

FUNDACIÓN MAPFRE

Road Safety Inspection Manual for
School Zones

Road Safety Area



DATE

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We would like to express our gratitude for the exceptional assistance provided by Narón Town Council, without which this audit would not have been possible.

The contents of this report may be copied as long as the source is quoted as follows:

Road Safety Inspection Manual for School Zones

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Introduction

The sight of children, satchels on their backs, heading off to school along the streets of towns and cities has become a thing of the past.

Once a common and healthy practice, it has gradually been lost, especially in large cities where it has been replaced by a very different picture: a constant stream of vehicles on the streets near schools, double or triple-parked cars at school gates, and children hastily climbing aboard or alighting from them. In short, traffic chaos and a lack of safety in school zones.

These changes in the pace of life have shaped the design and structure of our cities, adapting them more to the needs of cars than the needs of people and making them unsafe for vulnerable sectors of the population, such as children.

As a consequence of these important changes, we now find ourselves in a situation in which children are increasingly less independent and more sedentary, and our streets are saturated with cars and pollution.

According to a study on children's independent mobility carried out by Hillman, Adams and Whitelegg in the 1970s, 80% of European children between ages seven and eight went to school alone. Twenty years later the figure had dropped to 9%.

In OECD countries, traffic accidents cause 41% of fatalities among 14-year-olds. According to figures from the National Traffic Department, nine children aged between 6 and 14 died from a traffic-related accident in Spain in 2012, and five of them were pedestrians.

Recent years have seen the emergence of a widespread belief that we are restricting children's rights and freedoms. According to Principle 2 of the Declaration of the Rights of the Child, *"The child shall enjoy special protection, and shall be given opportunities and facilities, by law and by other means, to enable him to develop physically, mentally, morally, spiritually and socially in a healthy and normal manner and in conditions of freedom and dignity."*

Moreover, the protection of the most vulnerable sectors of the population is one of the priorities of Spain's new road safety strategy for the next decade, in line

with the objectives stated in the European Commission document *"Towards a European Road Safety Area: Policy Orientations on Road Safety 2011-2020"*. One of operational objectives of this priority is *"to provide safe school zones and routes"*.

Can anything be done to change this situation? We firmly believe that with effort, dedication and commitment we can find solutions to these problems.

The **School Route Audit Manual** has been created with that objective in mind. Road safety audits are tools for identifying road safety problems and recommending solutions. They have proven to be extremely efficient in other zones, and given the nature of this particular area, they may well prove to be eminently beneficial here as well.

Summary

The protection of the most vulnerable collectives underpins all of the priorities pursued by the FUNDACIÓN MAPFRE Road Safety Area. One of these collectives is undoubtedly children. Children deserve special attention and many of our activities are targeted at them. The ultimate aim of our efforts in this field is to reduce the number of traffic accidents and traffic accident victims (injuries and fatalities) through education, awareness and prevention.

FUNDACIÓN MAPFRE has been active in this respect for many years, teaching children and young people to act safely and develop safe habits as pedestrians, cyclists and passengers in vehicles. Every year we carry out our "Road Safety in the Classroom" campaign, an educational program on road safety targeted at pupils and teachers in infant, elementary and high schools. The program includes teaching resources and activities scheduled for different times of the academic year.

In total, during the first half of 2014 alone, more than 796,000 children aged between 3 and 17 (86,613 in Spain and the remainder in countries like Brazil, the Philippines, Chile, Mexico and Paraguay) took part in our road safety programs.

As part of all this work in the field of traffic accident prevention among children, including journeys to school, FUNDACIÓN MAPFRE has carried out inspections and audits at schools in a variety of towns and cities across Spain. This "Road Safety Inspection Manual for School Zones", created in partnership with the Spanish Road Association, is the fruit of these experiences. We hope it will prove to be a simple, practical tool and that it will be widely used in all the relevant circles.

The objectives of the manual are:

- To identify possible road safety problems in school zones by conducting surveys among users (teachers, gatekeepers, parents and pupils) and inspecting the immediate school vicinity (the aim of the manual is to enable teachers or parents, for example, to carry out the inspections themselves).
- To recommend solutions for eliminating or

alleviating the problems detected.

- To offer examples of good practices carried out in different towns and cities so that they can be replicated elsewhere.
- To create road safety awareness among vulnerable users, emphasizing the importance of the human factor in particular.
- To spread the use of simple, efficient tools, like inspections and audits, to improve road safety.

The methodology used is as follows:

PHASE 1: Preparation

1. To identify the towns and cities
2. To select the schools and form a work group in each establishment
3. To draw up a calendar
4. To communicate and publicize the project to the school community

PHASE 2: Data Collection

1. To gather basic information about the school profile
2. Conduct surveys among teachers, gatekeepers, parents and pupils to find out users' opinions. There are three different surveys for the different collectives targeted:
 - A 15-question survey for teachers, parents and gatekeepers
 - A 20-question survey for elementary school pupils (ages 8 to 12)
 - A 20-question survey for high school pupils (ages 12 to 16)
3. Analyze and process the data obtained from the

questionnaires

4. Carry out the road safety audit/inspection in the school's area of influence

PHASE 4: Implementation of the Action Plan

- 4.1. Prepare the field work. Gather information about:

- Support the implementation of the action plan points
- Inform the school community of the impact of the measures implemented

- 4.1.1.1. Volume and composition of traffic at drop-off and pick-up times

- 4.1.1.2. School zone floor plans and elevations

PHASE 5: Evaluation

- 4.1.1.3. Site map

- Repeat the data collection task to obtain information on mobility

- 4.1.1.4. Reference technical regulations

- Process and analyze the data

- 4.1.1.5. Accident rate statistics for the area

- Communicate the results, achievements and lessons learned

- 4.2. To carry out the field work

- 4.2.1.1. Review all the tasks assigned to each member of the team in order to avoid the duplication of tasks and guarantee that every piece of field work is carried out

- Implement and supervise the changes in the school zone

- 4.2.1.2. Perform a trial run of the route to gain a first impression of the area

- 4.2.1.3. Perform a detailed inspection assisted by the checklists. These lists contain information about the following aspects:

- Identifying the school
- Geometric design of the roads
- Vertical signs and traffic lights
- Road markings
- Other types of equipment
- Traffic guidance equipment
- Roadsides and contention systems
- Paving
- Traffic

5. Create the final document with the results obtained and the conclusions drawn. Analyze the document with the various stakeholders

PHASE 3: Development of the Action Plan

- Draw up the action plan
- Communicate and discuss the plan with the school community
- Finalize the procedures for creating a "safe school route" and gaining the stakeholders' agreement and acceptance

PHASE 1. Categories of schools and zones

The content of road safety audits carried out as part of a process to improve children's mobility on their journeys to and from school varies according to the characteristics of the school and the city or neighborhood where it is located.

Audits also vary according to the objectives they seek to achieve, the characteristics of the school zone, the distance between the school and pupils' homes, and the local transport infrastructure.

1.1 According to the type of community

Communities can be classified into urban (cities) and rural (towns and villages), based on objective and subjective characteristics. The main objective characteristic for determining whether a community is urban or rural is its population.

We have used the population parameter to classify schools as follows:

- **SCHOOLS IN LARGE CITIES OR METROPOLISES.** These are places with a population of more than 200,000 inhabitants.

The large city or metropolis category can be broken down into three types:

- Schools in national metropolises with over 1.5 million inhabitants. This group includes Madrid and Barcelona.
- Schools in large regional metropolises with between 500,000 and 1.5 million inhabitants. This group includes Valencia, Seville, Bilbao, Málaga, Zaragoza, etc.
- Schools in smaller regional or sub-regional metropolises with between 200,000 and 500,000 inhabitants. This includes cities like Granada, Córdoba, Cádiz, Palma de Mallorca, Oviedo, Murcia, Alicante and A Coruña, among others.

- **SCHOOLS IN MEDIUM-SIZED CITIES.** This group

includes population centers with between 50,000 and 200,000 inhabitants, usually provincial capitals like Huelva, Jaén, Almería, etc, with tertiary functions such as education.

- **SCHOOLS IN SMALL CITIES OR TOWNS.** This group includes population centers with less than 50,000 inhabitants that may have specialized infrastructures such as high schools.

1.2 According to the type of education imparted

This manual also considers the level of education imparted by schools.

The Spanish education system contains five broad types of education:

1. Infant education, from 0 to 6 years of age.
2. Primary education, from approximately 6 to 16 of age. This takes place over 10 academic years, which in theory correspond to the period from age 6 to 16. These academic years are broken down into two tranches:

- A) Elementary education, which consists of six academic years from age 6 to 12. One of the goals pursued during the elementary stage is to provide all children with a common education that progressively develops their autonomy and enables them to interact independently with their environment.

Elementary education is broken down into three two-year cycles:

- First Cycle (6 to 8 years old):
 - 1st Grade Elementary
 - 2nd Grade Elementary
- Second Cycle (8 to 10 years old):
 - 3rd Grade Elementary
 - 4th Grade Elementary

- Third Cycle (10 to 12 years old):
 - Elementary Grade 5
 - Elementary Grade 6
- B) Compulsory secondary education, which consists of two two-year cycles:
- First Cycle (12 to 14 years old):
 - 1st Grade Secondary
 - 2nd Grade Secondary
 - Second Cycle (14 to 16 years old):
 - 3rd Grade Secondary
 - 4th Grade Secondary
3. Post-compulsory secondary education, which comprises five separate branches, each with entry dependent on completion of all four years of secondary education: pre-university (2 years), intermediate arts education, intermediate vocational training, intermediate visual arts and design education, and intermediate sports education.
 4. Higher education (with different entry requirements depending on the studies chosen), which includes the following separate branches: university education, higher arts education, higher vocational training, higher visual arts and design education, and higher sports education.
 5. Specialist education, which includes languages, arts and sports.

Bearing in mind the Spanish education system, the contents of this manual will focus on schools that impart at least one of the following levels:

- Infant education
- Elementary education
- Compulsory secondary education

1.3 According to the number of pupils

Problems in the school zone and on access routes may also vary according to the number of pupils enrolled at the school. In this respect, we have classified schools as follows:

- Small schools. This category includes establishments with up to 500 pupils enrolled.
- Medium-sized schools. This category includes establishments with up to 1,000 pupils enrolled.

- Large schools. This category includes establishments with more than 1,000 pupils enrolled.

1.4 According to the distance from pupils' homes

One of the most important variables to bear in mind is the distance between the school and pupils' homes. In this respect, we have created four areas:

Area 1:

The maximum distance from the school to the pupil's home is 400 to 500 meters.

The audit will analyze accessibility and road safety in the immediate school vicinity, including access routes, to ensure that pupils can walk or cycle to school safely, without the need for an adult to accompany them.

Area 2:

The maximum distance from the school to the pupil's home is 1,000 meters.

In this case, the audit will focus on pedestrian corridors used by pupils who walk to school accompanied by an adult, aimed at improving the condition of existing corridors and finding safer corridors in the school zone.

Area 3:

The maximum distance from the school to the pupil's home is 3,000 meters.

In this case, the road safety audit will focus on the condition of existing bike lanes and explore the possibility of creating safe bike routes for pupils.

Area 4:

The distance from the school to the pupil's home is over 3,000 meters.

The audit will explore possible parking areas in the school vicinity and how to connect them to the safe routes used by pupils who walk to school.

We will also examine the road safety conditions of existing school routes or, where none exist, we will explore the possibility of creating them, taking into account the road safety of the routes themselves as well as bus stops.

1.5 Zone characteristics and accessibility

With regard to the school zone, the following aspects

will be examined:

ENTRANCES/EXITS

- Number
- Location
- Condition

SCHOOL TRANSPORTATION

- Location of the bus stop
- Condition

TRAFFIC LIGHTS AND EXISTING PEDESTRIAN CROSSINGS

- Location
- Condition

LIGHTING IN THE SCHOOL ZONE

- Entrances/exits
- Adjacent areas

TRAFFIC AND PARKING

SIDEWALKS IN THE SCHOOL ZONE

- Width
- Condition
- Obstacles

PUBLIC TRANSPORTATION

- Location of the bus stop
- Type of bus stop
- Transport routes
- Condition of the bus stop
- Distance to the school entrance
- Accessibility of the bus stop

ROAD SAFETY

- Pedestrian crossings
- School zone signs
- Existence of safety rails

PHASE 2. Analysis of national and international experiences

A school route is a mobility project that aims to make it safe for children to go to school on their own.

School route projects fit in perfectly with the sustainable mobility plans promoted in towns and cities because they are designed to avoid the use of cars for taking children to school and help to reduce the presence and speed of motorized vehicles in favor of other less aggressive modes of mobility.

School routes also encourage independence in children, which has a positive impact on their self-esteem and on the formation of responsible boys and girls. Between the ages of 8 and 12, all children are capable of getting around their town or neighborhood on their own, yet many of them are deprived of the opportunity of putting this skill into practice.

Types of school routes

1. **Free route.** Children walk or cycle to school, either alone or accompanied by an adult, on streets with special markings or traffic calming measures. The streets are identified by universally understood signs, anagrams or symbols located on the roads or on commercial establishments adjacent to the route. It is vital that the local authorities are actively involved in designing free routes as they will need to introduce measures to reduce traffic-related problems: reducing the speed limit to 30 km on streets, widening sidewalks, erecting safety barriers (rails, hedges, etc.), pedestrianizing certain areas, synchronizing traffic lights to give more time to pedestrians, building bike lanes, etc.

The maximum recommended distance from the school to the pupil's home is 400 to 500 meters. At this distance there are only a few possible access routes to the school and it is relatively easy to turn them into safe school routes.

2. **Walking bus.** A walking bus is a type of school route in which children walk in a group, either accompanied or alone, depending on their age. If they are accompanied, it is usually by two adults: one at the front and one at the back. The route,

designed in advance, makes several stops – just like a bus – to pick up other children. The walking bus is the ideal option for children who are too young to use the free route. The adults may be volunteer parents, although in many places where walking buses are a well-established mode of getting to school the escorts are monitors or educators hired specifically for the purpose.

3. **Bike bus.** Like the walking bus, this consists of going to school in a group but on a bike instead of on foot. The difference with regard to the previous mode is that there will be fewer possible routes so as not to obstruct the space used by pedestrians. Bike buses can only use pedestrian streets, walkways, bike lanes and streets with traffic calming measures, which in many cases will require adaptation.
4. **Public transportation and school transportation:** In this case children go school in groups on commuter trains, street cars or buses. In the case of school transportation they are accompanied by an adult. Coordination between the school and the transport company is vital.
5. **Private car:** Although the guiding principle of a school route is to eliminate the use of cars, there will always be cases where the distance or other circumstances make this the most advisable mode. In these cases it will be necessary to create parking areas near, but not adjacent, to the school and have children complete the route on foot along the marked itineraries. Ideally, the car should be shared to reduce the environmental impact: one adult takes several children.

Projects to reclaim city streets for children began to emerge more than two decades ago. One of the pioneers in this respect was Francesco Tonucci with his "Let's go to school on our own" proposal, launched in Fano (Italy).

Another interesting initiative, known as "Safe routes to school" (SRTS), was launched in Odense, Denmark, in the 1970s in response to concerns about the safety of children who walk or cycle to school.

The SRTS concept spread internationally, with programs developing in other parts of Europe, Australia, New Zealand, Canada and the United States. Today, one of the benchmark countries is the United Kingdom, where 20% of the population – around 1.6 million children – use these routes.

There are many similar experiences across Europe and America and in Spanish cities like Barcelona, San Sebastián, Segovia, Granollers, Zaragoza and Madrid, etc., all with their own methodology adapted to their own urban context. Some of the examples that are taken into account when carrying out audits or inspections in school zones are described below.

2.1 National References

2.1.1 "Madrid a pie, Camino seguro al cole" project. Madrid City Council

The aim of this initiative by Madrid City Council is to promote children's independence by encouraging them to walk to school on safe routes, simultaneously reducing traffic congestion and therefore improving road safety and environmental quality in school zones.

"Madrid a pie, Camino Seguro al cole" (Madrid on foot, safe route to school) was launched in 2007 on the back of a number of projects that different government departments had already put in place: School Agenda 21, promoted by the Environment Department; the Road Safety Plan implemented by Mobility and Security; the Childhood Participation Committees created by Family and Social Services; and the Cyclist Mobility Plan introduced by Public Works and Spaces. All of these unified their objectives and used the school route as their reference framework in the city for developing educational programs to encourage participation, independence, health, safety and sustainable mobility.

During the first stage, which coincided with the 2007-2010 Road Safety Plan, 23 schools were surveyed. In broad terms, the process consisted of:

Conducting surveys among representative groups of pupils between ages 9 and 12, and drawing their usual routes to school on a map.

- Sections used by at least 5% of the total sample in a radius of approximately 600 meters from the school were analyzed. These routes, called "pedestrian mobility spiders" were analyzed in terms of road safety and citizen participation. Specifically, this meant examining the school's

physical environment and vicinity, the geometric and functional features of the roads adjacent to the school, any pedestrian crossing near the school entrances, their visibility, and any traffic lights, safety rails for pedestrians, and bus stops.



This methodology aimed to address the needs identified in the audits and improve the safety of the routes used by children to go to school.

At the end of this stage an assessment report was drawn up describing the project aims, methodology, project phases, agents involved, etc.

According to the first assessment report on the "Safe route to school" project, the schools that participated in the program saw a 10 percent increase (from 71.2% to 81.1%) in the use of walking as the mode of transport compared with other schools. At the same time, the percentage of journeys in private motorized vehicles fell dramatically (from 24.4% to 13.5% according to the families, from 25.7% to 11.2% according to the school children). The report states that participation in the project led to a "greater willingness by families to let their children go to school alone, in spite of an increased perception of road dangers in both groups".

As indicated in the 2012-2020 Road Safety Plan, Madrid City Council intends to extend the safe school route initiative in line with the demand from schools and bearing in mind that this is a program that requires the commitment of the city, education community and pupils' parents as well as coordination between the different municipal departments to improve road safety through specific road work, improved mobility management, the introduction of traffic calming measures and signs, and teaching resources to support the program in schools.

This project has given rise to another one, the creation of a mobile application to support the families who participate in the initiative so that parents can encourage their children's independence in getting around the city and, specifically, in getting to school. The application displays the safe route to school on

a map, calculated from a "mobility spider" for each school containing the web of streets used on the safe route.

Another function of the tool is that it reports any incident that occurs on the safe route to school to Madrid City Council, therefore involving children in the maintenance of their city. The application also evaluates the assistance and help provided by the commercial establishments involved in the project. Last but not least, the application facilitates the collection of data about the routes that children follow from home to school, draws the routes on a map and sends this information directly to Madrid City Council so that the "mobility spider" can be updated.

The application offers the following functions:

1. To record and identify a user in the application and assign permission to access all the other functions.
2. To select a school and consult its mobility spider on a map.
3. To guide the child to the safe route to school with simple instructions and display his position on a map at all times.
4. To select a school and see a list of all the child-friendly commercial establishments in the school zone.
5. To report an incident on the safe route to school to Madrid City Council.
6. To send a message to the child's parent/guardian when he has arrived at the school.
7. To send an emergency alert to the child's parent/guardian and the local establishments involved in the project.

At the moment the application is only available for the Android operating system but it will be multiplatform in the future.

The tool is currently being tried, tested, checked and refined to ensure that it conforms to all the quality requirements when it becomes available for download from the Madrid City Council website.

2.1.2 School route project. Zaragoza City Council

In response to a request formulated at the Childhood Plenary Session held on November 20, 2012, between

January and June 2013 Zaragoza City Council piloted a school route project in two schools as part of a joint initiative by the Public Services and Mobility Department and the Culture, Education and Environment Department.

Preliminary work

Meetings were held at the schools to present the initiative and then, assisted by the pupils, families and staff at the schools, the project team analyzed the mobility characteristics and the physical environment.

The mobility analysis also revealed the usual routes from pupils' homes to the schools and how pupils traveled to school (on foot, private vehicle, bike, etc.). This produced a "mobility spider" for each school as well as details of the transport modes used.

In terms of the routes used, the mobility spider made it possible to identify a set of common routes where children and parents could form groups and do the journey together.

The next step was to meet with the families again and work out a roster system for escorting the group of children that were going to participate in the school route program.

With regard to transport modes, at both of these schools the most common mode was on foot so there was no need to modify the transport mode in the pilot test.

The analysis of the physical environment consisted in locating and studying areas for improvement in the vicinity of the schools analyzed.

Having evaluated the proposals, the actions that were feasible to undertake with the available budget were carried out. These consisted of minor interventions to correct or improve signs in the school zones and remove items of urban furniture.

Interventions in the road infrastructure to improve the routes established

During the course of 2013 the needs of parents, teachers and pupils were addressed by analyzing the issues identified in the surveys and exploring ways of correcting or improving them.

Thus, the actions undertaken corrected some of the black spots that were causing access problems for the schools involved in the school route project. These accessibility problems were jeopardizing the planned

routes and in some cases preventing them from being implemented.

The actions were carried out in several stages. The first stage, which took place before the school routes went live, consisted of minor interventions to improve the signs and remove items of urban furniture.

The second stage took place once the routes were in service and consisted of civil works and erecting signs to improve their accessibility.

Again to improve accessibility and facilitate the creation of new routes, additional pedestrian crossings were built and the existing ones were corrected, gaps on sidewalks were corrected, and one of the streets that forms part of one of the routes was pedestrianized and made more accessible.

Evaluation

Despite the complexity of a project of this type, especially at the beginning when ingrained habits have to be broken, fears have to be overcome and the pros and cons of overprotecting children have to be discussed, the pilot test was rated very positively by both the participants and the city council team. The decision was therefore made to extend the work begun in the two pilot test schools and invite other schools to join the initiative. The project was also included in "De mi escuela para mi ciudad" (From my school for my city) program, promoted annually by the Environment and Sustainability Agency.

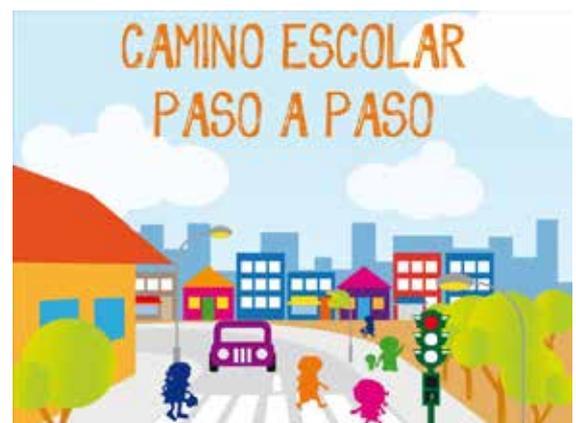
During the academic year 2013-2014 the municipal team worked with eight schools. The project is at different stages in each of these schools given their different needs and social context, which are influenced by the characteristics of the neighborhoods where they are located. The varying degrees of involvement from the families, teachers and school principals means that the timing, sequence and pace of implementation also vary. Thus, although the methodology is always the same, the steps involved are being performed differently in each school.



As part of this initiative, in December 2012 the Environment Department of Zaragoza City Council and the labor union organization Comisiones Obreras published the document "Caminos Escolares" (School Routes) and included information about the project that was being launched.

2.1.3 "Camino Escolar, paso a paso" publication. National Traffic Department

Spain's National Traffic Department has published a document with guidelines on how to implement a safe school route project. In keeping with the lines of action contemplated in the 2011-2020 Road Safety Strategy, the aim of the publication is to serve as a basic tool for learning about the objectives and structure of these projects and to promote sustainable, safe and independent mobility in children.



The publication is intended for individuals, organizations and collectives interested in participating in a project of this nature: town and city councils, educators, urban and mobility planners, families and diverse social agencies.

2.1.4 "Camino Escolar. Pasos hacia la autonomía infantil" publication and video. In partnership with the Ministry of Public Works

This guide and video are support materials for encouraging and facilitating experiences related to mobility in children and young people in cities. They are intended for groups and organizations interested in promoting changes in the mobility patterns of minors, such as schools, parent organizations, neighborhood associations and local agencies.

In the document, published in July 2010 in partnership with the Ministry of Public Works, the authors summarize the different categories of school routes and describe the methods and tools to be used when carrying out a school route project.



One of the chapters offers guidelines on diagnosing public spaces in order to identify problems and facilitate solutions. As with all the other chapters, the design is both open and flexible.

The following aspects are examined in the document:

- Existence and dimensions of sidewalks
- Existence and location of urban furniture
- Existence of trees
- Paving type and condition
- Lighting
- Location and characteristics of crossings, traffic light times, dimensions and visibility of crossing
- Safety in shared public spaces

2.1.5 Seguridad Escolar. Entornos Escolares collection. National Association for Child Safety

This association has produced a guide on safety in school zones that offers information about the requirements that need to be met in these areas in order to avoid accidents by children and promote good practices.

The collection is based on the philosophy that since cities are built by and for adults, the prevention and safety measures in school zones need to be audited in order to identify deficiencies and offer feasible solutions for the municipality in question, achieving mobility benefits for the population as a whole and prioritizing the protection of the most vulnerable collectives.

2.1.6 Initiatives by San Sebastián City Council (Basque Country)

As part of its School Mobility Plans, San Sebastián City Council has promoted a variety of initiatives to prioritize and reinforce the safety and accessibility of pedestrian and bike routes to schools, either by transforming the physical environment or impacting on the population's daily routines.

Thus, since 2003 the city council has continuously improved home-school routes by reinforcing the road safety parameters in the vicinities of schools. Examples of the actions undertaken include shared diagnoses of mobility, the active involvement of the community and participation in other safe mobility interventions.

Results

The principal achievements obtained from these initiatives are greater numbers of children walking to school without the need for an adult escort and a growing perception that mobility is an important factor in the quality of city life.

In addition to conducting awareness and/or communication campaigns, city council technicians, principally from the Mobility Department, work closely with schools to address their needs. For example, a significant number of sidewalks have been widened or made safer for children, wait times at traffic lights have been reduced and more parking spaces for bicycles have been created, to name just some of the benefits obtained from these efforts. Many of the physical actions that have taken place in response to requests from the school route work group have had a positive impact in terms of traffic calming and have helped to make these routes safer for children.

Over the years numerous schools have participated in one or other of the city council's activities.

2.1.7 "Camino Escolar, espacio amigo" project. Barcelona City Council

The Barcelona school route network was launched in

2004-2005, as part of the Sagrada Familia Community Plan, with the creation of a special school route committee within the education commission and the support of different city council departments. Its aim was to encourage children to use marked routes to walk to and from school.

Since the outset, the school routes have enjoyed strong support from Barcelona City Council – through the Municipal Institute of Education (Education and Universities Department), the Safety, Prevention and Mobility Department, and the municipal districts – and the active involvement of school principals and teachers, pupils, parent associations, commercial establishments along the marked routes, and neighborhood organizations and associations.

In 2010-2011 the program was extended to include the “Camino escolar – espacio amigo” (School Route - Friendly Space) project.

The methodology used to create a school route is as follows:

- The first step is to conduct a survey among the parents and children of every neighborhood or district to find out their usual route to and from school, any fears and problems encountered along the way, and the journey time.
- After analyzing the responses, the safest and most appropriate route for children is designed.
- The next step is to "clear the way". In other words, the municipal mobility technicians carry out any requisite modifications on the roads included in the route in order to reduce the possible risks for children, traffic, safety, etc.

Creating a school route is a lengthy process that takes at least one academic year. However, the project does not end when the streets have been adapted and the route has been officially presented to the families and neighborhood. All the agents involved work continuously to ensure that it remains active.

At the beginning of academic year 2013-2014, a total of 60 schools in Barcelona had their own "school route, friendly space".

In 2011-2012 a survey was conducted to track the success of the project. These were the findings:



- In academic year 2004-2005, 22% of children went to school without an adult escort; in 2011-2012, 36% went to school on their own and from a younger age.
- In academic year 2004-2005, 81% walked and/or used public transportation; in 2011-2012 92% used these modes of transport and only 8% went to school by car or motorcycle.
- 83% are of the opinion that improvements to the school zone and a knowledge of the project and its aims have influenced their decision to walk to school without an adult escort.

Within the framework of this project, in 2010 an informative leaflet was published entitled “El camino escolar: actuaciones de movilidad en el territorio” (School Routes: Local Mobility Interventions). With a striking visual design and eminently didactic focus, the publication describes and illustrates the nature of a school route and the basic actions that are undertaken to make it a reality, such as specific signs, special traffic calming measures and the adaptation of loading and unloading areas, etc.



2.1.8 School routes. Móstoles (Madrid)

The aim of this program promoted by the Mobility and the Infrastructures and Maintenance Departments is to encourage children to walk to school on their own along a designated safe route.

Through the aforementioned departments, Móstoles Town Council has adapted the access routes to two schools as part of the implementation of the "Caminos Escolares" (School Routes) program that it is currently carrying out in the town. These works will benefit approximately 800 children who attend the schools.

The project forms part of the town council's Sustainable Urban Mobility Plan, whose principal challenge is to make the use of private vehicles compatible with pedestrian routes.

The program was implemented following a school route feasibility study carried out in Móstoles in 2011, which analyzed the characteristics of the schools involved in the pilot project, including the immediate vicinity, accessibility and road safety. A mobility diagnosis was also undertaken for the two schools to determine the mobility habits of the pupils and teachers.

This report also contained details of the new infrastructures required in each school zone, the costs involved, and the proposed access roads and routes.

The methodology and tasks undertaken as part of the study can be summarized as follows:

Initial phase consisting of data collection and field work

1. **Data collection and diagnosis tasks** and meetings at the schools with the parties involved.
2. **Mobility analysis**, including interviews with the school principals and surveys to identify the mobility patterns of teachers and pupils and, in the case of pupils, their perception of the level of road safety.
3. **Analysis of the school zone** (inventory of infrastructures and black spots). Inventory of the school zone and localization in a geographical information system.

Diagnosis phase consisting in analyzing the data collected

4. **Mobility diagnosis** to analyze the data on mobility patterns obtained from the interviews with the school principals and the questionnaires completed by the teachers and pupils.
5. **Diagnosis of "actual" accessibility** in order to assess the main access routes to the schools, users' perceptions of those routes, obstacles encountered along the way, etc.

Recommendation phase

6. **Recommended actions and improvements.**

The information obtained from this study is leading to improvements in the access routes to the seven Móstoles schools involved in the project where mobility problems were identified. The works are being carried out in sequence, at one school and then another.

The aim of the program, which will be extended to other schools in the town, is to encourage children to use a safe route to walk to school independently, without an adult escort. The routes have been chosen from the itineraries most used by pupils and form part of a broader initiative to create an urban environment much friendlier for pedestrians and cyclists as well as safer for children.

In Móstoles there are at least 35,000 school runs every day, a figure which clearly indicates that mobility in the town would be improved by making it more sustainable, efficient and healthy.

2.1.9 School routes. Huesca City Council

Huesca City Council is also working on a school route project. Launched in 2012 at two pilot schools, the approach adopted is as follows:

- To identify the current situation of the two school zones, including any safety deficiencies in the most frequently used access routes.
- To identify the routes currently used by pupils (and parents) to go to school and the mobility patterns.
- To recommend interventions (technical, educational and promotional) to help resolve the existing problems.

In order to define the school routes, carry out the diagnosis and make recommendations, a survey was conducted among pupils and parents and an inventory of the roads in the school zones was performed.

2.1.10 School routes. Barbastro (Huesca)

Barbastro Town Council has also promoted the creation of a school route network.



In this case, the initial information used to carry out the

diagnosis and make recommendations was obtained as follows:

- Online survey among the pupils in the 33 classes of the second and third cycles of elementary education at the five schools in Barbastro.
- More than 300 contributions from adults, subsequently illustrated on a diagnosis map.

The Barbastro web project is an example of new data collection and analysis methodologies.

The surveys supplied information on objective aspects such as distance from home to school and mode of transport, etc., as well as subjective data like impressions of the route and how children feel. The map shows the main points of interest on the school routes: positive elements, crossings that need to be improved, etc.

Following the initial diagnosis, work has commenced this year, 2014, on drawing up a set of recommendations.

2.1.11 Safe school routes project. Granada Provincial Council

The Safe School Routes Project was launched in 2010 by the environment work group of the GRAMAS Network (Granada Network of Municipalities for Sustainability) Three towns are currently involved in the project: Huétor-Vega, Santa Fe and Salobreña.

The aim of the project in each participating town is to create a set of routes that are sufficiently safe to encourage families to let their children go to school on their own rather than taking them by car.

The project was structured around two broad lines or sub-projects that were undertaken simultaneously, were interconnected and converged in the final phase consisting of the design of specific actions.

Thus, one sub-project analyzed, diagnosed and recommended improvements for the physical environment in which the journeys take place: streets, sidewalks, squares, access spaces which could be safer and non-motorized from pupils' homes to schools and vice versa. The data was obtained from field work (mobility analysis) and contributions from the parties involved.

The parallel sub-project designed and implemented a range of actions aimed at changing school run habits, thus affecting parents, children, teachers and neighbors. This was achieved by working with families, educators and children over the course of a whole academic year.

The two sub-projects converged in an action plan in which everyone has participated and will continue to be involved in implementing and sustaining the project in time.

The image below shows the project structure in greater detail.



Fuente: La creación de itinerarios escolares seguros como método de innovación educativa y de mejora de la sostenibilidad local. Conama10

Improvements in the school zone

The local authorities have participated in the project by improving the school zones to increase safety and encourage walking to school.

Based on the results obtained from the studies conducted in the area, in the case of Huétor-Vega a footbridge has been built and the access road to the school has been pedestrianized. In terms of traffic measures, the horizontal and vertical signs have been improved, traffic control measures have been introduced at drop-off and pick-up times, and six adjacent streets are now one-way only.

In the case of Salobreña, a new access route from the N-340 is being created to divert traffic from the school entrance. Several new pedestrian crossings have also been built.

In Santa Fe, the third participating town, the horizontal and vertical signs have been improved to reduce speed on the school access road. The sidewalk has also been widened and consolidated.

With regard to the overall implementation of the project, the action plan is still pending. In addition to improvements to the school zones, which will be carried out by the respective town councils, the plan contemplates actions by families, such as the organization of escort groups and strategies for sharing cars. These actions will require technical support, broad participation and a systematic educational project to encourage families to change their mobility habits.

2.1.12 "Camino al cole, mi camino escolar seguro" school route program. Córdoba City Council

During the first term of academic year 2013/2014, the Mobility, Accessibility and Transport Department of Córdoba City Council, in association with the Education Department of the Regional Government of Andalusia, launched the "Camino al cole, mi camino escolar seguro" (Walking to school on my safe school route), targeted at the schools in the Tendillas Sur area: La Milagrosa, las Esclavas, Santa Victoria, La Inmaculada and la Trinidad.

The main aim of this program is to encourage pupils to travel to school by a sustainable transport mode rather than by private car, such as on foot, by bicycle or public transportation, thus promoting public health and improving environmental quality in the city. In addition to improving personal independence, physical exercise

and socialization skills among children, this change in mobility habits will help to reduce the number of cars that congregate in the school zones every day. A direct consequence of this will be considerably less noise and pollution and greater safety for children on their daily journeys to and from school.



The image shows one of the maps created with the proposed safe routes clearly indicated so that every family can choose one for their children, either from the beginning or a specific stop on the route, to the school itself.

The project also contemplates the creation of various parking areas near the beginning of the main school routes. There will be a number of reserved stopping areas for parents who need to take or collect their children from school by car, so that children can alight from or climb aboard safely and without having to hurry. The maximum parking time permitted will be five minutes as the sole purpose of these spaces is to drop off and collect children on their journeys to and from school.

From these points onward, older pupils can continue on foot either alone or accompanied by their classmates and other pupils of the nearby schools.

By creating these safe school routes, the city council aims to offer parents a "real and viable" alternative to the use of private cars for the school run.

As shown in the images below, the Mobility Department is actively involved in the creation of these safe routes. In addition to exploring ways of limiting traffic at school drop-off and pick-up times, it has

created stopping areas for parents and school buses, widened the sidewalks on the routes, and introduced traffic calming measures and pedestrian crossings, all aimed at guaranteeing the safety of children who walk to school, either alone or with an adult escort.



Access roads to Las Esclavas before and after. Source: <http://caminoalcolecordoba.es/rutas/>

2.1.13 Safe school route. Ciudad Real City Council

The Ciudad Real Mobility Department is currently working on a safe school route project with one pilot school in the city.

In addition to conducting a survey among pupils and parents, the data collection phase consisted in carrying out a road safety audit in the school zone and on the routes used by children to go to school in order to identify any weaknesses from a road safety perspective and recommend improvements. The ultimate aim is to encourage children to go to school on foot.

In the next phase a set of technical, educational and promotional recommendations was drawn up for discussion with the agents involved in the project.

2.1.14 Safe school zone plan. Toledo City Council

In 2011 Toledo City Council drew up a **safe school zone plan** after conducting a survey to identify the least safe schools in terms of traffic and mobility.

In October 2012 the Toledo Mobility Department signed an agreement with a school located in the old quarter of the city to launch a novel project aimed at improving road safety and the flow of traffic at drop-off time. The initiative chosen in this specific case was the "walking bus", and the idea is to extend it other schools if the results are positive.

The assessment report published in September 2013 rated the initiative highly, noting only one accident on pedestrian crossings in the school zones since the beginning of 2012.

2.1.15 Safe and sustainable school route. Castellón City Council

Castellón City Council is promoting a "safe and sustainable school route" project aimed at ensuring that children can walk to school safely on clearly marked and adapted itineraries.



As part of the initiative, city council technicians will analyze the current situation and undertake the necessary actions to adapt the streets in school zones and on the priority routes in order to guarantee safe journeys for

pedestrians.

The proposed routes are expected to be approved by the city council in time to be rolled out for the academic year 2014-2015.

2.1.16 School route network. Mollet de Vallés (Cataluña)

Calming traffic and improving safety for pedestrians are the principal aims of the Mollet del Vallès Mobility Plan. The various measures introduced by the town's Mobility and Transport Department to advance toward a more sustainable and safer urban mobility model include the promotion since 2006 of a school route network designed to increase children and young people's safety on their journeys to their school and colleges.

The creation of school routes has included the following actions:



- A viability study to provide temporary parking facilities near schools.
- Improvements to pedestrian crossings, the relocation of waste containers and the pruning of trees and shrubs to improve visibility for motorists in school zone areas.
- Narrower vehicle accesses to private driveways and garages.
- Creation of one-way systems at every school entrance.
- At drop-off and pick-up times, increased duration of right-of-way for pedestrians at traffic lights on pedestrian crossings on school routes.
- Introduction of more visible vertical signs in areas near school zones.

The initiative has involved the school principals as well as the parents of pupils, who have participated in the launch of shared escort programs and the management of the reserved parking areas.

All of these actions have also been coordinated with the initiatives of the town's Mobility Commission, which was created in 2004 and is made up of representatives from all the agents and sectors related to urban mobility and associated areas, such as education, environment, public transportation, neighborhood associations, etc.

2.1.17 School routes. Aldaia (Valencia)

The Local Development Agency of Aldaia Town Council launched this project in 2010 to encourage pupils to travel on foot to their elementary and high schools. The participants of a vocational training program for adults over 26 carried out the urban improvements required to create safe and accessible pedestrian school routes.

The initiative consisted in adapting four frequently used access routes to schools to make them safer and more accessible for pedestrians, especially children and people with impaired vision or physical disabilities.

In choosing the routes, the town council considered the following aspects: width of sidewalks, number of pedestrian crossings and volume of road traffic. The aim was to transform these routes into standard itineraries, with a simple and continuously improved design.

The project was carried out as follows:

- Creation of a municipal technical team.
- Field work to assess the safety and urban impact of the intervention.
- Contact and interviews with representatives of elementary and high schools to involve them in the design of the routes.
- Definition of safety elements: signs, lighting, accessibility, etc.
- Approval of the proposal by all the agents involved: schools, families, commercial establishments en route, etc.

Specifically, the actions consisted in removing architectural barriers, improving the paving, lighting, pedestrian crossings and accesses to private driveways and garages. The signage was improved by embedding 20x20-cm tiles in the sidewalks every five meters, showing a footprint and an arrow pointing the way.

In 2010 Aldaia Town Council won the Good Practices category of the National Road Safety Award. The town is currently implementing a similar initiative called "Safe Routes 4-Local Development".

2.1.18 Safe school routes. San Fernando de Henares (Madrid)

This town introduced safe school routes a few years ago, as part of its Sustainable Urban Mobility Plan. Carefully-designed itineraries, with signs and special safety measures (local police, volunteers, signage, assistance from small commercial establishments) on school routes and in school zones have reduced children's dependence on adult escorts and improved road safety and pollution levels.

In 2009 the town council carried out a feasibility study to implement safe school routes. The purpose of the study was to analyze children's mobility, in terms of getting to and from school, and carry out three "safe

school route" pilot experiences:

- one at an infant school
- one at an elementary school
- and one at a high school.



The publication "Realización de tres experiencias piloto de "camino escolar seguro" en San Fernando de Henares. Evaluación de infraestructuras peatonales y ciclistas y propuestas de adecuación de caminos escolares" (Three "safe school route" pilot experiences in San Fernando de Henares. Assessment of infrastructures for pedestrians and cyclists and recommendations for the creation of school routes) describes the methodological criteria used to draw up an inventory of the pedestrian infrastructure on the itineraries that form part of the town's school route, as well as detailed information on the road infrastructures created. The document also contains a diagnosis of accessibility for pedestrians and cyclists, and the recommended infrastructures for the school zones in both cases.

2.1.19 "Arandando, Caminos Escolares" project. Aranjuez City Council (Madrid)

In 2011 Aranjuez Town Council launched its "Arandando" (Aranjuez Walking) program under the auspices of an agreement with the Madrid Regional Transport Consortium to adopt measures related to sustainable urban mobility.

The program contemplates the design of school routes and the training of monitors to manage them, as well as the reinforcement of vertical signs to indicate the itinerary and markings on the roads stating that they form part of a "safe school route".

From the infrastructure point of view, they contemplate other improvements such as the installation of safety elements like protective rails on sidewalks, information panels at pedestrian crossings stating that they are school crossings, and signs indicating a speed limit of 30 km/hr on all the roads that form part of these routes.

2.1.20 Safe school route program, Guadix Town Council (Granada)

Launched in 2014, this initiative is still at the initial phase but its aims and objectives coincide with those of all the other programs described in this document.

The Guadix Safe School Route Program is promoted by the local education and environment departments in partnership with the GRAMAS Network (Granada Network of Municipalities for Sustainability) of the Granada Provincial Council, the traffic and security departments, the local police, the town council's urban planning and health technicians, the urban garden collective Educo Huertos Ecológicos, the Faculty of Sport Sciences of the University of Granada, and, above all, the local schools, children, parents and guardians.

To reinforce the project, an awareness campaign has been conducted in schools under the following slogan: "¿Te vienes al cole en el coche de San Fernando? Un ratito a pie y otro caminando" (Hoof it to school, part of the way on foot and walk the rest).

The first meeting with the specially created work group was held last April to start diagnosing the neighborhood and school zone and identify the problems related to the sidewalks, pedestrian crossings, traffic and intersections and ways to improve them..

2.2 International References

2.2.1 References in Latin America

Our search for references of safe school route initiatives in Latin American countries revealed that these are not very widespread and we have only found vague details of a few pilot projects launched quite recently.

2.2.1.1 Safe school route in Rafaela, Argentina

This city introduced a more sustainable and safer mobility model in 2011, as part of its "Rafaela + sustentable" (Rafaela more sustainable) program, and the same year launched a pilot plan to create the city's first safe school route.

The initiative arose out of the desire to solve traffic and road safety problems at pick up times from schools, which were notorious for the congregation of countless motorcycles and double-parked vehicles and parents and children entering and exiting the institution.

The issue was resolved by designing a safe school route for children to walk or cycle to school via an itinerary

that offered maximum safety.

The route designed led to major improvements in the streets most frequently used by children and young people on their journeys to school. Specifically, sidewalks were improved and repaired, traffic lights were installed, pedestrian walkways were demarcated, speed bumps and specific signs were put in place, ramps for people with reduced mobility were created at corners, and architectural barriers were removed from the sidewalks adjacent to schools. The speed limit was also reduced to 20 km/hr on the entire school route.

Eight months after the route was implemented, the project leaders rated the results very positively, identifying a 25% change in habits.

The city launched a second pilot experience in April 2012, and in May 2014 rolled out the first stage of similar "safe school route" initiatives in the province of Salta and at two schools in the province of Córdoba.

2.2.1.2. Safe route to school in Peñalolén. Chile

The city of Peñalolén launched its "safe route" program in 2013. The only one of its kind in Chile, the project aims to encourage the children of a specific school in the city to make their daily journey on foot.

The measures introduced as part of the program include improving the sidewalks and signs on the 1.5 kms of the route, repairing the street lamps and embellishing the school zone.

For the implementation of the program, the city council created a walking map to promote the safe school route. The map indicates the location of the school, streets and passageways that form part of the route.

2.2.1.3. Model School Zone

The principal aim of the Model School Zone project currently being conducted in 10 member countries of Safe Kids Worldwide is to improve the safety of pedestrians around schools by assessing the school zone and undertaking specific interventions, focused particularly on permanent improvements to the environment and infrastructure.

The initiative comprises three stages:

- 1) Analysis of infrastructures and patterns of behavior

- 2) Implementation of specific measures to improve infrastructures
- 3) Final evaluation

During the first stage a high-tech vehicle developed by IRAP (International Road Assessment Program) assesses the current situation. The vehicle is equipped with five cameras, GPS and computers to measure the flow of traffic and pedestrians on the streets. The data provided by the tool is analyzed and a report is then drawn up with recommendations on the improvements required.

Initiative in Brazil

The aim of the project in the city of Santa Rita, Paraíba, currently in the second stage, is to improve the safety of pedestrians around schools by undertaking assessments and actions in the classroom and implementing a variety of interventions. The main focus is on improving the environment and infrastructure by building sidewalks and pedestrian crossings, installing horizontal and vertical signs, and conducting awareness-raising campaigns in the community. Volunteers and road safety professionals also carry out assessments on pedestrian safety.



Source: www.redocara.com

The initiative promotes the safety of pedestrians around elementary schools, defined in the project as "school zones".

The school zone often includes the streets adjacent to the school and, in general, one or two blocks around it. A carefully-planned school zone with traffic reduction measures reminds motorists of the importance of exercising particular caution in the area.

The goal for 2015 is to reduce the number of road-

related fatalities in children between 0 and 14 years by 25%.

Initiative in Mexico

This project in Mexico has the same aims and objectives. In this country, more than 80% children go to school on foot and more than 1,000 children are run over per year during those journeys. The project is currently in the first phase, "Analysis of infrastructures and patterns of behavior at the school involved".

2.2.1.4. To school by bike and walking bus in Bogotá, Colombia

The project is an inter-institutional initiative to encourage safer and healthier mobility patterns among school children by implementing actions and infrastructures, educational programs and safety measures, and designing routes accompanied by guides and facilitators for children who cycle or walk to school.



Source: www.recodara.com

The goal for the end of 2014 is to involve 5,000 pupils from 40 educational establishments in four Bogotá districts, to coordinate the presence of assistants and monitors to guide bike users on 12 safe routes, to support the implementation of safe pedestrian networks, to train 200 groups of pupils how to use, maintain and handle a bike in public spaces, and to promote the popularity of bikes and create the necessary infrastructure to ensure safe bike routes to school.

In 2011 the District Mobility Unit also launched the "Positive Bogotá Walking Bus" strategy aimed at coordinating efforts to ensure safe journeys for children between ages 5 and 10 from 40 schools.

2.2.1.5. Walking bus: Safe routes in Barranquilla, Colombia

Colombia

"Pedibús: caminos seguros" (Walking bus: safe routes) was launched in February 2014 by Barranquilla City Council and the New City Foundation in 22 schools located in the urban areas along the TRANSMETRO route. Through awareness-raising activities, the strategy aims to involve the educational community, parents, school principals, teachers, pupils and the local industry in the transformation of the itineraries used by school children into safe routes with more appropriate infrastructures.

The ultimate aim of the initiative is to avoid risks and potential accidents during the journeys that children make every day to and from school. More than one thousand children travel in groups every day along the same route, escorted by older school children and adults who teach the younger ones how to keep to the sidewalks and only cross at the pedestrian crossings, to recognize and respect the road signs, to wait for traffic lights to change, and to look both ways before crossing the road.

2.2.1.6. "Bicicole" program in Lima, Peru

In 2011 the Metropolitan Council of Lima launched a sustainable mobility plan for schools which included the "Al cole en bici" (To school by bike) program to encourage the use of bicycles as an habitual mode of transport from early childhood and thus promote physical exercise and a healthy lifestyle among school children.

Targeted at children in the Peruvian capital's educational establishments, the initiative is being phased in gradually and includes designing safe bike and pedestrian routes for use by school children.

Children who live within a 5 km radius of their school are chosen to participate in the bike and safe school route initiatives. Within this radius, the authorities and school community define meeting points from which the "bike trains" set off for the school and vice versa.

2.2.1.7. "City of Children" project. Various countries in Latin America

The principal aim of the "City of Children", launched in Fano, Italy, in May 1991, is to create a safe environment in which children can go out to meet up with friends or play in public spaces without an adult escort, for example by walking from their back yard to the sidewalk, from the public square to the local gardens, from their home to school, etc.

Although the project adopts a wider perspective than the one considered here, we have included it because it recognizes that the first step in returning independence to children between ages 6 and 11 is to ask them to make the journey to and from school on their own, without an adult escort.

The project also acknowledges the importance of involving the local authorities by persuading them to make infrastructures more user-friendly for pedestrians and cyclists, rather than always favoring motorists. Specifically, the project makes reference to improving and maintaining the condition of horizontal signs, intervening in danger spots and launching long-term strategies to encourage the mobility of pedestrians and cyclists by involving neighborhoods in the experience.

Since the early 1990s Fano City Council has been inviting the mayors of Italian cities to join the project, has promoted initiatives that have involved hundreds of cities and schools, and has organized international gatherings for children, educators and administrators.

Between 2001 and 2008 Rome acted as the lead city in the "City of Children" network. Today, that network includes around 20 Spanish towns and cities, grouped around the cities of Barcelona, Madrid and Valencia. Moreover, more than 60 Latin America cities have joined the international project and now form part of the Latin American Network. Specifically, there are more than 40 in the Santa Fe network, 17 Argentinian cities and several cities in Paraguay, Uruguay and Chile. The Colombian cities of Bogotá and Medellín and the federal capital of Mexico are currently exploring the possibility of joining the network.

2.2.2 Other International References

2.2.2.1. Healthy and Bicycle-Friendly School Roads

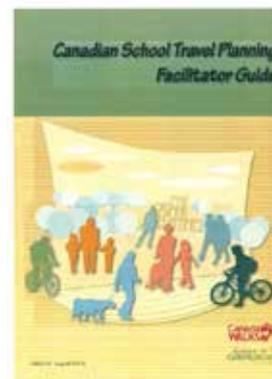
In 2012 the Danish Cancer Society published a guide with technical recommendations on infrastructures and good practices to encourage children to cycle to and from school. The institution's goal is to change habits and promote physical exercise among certain sectors of the child population, based on the view that bike journeys of at least 10 minutes contribute to the 60 minutes of physical activity recommended in children and young people. This change toward greater physical activity derived from cycling has important health benefits. According to recent studies mentioned by the Danish Cancer Society, once children acquire the habit of cycling, they use this mode of transport for all their journeys, not just for getting to and from school.

The guide's ultimate aim is to shape municipal policies by highlighting and analyzing good practices.

2.2.2.2. Canadian School Travel Planning

Canada Walks is an initiative by Green Communities Canada which encourages people to walk more. One of the programs it pursues, called "Active & Safe Routes to School", was launched in 1996 in Ontario as a pilot project and consists in creating a model framework for planning school travel in Canada.

Today, the Active & Safe Routes to School program is a national movement aimed at promoting mobility and safety for children. The program has its own website with information about all the existing initiatives as well as a set of support tools for implementing the "School Travel Planning" program.



A global program, "School Travel Planning" aims to increase the number of active safe routes to schools by involving all the stakeholders in the process: school councils, municipal transport planners, engineers, the police, parents, pupils, etc.

As part of the program, analyses are carried out to assess the barriers on school routes and this information is then used to develop and implement action plans.

One of the tools developed within the framework of the program is the "Canadian School Travel Plan: Facilitator Guide", published in 2012 to help professionals plan school journeys. The document describes five key phases – setup, data collection, action planning, implementation and monitoring – and offers a step-by-step guide to the whole process.

"The Costs and Benefits of School Travel Planning Projects in Ontario", published in January 2014, is the first cost-benefit analysis of safe school routes in Canada and offers a basic methodology for evaluating STP models. The report analyzes the results of 19 programs in different communities in Ontario, assessing the potential economic, health and

environmental benefits to be obtained in each case by encouraging more children to walk or cycle to school.

2.2.2.3. School Travel Plan in the United Kingdom

The United Kingdom is a world leader in terms of the developing and implementing "school travel plans", a concept launched in 1997-1998. Between 1998 and 2003, more than 2,000 schools drew up travel plans, many of them with the help of school travel advisors and with funding from the Department for Transport.

In September 2003 the Department for Transport (DfT) and the Department for Education and Skills (DfES) launched a nationwide joint school travel plan initiative to encourage schools to develop their own travel plans.

The initiative continues to this day, with funding for school travel plan advisors as well as direct grants to schools to help them implement the measures identified in their action plan.

» School Travel Plan support program

In addition to the nationally and regionally-funded teams of school travel plan advisors, the program has compiled a vast collection of educational and promotional materials for creating these plans. Some of the guides are available in print and others online. Additionally, numerous communities, towns and cities across the country have their own websites with information about programs and different resources for their implementation.

These tools play a vital role in enabling the many groups involved in the school travel plan scheme to share information and best practices. These are some of the main resources available:

» STP Guides / CD Resources:

- The resources guide specifically for schools is entitled "A Safer Journey to School". The guide offers an introduction to school travel plans for parents, teachers and road administrators. It can be downloaded from this link: <http://webarchive.nationalarchives.gov.uk>
- Two key guides specifically targeted at local education authorities:
 - * "Traveling to School: A Good Practice Guide". This guide is targeted at local education and transport authorities and describes what schools, local authorities

and bus operators around England are doing to promote walking, cycling and public transportation to reduce the use of private cars for school runs.

The document can be downloaded from this link:

<http://webarchive.nationalarchives.gov.uk>

- * "Traveling to School: An Action Plan". The aim of this action plan is to help schools and local education authorities to encourage school children to walk, cycle and use public transportation. It can be downloaded from this link:

www.dft.gov.uk/Stellent/groups/dft_susttravel/documents/page/dft_susttravel_024011.pdf

- Local authorities often produce their own materials:
 - » STP websites and other support materials:
 - ModeShift (www.modeshift.org.uk) is a professional association that promotes sustainable school travel. This online resource facilitates the creation of networks and opportunities to share knowledge, as well as regular seminars.
 - The Department for Transport website provides access to survey results, reports and guides (www.dft.gov.uk/local-transport/schooltravel).
 - Sustrans, a not-for-profit organization that promotes sustainable transport, has a website focused on safe routes to school (www.sustrans.org.uk/what-we-do/safe-routes-to-schools).
 - A few local authorities offer access to their own customized materials online, such as:
 - Thameside (www.tameside.gov.uk/tmbc5/travelplans.htm)
 - Buckinghamshire County Council (www.buckscc.gov.uk/bcc/transport/school_travel_plans.page)
 - Hampshire County Council (www.hants.gov.uk/schooltravelplans/index.html)
 - Some local authorities have designed other unique programs to encourage schools to create an STP or motivate them to implement

and continuously review their STP.

» Results:

Up to 1999, just over 500 schools were in the process of implementing an STP.

By 2003 there were 2,000 school travel plans in place, encompassing more than 10% of all schools in the United Kingdom.

Although it is difficult to provide accurate information, in 2006 an estimated 50% of schools had implemented their own school travel plan.

2.2.2.4. School Travel Plan in New Zealand

The New Zealand Energy Efficiency and Conservation Authority (EECA) began a nationwide campaign in 2001 to promote "walking to school" initiatives, simultaneously launching the first "Walking School Bus" tool.

Since then, the EECA has extended its program to include a school travel plan scheme inspired by the British initiative.

Most of the school travel plan activities are taking place in Auckland, the country's largest region with a population of 1.3 million inhabitants.

Between 2003 and 2006 Auckland carried out the "Auckland Sustainable Cities Program", in which the central government and town and city councils worked together on projects designed to address three key transport issues in the region, one of which was school travel.

In July 2006 Land Transport New Zealand became responsible for the coordination of programs to encourage changes in mobility habits, including school travel plans.

» Results achieved in the region of Auckland

While the ultimate aim is that every school in Auckland has its own travel school plan, the results achieved so far are as follows:

- * In November 2004 at least 20 schools in Auckland had a travel plan and three had already completed it.
- * By May 2005, 50 schools in Auckland had begun to implement travel plans, and

they were already up and running in eight schools.

- * By mid-2006, 100 out of a total 500 schools in Auckland had joined the School Travel Plan scheme. More than 40 of those schools had implemented or were in the process of implementing their own plan.
- * By 2012, 319 schools in Auckland had joined the School Travel Plan scheme.
- * There has been a 58% decline in traffic accidents around schools that have a safe school travel plan.

» Resources Guide/Template/Video



* School Travel Plan Coordinator's Guide. Available at the following address: www.nzta.govt.nz/resources/school-travel-plan-coordinators-guide/index.html.

- * Walking School Bus Coordinator's Guide. Available at the following address: www.feetfirst.govt.nz/walking-school-bus.
- * Auckland Travel Wise School Travel Plan. Available at the following address: www.travelwise.org.nz/Schools/index.cfm?id=1042

» Websites

- * Information on the national school travel plan can be found at: www.feetfirst.govt.nz/.
- * Some local authorities offer online access to information and materials: Waitakere City in Auckland Region: www.waitakere.govt.nz/AbtCit/cp/travelplans.asp#programme

2.2.2.5. School Travel Plan in Australia

Australia has demonstrated a firm commitment to promoting a nationwide change in mobility habits and the "School Travel Plan" scheme is a key initiative in Victoria. The Australian government has

allocated significant funding for projects designed to change habits, including STP programs.

At the federal level, any STP program created in Australia is included in the "Travel Smart Program", which through a federal initiative allows each state to choose its own focus.

» Resources guides / CDs:

Victoria has published a CD-Rom guide on developing a school travel plan. This multimedia guide offers step-by-step information on the process and details of the school communities that have implemented plans, as well as a set of tools comprising sample documents, ideas on what works, and a guide on how to find programs and available resources.

The use of an online guide was dismissed due to the limited speed and reliability of the Internet access in many schools and the belief that a CD-Rom would be easier to use than a complex website.

The guide is divided into two key sections: one for schools and one for local authorities. The school section comprises five chapters:

1. Getting started
2. Analyzing the current situation
3. Planning for action
4. Implementing the plan
5. Monitoring progress

The section targeted at the local government authorities contains four chapters:

1. Working with schools
2. Support for finding solutions
3. Help with planning
4. Support for implementation in schools

» Results

In the pilot project carried out in Victoria between 2003 and 2005, 33 schools completed their school travel plan.

In the period 2005-2006, the pilot project involved

two communities and worked with groups of schools in each community.

The experiences with the schools indicate that over time school travel plans generate the following benefits:

- A significant increase in the number of pupils who walk or cycle to school.
- A reduction in traffic chaos at school drop-off and pick-up times.
- Improved road safety for pupils and, as a result of the reduction in the volume of traffic around schools, quieter streets for the local residents.
- Greater engagement of families with their local community and a greater interest and involvement of parents/caregivers in school-related issues.
- Greater independence and better social skills in children.
- Better air quality around schools and a significant contribution to the reduction in green house gases and air pollution.

2.2.2.6. Walkability Audit Tool. Australia

The "Walkability Audit Tool" is a tool used in the offices of local government authorities, consultants and community groups to identify ways to improve safety and accessibility for pedestrians and explore appropriate counter-measures. The results are documented in an audit report to help town and city councils develop action plans.

These types of tools are useful in two ways: they contain everything the auditor needs to check whether a street has been comprehensively audited; and they guarantee that audits are carried out consistently and that the results can be recorded and compared.

This particular document contains information on how to organize an audit, the standards for pedestrian installations, and how to use the forms with the support information for carrying out an audit in situ.

The audit tool comprises the following sections:

General information and overall impression.

- Pathways
- Crossings
- Street furniture and signage
- Personal safety
- Adjacent traffic
- Esthetics and amenities

The guidelines also offer detailed information about specific aspects that the auditor should bear in mind when carrying out the audit.

2.2.2.7. Key programs and references in the United States

2.2.2.7.1. Safe Routes to School (SRTS)

In the United States the initiatives in this area are known as "safe routes to school" and bear a great similarity to the aforementioned school travel plan schemes.

The National Highway Traffic Safety Administration started funding SRTS programs in the year 2000 with two pilot projects: one in Marin County (California) and another in Arlington (Massachusetts). The success of these two experiences led to the development of a nationwide program financed by the federal government.

In 2005 a major federal SRTS initiative was launched, articulated through the enactment of comprehensive transportation legislation, but before then some states had already been encouraging children to walk or cycle to school through their own SRTS programs and similar projects.

California, Connecticut, Delaware, Florida, Oregon, Texas and Washington are some of the states that have introduced legislation and funding to implement SRTS.

In 2012 new transportation legislation contemplating SRTS programs was passed.

There are currently SRTS programs in every state across the nation and we have found numerous references. We have included details of the programs in Maryland and the city of Anchorage, Alaska, as

the most interesting in terms of the support tools created.

2.2.2.7.2. Safe Routes to School program in Maryland (USA)

This program was created in 2001 with a pilot project involving two schools in two Maryland cities. The Maryland Bicycle and Pedestrian Advisory Committee, made up of citizens and representatives of the Transport, Education and Planning departments, developed the program by analyzing the best existing programs in the United States and overseas and then adapting them to the needs of the state of Maryland.

The "Maryland Safe Routes to School Guidebook: A Guide for Parents and Communities" was published as part of the project to offer advice on how to create a safe route program. It also provides the necessary tools and resources to guarantee the successful implementation of a program of this nature.

The tools offered by the guide are as follows:

- Questionnaires
- A diskette containing a program to evaluate the surveys
- Ideas for ways to educate and encourage safer walking and cycling
- Descriptions of different types of physical improvements that may help the problems at a particular school
- Enforcement ideas
- Resources and potential funding sources for improvements and programs planned as part of the school project

2.2.2.7.3. "2013-2014 Safe Routes to School Manual", Anchorage (Alaska)

Every summer the Anchorage Traffic Department carries out an audit of every school zone to ensure that all the signs, pedestrian crossings and other equipment are in good condition and located in the right place for the following academic year.

The "2013-2014 Safe Routes to School Manual" contains the results obtained in the audit undertaken in the summer of 2013. The document provides information on safe routes for pupils who

walk to school. Specifically, there are maps of every school zone and pedestrian routes, as well as tips on performing the journey safely, such as instructions on how to cross the marked intersections correctly.

2.2.2.7.4. "Safe Routes to School (STRS)" online guide

This online guide, last updated in November 2013, is a comprehensive reference manual designed to support the development of safe routes to school (SRTS). It is available on the website of the National Center for Safe Routes to School.

Readers of the guide can choose specific topics according to their interests or needs, such as guidelines for school crossing guards, tools for creating school route maps, ways of including children with disabilities in SRTS initiatives, etc.

More specifically, it describes the necessary steps for establishing a safe routes to school program, based on the contents of experiences that have worked well in other communities.

The online guide contains several chapters, each divided into sections. The sections in each chapter are easily identified with sub-links.

The "Engineering" chapter contains a set of tools and a variety of engineering techniques for creating safe routes to school. It focuses on tried and tested tools for creating safe routes by improving roads, making crossings safer and calming traffic. At the same time, it recognizes the importance of a balanced environment that addresses the needs of every transport mode, be it foot, bicycle or motorized vehicle. The chapter shows examples of the locations of urban, suburban and rural schools and offers different perspectives on the engineering challenges and solutions.

2.2.2.7.5. Pedestrian and Bicycle Information Center

Founded in 1999, the mission of the Pedestrian and Bicycle Information Center is to improve the quality of life in communities by encouraging safer walking and cycling as a viable means of transport and physical exercise.

One of the sections on the website is dedicated to audits and contains information and documents related to this topic.

2.2.2.7.6. Pedestrian Road Safety Audit Guidelines and Prompt List

Although intended for pedestrians in general, we have included this document as an interesting reference.

2.2.2.7.7. Bicycle Road Safety Audit Guidelines and Prompt List

Although intended for cyclists in general, we have included this document as an interesting reference.

2.2.2.8. Model School Zone

Mentioned in the section on references in Latin America, this initiative is also being developed in the following other countries: Canada, China, India, Korea, Philippines, Thailand, United States and Vietnam.

Most of the pilot projects completed the "Implementation" phase in 2012 and are currently working on the third phase, i.e. evaluating the effectiveness of the initiative.

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PHASE 3 - Road Safety Inspection Manual for School Zones

3. Manual Overview

Although the central part of the study is designed to facilitate the work of the technicians responsible for carrying out road safety inspections, we thought it would be interesting to offer readers a complete picture of how a "safe school route" is developed by summarizing the recommended phases, objectives and steps that form part of the process.

The development of a safe school route comprises five

key stages:

- Stage 1: Preparation
- Stage 2: Data collection
- Stage 3: Development of the action plan
- Stage 4: Implementation of the action plan
- Stage 5: Evaluation

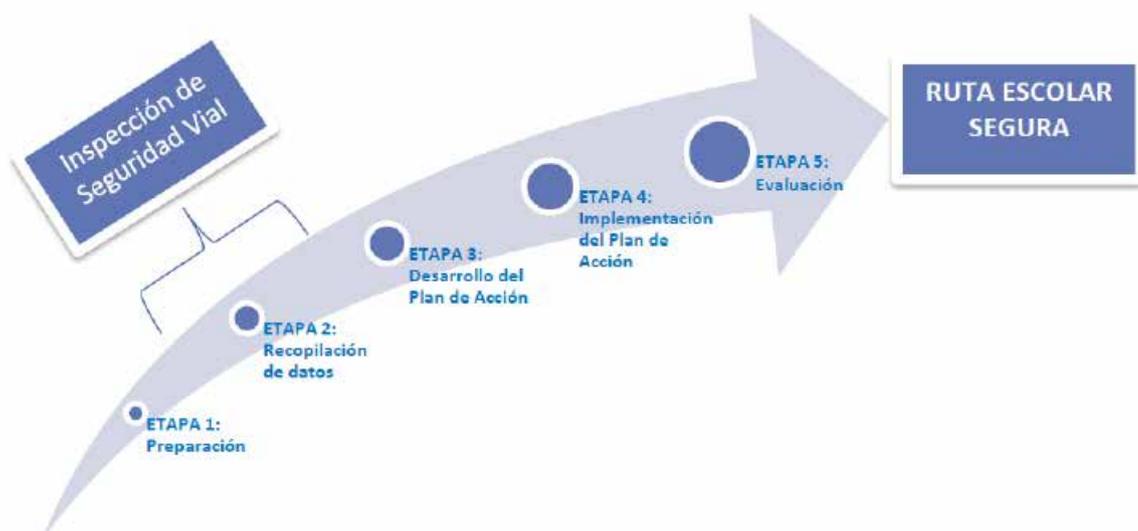


Figure 1. Methodology for developing a "safe school route"

3.1 Stage 1: Preparation

The main objectives in the setup phase of the process are as follows:

1. To identify the towns and cities interested and form a municipal committee with the stakeholders in each place.
2. To select the schools and form a committee or work group in each one.
3. To draw up a calendar.
4. To publicize the project to the school community.

In carrying out the aforementioned tasks, the following steps are recommended:

1. To identify towns and cities interested and form a municipal committee with the stakeholders in each place.
- To choose potential towns and cities and contact the decision-makers – municipal councils, transport planners, managers, technicians, etc. – to measure the level of interest and the resources available for the project.

- To select the towns and cities that will participate in the project.
- To make use of existing committees with similar interests, and on which the main stakeholders are represented, to include a safe school route project.
- To draw up a list of stakeholders for each town or city chosen. The stakeholders are vital for the success of the project and may include transport engineers, planning, education and road safety departments, school councils, the local police, etc.
- To contact the stakeholders, inform them about the project and the roles and responsibilities of the agents involved, and invite them to join the municipal committee. It may be useful to prepare an introductory document on the project.
- To draw up a written agreement with the participants containing full details of the role each member will play.

2. To select the schools and form a committee or work group in each one

- The municipal committee members may recommend specific schools that would benefit from the development of a safe school route.
- To gather as much information as possible about the selected schools that have safety issues in order to prepare your pitch to them.
- To contact the principals of the possible schools and inform them of the benefits of their participation in a safe school route project. If you have prepared an introductory document on the project, it may also be useful to explain the framework in which the different stages of the project will take place.
- To maintain regular contact with the school principal in order to resolve any queries that emerge and decide the next steps in obtaining the school's commitment to the project. This may include a formal presentation to the school staff and parents, vital stakeholders for gaining the green light for the project. You may also want to prepare a promotional leaflet for parents.
- Once the principal has approved the school's participation in the project, some form of agreement should be signed.
- To recruit members for the school committee

or work group. At least the following collectives should be represented:

- School management
- Teachers
- Parents
- Pupils, etc.

3. To draw up a calendar

- Experience has shown that projects are more successful when a calendar is drawn up at the outset. This does not mean that the schedule is written in stone. For example, if the preparation phase is longer than anticipated or the school circumstances change, the initial calendar can be adjusted accordingly.
- Advance planning of the safe school route calendar has two advantages: it guarantees that the stakeholders know when their participation is required for certain tasks, and it allows you to integrate the process with different events at the school. For example, giving a formal presentation at a parents' assembly will guarantee that a larger number of parents are informed and involved.
- It is also important to bear in mind that certain months of the year are more difficult than others in terms of working with the schools.

4. To publicize the project to the school community

- In order to inform this collective about the contents of the project and the role they are going to play, you may choose one of the following communication options, bearing in mind the resources available at the school:
 - School website
 - School newspaper (digital or printed)
 - Special meeting or presentation. This method may be useful for announcing the project, communicating the objectives and key elements, and distributing a summary of what is hoped to be achieved by implementing the project.
 - Existing school events. These may offer a useful way of interacting with parents and

inviting them to participate in the project. According to the 2012 National Health Survey, most accidents (25.3%) happened in the home. Of the people injured, 75.6% visited an emergency room and the most frequent lesions (63.5%) were bruises or superficial wounds.

3.2 Stage 2: Data Collection

The main objectives pursued by the tasks in this stage as follows:

1. To complete the school profiles and draw up a calendar of the main tasks.
2. To prepare questionnaires to gather information about the school and its transport and road safety problems.
3. To compare and analyze the information obtained from the questionnaires completed.
4. To carry out a road safety inspection in the school's area of influence.
5. To prepare a document with the main conclusions and share the results with the members of the school and municipal committees and the stakeholders.

In order to achieve the objectives established in this phase, the following steps are recommended:

1. To complete the school profiles and draw up a calendar of the main tasks

- It is important to complete the school profile with the information provided by the school principal. This task will be easier if you have a ready-made template for completion like the one included as Annex 1 to this document.
- It may also be useful to establish timeframes for the main tasks to be carried out in this phase.

2. To prepare questionnaires to gather information about the school and its transport and road safety problems

The questionnaires provide vital information about the distance of pupils' homes from the school, how they normally perform the journey to and from school, obstacles for the use of an active transport mode, parents' attitudes about the choice of

transport mode, and the safety problems on the routes commonly used. They also shed light on the relationship between choice of school transportation and parents' satisfaction.

- Questionnaires can be prepared for three different collectives:
 1. Questionnaire for school staff
 2. Questionnaire for parents

These two questionnaires can be divided into two separate sections:

- The first section gathers classification data (pupil's school year, home address) and details about the current mobility patterns for getting to and from school.
- The second section focuses on the target situation and identifies the problems that prevent it or represent obstacles.

3. Questionnaire for pupils

In this case, there are two options:

- a) To prepare a questionnaire that focuses exclusively on gathering information about the methods of transport they habitually use to go to school. Specifically, you may use a questionnaire over a period of one or two weeks that simply asks children to record how they get to school (on foot, by bicycle, public transportation, car, shared car, other, etc.).
- b) To prepare a questionnaire that gathers information about road safety aspects as well as the child's mobility patterns.

In this case, you will need to prepare a different questionnaire for at least two age groups. According to the findings of FUNDACIÓN MAPFRE and the Spanish Road Association, ideally two questionnaires should be drawn up: one for pupils between ages 8 and 12, with a more basic content, and one for pupils between ages 12 and 16.

- It is also important to involve teachers by asking them to provide assistance for the completion of both types of questionnaire.
- If there is a model questionnaire that has been used in previous experiences, the contents may need to be adapted to each school depending

on their specific characteristics and the available transport options, such as school routes. If there is a special problem that stands out, you may want to include a question related to this issue in order to assess and analyze it. However, we recommend that you do not delete or alter the contents of the most relevant questions so that they can be compared with data collected at other schools.

- With regard to the system of completion, although paper has been habitually used until now, you should consider the possibility of offering an online version or providing both options to the school staff and parents.

The online method will reduce the time spent entering and analyzing data considerably as there will be no need to enter the information manually.

Offering both methods will also reduce the time spent on this task as it will only be necessary to add the information obtained from the paper questionnaires to the data already in the system..

Whichever option is chosen, we recommend sending out an explanatory letter about the project including the benefits obtained from this type of initiative, the importance of maximum participation to guarantee its success, the estimated time required to complete the questionnaire, and a contact telephone number or email for any queries. You should attach this letter to any paper questionnaires distributed and post it to the Internet address where the online version is located so that parents can read it before they complete the questionnaire.

- To obtain information about the location of pupils' homes and the route used to walk to school, or in the case of pupils who use motorized means the route they would follow if they made the journey on foot, you can prepare a map and either send it out to parents or provide a link from which they can download and print it from the school website. The map should contain a scale bar so that families can estimate the distance of the route from their home to the school.
- To send the documentation and map to families, according to the method of completion chosen. It is vital to involve the teachers in this stage as they will need to hand out the documents to the children, collect the completed questionnaires and remind those who have not completed the questionnaire of the importance of participating in the project.

Tips to ensure maximum participation:

1. Make the process easy and simple for schools. For example, it may be more practical to provide the school with a large map for public display on which parents and children can draw their school routes.
2. Publicize the initiative as widely as possible. If you are using online questionnaires, make sure that parents know the link where they can find them and remind them again a few days before the questionnaires are posted. This will encourage wider participation and guarantee that a larger number of questionnaires are completed online.

4. To compare and analyze the information obtained from the questionnaires completed

- To enter the data from any questionnaires completed on paper. For analysis purposes, it is useful to enter this data in an Excel spreadsheet or similar format.
- To analyze the questionnaires completed by both children and their families, using graphs to make them easier to understand and publicize for the school principals and committee members. Some of the graphs you will need to use to draw conclusions are:
 - Comparison of the transport mode chosen for both the outward and return journey
 - Main reasons for traveling to and from school by car
 - Distance of the home from the school
 - Improvements or changes required to persuade parents to let their children walk to school.
- The information recorded will also provide individual profiles and problems on roads and streets near the school. For example, you should be able to identify:
 - Problems at intersections
 - Other safety risks or problems
- Additionally, if you use a large map you will be able to define all the routes and intersections commonly used.

To develop new and better routes, you will need to gather other information to help you define their course, groups of families who are neighbors, appropriate infrastructures for families who walk to school, speed, volume and type of traffic. etc.

5. To carry out a road safety inspection in the school's area of influence

A road safety inspection is an independent, detailed, systematic and technical check of the safety of the design of a road infrastructure and its equipment. Its purpose is to identify potential problems that might compromise its safety in order to adopt viable measures to remove or alleviate those problems. The chief auditor creates an inspection report on the critical design elements from a safety point of view and the deficiencies and omissions identified during the inspection, and includes details of the nature of the potential risk to safety.

Road safety audits and inspections were introduced as tools in numerous countries like the United Kingdom, Australia and the United States decades ago.

There is a vast and diverse bibliography as well as countless guides on safety audits and inspections of roads, highways and even urban zones, but relatively few references on audits and inspections in school zones.

In a road safety inspection, field work is the important part of the diagnosis. This inspection in situ is divided into three phases:



Figure 2. Methodology for carrying out field work

The recommended tasks to be carried out in each phase to guarantee the completeness and accuracy of the field work are described below.

To prepare the field work

With regard to the preparation of the field work, the technicians responsible for the task will need to prepare the aspects related to the road safety inspection well in advance. The recommended tasks

to be carried out prior to the inspection in situ are as follows:

- **To gather the preliminary information.** The team that carries out the inspection will need certain data and support material to carry out its work. Some of the details that will need to be obtained in advance of the field work are:
 - Composition and volume of traffic at drop-off and pick-up times
 - School zone floor plans and elevations
 - Site map
 - Reference technical regulations
 - Accident rate statistics for the area to be analyzed
- **Designation of the technical team that will carry out the field work.** Each school will have its own characteristics that the technicians will need to identify and interpret, so it is important to designate the people most familiar with the type and problems of the school to be inspected. Ideally, the field work team should comprise at least two people.
- **To check that all the necessary documentation is available.** The technicians who carry out the field work will need to check in advance that the following documents have been prepared during the preliminary office phase:
 - a. **CHECKLISTS FOR THE SCHOOL TO BE INSPECTED.** The checklists are the main tool used by the field work team to identify the school's existing or potential problems. The checklists included in this document may be used as a reference and, if necessary, adapted to the specific circumstances of each school.
 - b. **RESULTS OF THE QUESTIONNAIRES COMPLETED BY PARENTS, SCHOOL STAFF, PUPILS OR AUTHORITIES.** It is often important to obtain the opinion of these collectives first hand.
- **To prepare the necessary equipment and tools to carry out the field work:**
 - (a) **CAMERAS AND VCERS.** These are vital for creating a graphic record of the problems and black spots identified during the field work. They should offer high resolution

and in the case of cameras should have a geolocation function to identify the place where the photographs were taken¹.

- (b) **REFLECTIVE VEST AND TRIANGLES.** Field work on a road implies a certain risk which must be minimized by adopting the necessary safety measures. Proper equipment is crucial to ensure that field work technicians are seen by road users. The relevant authorities should also be informed well in advance of the audit and their consent and support obtained before the field work is carried out.
- (c) **DISTANCE CALCULATOR.** On occasions it may be necessary to calculate distances between items, widths of lanes or waysides, sidewalks, etc. The field work technicians should therefore be equipped with a laser calculator or, failing that, a tape measure.
- (d) **MATERIAL FOR TAKING NOTES.** Notes are usually taken on paper and the checklists are usually on paper as well, but electronic devices (mainly tablets) may also be used to simplify the documentation tasks and subsequent computerization.
- (e) **CHECKLISTS.** As explained above, the field work technicians must have the requisite checklists.

- **To program the audit for the most convenient dates and times.** Schools have certain characteristics that ideally should be reflected in the field work. It is therefore important to have advance knowledge about the drop-off and pick-up times.

It also a good idea to inform the traffic police in the school zone that a field work team will be present on specific dates, and in any case the technicians must be properly identified.

- **To convene any meetings deemed necessary.** If you need to gather information from the managers of the road infrastructure that is going to be inspected, it is advisable to schedule meetings with them in advance so that you have

¹ Some cameras automatically include the geolocation of the photographs taken. Otherwise, a GPS device can be used and the coordinates added subsequently to the photographs using computer software.

all the information you need and they have time to prepare it.

To carry out the field work

The suggested methodology for carrying out the field work is shown in the figure below:



Figure 2. Field work methodology

You should pay particular attention to the following aspects:

- **To review the tasks allocated to each team member.** If the team comprises more than one person, before you beginning collecting data on the ground you should review the role of each member so that no tasks overlap and none are omitted. If only one person is going to carry out the field work, s/he should plan the data collection process well in advance, nevertheless bearing in mind that the procedure can always be modified on the spot if warranted by the circumstances.
- **To perform a trial run.** Prior to the detailed inspection of the school zone, the field work technicians may perform a trial run in order to gain a first impression of the area to be audited. This should be video recorded so that it can be watched back at the office.
- **To carry out the detailed inspection.** During this inspection, the technicians will perform a detailed analysis of all the aspects contemplated in the checklists. It is important that they check all the safety aspects from the point of view of the different users: pedestrians, light vehicles, motorcyclists, heavy vehicles, etc. All measurements and observations will be made from the sidewalk. Stepping on the road itself could comprise their safety and the safety of others.

Road safety inspections should be carried out in both the school zones, including the area near the entrances and exists, and on the pedestrian routes

defined on the mobility map drawn up with the information provided by parents.

The "Field Data Collection Guide" chapter offers recommendations and explanations for the road safety auditors who are going to gather information using the checklists.

- To distribute a summary of the results to the two committees.

- It is also highly advisable to inform parents of the results obtained.

The figure below offers a sample table of contents for the report.

Creating and distributing the report

- Once the field work has been completed, create a report with the key conclusions drawn from the audit performed.

1. BACKGROUND

- The first section makes reference to the purpose of the report.

2. OBJECTIVES

- The principal objective of these reports is to identify existing or potential problems in the area of influence inspected and recommend possible solutions to improve road safety.

3. INSPECTION TEAM

- This section briefly describes the experience of the inspection team who carried out the field work.

4. DESCRIPTION OF THE FIELD WORK

- This section offers a detailed description of the methodology used to carry out the field work, clearly indicating the dates and times when the inspection was performed, the weather conditions at the time, the type of traffic, etc.

5. DESCRIPTION OF THE SCHOOL ZONE

- This describes the characteristics of the school and school zone, such as entrances and exits, road equipment, parking areas, bus stops, and any other aspects or elements that may impact on road safety in the area.

6. IDENTIFICATION OF PROBLEMS

- This chapter describes the safety problems identified outside the school and in the immediate vicinity.
- The problems should be grouped by common aspects (e.g. course of route, equipment, road surface, etc.) and with their precise whereabouts. Photographs should also be included to illustrate the problem more clearly.

7. RECOMMENDED SOLUTIONS

- At least one solution should be recommend for each problem.
- Actions should also be prioritized.

8. FOLLOW-UP PLAN

- A follow-up plan should be proposed to check the efficiency of the measures proposed.

Figure 3. Suggested table of contents for field work report

3.3 Stage 3: Development of the Action Plan

The main objectives in this phase of the process are as follows:

1. To draw up an action plan
2. To discuss the action plan with the stakeholders
3. To finalize the procedures for creating a safe school route and gaining the stakeholders' acceptance

The recommended steps to bear in mind are described below:

1. To draw up an action plan

- To hold an initial meeting with the school committee to present a battery of ideas related to the challenges identified.
- Next, to hold several different meetings to discuss specific issues and develop the plan more fully. Minutes should be taken at each meeting to record and follow up the topics discussed.
- It is important for a town or city council technician to attend these meetings in order to provide the specialist point of view to the critical points.
- It is also important to prioritize the problem areas and possible solutions and choose the items to include in the action plan.
- To explore all the possible solutions, including those related to engineering, education, stimulation, political strategies, etc.
- Not to focus exclusively on the school zone. Bear in mind possible improvements in other zones and roads within the school's area of influence.
- To make sure that the proposed solutions are clearly defined and measurable (if possible), that the people responsible for implementing them are designated, and that there is a deadline for completion.

2. To discuss the action plan with the stakeholders:

- To seek feedback from the school community and stakeholders. This is a very important step for gaining the acceptance of these collectives.

To simplify this step, you can inform them that the action plan is now available and invite anyone interested to request a copy and provide feedback.

- To continuously update the contents of the action plan in accordance with the feedback received from the school community.
- It will be difficult to implement a plan with tasks assigned to people who have not previously committed themselves to the project.

3. To finalize the procedures for creating a safe school route and gaining the stakeholders' acceptance

- Once the action plan is complete, the process for creating a safe school route is almost ready for approval by the different stakeholders at the school and the members of the municipal and school committees.
- You may want to hold a final meeting to discuss how the route will be monitored and updated in the coming years, but this is optional.
- To circulate the document with the proposed safe school route among the committee members so that they have a chance to review it.
- To add any feedback and obtain the signatures of the committee representatives.

3.4 Stage 4: Implementation of the Action Plan

The objectives of the implementation phase are:

1. To support the implementation of the action plan points
2. To inform the school community of the impact of the strategies implemented.

You should pay particular attention to the following aspects:

1. To support the implementation of the action plan points

- To consider safety when the priorities are established.
- The action plan may be implemented

progressively, beginning with the points that can be dealt with in the short term, such as changing signs, introducing a "walk to school day", etc.

- One of the project leaders must take responsibility for supervising the implementation process.
- To announce the completion of the process, for example through circulars, notice boards, the school website, presentations at parent assemblies, etc. You may also choose to give a presentation to the school community at an event where all the stakeholders, parents and other participants in the process are likely to be present.
- The school committee or work group should meet on a regular basis to analyze progress and discuss any problems that may have arisen with any of the action plan points.
- To identify and remove any obstacles that hinder the implementation of the action plan. To solve implementation problems. For example, not to promote the use of a pedestrian route until all the infrastructure works have been completed. Although safety is always the key consideration, provisional measures may be introduced until these works have been completed, such as pedestrian routes escorted by an adult.

2. To inform the school community of the impact of the strategies implemented

- Celebrating the most important milestones may offer a way of maintaining interest and enthusiasm for the project and acknowledging people's contributions. There are different ways of doing this, from an article in the school newspaper announcing the completion of a task, a post on the school website, or even an article in the local newspaper.

In addition to describing the action completed, it is important to emphasize the impact that these changes are going to have on pupils, parents, school staff, etc.

3.5 Stage 5: Evaluation

The main objectives in this follow-up phase of the process are as follows:

1. To repeat the data collection task to obtain information on mobility

2. To process and analyze the data
3. To communicate the achievements
4. To communicate the results and the lessons learned
5. To update and supervise the changes

In this respect, the following aspects should be taken into account:

1. To repeat the data collection task to obtain information on mobility and safety

- With the assistance of teachers and other workers at the school, repeat the same questionnaire used in Stage 2 in order to compare the results obtained on both occasions.
- With the assistance of teachers and other workers at the school, do the same with the questionnaire for parents. As indicated in Stage 2, you will need to decide whether the questionnaires are going to be completed online or on paper, or whether you are going to offer both options.

2. To process and analyze the data

- As in Stage 2, if you have decided on paper questionnaires, enter the data obtained from both the children and the parents.
- You must process the data provided in these questionnaires in exactly the same way as in Stage 2 to guarantee the comparability of the results obtained on both occasions.
- To create graphs to illustrate the trend detected between the initial situation and the current one.

3. To communicate the achievements

- To keep the school community informed of any key developments resulting from the collection of the follow-up data.

4. To communicate the results and the lessons learned

Having obtained the relevant permissions, publish the results in the local press, articles, school website, conferences on the topic, etc.

5. To update and supervise the changes

- The project contents should be updated and reviewed on a regular basis.

- Data from the parent and pupil collectives should be collected on a regular basis via questionnaires similar to the ones used previously.
- It may also be useful to carry out regular road safety inspections in the school's area of influence and record the volume of traffic on the access road(s).
- To remain open to other ideas and solutions not contemplated in the initial approach.

4. Field Data Collection Guide

The tools described in Section 4 of Stage 2 of this document will be used for collecting data in the field. Below are recommendations and explanations for the road safety inspectors who are going to gather information using the checklists.

Creating and distributing the report

The inspectors should gather all information that helps to identify the main characteristics of the school that is going to be analyzed in the road safety inspection. The main aspects to record in this section are listed below.

- Name of school
- Address
- Number and location of entrances
- Cycle of education imparted at the school
- School day
- School hours, lunch time, extracurricular activities and extended hours
- Number of pupils in each cycle of education
- Number of pupils with disabilities
- Types of school routes
- School transportation (number of routes and lines)

Additionally, to define the category of the school:

- Number of pupils
- Type of community (urban/suburban/rural)

Geometry

The geometry of the access roads in the school zone may also explain the existence of certain types of accidents. In order to rule out this possibility, it is important to check the following aspects:

- Visibility and correct perception of the school from the road in both directions well in advance
- Compliance with technical standards on horizontal and vertical bends
- Visibility on bends on access roads to the school
- Too many and overly wide lanes
- Width of sidewalk and presence of obstacles on it
- Distance between pedestrian crossings
- Raised pedestrian crossings
- Bike lane
- Pedestrian refuges

Equipment

There are numerous systems of equipment that can impact on road safety in the school zone. As regards vertical signs and traffic lights, road markings, contention systems, traffic guidance equipment, etc., the following aspects should be taken into account:

Vertical signs and traffic lights

- Advance warning of the presence of the school
- Warning to reduce speed near the school
- Warning of the existence of a pedestrian crossing
- Appropriate size of signage

- Check the visibility of the vertical signs
- Check the condition and cleanliness of the vertical signs
- Possible concealment of signs by other equipment or obstacles (billboards, trees, etc.). The inspectors must analyze this aspect from the point of view of the different users (light vehicle, heavy vehicle, etc.)
- Existence of traffic lights
- Check that the traffic lights are in the correct position
- Check that the traffic lights are in good working order
- Check the clarity of the message emitted by traffic lights
- Check the crossing times for pedestrians at traffic lights
- The inspectors should check that the traffic lights work properly, do not blink, etc.
- The traffic light elements should be kept clean so as not to render the message incomprehensible.

Road markings

- Check the existence of horizontal signs separating the directions of traffic or lanes on the access road to the school.
- Similarly, check the existence of horizontal signs along the edges of the access road to the school.
- Check the condition of the road markings and the school warning sign.
- Indicate whether the road markings are being worn away.
- The visual inspection should estimate the degree of retro-reflection from the road markings by observing the microspheres in the paint, principally by checking their existence and density.
- Concrete paving, which is lighter than bituminous surfaces, often lacks sufficient contrast with the road markings. You should therefore check that there is sufficient contrast between the horizontal signs and the paving (for both white and yellow

markings).

Other types of equipment

- Check the existence of bollards to prevent illegal parking
- Review the condition of the bollards
- Check the existence of safety rails for pedestrians
- Examine the condition of the safety rails for pedestrians
- Check the existence of speed bumps and any other traffic calming devices installed
- Analyze the condition of the speed bumps and other devices

Damage to the road surface can cause motorists to lose control of their vehicle. The most common types of damage in rigid (concrete) and flexible (bituminous) surfaces are indicated below.

- For bituminous surfaces, record the existence of longitudinal and transverse cracks, potholes, medium-sized or deep ruts and exudation.
- For concrete surfaces, record the existence of longitudinal or transverse fissures on the pavers, broken corners of pavers, raised pavers, loss of coarse aggregate, uneven pavers in areas adjacent to joints, potholes, surface adhesion loss, broken transverse joints, excessive joint openings, and defective joint seals.

Roadsides and contention systems

- Veering off the road is one of the most frequent types of road accidents. It is therefore important to check for the existence of dangerous obstacles on the sides of the access road(s) to the school.
- The existence of such obstacles would require the implementation of contention or protection systems. The inspectors must indicate the presence or absence of this equipment.
- An inadequate installation of contention systems can cause problems in the event of an accident.

- Contention systems are exposed to the elements and road traffic, and may not fulfill their function if not properly maintained. The inspectors should check the height and horizontality of the system as well as any evidence of rusting, corrosion, missing screws, etc.
- They should also indicate whether there are any dangerous objects on the sides of the roads adjacent to the school.

Traffic

The composition of the traffic can lead to risk situations in certain circumstances. As regards observing and assessing the volume of traffic, observers may be positioned at the school entrances, to calculate the number of pedestrians, cyclists and vehicles that arrive there, irresponsible behavior, U-turns, pedestrians crossing at the wrong place, etc. Depending on the number of support staff available, either a single traffic observation exercise may be carried out or traffic may be counted over the course of several days.

If there is sufficient budget and personnel, traffic should be counted over the course of a full week. Otherwise, the exercise should be performed on at least three separate days. Observing and counting are laborious tasks that should be performed by several people.

The exercise should last at least 30 minutes and be performed at both drop-off and pick-up times on the designated days.

If there is no precise data about the traffic intensity or pedestrian flow, high, medium and low estimates should be provided based on direct observation and the nature of the road.

ANNEX 1. Sample questionnaires

Questionnaire for teachers/parents/gatekeepers

FUNDACIÓN MAPFRE



ENCUESTA PARA PROFESORES/PADRES/CONSERJES “Por la seguridad de nuestros hijos”

Centro Escolar:
Curso:

1. ¿Cree que los niños están suficientemente informados sobre aspectos de seguridad vial que necesitan conocer en sus desplazamientos del colegio a casa?

a) Nada	
b) Poco	
c) Bastante	
d) Mucho	

2. ¿Se imparten periódicamente cursos de educación vial en el colegio?

SI NO No sabe/No contesta

3. ¿Considera adecuados el enfoque y contenido de estos cursos?

SI NO No sabe/No contesta

4. ¿Cree que los niños están concienciados de su condición de “usuarios vulnerables” y de las posibles consecuencias en caso de accidente?

a) Nada	
b) Poco	
c) Bastante	
d) Mucho	

5. ¿Considera responsable el comportamiento de los niños en los trayectos cortos de casa al colegio y viceversa?

a) Muy responsable	
b) Responsable	
c) Bastante responsable	
d) Poco responsable	
e) Nada responsable	

6. ¿Cree usted que el comportamiento de los adultos es una buena referencia para los niños?

a) SI	
b) A VECES	
c) NO	

7. ¿Considera que las carreteras y/o calles de acceso al colegio proporcionan suficientes condiciones de seguridad (semáforos, ancho aceras, pasos de cebra, señales informativas, zona de aparcamiento,...)?

SI NO No sabe/No contesta

8. ¿Cuáles de las siguientes frases son VERDADERAS? (marque con una X todas las que considere oportuno)

a) No hay pasos de peatones cerca del colegio	
b) No hay vallas de protección en zonas peligrosas	
c) No hay un Policía Local a la entrada o salida del COLE	
d) Las aceras son muy estrechas	
e) Los coches circulan muy deprisa en las calles próximas al COLE	
f) Los coches aparcan en los pasos de cebra y no puedes cruzar por ellos	
g) Los coches aparcan en cualquier sitio y se forman atascos	
h) Faltan zonas de aparcamiento para motos y coches	

9. ¿Ha presenciado alguna situación de peligro en las zonas próximas al colegio?

SI NO No sabe/No contesta

10. En caso de que su respuesta haya sido afirmativa, ¿Cuál fue su origen?

a) Imprudencia del peatón	
b) El conductor iba demasiado rápido	
c) El conductor iba despistado	
d) El conductor se saltó el semáforo, no respetó el paso de peatones,...	
e) Por la vía: falta de semáforo, paso de peatón, aceras estrechas,...	
f) Otras causas (indique, por favor, cuales)	

11. Marque con una X las frases con las que se podría mejorar la SEGURIDAD VIAL en estas zonas:

a) Ampliar la presencia policial que regule el tráfico y sancione la falta de respecto de las normas de circulación (velocidad inadecuada, aparcamiento en zonas no habilitada, detenciones inapropiadas, giros prohibidos,...)	
b) Ampliar el número y mejorar los sistemas que regulan el tráfico en estas zonas (semáforos, pasos de cebra, refugios peatonales,...)	
c) Adecuar la infraestructura de las proximidades del colegio para priorizar los desplazamientos a pie: estrechar la carretera y ampliar las aceras, instalar badenes que obliguen a reducir la velocidad.	
d) Restringir el tráfico de vehículos en las calles de acceso al colegio a las horas de entrada y salida del centro escolar y habilitar zonas de aparcamiento en zonas colindantes.	
e) Habilitar carriles-bici para que los niños que residen cerca del colegio puedan trasladarse de esta forma sin peligro	
f) otras (indique, por favor cuales)	

12. En caso de llevar a sus hijos al colegio en vehículo privado, marque la franja horaria en la que suele dejar y recoger a su(s) hijo(s)

Franja horaria ENTRADA		Franja horaria SALIDA	
7:30 h. - 8:00 h.		16:00 h. - 16:30 h.	
8:00 h. - 8:30 h.		16:30 h. - 17:00 h.	
8:30 h. - 9:00 h.		17:00 h. - 17:30 h.	
9:00 h. - 9:30 h.		17:30 h. - 18:00 h.	
9:30 h. - 10:00 h.		18:00 h. - 18:30 h.	
Otra: indique, por favor		Otra: indique, por favor	

CONTESTE LA SIGUIENTE PREGUNTA SÓLO SI SUS HIJOS SE DESPLAZAN EN RUTA ESCOLAR

13. ¿Ha detectado algún problema de seguridad en la parada del autobús? (marque con una X todas las que considere oportuno)

a) La parada no está suficientemente visible o está mal ubicada	
b) La parada no está indicada con señales informativas previas	
c) La parada no dispone de suficiente espacio para las personas que esperan	
d) Cuando se detiene el autobús, se producen retenciones en la circulación	
e) La parada está en el sentido contrario y no existe en las proximidades un paso de peatones que facilite el cruce	
f) la existencia de coches mal aparcados impiden que el autobús se aproxime lo suficiente para que los niños suban y bajen de forma segura	
g) Otros (indique, por favor, cuales)	

14. En caso de que su lugar de residencia se encuentre en un entorno razonablemente próximo al colegio ¿Permitiría que su(s) hijo(s) se desplazase(n) a pie al colegio si fuera(n) acompañado(s) por un adulto voluntario (padre o familiar de otros niños)?

SI

NO

No sabe/No contesta

15. ¿Qué otras mejoras considera usted que se podrían hacer para incrementar la seguridad en los desplazamientos de los niños al colegio?

.....
.....
.....
.....

MUCHAS GRACIAS POR SU COLABORACIÓN

Questionnaire for pupils between ages 8 and 12

FUNDACIÓN MAPFRE



ENCUESTA PARA ESCOLARES DE EDUCACIÓN PRIMARIA (8- 12 AÑOS)

Centro Escolar:	
Curso:	Edad:

A) CONOCIMIENTOS GENERALES DE SEGURIDAD VIAL

1. Cuando llegas a un paso de peatones, debes:

a) Ponerte encima del paso de peatones y esperar a que paren los coches	
b) Esperar en la acera, comprobar que no vienen vehículos, o que éstos se paran, y entonces cruzar	
c) Cruzar muy deprisa mirando a ambos lados de la vía	

2. Los semáforos:

a) Deben cruzarse siempre cuando el muñeco está en rojo	
b) Deben cruzarse siempre cuando el muñeco está en verde	
c) Sólo tienen que respetarlos los coches, porque les pueden poner una multa	

3. En carretera, los peatones siempre:

a) Circularémos por la derecha	
b) Circularémos por la izquierda salvo que sea más seguro hacerlo por la derecha	
c) Da lo mismo circular por la izquierda que por la derecha	

4. El semáforo:

a) Siempre se cruzará cuando el muñeco esté en verde, aunque los coches no paren	
b) Se puede cruzar cuando el muñeco esté en rojo, si miramos bien y no vienen coches	
c) Nunca se cruzará cuando el muñeco esté en rojo	

5. La calzada es por donde circulan:

a) Las personas	
b) Los vehículos	
c) Los monopatinés	

B) QUÉ OPINAS SOBRE LAS ZONAS PRÓXIMAS A TU COLEGIO

6. ¿Cuál de las siguientes frases son VERDADERAS? (marca con una X lo que ves cuando vas al COLE)

a) No hay pasos de peatones cerca del colegio	
b) No hay vallas de protección en zonas peligrosas	
c) No hay un Policía Local a la entrada o salida del COLE	
d) Las aceras son muy estrechas	
e) Los coches circulan muy deprisa en las calles próximas al COLE	
f) Falta plazas de aparcamiento para motos y coches, lo cual dificulta el tráfico y en ocasiones bloquean los pasos de peatones	

7. ¿Consideras que las zonas por donde entras y sales del colegio son seguras para los peatones?

a) Muy seguras	
b) Seguras	
c) Poco seguras	
d) Inseguras	

8. Cuando vas andando al COLE, ¿Has tenido alguna vez miedo de que te atropellara un coche?

SI NO No voy nunca andando

9. Si has respondido que sí, ¿Quién tuvo la culpa?

a) Mía	
b) Del conductor	
c) De la calle (las aceras son estrechas, faltan pasos de peatones o semáforos)	

C) CÓMO TE COMPORTAS CUANDO VAS AL COLE

10. ¿Cómo vas al COLE?

a) Andando	
b) En coche	
c) En autobús	
d) Metro	
e) Tren	
f) Otros, indicalo, por favor	

CONTESTA LA SIGUIENTE PREGUNTA SI VAS AL COLEGIO ANDANDO ALGUNA VEZ

11. Cuando vas andando al COLE, ¿circulas por la calzada?

a) Siempre	
b) Casi siempre	
c) A veces	

CONTESTA LAS SIGUIENTES PREGUNTAS SI TE LLEVAN EN COCHE ALGUNA VEZ

12. Cuando vas en coche al COLE, ¿te pones siempre el cinturón de seguridad, aunque vayas en el asiento trasero?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca	

13. Cuando te lo pones, ¿es por tu propia decisión, o porque te lo indican los mayores que te acompañan?

a) Por mi propia decisión	
b) Porque me lo mandan los mayores	

14. Cuando vas en coche al COLE ¿Alguna vez has regañado a una persona mayor si has observado que no se ha puesto en el coche el cinturón de seguridad?

a) Si	
b) Alguna vez	
c) No	

D) CÓMO SE COMPORTAN TUS PADRES Y FAMILIARES

15. Cuando te llevan en coche al COLE, ¿El conductor respeta semáforos y otras señales de tráfico?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca	

16. Cuando te llevan en coche al COLE, ¿Aparcan donde está permitido?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca, porque paran en la puerta y me bajo	

CONTESTA LA SIGUIENTE PREGUNTA SI ALGUNA VEZ VAS ANDANDO ACOMPAÑADO POR UN FAMILIAR

17. Cuando vas andando al COLE acompañado por un familiar, ¿cruzan cuando los semáforos les dan paso?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca	

E) OTRAS PREGUNTAS

18. Marca con un X las frases con las que se podría mejorar TU SEGURIDAD cuando vas en coche o andando al COLE:

a) Poner más policías en las calles que están cerca del colegio para que vigilen que no hay problemas y multen a los conductores que no respetan las normas	<input type="checkbox"/>
b) Poner más pasos de peatones y semáforos	<input type="checkbox"/>
c) Poner aceras más anchas	<input type="checkbox"/>
d) Poner aparcamientos para que la persona que te lleva pueda aparcar sin molestar a los demás	<input type="checkbox"/>

19. ¿Te gustaría que se instalara un parque de tráfico móvil en tu colegio y poder participar y practicar?

Sí No No sabe/No contesta

En caso de que el parque de tráfico ya exista, ¿te parece útil y divertido?

Sí No No sabe/No contesta

20. ¿Qué otras peticiones harías para pedir más seguridad cuando vas al COLE?

.....

.....

.....

MUCHAS GRACIAS POR TU AYUDA

Questionnaire for pupils between ages 12 and 16

FUNDACIÓN MAPFRE

ENCUESTA PARA ESCOLARES DE EDUCACIÓN PRIMARIA
(12- 16 AÑOS)

Centro Escolar:	
Curso:	Edad:

A) CONOCIMIENTOS GENERALES DE SEGURIDAD VIAL

1. Crees que conoces bien las normas de tráfico y seguridad vial

a) Las conozco muy bien	
b) Las conozco a medias	
c) Sólo las normas básicas	
d) No tengo ni idea del tema	
e) No sabe/No contesta	

2. Lo que sabes sobre tráfico y seguridad vial, lo has aprendido sobre todo...

a) Porque me lo han enseñado en el colegio	
b) Porque he asistido a cursos de educación vial o parques infantiles de tráfico	
c) Porque me lo han enseñado mis padres y familiares	
d) Por conversaciones con amigos	
e) Porque estoy estudiando en una autoescuela	

3. ¿En qué zona tienen preferencia los peatones?

a) En los pasos de peatones	
b) En las zonas peatonales (aceras y refugios)	
c) En los arcenes	
d) En todos los anteriores	

B) QUÉ OPINAS SOBRE LAS ZONAS PRÓXIMAS A TU COLEGIO

4. ¿Conoces bien la carretera y calles más cercanas a tu colegio?

a) Muy bien	
b) Bien	
c) Regular	
d) Poco	
e) Nada	

5. Según tu opinión, ¿En qué condiciones se encuentran estas calles?

a) Muy bien	
b) Bien	
c) Regular	
d) Mal	

6. ¿Cuál de las siguientes frases son VERDADERAS? (marca con una X lo que ves cuando vas al COLEGIO)

a) No hay pasos de peatones cerca del colegio	
b) No hay vallas de protección en zonas peligrosas	
c) No hay un Policía Local a la entrada o salida del COLE	
d) Las aceras son muy estrechas	
e) Los coches circulan muy deprisa en las calles próximas al COLE	
f) Faltan plazas de aparcamiento para motos y coches, lo cual dificulta el tráfico y en ocasiones bloquean los pasos de peatones	

7. ¿Consideras que las zonas por donde entras y sales del colegio son seguras para los peatones?

a) Muy seguras	
b) Seguras	
c) Poco seguras	
d) Inseguras	

8. Cuando vas andando al COLEGIO, ¿Has tenido alguna vez miedo de que te atropellara un coche?

SÍ NO No sabe/no contesta

9. Si has respondido que sí, ¿Quién tuvo la culpa?

a) Mía	
b) Del conductor	
c) De la calle (las aceras son estrechas, faltan pasos de peatones o semáforos,...)	

C) CÓMO TE COMPORTAS Y COMO SE COMPORTAN TUS ACOMPAÑANTES CUANDO VAS AL COLEGIO

10. ¿Cómo te desplazas al COLEGIO?

a) Andando	
b) En coche	
c) En autobús	
d) En bicicleta	
e) En ciclomotor	
f) con varias de los anteriores	
g) Metro	
h) Tren	

CONTESTA LAS SIGUIENTES PREGUNTAS SI VAS ANDANDO AL COLEGIO ALGUNA VEZ

11. ¿Circulas por la calzada?

a) Siempre	
b) Casi siempre	
c) A veces	

12. Cuando te acompañan andando al COLEGIO, ¿cruzan cuando los semáforos les dan paso?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca	
f) No me acompañan nunca	

CONTESTA LA SIGUIENTE PREGUNTA SI VAS EN BICICLETA O CICLOMOTOR AL COLEGIO ALGUNA VEZ

13. ¿Te pones el casco?

a) Si	
b) A veces	
c) No	

CONTESTA LAS SIGUIENTES PREGUNTAS SI VAS EN COCHE AL COLEGIO ALGUNA VEZ

14. ¿Te pones siempre el cinturón de seguridad, aunque vayas en el asiento trasero?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca	

15. Cuando te lo pones, ¿es por tu propia decisión, o porque te lo indican los mayores que te acompañan?

a) Por mi propia decisión	
b) Porque me lo mandan los mayores	

16. ¿Alguna vez has regañado a una persona mayor si has observado que no se ha puesto en el coche el cinturón de seguridad?

a) Si	
b) Alguna vez	
c) No	

17. ¿El conductor que te lleva respeta semáforos y otras señales de tráfico?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca	

18. ¿Aparca donde está permitido?

a) Siempre	
b) Casi siempre	
c) A veces	
d) Casi nunca	
e) Nunca, porque paran en la puerta y me bajo	

D) OTRAS PREGUNTAS

19. Marca con una X las frases con las que se podría mejorar TU SEGURIDAD cuando vas al colegio:

a) Poner más policías en las calles que están cerca del colegio para que vigilen que no hay problemas y multen a los conductores que no respetan las normas	
b) Poner más pasos de peatones y semáforos	
c) Poner aceras más anchas	
d) Poner aparcamientos para que la persona que te lleva en coche pueda aparcar sin molestar a los demás	
e) Hacer carriles-bici y aparcamiento para bicis	

20. ¿Qué otras peticiones harías para pedir más seguridad cuando vas al COLEGIO?

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.....

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MUCHAS GRACIAS POR TU AYUDA

ANNEX 2. Checklists for road safety inspections in schools

IDENTIFYING THE SCHOOL	
NAME	
ADDRESS	
NUMBER OF ENTRANCES	
LOCATION OF ENTRANCES (name and number of street)	
NUMBER OF PUPILS	
SMALL SCHOOLS (up to 500 pupils)	
MEDIUM-SIZED SCHOOLS (up to 1,000 pupils)	
LARGE SCHOOLS (more than 1,000 pupils)	
NUMBER OF PUPILS PER CYCLE OF EDUCATION	
NUMBER OF INFANT PUPILS	
NUMBER OF FIRST CYCLE ELEMENTARY PUPILS (1st and 2nd Grades)	
NUMBER OF SECOND CYCLE ELEMENTARY PUPILS (3rd and 4th Grades)	
NUMBER OF THIRD CYCLE ELEMENTARY PUPILS (5th and 6th Grades)	
NUMBER OF FIRST CYCLE SECONDARY PUPILS	
NUMBER OF SECOND CYCLE SECONDARY PUPILS	
NUMBER OF PUPILS WITH DISABILITIES	
TYPE OF COMMUNITY WHERE SCHOOL IS LOCATED	
RURAL	
LARGE CITY	
MEDIUM-SIZED CITY	

SMALL CITY OR TOWN	
SCHOOL DAY	
TYPE OF DAY (continuous / split)	
SCHOOL HOURS	
LUNCH TIME	
TIMES OF EXTRA-CURRICULAR ACTIVITIES	
EXTENDED HOURS	
TYPE OF SCHOOL ROUTES	
FREE ROUTE	
WALKING BUS	
BIKE BUS	
PUBLIC TRANSPORTATION	
PRIVATE CAR	
SCHOOL TRANSPORTATION (NUMBER OF ROUTES / ORIGIN-DESTINATION)	
DATE OF INSPECTION	
NAMES OF INSPECTORS	
COMMENTS	

GEOMETRIC DESIGN OF THE ROADS

#	Check	YES	NO	COMMENTS
1	Is the school visible from the road in both directions and can it be seen well in advance?			
2	Do the horizontal and vertical bends comply with the relevant technical standards?			
3	Is there sufficient visibility on bends?			
4	Does the road on which the school is located have the correct number of lanes?			
5	Do the access roads to the school have the correct number of lanes?			
6	Are the lanes on the road on which the school is located wide enough?			
7	Are the lanes on the access roads to the school wide enough?			
8	Is the sidewalk on the road on which the school is located wide enough for the number of pedestrians who use it at peak times?			
9	Is the sidewalk on the roads commonly used to walk to the school wide enough for the number of pedestrians who use it at peak times?			
10	Is the sidewalk on the road on which the school is located properly maintained?			
11	Are the sidewalks on the roads used to walk to the school properly maintained?			
12	Are there any obstacles on the sidewalk of the road on which the school is located that make it unsafe for pedestrians?			
13	Are the curbstones lowered at pedestrian crossings?			
14	Are the curbstones properly lowered at pedestrian crossings?			
15	Is there any tactile paving?			
16	Is the tactile paving properly maintained?			
17	Are there curb extensions to facilitate pedestrian traffic at crossings?			
18	Do the curb extensions comply with the current regulations?			
19	Are there any raised pedestrian crossings?			

20	Do the raised pedestrian crossings comply with the current regulations?			
21	Are there any obstacles on the sidewalks on the roads used to walk to the school?			
22	Are there any linear parking strips on the road on which the school is located?			
23	Are there too many?			
24	Are there any angled parking strips on the road on which the school is located?			
25	Are there too many?			
26	Are there any bike lanes in the school zone?			
27	Is the bike lane properly maintained?			
28	Does the bike lane comply with the technical criteria in force for this type of lane?			
29	Is the bike lane consistent with the other lanes?			
30	Does the school have a specific parking area?			
31	Is the school parking area properly maintained (surface, road markings and other equipment)?			
32	Is the school parking area properly signposted?			
33	Is it large enough for the number of vehicles that use it?			
34	Is there a specific parking area for bicycles and motorcycles?			
35	Is the bicycle and motorcycle parking area properly maintained?			
36	Is the bicycle and motorcycle parking area large enough for the number of vehicles that use it?			
37	Is the bicycle and motorcycle parking area properly signposted to facilitate its use?			
38	Are there any pedestrian refuge areas?			
39	Do the pedestrian refuge areas have sufficient capacity at peak times?			
40	Do the pedestrian refuge areas comply with technical requirements established by the current regulations?			

41	Are the pedestrian refuge areas properly maintained?			
42	Is there a specific bus stop for school transportation?			
43	Is it large enough for the number of buses that use it?			
44	Is the school transportation bus stop properly sign-posted, both vertically and horizontally?			

VERTICAL SIGNS AND TRAFFIC LIGHTS

#	Check	YES	NO	COMMENTS
1	Are there school warning signs in both directions of the road on which the school is located?			
2	Are they properly maintained and clean?			
3	Are there any reduce speed signs on the road on which the school is located?			
4	Are they properly maintained and clean?			
5	Are there any children crossing signs on the roads commonly used to walk to the school?			
6	Are they properly maintained and clean?			
7	Are there any pedestrian crossing warning signs on the road on which the school is located?			
8	Are they properly maintained and clean?			
9	Are there any pedestrian crossing warning signs on the roads commonly used to walk to the school?			
10	Are they properly maintained and clean?			
11	In general, are the vertical signs necessary and sufficient?			
12	Do the vertical signs on the road on which the school is located comply with the size regulations?			
13	Do the vertical signs on the roads commonly used to walk to the school comply with the size regulations?			
14	Do the vertical signs on the road on which the school is located comply with the retro-reflection regulations?			

15	Do the vertical signs on the roads commonly used to walk to the school comply with the retro-reflection regulations?			
16	Are the vertical signs concealed by any element or obstacle? Bear in mind all the possible users			
17	Is the bike lane correctly signposted at the points where it intersects with the road?			
18	Are there any traffic lights on the road on which the school is located?			
19	Do they work properly?			
20	Do they have any defects (malfunctions, worn out LEDs, etc.)?			
21	Are the traffic lights timed properly for pedestrians?			
22	Does the dirt on the traffic lights blur or distort the message?			
23	Are there any traffic lights on the roads commonly used to walk to the school?			
24	Do they work properly?			
25	Do they have any defects (malfunctions, worn out LEDs, etc.)?			
26	Are the traffic lights timed properly for pedestrians?			
27	Does the dirt on the traffic lights blur or distort the message?			

ROAD MARKINGS

#	Check	YES	NO	COMMENTS
1	Are there any horizontal signs separating the lanes or directions of traffic on the road on which the school is located?			
2	Are there any horizontal signs along the edges of this road?			
3	Is there any loss of paint to suggest that the markings on this road are being worn away?			
4	Is the degree of retro-reflection from the road markings adequate?			

5	Are there any horizontal signs separating the lanes or directions of traffic on the roads commonly used to walk to the school?			
6	Are there any horizontal signs along the edges of these roads?			
7	Is there any loss of paint to suggest that the markings on these roads are being worn away?			
8	Is there any loss of paint to suggest that the markings on these roads are being worn away?			
9	Do all the intersections have a pedestrian crossing to guarantee continuity for pedestrians?			
10	Are the pedestrian crossings too far apart to permit the transverse permeability of the road?			
11	Are there road markings with symbols to warn of the presence of children?			
12	Is there any loss of paint on these markings?			
13	Is the degree of retro-reflection from these special road markings adequate?			
14	Is the bike lane correctly signposted at the points where it intersects with the road?			

OTHER TYPES OF EQUIPMENT

#	Check	YES	NO	COMMENTS
1	Have speed bumps been installed to ensure that vehicles slow down?			
2	Do the technical specifications of the speed bumps comply with the current regulations?			
3	Have any other devices been installed to ensure that vehicles slow down?			
4	Do the technical specifications of these devices comply with the current regulations?			
5	Are they correctly maintained?			
6	Have bollards been installed to avoid illegal parking?			
7	Are the bollards properly maintained?			
8	Are there any public transportation bus stops in the school zone?			

9	Do the technical specifications of the public transportation bus stops comply with the current regulations?			
10	Are the public transportation bus stops properly maintained?			
11	Are there any safety rails for pedestrians on the school entrance/exit sidewalk?			
12	Are the safety rails for pedestrians properly maintained?			
13	Do the safety rails for pedestrians fulfill the purpose for which they were installed?			

TRAFFIC GUIDANCE EQUIPMENT

#	Check	YES	NO	COMMENTS
1	Are there any markers like reflectors along the edges and down the center of the road on which the school is located?			
2	Is the traffic guidance equipment properly maintained?			
3	Are there any markers like reflectors along the edges and down the center of the roads commonly used to walk to the school?			
4	Is the traffic guidance equipment properly maintained?			

ROADSIDES AND CONTENTION SYSTEMS

#	Check	YES	NO	COMMENTS
1	Are there any dangerous obstacles on the roadsides in the school zone?			
2	If there are no dangerous obstacles, is there a contention system to protect users?			
3	If there is a contention system, is it properly installed?			
4	If there is a contention system, is it properly maintained?			

PAVING				
#	Check	YES	NO	COMMENTS
1	If the roads in the school zone have a bituminous surface, are there any longitudinal cracks?			
2	If the roads in the school zone have a bituminous surface, are there any transverse cracks?			
3	If the roads in the school zone have a bituminous surface, are there any potholes?			
4	If the roads in the school zone have a bituminous surface, are there any medium-sized or deep ruts?			
5	If the roads in the school zone have a bituminous surface, is there any exudation?			
6	If the roads in the school zone have a concrete surface, are there any longitudinal cracks in the pavers?			
7	If the roads in the school zone have a concrete surface, are there any transverse cracks in the pavers?			
8	If the roads in the school zone have a concrete surface, are the corners of the pavers cracked or broken?			
9	If the roads in the school zone have a concrete surface, are there any raised pavers?			
10	If the roads in the school zone have a concrete surface, are there any distress signs in the pavers or losses of coarse aggregate?			
11	If the roads in the school zone have a concrete surface, are there any uneven pavers in the areas adjacent to the joints?			
12	If the roads in the school zone have a concrete surface, are there any potholes in the pavers?			
13	If the roads in the school zone have a concrete surface, is there any surface adhesion loss on the pavers?			
14	If the roads in the school zone have a concrete surface, are there any broken transverse joints?			
15	If the roads in the school zone have a concrete surface, are there any excessive joint openings?			
16	If the roads in the school zone have a concrete surface, are there any defective joint seals?			

TRAFFIC				
#	Check	YES	NO	COMMENTS
1	Would you describe the traffic intensity at peak times as "high" for this type of road?			
2	Would you describe the traffic intensity at peak times as "medium" for this type of road?			
3	Would you describe the traffic intensity at peak times as "low" for this type of road?			
4	Is there any evidence of capacity issues on the road at drop-off times?			
5	Is there any evidence of capacity issues on the road at pick-up times?			
6	Is there any evidence of conflicts between the different types of users?			

ANNEX 3 - Sample inspection summary sheet

INSPECTION SHEET	ROAD SAFETY INSPECTION AT SCHOOL
Name of the school inspected	
Name of the infrastructure manager	
Name of the company responsible for the inspection	
Road safety inspection team	
Head of the road safety inspection team	
Inspector #1	
Inspector #2	
Inspector #3	
Inspector #4	
Date of field work	
Number of meetings held between manager and inspection team	
Meeting #1	
Date	
Agreements reached and comments	
Meeting #2	
Date	
Agreements reached and comments	
Meeting #3	
Date	
Agreements reached and comments	
Meeting #4	
Date	
Agreements reached and comments	

Meeting #5	
Date	
Agreements reached and comments	
Main results of the road safety inspection	
Final statement by chief road safety inspector	
Date and signature (chief road safety inspector)	

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