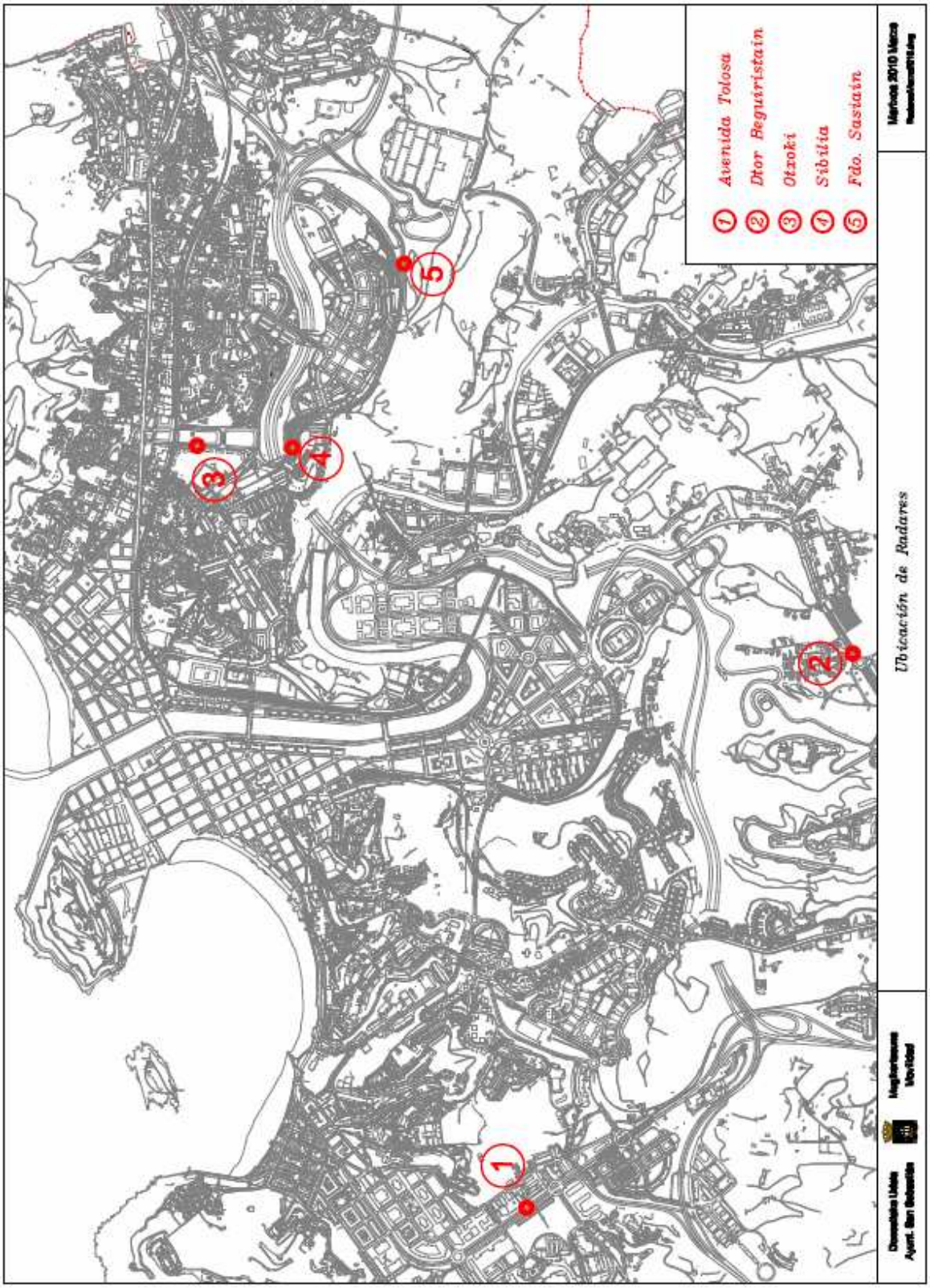
In any case, a clear trend towards a decrease in the number of such accidents occurring has been observed over the last few years. We expect the installation of these speed cameras to bring about a significant reduction in the numbers shown above.

Roads with the highest number of accidents. Number of accidents with injuries recorded on the ten roads with the highest annual accident rate in Donostia.

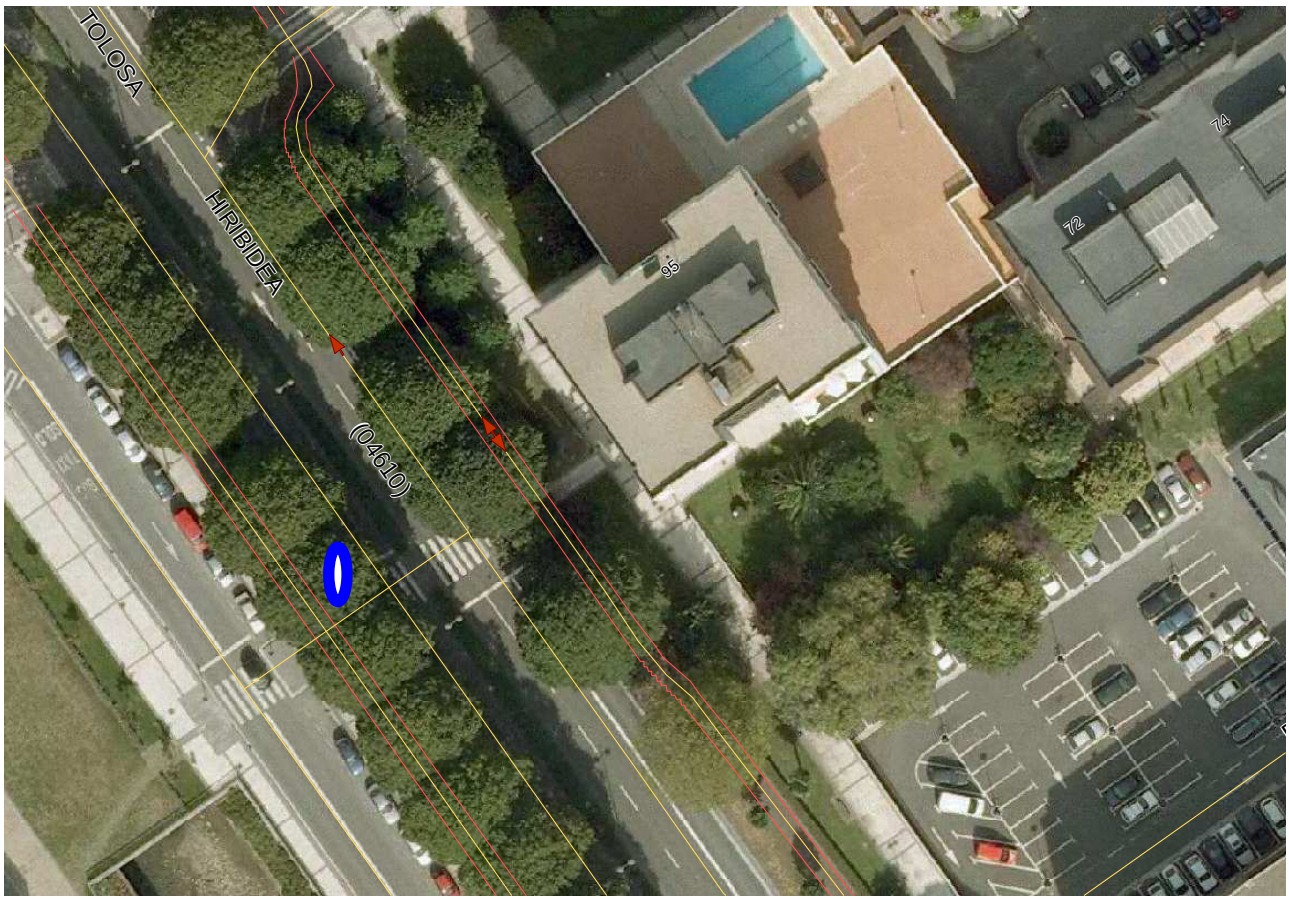
Road	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
San Martín	46	52	27	26	23	16	24	28	26	20	30	317
Avenida de la Libertad	23		16		11	15	19	17	21	17	21	160
Urbieta	16	21	21	23	17	17	12			18	12	157
Easo	14											14
José Elósegui	64	73	53	18	42	49	40	43	29	32	37	480
Ategorrieta			23		19	25	24	19		19	29	158
Avenida Navarra		23	26	18		14	18	14	22		14	149
Avenida de Tolosa	26	37	37	34	17	20	20	13	14	14	16	248
Doctor Beguiristain	20	33	25	18	23	33	25	29	25	29	16	276
Avenida Zumalacárregui			23									23
Paseo Errondo		20		19	17	16		14	22		12	120
Avenida de Madrid	10	11										21
Garbera	40	25	29									94
Autovía de Loyola	19											19
Plaza Pío XII		8										8
Plaza Aita Donosti				18								18
Avenida de la Zurriola				29			17			14	15	75
Paseo de Vizcaya				17								17
Riberas de Loyola					17				13			30
Avenida Pasajes de San Pedro					15							15
Paseo Martutene						16	12	13	13	12		66
Paseo de Colón								17				17
Sibilia									14			14
Sancho el Sabio										13		13
Number of accidents with injuries on the accident black spot roads	278	303	280	220	201	221	211	207	198	188	202	2509
Number of accidents with injuries on all the roads	1031	1112	952	877	734	747	748	781	701	760	729	9172
Percentage of accidents with injuries occurring on the 10 highest accident rate roads for each year, over the total.	27.0 %	27.2 %	29.4 %	25.1 %	27.4 %	29.6 %	28.2 %	26.5 %	28.2 %	24.7 %	27.7 %	27.3%

Source: Municipal Police.

The map on the next page shows the current and future camera locations. (The speed camera in Paseo de La Concha is not included as it had already been installed before this programme began.)


Avenida Tolosa
Dtor Beguiristain
Otzoki
Sibilia
Fdo. Sastain
1
2
3
4
5
Ubicación de Radares

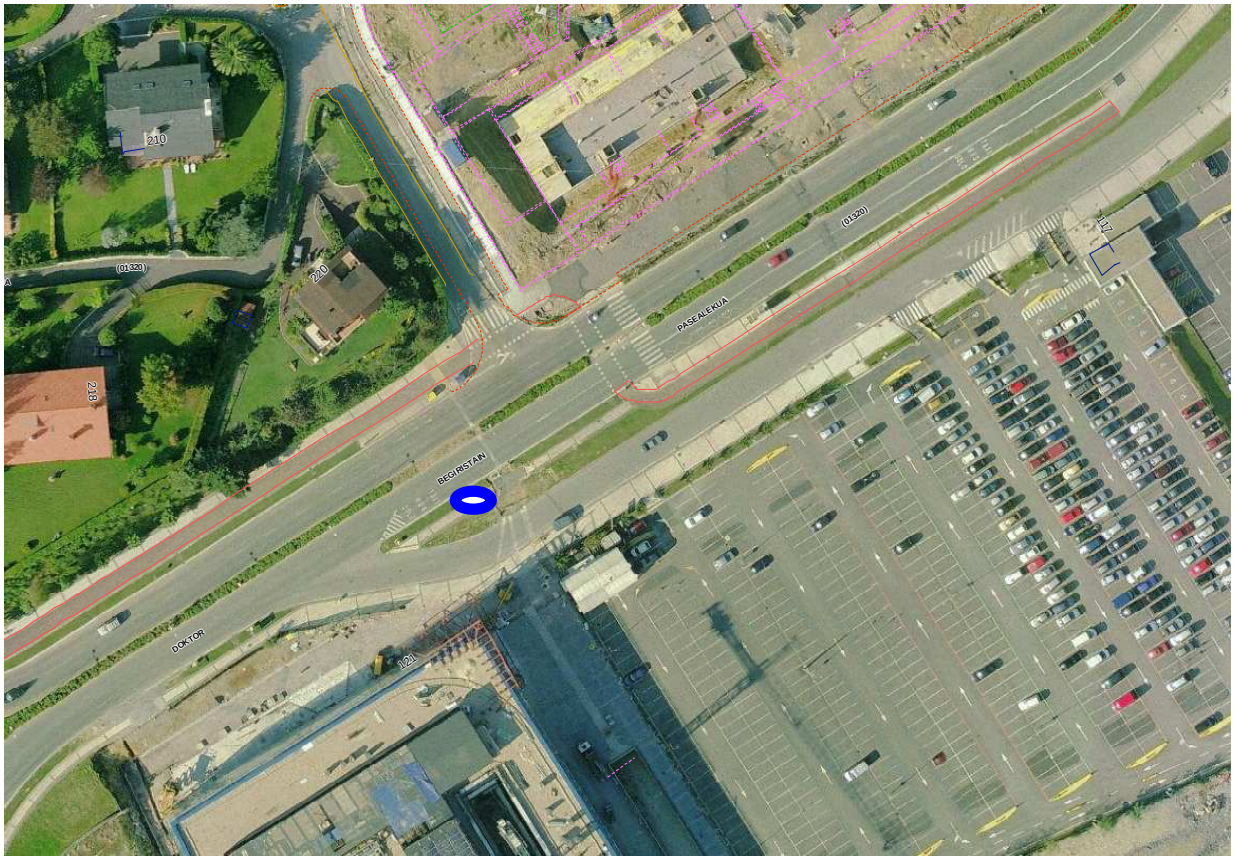
A) Avenida de Tolosa



Located in a high-density residential area, Avenida de Tolosa is the city's main exit route towards the west. The road's characteristics (this section of the road is totally straight) mean some vehicles can amply exceed a speed of 80 kph. There are several university buildings nearby belonging to two different universities (the University of the Basque Country and the University of Navarra), two research centres, two schools and a kindergarten.

Most of the zebra crossings have traffic lights, but even so, as we have already mentioned, the speeds reached by vehicles are quite high. The speed camera is located on the city's exit route. The speeds are higher on this road than on the city entry road.

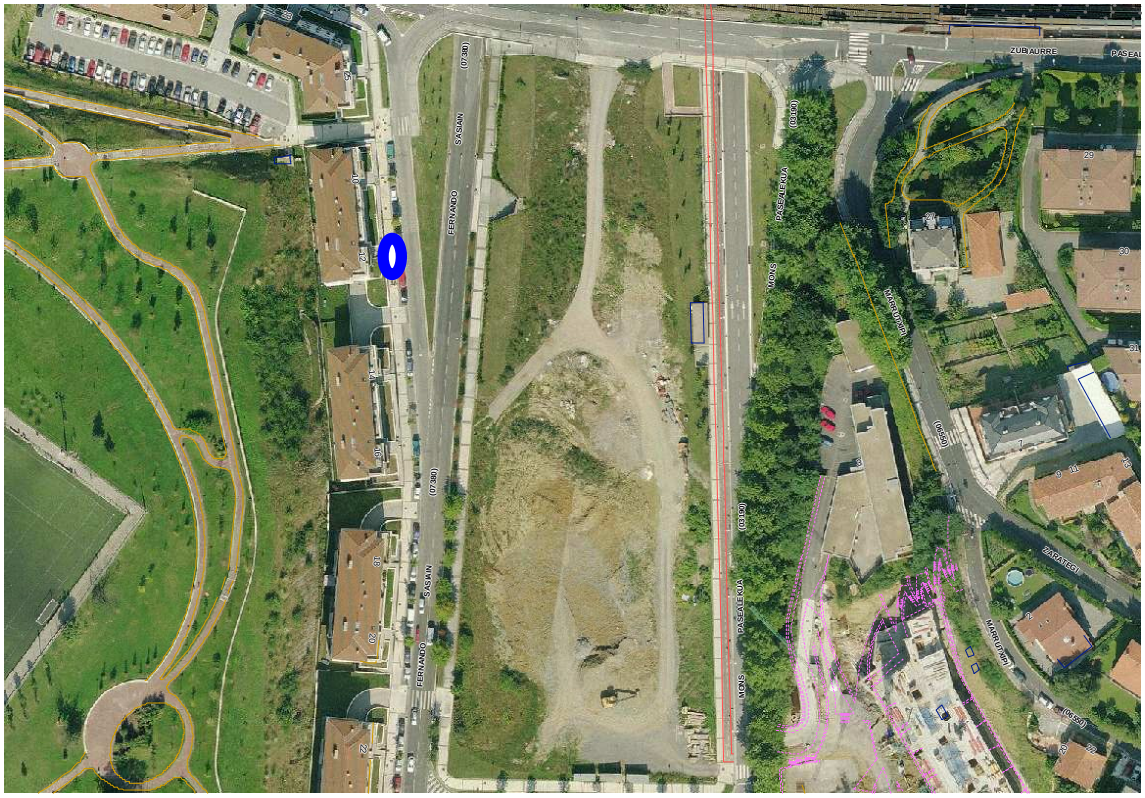
B) Paseo Doctor Begiristain

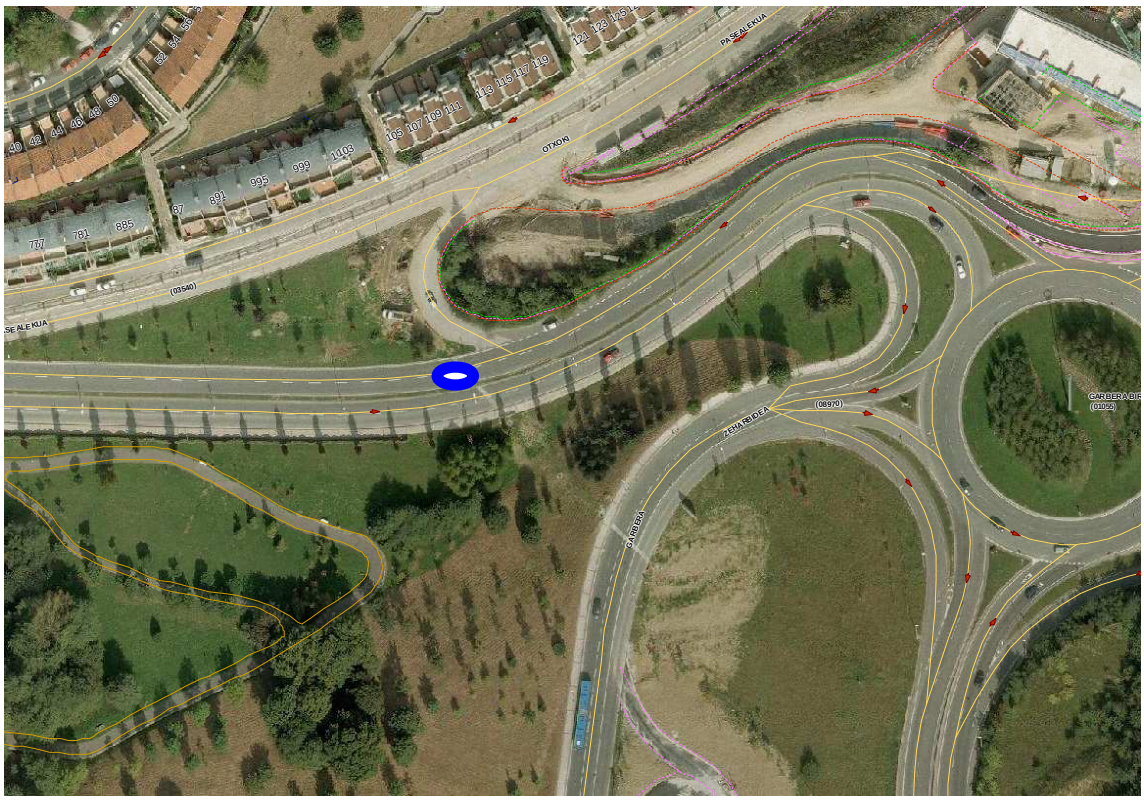


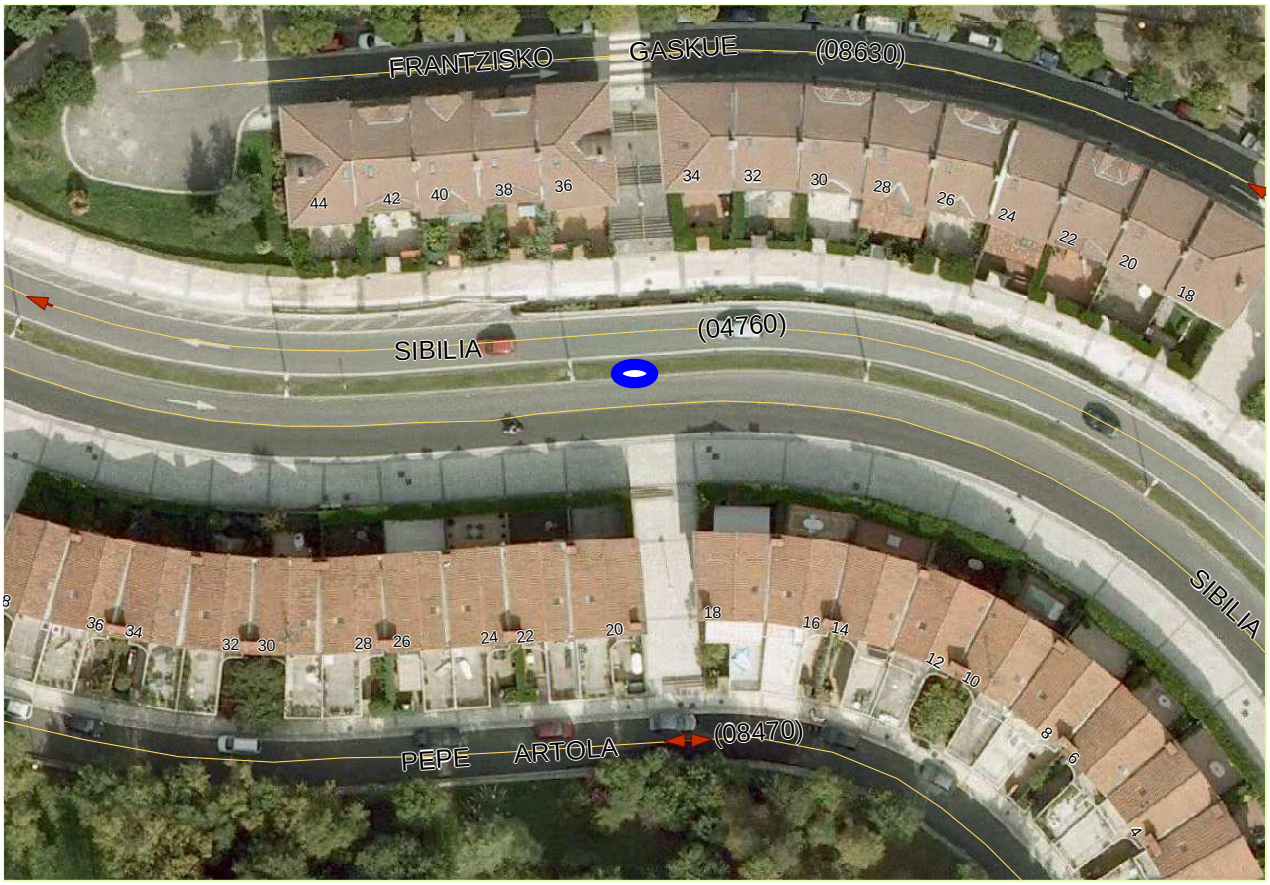
Located in a low-density residential district, Calle Doctor Begiristain is the road in one of the upper parts of the city. Like Avenida de Tolosa, its characteristics (this section of the road is totally straight) mean some vehicles can amply exceed a speed of 80 kph. There are various hospitals and health centres nearby (Donostia Hospital, the Maternity and Childrens' Hospital, the Onkologikoa Oncology Clinic, the Polyclinic), a university building belonging to the University of the Basque Country, a kindergarten and several restaurants and bars, in addition to an industrial estate where different companies are based, research centres and even a museum. The Euskadiko Orkestra Sinfonikoa also has its base within the radar's range, and another facility close by is an open air car park.

Most of the zebra crossings have no traffic lights. The road has several roundabouts for speed reduction and for accessing other roads. Due to all the nearby facilities this is a high traffic density area as regards both private vehicles and public transport.

C) Calles Fernando Sasiain, Otxoki and Sibilia





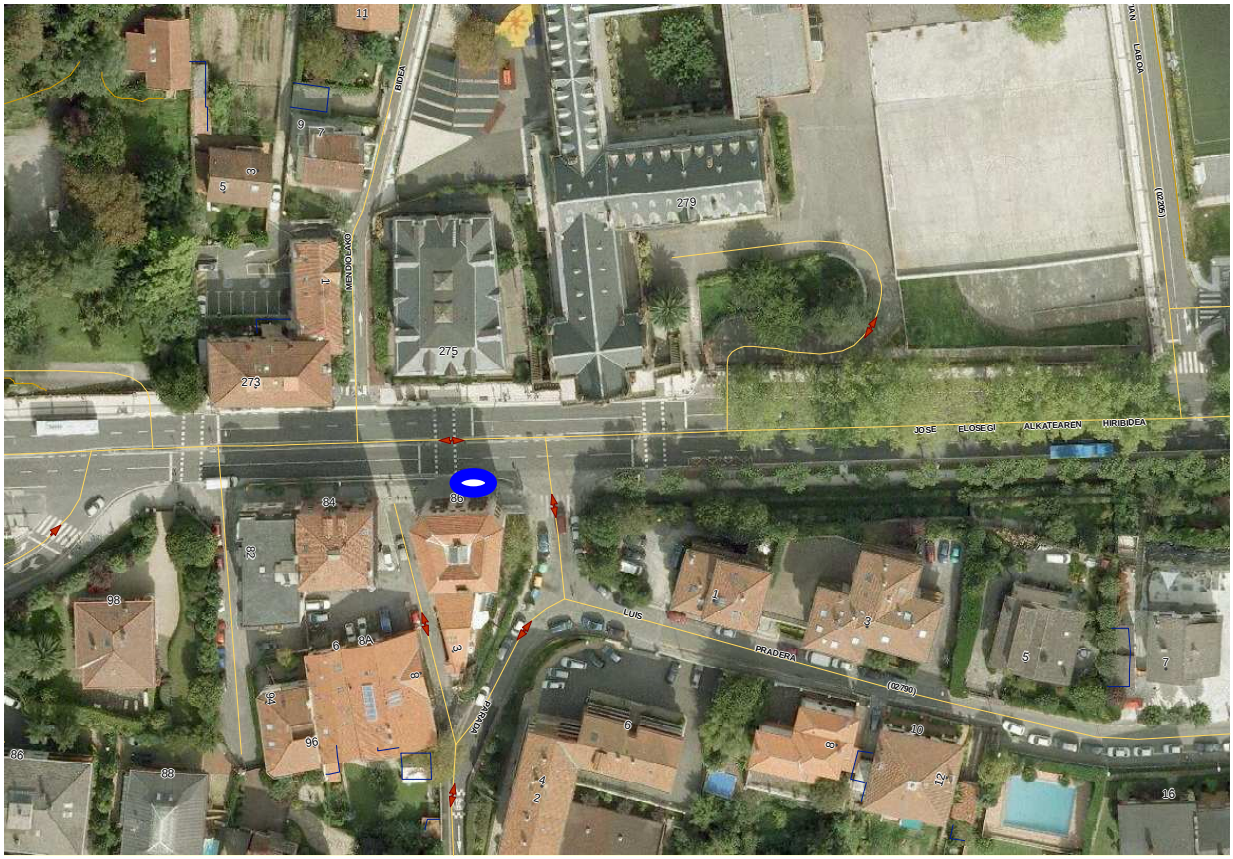


These three speed cameras are located in the Intxaurrondo district, one of the most highly populated districts of Donostia - San Sebastián. It is an area with a large variety of facilities: schools, sports centres, the Municipal Bus Company headquarters, the Polloe Cemetery, Pensioners' Associations, elderly peoples' homes, the Ametzagaña Park, the future central headquarters of the Donostia - San Sebastián Fire Brigade, the Garbera shopping centre and the headquarters of the Guardia Civil. It is also one of the city's main entry and exit roads towards the East.

It is an area with quite a high accident rate, and fatal pedestrian car collisions have occurred here in the past. The residents have been complaining about the speed of the cars in the district for the last few years.

Some of the pedestrian crossings have traffic lights and numerous speed cushions are used, but there are still areas in which the traffic speed is excessive. The facilities in the district such as the Garbera shopping centre or the Municipal Bus Company headquarters, together with the fact that it is one of the city's main entry and exit roads, mean that the local traffic in the district is incremented by the vehicles using it for these reasons, leading to a notable increase in traffic density.

D) Avenida Alcalde José Elosegi



This speed camera is located in a medium/high population density area. The road the radar is installed on is an exit road from the city towards the West. It was formerly part of the old N-1 route where it crossed Donostia - San Sebastián. Just opposite the radar there are a school, a university institute and a restaurant, together with a sports area, and there are several shops and bars in the surrounding area.

The speed camera is installed on a traffic light crossing and it detects vehicles driving through a red light. It is a road with heavy traffic, not only private vehicles but also many public transport vehicles belonging to several different companies operating in the western area of the city of Donostia – San Sebastián and to nearby towns such as Pasajes or Rentería. The construction of a new roundabout a few metres further down from this radar significantly reduced the traffic speed in this area, as the road had been totally straight before the construction of the roundabout. In addition to this there is a school nearby which increases its problematic nature.

4.5 Monitoring

The monitoring of the measures explored through these road safety studies will be carried out in accordance with the indicators defined for the measures as follows:

Firstly, surveys will be carried out on awareness, acceptance and perception of road safety, and secondly, the number of accidents and vehicle speeds will be counted and measured. The surveys will be conducted in the areas of influence of both the 30 kph zones (city centre, Gros and Antiguo) and the radars. They will be carried out in a number proportional to the population in these districts. The data should be suitably processed to achieve the greatest possible interchangeability with other ARCHIMEDES cities. This population data will be obtained from the municipal census.

The questions to be asked in the surveys must be in accordance with the information we wish to obtain:

- The population's awareness level with regard to road safety
- The level of acceptance of the measures to be taken
- Measurement of the perception of road safety

With regard to the data to be acquired, the data for the number of accidents will be obtained from the Municipal Police statistics, and speed measurements will need to be made at both rush hour and off-peak times.

4.6 Future Plans in Measure 46

The works on the 30 zones are due to start in the new few weeks and will continue until the end of 2010.