Toulouse, July 2011

SPEED MANAGEMENT STARS PROJECT

PONT DES CATALANS

Arnaud Arsuffi
Audrey Traisnel

STARS 2010 – 2011

SUMMARY

Introduction

We are two students (Fig.1) studying civil engineering at the engineering school INSA (National Institute of Applied Sciences) situated in Toulouse, France and chose to take part in the STARS project in July 2010 to lead an action to reduce speed in our home city.

Toulouse is a city in southwest France located halfway between the Atlantic Ocean and the Mediterranean Sea (Fig.2). The Toulouse metropolitan area is the fourth largest metropolitan area in France with 1.1 million inhabitants in 2006.

The city is one of the bases of European aerospace industry with the headquarters of Airbus and the CNES Toulouse Space Centre (CST), the largest space centre in Europe. Its world renowned university is one of the oldest in Europe as it was founded in 1229 and counts more than 97,000 students.

The aims of the present document are to present the innovative and low cost infrastructure we proposed to reduce speed in a strategic zone of Toulouse, detail the different steps of the project phases, expose and analyse the efficiency of the infrastructure implemented as well as the difficulties we encountered.

Figure 1 – Presentation of the team

Figure 2 – Location of Toulouse, France

I – Site to be treated

I.1. Presentation of the Urban Community of Greater Toulouse (CUGT)

To understand the different steps of our STARS project, we believe it is necessary to start with the presentation of the local authorities. The Urban Community of Greater Toulouse (Communauté Urbaine du Grand Toulouse CUGT), also simply known as Greater Toulouse, is the intercommunal structure that gathers Toulouse and its immediate independent suburbs.

It was created in December 2008, succeeding the Agglomeration Community of Greater Toulouse, and aims to better coordinate transport, infrastructure and economic policies between Toulouse and its suburbs.

The actual President of the CUGT, which is composed of 37 independent communes (Fig.3) and counts more than 703,000 inhabitants, is Pierre Cohen. Toulouse is the largest city of the urban community and is where we decided to lead our actions to reduce speed.

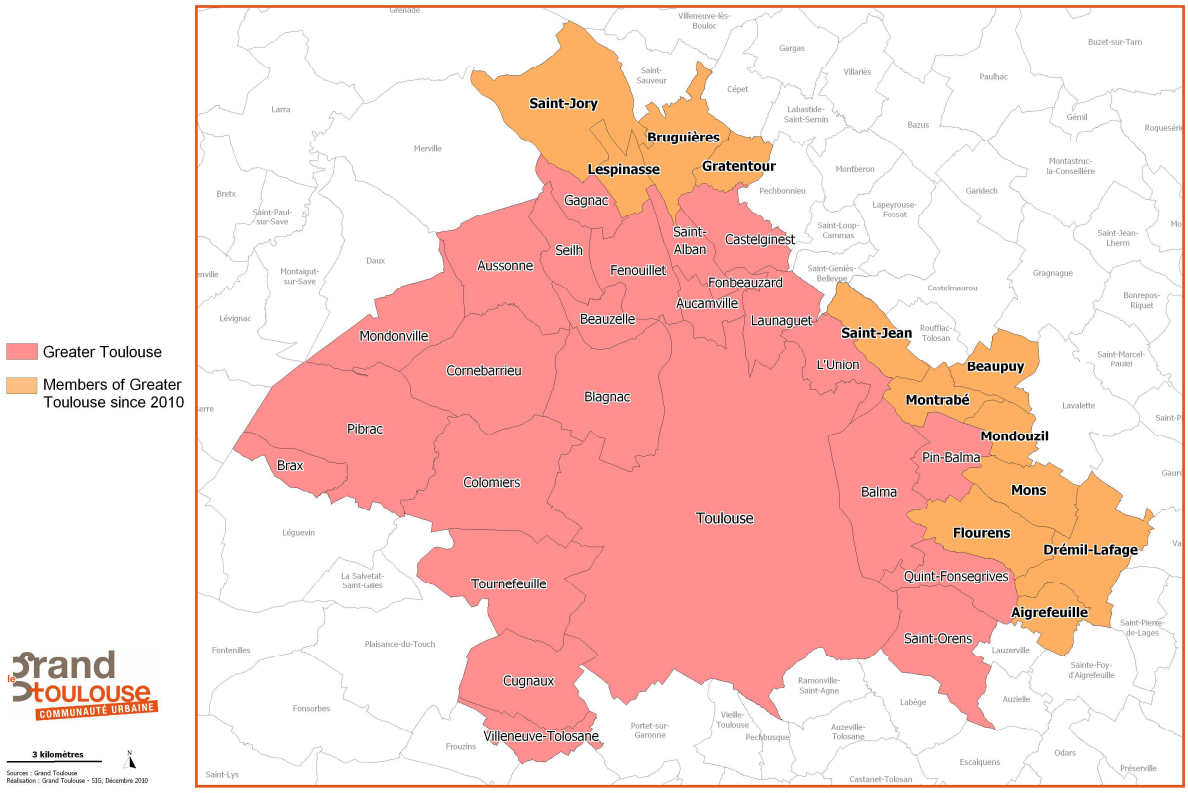


Figure 3 – Communes of the Urban Community of Greater Toulouse (1st January 2011)

Greater Toulouse is divided in 8 zones, each one having its own representatives and applying its own local policy in accordance with the global policy of the Urban Community. The limits of the zones are different from the limits of the town composing the Urban Community. The site we chose to treat is situated on the limit between Zone 1 and Zone 2 as we can see on Fig.4.

Figure 4 – Subdivisions of the Urban Community of Greater Toulouse (1st January 2011)

Although Greater Toulouse has recently invested several million euros in public transport with the creation of an additional subway line in 2007 and the inauguration of the first tramway line in 2010, the car is still extensively used all around the agglomeration.

I.2. 2009 Road safety analysis

The Urban Community of Greater Toulouse issued its first statistics about road safety in 2009. We chose to start focusing on this data to determine an appropriate zone where speed needed to be reduced.

I.2.1. Presentation of the CUGT road safety results

The road safety results for the 25 towns part of the CUGT in 2009 are as follows :

1213 accidents
16 killed
999 injured

We would like to draw attention to the fact that cars are involved in more than 50% of the accidents as we can see on the graph Fig.5. Therefore measures have to be taken to reduce the number of car accidents, which are often responsible for injuries to other users such as pedestrians. To do so the causes of accidents need to be taken into account, which is what will be analysed in the following paragraph.

.

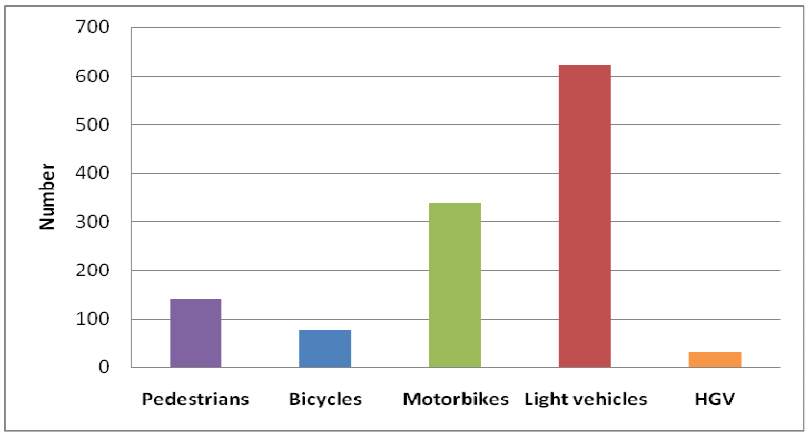


Figure 5 – Number of accidents involving injury on the CUGT road network (except highways)

I.2.2. Analysis of Toulouse road safety results

The road safety results for Toulouse are as follows :

7 killed
696 injured

The 2009 road safety results of the CUGT shows the aggravating factors are night, 18-24 year old conductors and speed. By analysing 2009 road safety data, we designed the following graphs showing the influence of night and speed in road accidents in Toulouse.

- The graph Fig.6 underlines night is an aggravating factor as more than 50% were killed at night with 4 out of 7 people killed.

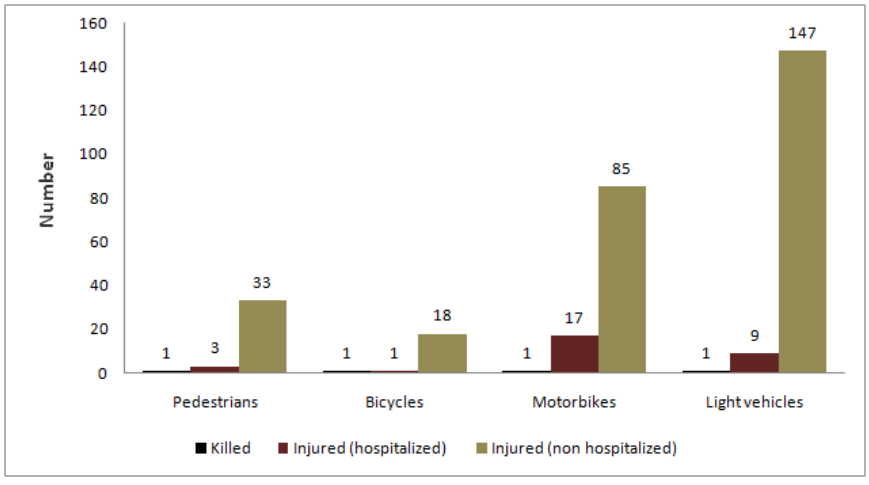


Figure 6 – Number of accidents involving injury at night in Toulouse (except highways)

- Then we notice speeding is the main problem of road safety in Toulouse by looking at the diagrams in Fig.7. Indeed speed is responsible for 17% of car accidents, 10% of motorcycle accidents, 4% of bicycle accidents and 14% of pedestrian accidents.

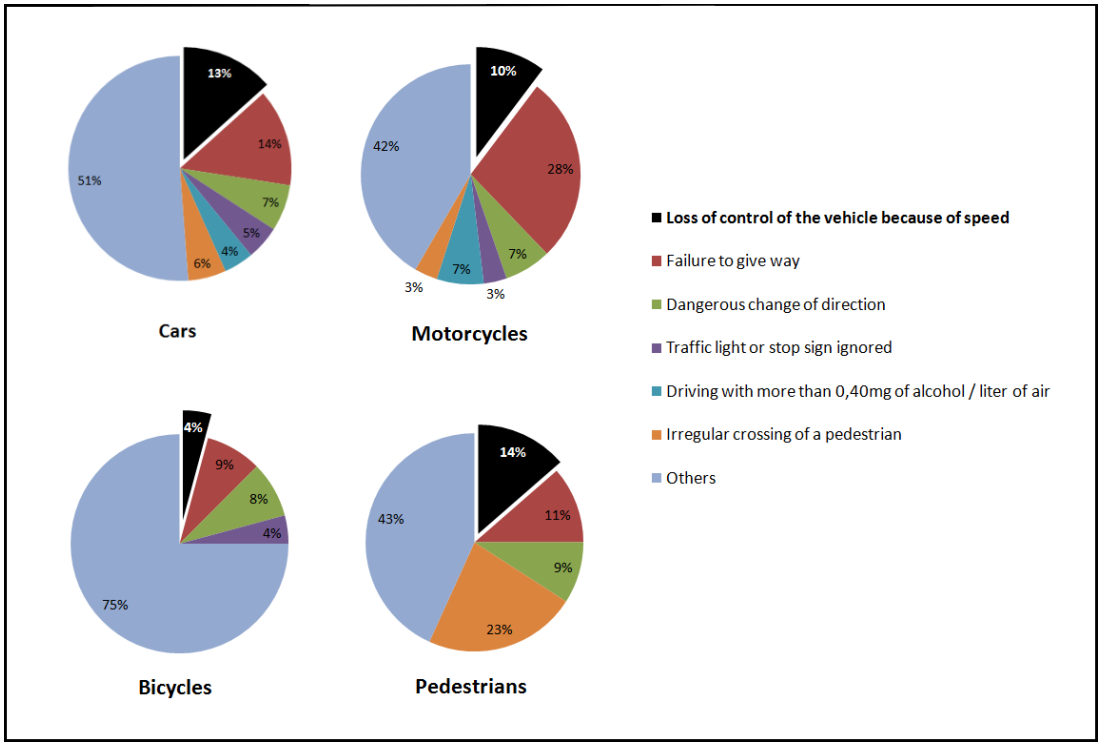
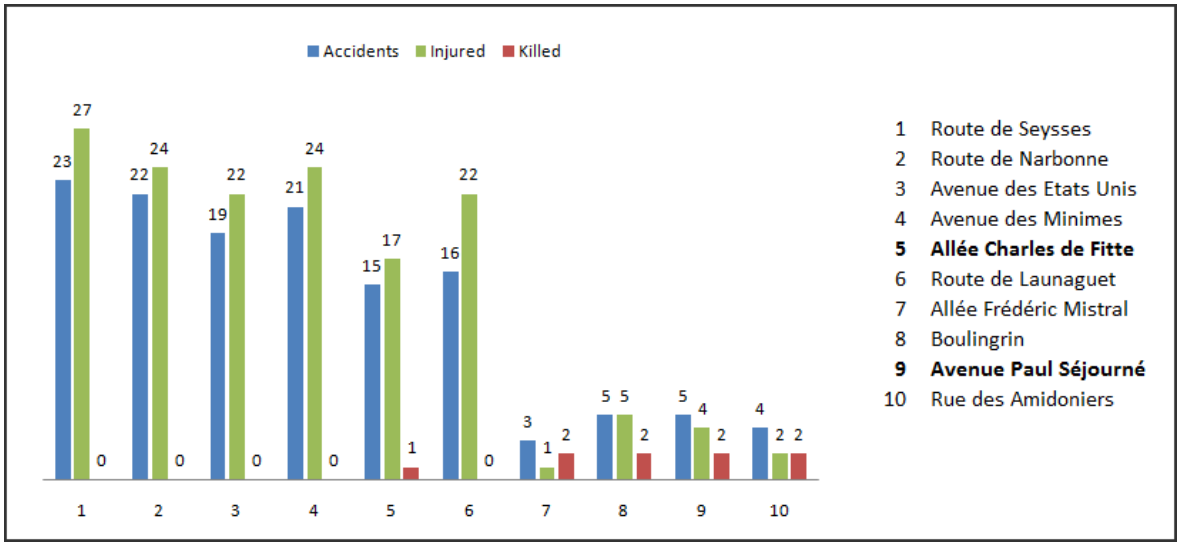


Figure 7 – Main infraction of the person responsible for the accident

We also extracted data about the different streets of Toulouse in order to make a classification of the most dangerous streets of the city (Fig.8). We chose to focus on the Allée Charles de Fitte and the Avenue Paul Séjourné, and more especially on the Pont des Catalans, which is the bridge making the link between the two streets.



In case of an intersection, application of the numbers to both streets

Figure 8 – Location of the most dangerous streets in Toulouse

I.3. Location of the site : Pont des Catalans

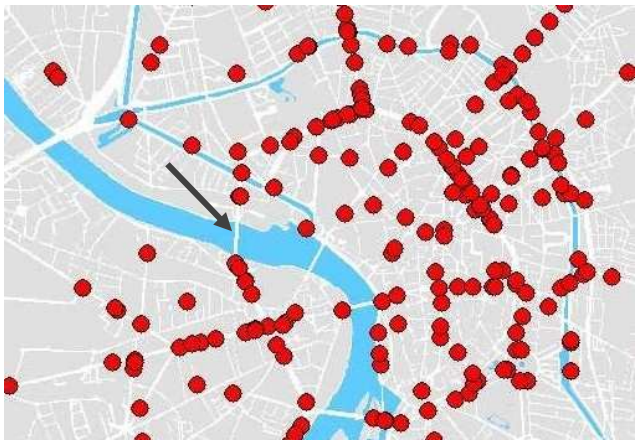
The Pont des Catalans is a 2-lane dual carriageway situated in downtown Toulouse and is a vital bond between the left and right banks of the River Garonne as thousands of commuters use it everyday.

The Pont des Catalans (Fig.9) was conceived by the architect Paul Séjourné and inaugurated in 1908. The history of the place and its architecture places it in the category of 'Monuments historiques', which is a corporation protecting French heritage.

Figure 9 – The Pont des Catalans in its environment

As we saw earlier the Pont des Catalans has another particularity ; this is one of the most dangerous sites in Toulouse (Fig.10). Indeed 17 accidents involving injuries and causing 3 deaths occurred on the bridge between 2006 and 2010.

The aim of our project is to reduce speed on the bridge and especially at night at the entrance of a dangerous bend situated at the southern extremity and leading to the Allée Charles de Fitte. Also we tried to take into consideration all users and believe the reduction of speed goes hand in hand with the improvement of cyclists and pedestrians' safety.



(1) *(2)*

Figure 10 – Location of the bridge

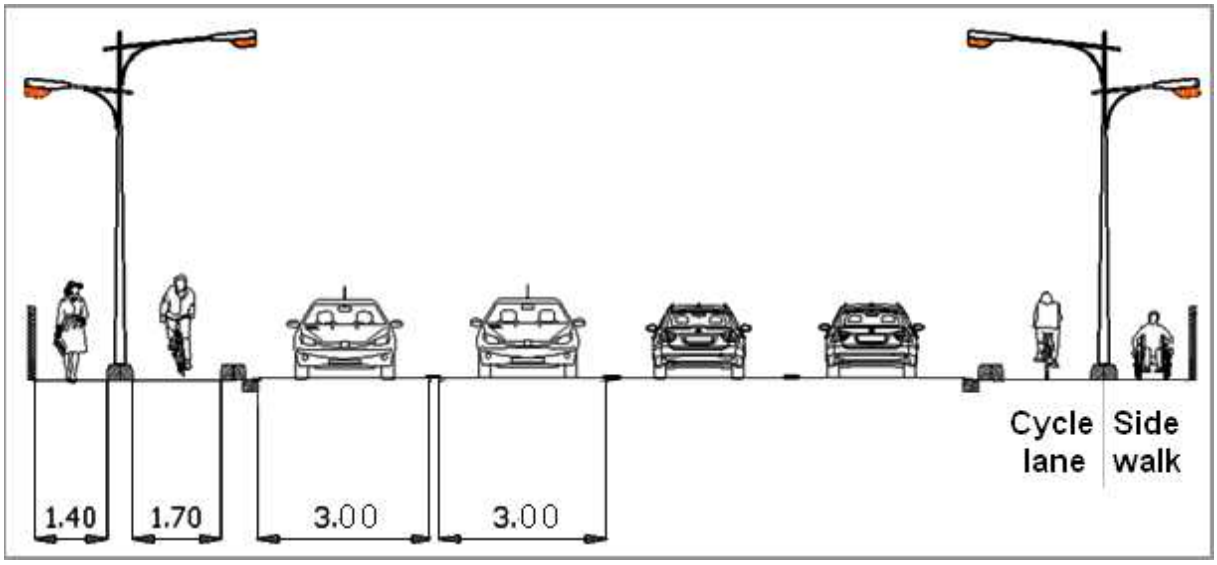
(1) Google Earth view of Toulouse
(2) Accidents involving injury on the GCUT road network in Toulouse (extracted from appendix A.1)

The speed limit on the bridge is 50 km/h and is rarely respected by car drivers. Fig.11 localizes the Pont des Catalans in the Toulouse road network.

Figure 11 – Situation of the bridge in the Toulouse road network

The general plan of the bridge can be found in the appendix (A.2). The section of the bridge with the existing lanes is presented in Fig.12 and the main characteristics of the bridge are :

- Length : 257 meters
- Width : 22 meters
- Construction materials : concrete, stone
- Description : 2-lane dual carriageway, 2 cycle lanes, 2 pedestrian lanes



Unit : meters

Figure 12 – Section of the bridge : Existing lanes

II – An innovative proposal to reduce speed on a bridge

II.1. Initial proposal

The initial proposal was to reduce the width of the existing middle lanes by creating lines on both sides of the road as well as a central no-driving zone (Fig.13 and Fig.14).

We also had a strong wish to signal the dangerous bend leading to the Allée Charles de Fitte where two people died in road accidents over the last few years. To do so we proposed the application of reflective paint on the edge of the pavement.

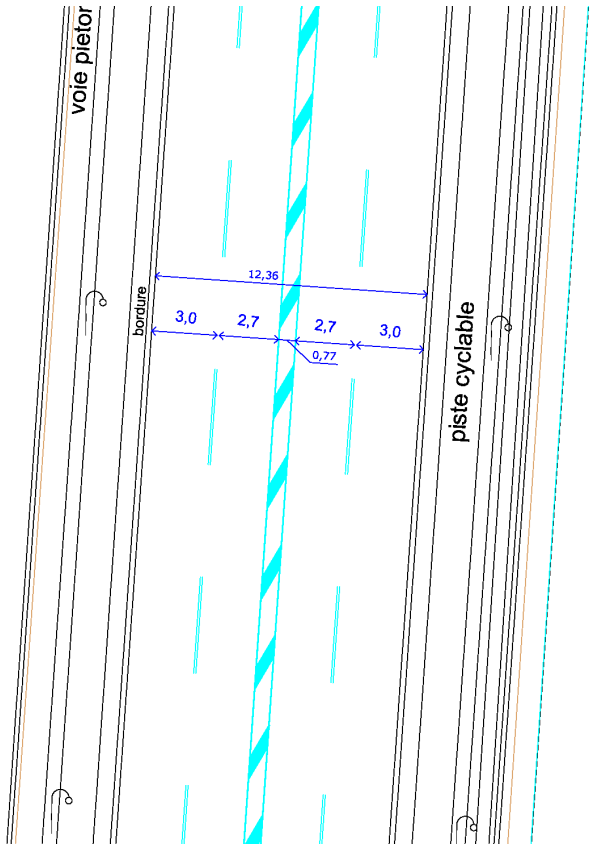
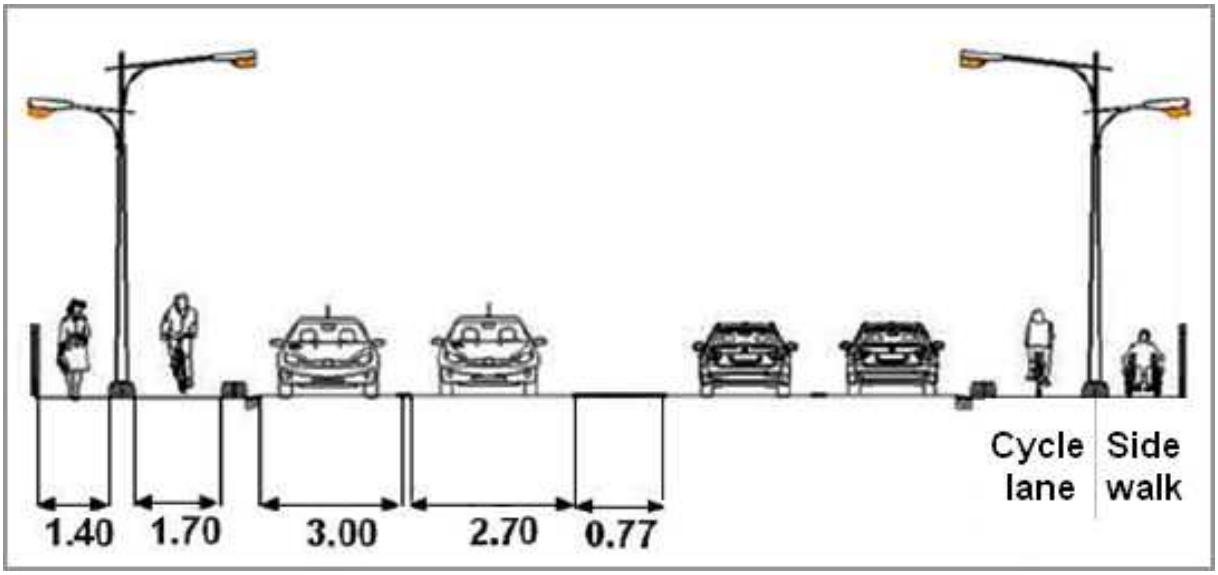


Figure 13 – Plan of the bridge : Road surface marking initial proposal (Unit : meters)



Unit : meters

Figure 14 – Section of the bridge : Initial proposal reducing the width of the lanes

The initial proposal was presented to engineers of the CUGT as well as our University teachers who were not convinced of the city council's desire to implement such a project.

II.2. Final proposal

A second proposal was established to meet the expectations of the local authorities. Here is the description of the measures we eventually proposed, followed by the advantages of this solution compared to the initial proposal.

- **Reduction of the width of the lanes**

  We still proposed to reduce the width of the existing middle lanes. But to do so we proposed to create solid lines on both sides of the road as well as double solid lines in between the two driving directions (Fig.15 and Fig.16). We also changed the length of the broken lines allowing cars to overtake.

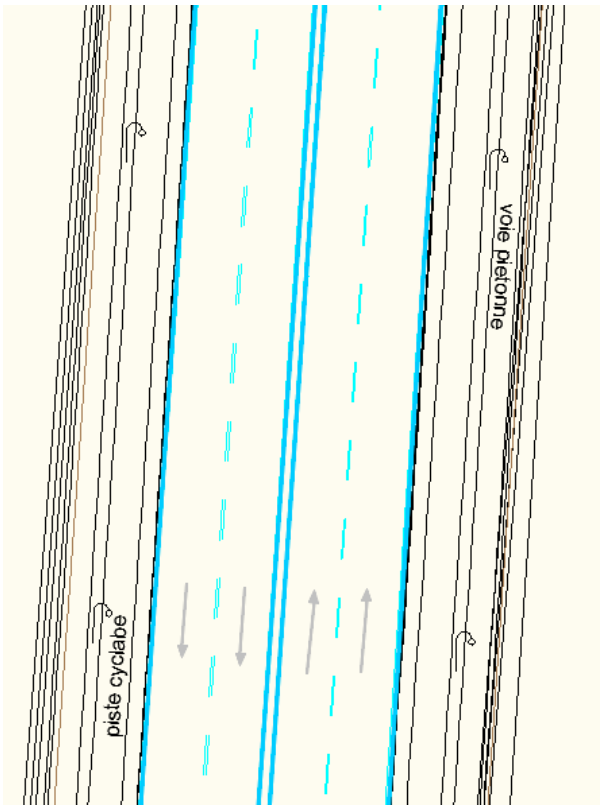
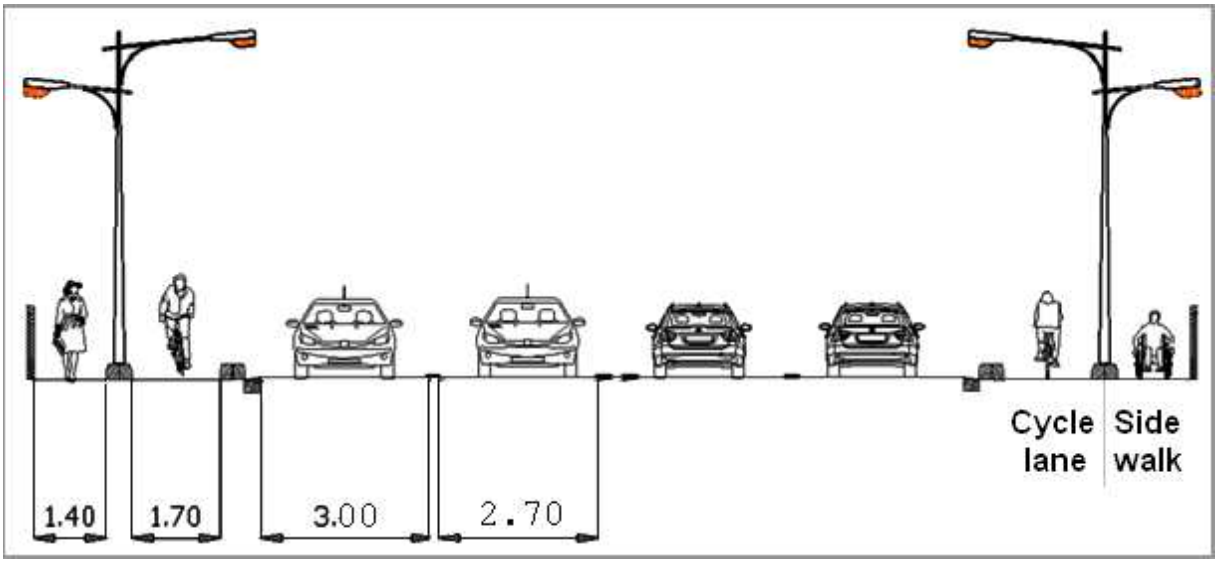


Figure 15 – Plan of the bridge : Road surface marking final proposal



Unit : meters

Figure 16 – Section of the bridge : Final proposal reducing the width of the lanes

- **Advance signal of the bend**

We proposed to install glass beads (Fig.17) to announce the dangerous bend at the southern extremity of the bridge. They would be installed both in between the two driving directions and on the edge of the pavement as shown on Fig.18.

Figure 17 – Glass beads

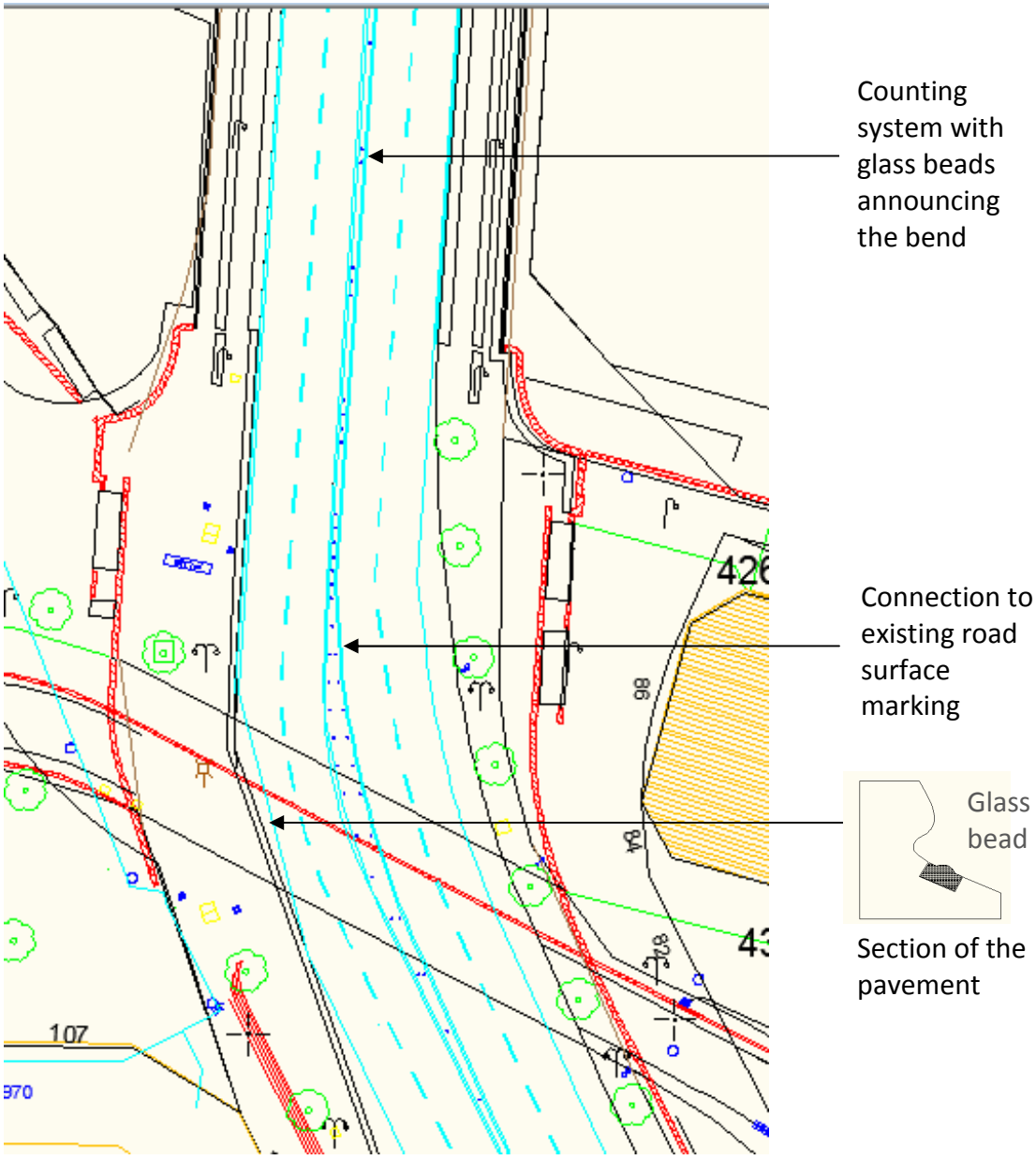


Figure 18 – Plan showing the road surface marking in the bend and the position of the 30 glass beads

This proposal presents advantages not included in the initial proposal, which concern the following aspects :

- **Cyclist and pedestrian safety** : With this solution, cars drive further from the edge than with the first proposal. It improves safety for cyclists and pedestrians riding or walking along the road.
- **Maintenance** : It is easier and less expensive to paint double solid lines rather than the design we initially proposed. It also diminishes the time workers spend on the road to do the marking, which improves their safety and work conditions.
- **Aesthetic** : To take into consideration the architecture of the bridge and its urban environment, including the view over the city, we decided to renounce the initial design.

III – Steps in STARS speed management project

III.1. Planning

The planning can be found in the appendix (A.3) and will be detailed in the following paragraphs.

III.2. Project

III.2.1. First steps with the CUGT

From July to September 2010, we collected data about road safety in Toulouse and selected the Pont des Catalans as an appropriate zone to implement our plans. We wrote a short review including our ideas to reduce speed on the bridge in order to be selected to participate in the STARS seminar.

After the selection and before the STARS camp, we had our initial meeting with engineers and technicians working at the Zone 2 agency of the CUGT. We introduced the ETSC to our interlocutors and talked about the STARS competition we were going to be in, as well as our ideas to reduce speed on the road section we had selected.

This was the opportunity to get a first contact with Greater Toulouse and evaluate the interest of the community regarding the voluntary involvement of two students in road safety. Our main interlocutor Pascal Heral was appreciative to see students could be interested in road safety and he gave us some information about the bridge as well as its situation in the Urban Community. He advised us to contact the Zone 1 agency of the CUGT as the bridge is situated on the limit of the two Zones.

III.2.2. STARS Camp

The camp was held in Brussels and lasted from Monday 20th to Friday 24th September 2010. During the camp we had an integrated training course consisting of lectures on speed management given by international experts from across sectors such as communication, road infrastructure and lobbying (Fig.19).

We also attended group exercises and field trips to deepen our knowledge on road safety and speed management in particular. Eventually we were given the chance to discuss and develop our project with several experts before returning to Toulouse and working in more detail with the CUGT.

Figure 19 – Stars Camp in Brussels

The ideas we presented were seen as realistic and were accepted by the experts, including Iustina Diaconu who encouraged us to go on with the improvement and the implementation of the project. She also advised us not to be discouraged by all the procedures we would inevitably encounter in big cities such as Toulouse.

III.2.3. Design phase

This phase of the project includes the design of the initial proposal, the design of the final proposal and ended a few days after Ilyas Daoud's visit to Toulouse.

- **September – December 2010 :** Our first interlocutors at the Zone 1 agency of the CUGT were Dominique Michel, employee of the road safety communication service, and Philippe Deliège, road infrastructure technician. We worked three months on the design of the first proposal and were eventually advised to contact another service of the CUGT to evaluate the cost and convince the appropriate service to implement the project.

- **January – June 2011 :** We contacted the headquarters of the CUGT and worked with Bénédicte Sarramon, studies director, and Cyril Fages, public works director. The first design did not convince them and we came up with a new proposal a few weeks later. This proposal was submitted to the President of the CUGT Pierre Cohen who gave his authorization on the 22nd of April (cf. appendix A.4). The cost of the implementation would be met by Greater Toulouse. We finalized the project with the addition of a technical sketch of the width of the lines (Fig. 20). But still there remained the estimation of the cost and the decision had to be taken by the directors of the Zone 1 agency of the CUGT, including Laurent Guyon.

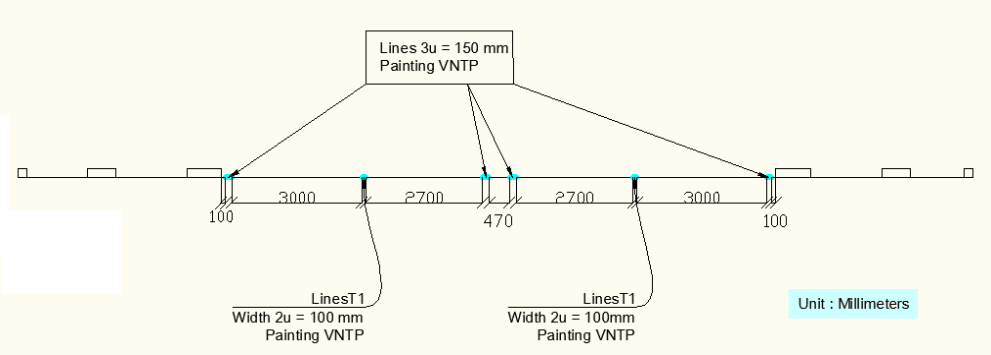


Figure 20 – Section of the bridge : Road surface marking details

- **June 2011** : Neither the director of the agency Laurent Guyon nor the studies director Bénédicte Sarramon felt they could take the decision to implement the project possibly due to uncertainty as to whose responsibility it was.

The mid term evaluation of the STARS project was held on June 1st with Ilyas Daoud. A meeting (Fig.21) was held in the headquarters of the CUGT in the presence of Ilyas Daoud (ETSC), Bénédicte Sarramon (CUGT), Cyril Fages (CUGT), Arnaud Arsuffi (INSA Toulouse) and Audrey Traisnel (INSA Toulouse).

Figure 21 – Meeting at the headquarters of the CUGT

In addition to the meeting, a site visit was organized to show Ilyas Daoud where the project would be implemented.

Eventually Cyril Fages took the responsibility to launch the implementation of the project. And a few days after Ilyas Doud's visit, we were notified the implementation would take place between the 20th and 24th of June.

III.3. Implementation

The project was implemented between the 20th and the 24th of June by the company Aximum and required three employees (Fig.22). The implementation cost 8,700€, which represents only about 35€ per meter for a 2-lane dual carriageway. The most expensive was to erase the old painting, which represents 55% of the total cost. Therefore the measure would be more cost efficient on newly created roads. A French copy of the bill can be found in the appendix (A.5).

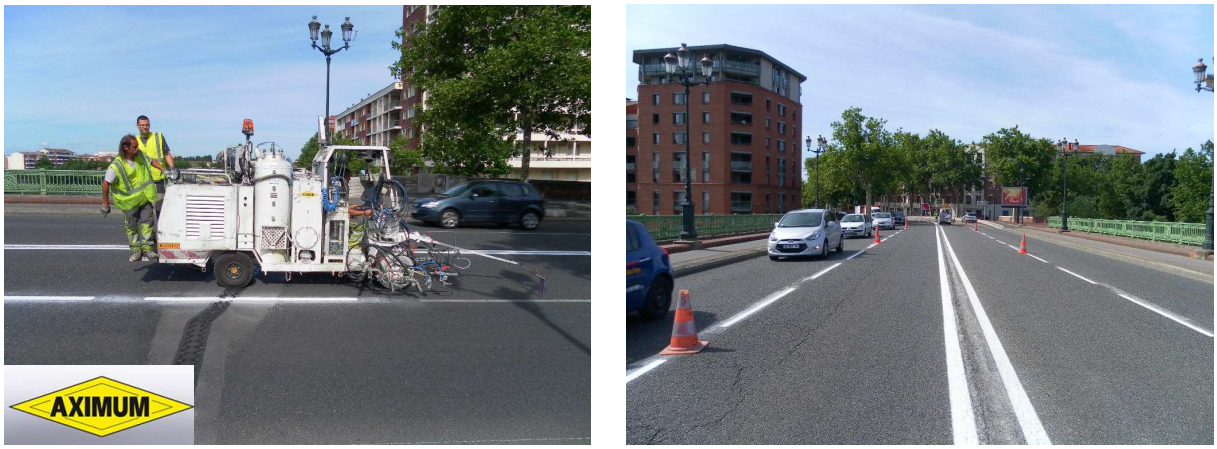


Figure 22 – Application of fluorescent paint on the bridge

Fig.23 shows the position of the glass beads in between the two continuous lines and in the bend.

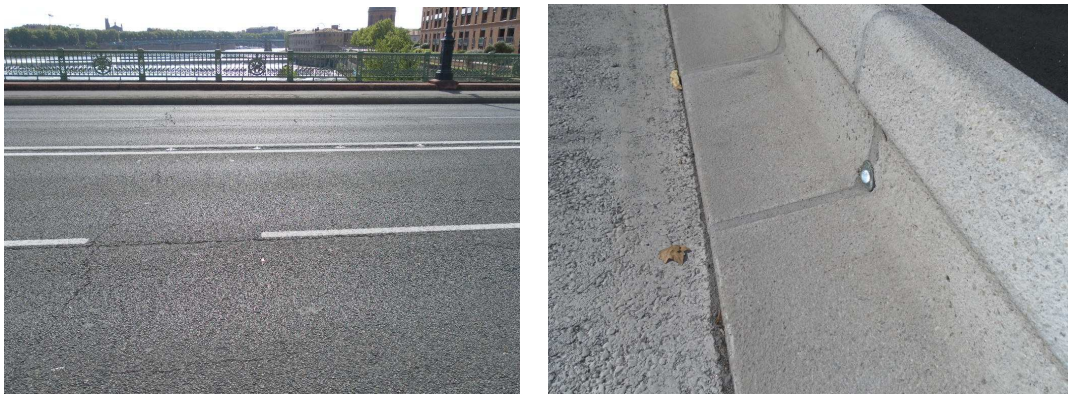


Figure 23 – Glass beads in the bend

III.4. Communication

III.4.1. Before the implementation

In parallel with the design phase we needed to build partnerships with the following entities:

- Mairie de Toulouse (town council) and representatives of the neighbourhood,
- Urban Community of Greater Toulouse (CUGT) including the Headquarters and the Zone 1 and Zone 2 agencies,
- Local associations for road safety : Vélo Toulouse, Ligue contre la violence routière, Maison de la Sécurité Routière,
- Local companies : Eurovia,
- Local media including newspapers : La Dépêche du Midi,
- University members : professors of the INSA civil engineering department,
- Users and residents of the neighbourhood.

A distinction must be made between :

- communication with local authorities, companies and local associations to inform them about the STARS project and to obtain moral, financial and technical support,
- and communication with the general public that includes the inhabitants of Toulouse.

The means we used to inform the different entities are summed up in the board Fig. 24.

Means / Actors	Mairie de Toulouse	CGUT	Associations	Companies	Media	University	Users and residents
Meetings/Interviews		x	x		x	x	
Phonecalls	x	x	x	x			
Email notifications	x	x	x	x	x	x	
Mails	x						
Articles in newspapers	x	x	x	x	-	x	x

Figure 24 – Communication methods used

We were interviewed by a journalist about our involvement in the STARS project and an article was published on April 22nd in the most popular newspaper of Toulouse, La Dépêche du Midi. This article aimed to inform the population of our project and accelerate the procedures to obtain the agreements of local authorities. Our attempt was successful as we received the agreement of Pierre Cohen the same day. A French copy of the article can be found in the appendix (A.5).

III.4.2. After the implementation

- **Communication on site**

  After the implementation we concentrated our efforts to inform users, residents and shopkeepers in the neighbourhood. To do so, we designed the poster in the appendix (A.6) and also made it into flyers. Eventually we put up 50 posters at the extremities of the bridge and in the stores in the neighbourhood and distributed 100 flyers to pedestrians, mailboxes and car users (Fig.25).

Figure 25 – Information to users and residents through posters and flyers

  It was a great opportunity to talk with pedestrians and shopkeepers about road safety and speeding problems on the Pont des Catalans. Most of shopkeepers expressed their satisfaction at being informed of the reasons of recent works on the bridge and were proud their city was participating in a European road safety project involving two young students.

- **Inauguration**

  The inaugural ceremony was held on Friday 22nd July on the Pont des Catalans with local media and representatives of the CUGT and the town council. The inauguration was announced the day before in the local newspaper, La Dépêche du Midi (cf. first article in appendix A.8).

  The media that were present at the ceremony were :
  - Local TV : France Télévision (France 3),
  - Local radio : France Bleu Toulouse,
  - Local newspapers : La Dépêche du Midi, Opinion Indépendante.

During the ceremony we presented the innovative measure implemented as well as the results we had obtained (cf. paragraph IV.1). Cyril Fages, public works director at the CUGT, and Bernard Marquié, second representative of the mobility and displacements at the CUGT, were also interviewed by the media.

After the inauguration, a 2 minute coverage was broadcast on TV in both the mid-day and evening local news of France 3 (Fig.26). A 1:15 minute coverage was also broadcast on France Bleu Toulouse the same day and an article was published in La Dépêche du Midi the day after (cf. second article in appendix A.8). Another article should be published in Opinion Indépendante on Friday 29th July.

The article entitled 'Toulouse innove pour réduire la vitesse' was posted on the newspaper's website and aroused interest amongst local residents and users of the Toulouse road network. Some comments were positive while others were negative and gave preference to other solutions such as the implementation of a speed camera. But we believe the most important is that people feel concerned about road safety and have an opinion about what is being done to improve it.

Figure 26 – France 3 coverage extracts

III.5. Evaluation

The speed measurements were made on the following dates :

- **Before implementation** : Friday 17th, Saturday 18th and Sunday 19th of June
- **After implementation** : Friday 8th, Saturday 9th and Sunday 10th of July

We decided to evaluate the efficiency of the infrastructure two weeks after its implementation so that the surprise effect of a new marking would not influence the drivers' behaviour.

We had planned to carry out radar speed checks before and after implementation. But the day we were supposed to get the speed camera from the Departmental Direction of Equipments (DDE), which was two weeks before the implementation, they decided not to lend it to us because of hierarchy conflicts. As we were not involved in these problems and the Toulouse police station would not lend its radar camera either, we asked the police station of another town of the CUGT, Castelginest. Even if the town made it easier to get the agreements of the town council representative Grégoire Carneiro, we still had to go through a two-week procedure.

Since we were running short of time, we decided to adopt a different strategy. We used walkie-talkies and stopwatches to realize the speed measurements before and after implementation. Eventually we got a speed camera after the implementation, which we used to complement the speed measurements realized with the stopwatches. Indeed it would have been incorrect to compare a mean speed (stopwatch measurements) with an instantaneous speed (speed camera measurements) therefore the speed camera was only used to match the results.

We were careful to avoid an impact of the presence of the speed camera on the driver's behaviour ; while the speed camera was recording the speed of cars coming in one direction we were measuring the speed of cars coming from the opposite direction with the stopwatches. Fig.27 shows the two methods we employed to measure speed.

(1) *(2)*

Figure 27 – Speed measurements

(1) Speed recording camera measuring instantaneous speeds
(2) Stopwatches used to measure mean speeds

IV – Results

IV.1. Analysis of speed measurements data

After collecting and treating the data in spreadsheets on Microsoft Excel, we were able to issue the results presented in this paragraph. They allowed us to evaluate the effectiveness of the measures implemented.

It appears **1500 vehicles** (both directions) cross the bridge in one hour on weekends when the road is the least busy. This gives an idea of the importance of the traffic in the area. The measurements with the stopwatches were made over 491 cars at night and 1,451 during the day.

The following graph (Fig.28) represents the percentage of drivers in each range of speed before and after implementation. The red and blue colours refer to the stopwatches speed measurements while the green colour refers to the speed camera measurements. We can clearly see the decreasing percentage of users driving above 50 km/h and the increasing percentage of users driving below 50 km/h after implementation of the road infrastructure. By looking at the measurements made with stopwatches we can see 30,1% users now drive between 40 and 50 km/h as against 25,7% before.

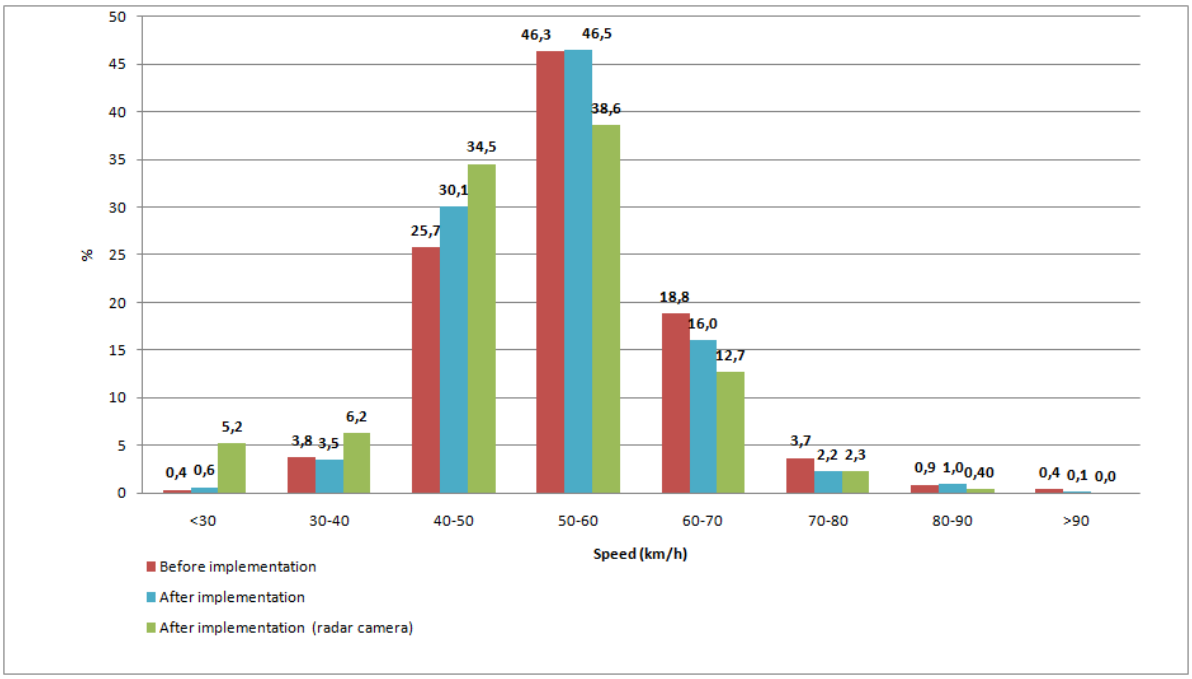


Figure 28 – Percentage of users in each range of speed
(25% measurements made at night as against 75% during the day)

We notice there is a difference between the speed camera recording and the measurements we made with stopwatches ; this can be explained by the presence of the speed camera on the side of the road, which probably has an impact on the conductor's behaviour. Therefore we can wonder whether a speed camera would not have been more effective.

We first think it would probably have been difficult to convince architects to set one up on the bridge simply because it has a negative aesthetic impact. Then we believe the STARS project was a good opportunity to experiment an innovative infrastructure that could be used in further public works. Therefore the proposal we proposed seemed to be the most appropriate for the 250 meter road section we had chosen.

The graph Fig.29 represents the cumulative frequency of driving speeds before and after implementation and shows the driving speed has decreased. Before the installation of the road painting only about 30% of drivers respected the speed limit. Since the installation about 35% of drivers respect the speed limit.

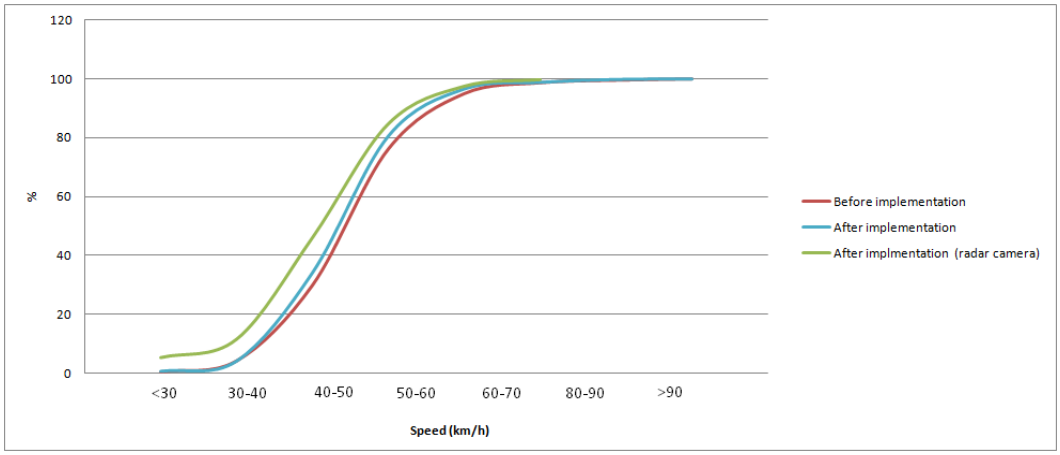


Figure 29 – Cumulative frequency of driving speeds

Fig.30 shows our measure is more effective at night rather than during the day. Indeed the average speed has decreased from 3,6 km/h at night as against 1,4 km/h during the day. And on average at a weekend, the average speed has decreased from 2,5 km/h (considering 50% measures were made during the day and 50% at night). The choice of a fluorescent paint plus the glass beads explains the difference.

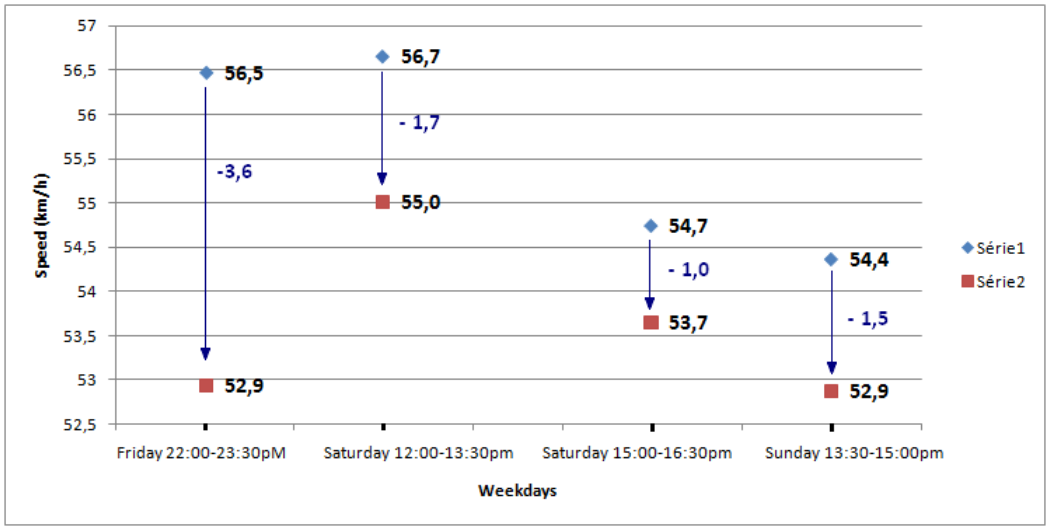


Figure 30 – Average speed on different days and at different times according to stopwatches measurements

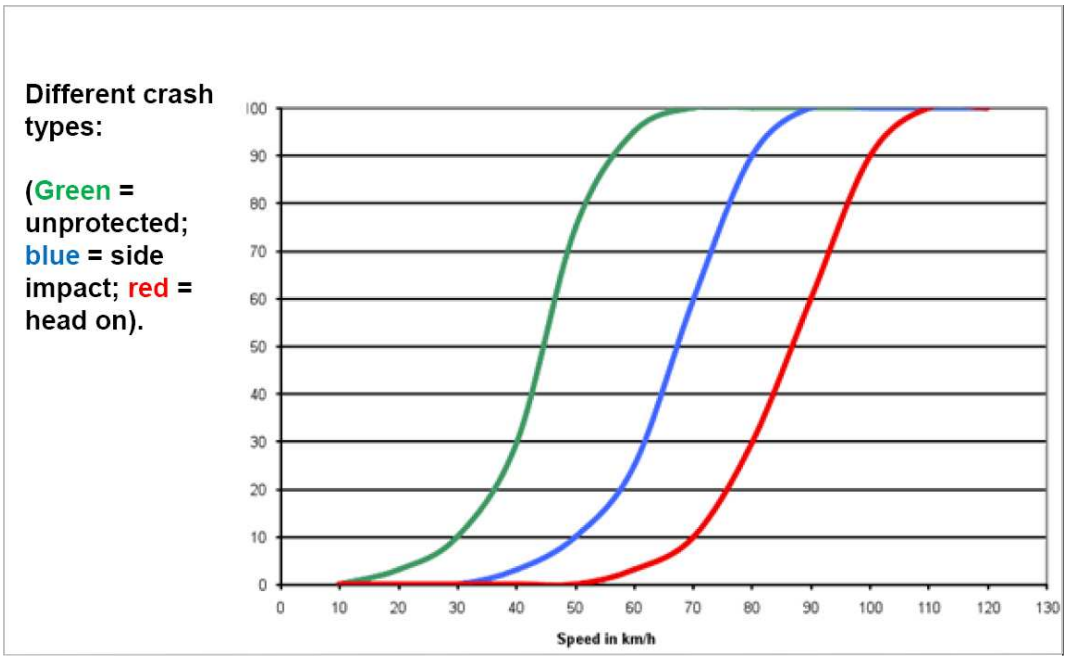
Details of the results and differentiation of the driving directions can be found in the appendix (A.9).

IV.2. Impact on road users' safety

The change in speed can be seen as non significant as speed decreased from 2.6 to 6.4% according to the time of the day. Therefore we tried to evaluate the possible impact of the infrastructure on road users' safety.

We based our analysis on a graph Ilyas Daoud presented during the STARS Camp (Fig.31). The risk of being killed on the road section selected might decrease from 1 to 7% depending on the type of crash, which would represent several lives saved over a few decades.

The figures given in the board are only estimations though and should be the topic of further studies.



	Change in speed (km/h)	Change in risk of being killed (%)		
		Unprotected	Side Impact	Head on
Night	-3,6	-7,3	-5,5	-0,9
Average	-2,5	-4,8	-5,3	-0,8

Figure 31 – Approximate risk of being killed for different crash speeds and crash types

Conclusion

In conclusion the analysis of the speed measurements shows that the installation of the road markings in combination with glass beads has a positive effect on the drivers' behaviour. After the implementation the average speed decreased especially at night and 5% more people respect the speed limit (Fig.32).

We thought to encounter one main difficulty, which did not eventuate that was the Pont des Catalans is a cultural and historical bridge. In fact we faced quite a number of difficulties that delayed our project and which were due to French administration procedures.

Our commitment and organization, with the distribution of tasks inside the team, along with the advice of Ilyas Daoud, greatly helped us to overcome these difficulties and succeed in the implementation of our STARS project. This practical activity undertaken in parallel with our studies was a great opportunity to learn while developing a project beneficial to our community.

In the end this low cost innovative measure highly interested the local authorities, Mairie de Toulouse and CUGT, but also the media and could be implemented in other parts of the city.

We believe the reduction of speed goes hand in hand with the reduction of the number and gravity of accidents as well as with the development of the social function of public areas and eventually the reduction of air pollution and noise.

The members of the ETSC have always been confident in our project and we would like to thank them for their support and having given us the chance to initiate such a project.

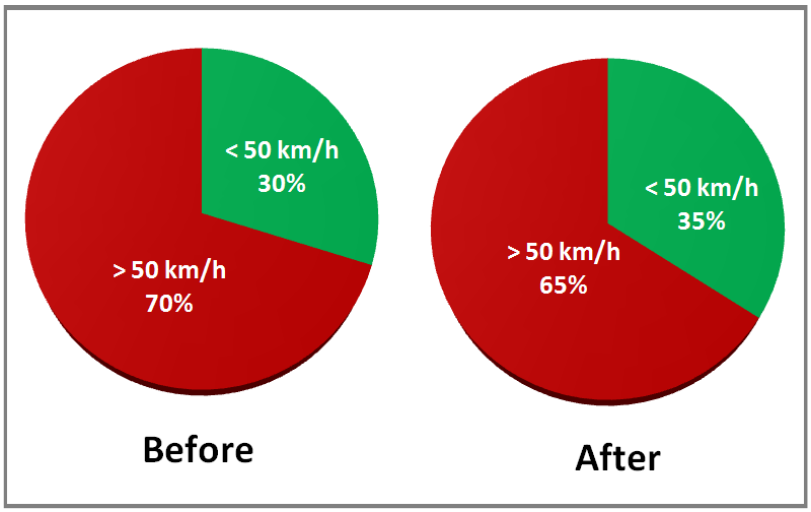


Figure 32 – Percentage of vehicles respecting the speed limit according to stopwatches measurements (25% measurements made at night as against 75% during the day)

BIBLIOGRAPHY

Communauté Urbaine du Grand Toulouse, 2009
Bilan annuel des accidents corporels sur le Grand Toulouse en 2009

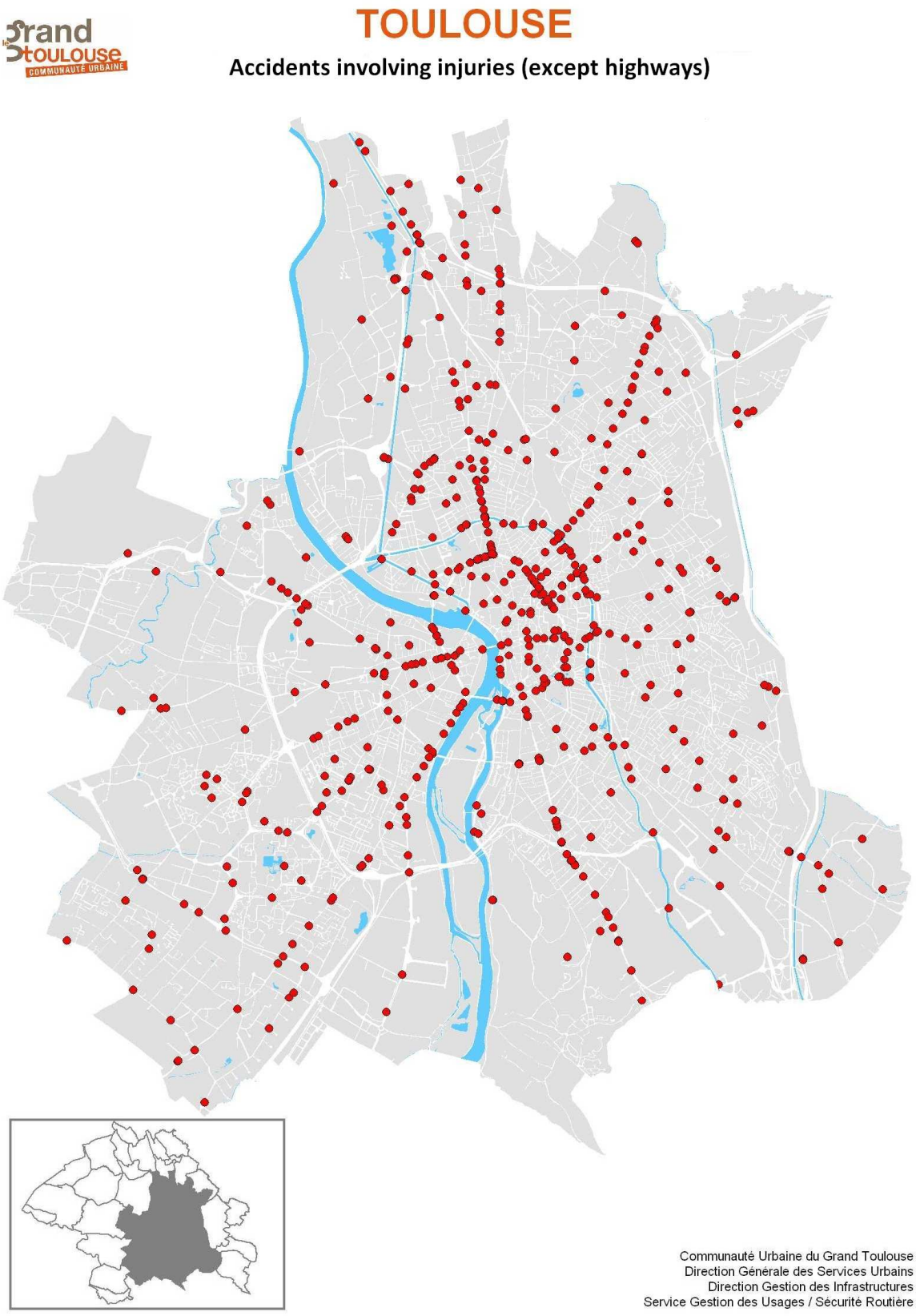
Communauté Urbaine du Grand Toulouse
www.grandtoulouse.org

Mairie de Toulouse
www.toulouse.fr

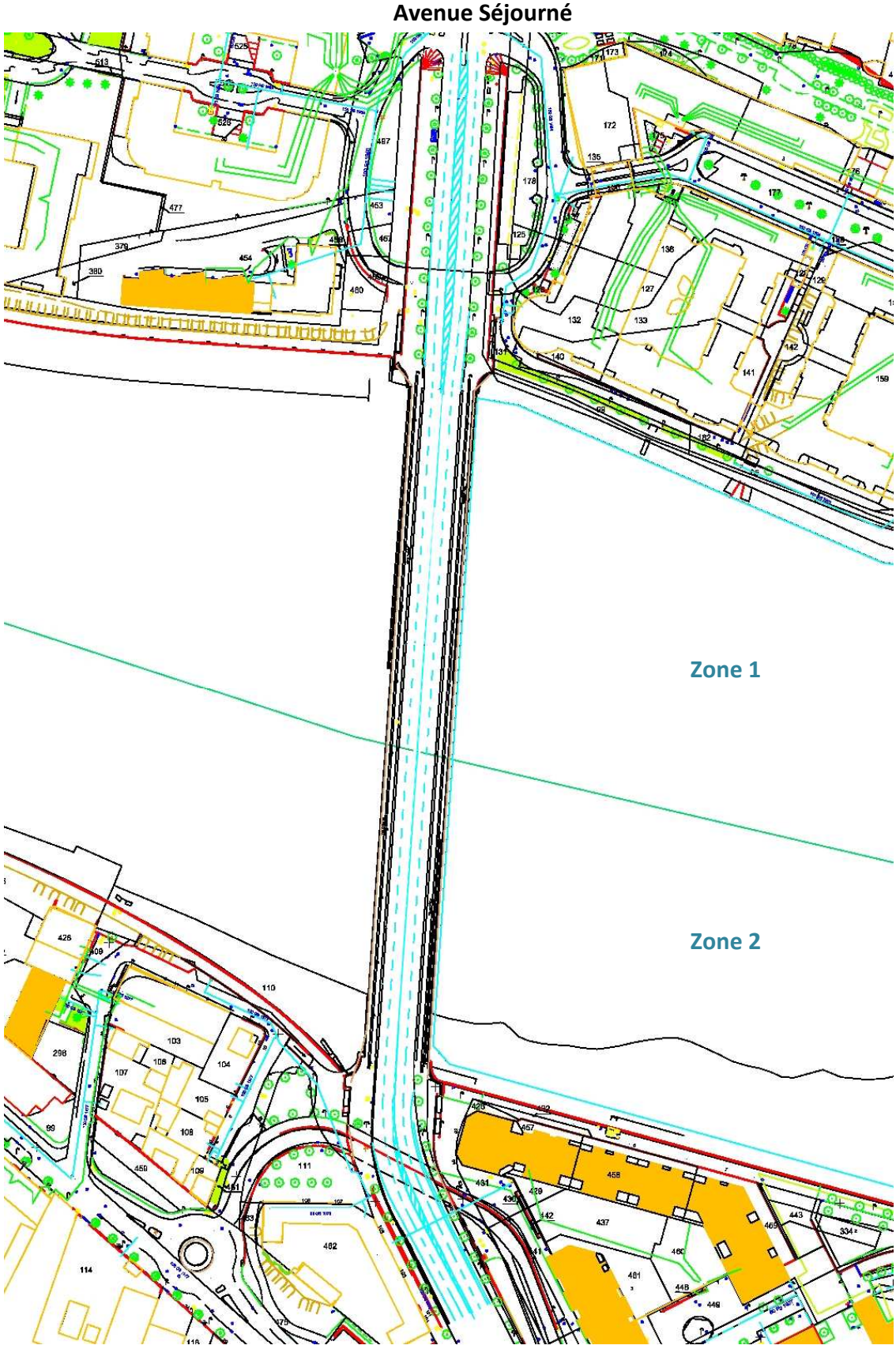
European Transport Safety Council
www.etsc.eu

APPENDIX

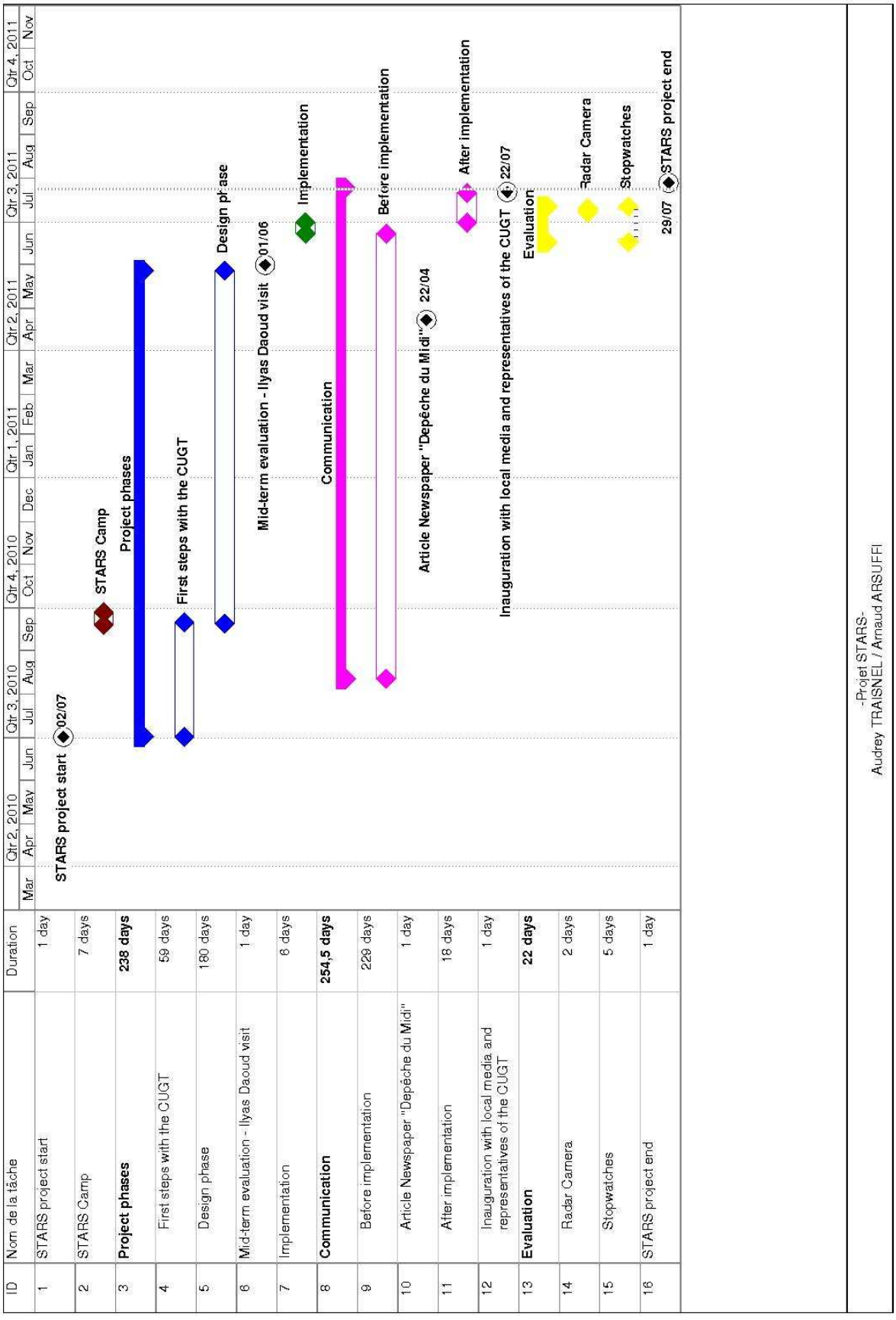
A.1 – Accidents involving injuries in Toulouse in 2009



A.2 – Global plan of the Pont des Catalans before implementation



A.3 – Planning


ID
Nom de la tâche
Duration
Qtr 2, 2010
Qtr 3, 2010
Qtr 4, 2010
Qtr 1, 2011
Qtr 2, 2011
Qtr 3, 2011
Qtr 4, 2011
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
1 STARS project start 1 day
2 STARS Camp 7 days
3 Project phases 238 days
4 First steps with the CUGT 59 days
5 Design phase 180 days
6 Mid-term evaluation - Ilyas Daoud visit 1 day
7 Implementation 6 days
8 Communication 254,5 days
9 Before implementation 229 days
10 Article Newspaper "Depêche du Midi" 1 day
11 After implementation 18 days
12 Inauguration with local media and representatives of the CUGT 1 day
13 Evaluation 22 days
14 Radar Camera 2 days
15 Stopwatches 5 days
16 STARS project end 1 day
STARS project start 02/07
STARS Camp
Project phases
First steps with the CUGT
Design phase
Mid-term evaluation - Ilyas Daoud visit 01/06
Implementation
Communication
Before implementation
Article Newspaper "Depêche du Midi" 22/04
After implementation
Inauguration with local media and representatives of the CUGT 22/07
Evaluation
Radar Camera
Stopwatches
29/07 STARS project end
-Projet STARS-
Audrey TRAISNEL / Arnaud ARSUFFI

A.4 – Agreement letter of the CUGT President Pierre Cohen

Le Président

11023626

Toulouse, le 22 AVR. 2011

Mademoiselle Audrey TRAISNEL
atraisne@etud.insa-toulouse.fr
Monsieur Arnaud ARSUFFI
arsuffi@etud.insa-toulouse.fr

1860 R3 – 8, allée des Sciences Appliquées
31400 - TOULOUSE

www.grandtoulouse.fr

Madame, Monsieur,

J'ai bien reçu votre étude d'aménagement du Pont des Catalans ayant pour objectif la réduction de la vitesse sur cet axe.

Vous proposez une réduction de la largeur des deux files de gauche de 3,00 m à 2,70 m, les files de droite restant à 3,00 m, par la création d'un zébra central de 0,80 cm de large.

Cette idée semble intéressante, efficace et peu coûteuse.

Je transmets donc votre proposition aux pôles territoriaux concernés : Antenne Centre Nord (M. Laurent GUYON) et Antenne Centre Sud (M. Jean-Louis PRAT), en leur demandant leur avis et, si accord, une période possible de mise en œuvre de ce marquage au sol.

Je vous remercie pour votre contribution et vous souhaite bonne continuation dans vos études et votre future recherche professionnelle.

Je vous prie de croire, Madame, Monsieur, à l'assurance de mes sentiments les meilleurs.

Pierre COHEN

le grand toulouse - 1, place de la Légion d'honneur B.P. 35821 - 31505 Toulouse Cedex 5
tél. 05 81 91 72 00 - fax. 05 81 91 72 01 - www.grandtoulouse.fr

A.5 – Details of the cost of the works

COMMUNAUTE URBAINE DU GRAND TOULOUSE
Emilie MERIC
1 Place de la légion d'honneur
BP 35821

31505 TOULOUSE Cedex 5

Nos ref : CO-2010100001-0151 2011001101

CUGT LOT 1 - PÔLE 1 - PONT DES CATALANS (TOULOUSE) - TOULOUSE (31)

CONSTAT DE TRAVAUX

N°	Désignation des ouvrages	U	Quantité	Prix Unitaire	Total HT
	Pont des Catalans (Toulouse)				
1	PEINTURE MONOCOMPOSANT BLANCHE 1H P5 S1 NF 2 (POUR TRAVAUX DE LINEAIRE)	M2	297.00	8.90	2 643,30 €
3	PEINTURE BLANCHE 1RH P4 S3 NF 2 (POUR TRAVAUX SPECIAUX)	M2	73.35	8.00	586,80 €
16	EFFACEMENT MECANIQUE DES MARQUAGES ROUTIERS PAR RABOTAGE	M2	124.00	7.50	930,00 €
18	EFFACEMENT THERMIQUE DES MARQUAGES ROUTIERS	M2	124.00	25.00	3 100,00 €
				MONTANT TOTAL HT	**7 260,10 €**
				TVA 19.6 %	1 422,98 €
				MONTANT TOTAL TTC	8 683,08 €

Condition de règlement : Paiement à 30 jours date de facture, par Virement

Etablie en deux exemplaires à PORTET-SUR-GARONNE, le 30/06/2011

Date et signature du client

Précédé de la mention "LU et APPROUVE, BON pour ACCORD"

Signalisation Horizontale
MERIC E.

A.6 – Article in the local newspaper La Dépêche du Midi before implementation

> Friday 22nd April 2011

sécurité

Pont de Catalans: Ils veulent mettre un frein à la vitesse

Arnaud et Audrey sur le pont des Catalans: « une autoroute en centre ville ». /Photo DDM

TOULOUSE/ Arnaud Arsuffi et Audrey Traisnel sont étudiants en quatrième et cinquième année à l'INSA, une école d'ingénieurs toulousaine. Cette année, ils se sont portés volontaires pour participer à un concours organisé par le Conseil européen de la sécurité des transports, proposant aux jeunes de créer des infrastructures pour faire diminuer la vitesse des voitures. Les deux ingénieurs en herbe sont les deux seuls français à avoir passé le premier tour des concours, après lequel 25 jeunes ont été retenus: grecs, allemands, roumains... Ils ont ensuite participé à un séminaire à Bruxelles, qui leur a ouvert les yeux sur les inégalités de développement au niveau de la sécurité routière entre les pays.

Binôme

Le binôme travaille actuellement sur des pistes pour sécuriser les voies de Toulouse, en partenariat avec les ingénieurs de la mairie de la ville, et espèrent que leur projet sera validé et réalisé. Leur terrain de jeu? Le pont des Catalans. Lieu de plusieurs drames, dus au virage qui le termine, ils proposent leurs idées: « zone 30 », lignes d'effets visuels, réduction de la taille des voies... « Regardez, c'est dangereux, et ça n'est agréable pour personne: on est obligé de hurler pour s'entendre » constate Audrey. Les nombreux accidents de voiture auxquels ont été confrontés les membres de sa famille l'ont convaincue de participer au projet, dont Arnaud était à l'origine.

Passionnés

« Cela fait aussi une expérience professionnelle à faire valoir pour plus tard », explique celui-ci, doté d'un DUT, et de bientôt deux masters. Les deux jeunes sont réellement passionnés par la sécurité routière: ils commentent sans cesse les infrastructures qui les entourent et ont une vision citoyenne de leur projet. « Cela va au-delà de la réduction de la vitesse des voitures, nous travaillons aussi avec Vélo Toulouse. La sécurité des piétons et des cyclistes va de paire avec celle des automobilistes. C'est une vraie question de société ».

A7 – Poster designed to inform the population

[ZOOM]

Sécurité routière
Pont des Catalans

UN NOUVEL AMENAGEMENT POUR METTRE UN FREIN A LA VITESSE

AUJOURD'HUI, LE PONT DES CATALANS C'EST...

70% des usagers qui dépassent les 50 km/h

+ de 1500 véhicules / heure en journée

Une artère dangereuse pour les piétons et cyclistes

Une **voie rapide** responsable de plusieurs accidents mortels ces dernières années

ACCIDENTOLOGIE À TOULOUSE EN 2009

576 accidents corporels

7 tués

696 blessés

La vitesse = 1ère responsable

DES LARGEURS DE VOIES RÉDUITES POUR DIMINUER LA VITESSE

AVANT

APRÈS

- La largeur des voies de circulation centrales passent de 3,00 à 2,70 mètres
- Des lignes de rive sont mises en place pour protéger piétons et cyclistes
- Les pointillés de la ligne de dépassement sont rapprochés

CONCOURS STARS 2010-2011 (STUDENT ACTING TO REDUCE SPEED)

Cet aménagement a été réalisé dans le cadre d'un concours européen de sécurité routière organisé par l'ETSC et mettant en compétition des étudiants de plusieurs pays européen. L'objectif du concours est de mettre en place une mesure peu coûteuse pour réduite durablement la vitesse des usagers de la route.

PARTENAIRES

Un grand merci à tous ceux qui ont contribué à la réalisation de ce projet!

RÉDUIRE LA VITESSE ET LE TRAFIC DE TRANSIT, POUR UN QUARTIER À VIVRE !

www.etsc.eu

A.8 – Articles in the local newspaper La Dépêche du Midi about the inaugural ceremony

> Thursday 21st July 2011

PONT DES CATALANS > Réduire la vitesse. Bernard Marquié, adjoint en charge de la mobilité et des déplacements, et des étudiants de l'INSA, présenteront, vendredi matin, un projet d'aménagement de la chaussée du pont des Catalans qui permet de réduire la vitesse des automobilistes. Imaginée par les étudiants de l'INSA Toulouse, participant à un concours européen de la sécurité routière organisé par le conseil de sécurité des transports, cette invention vise à étudier des mesures peu coûteuses pour réduire durablement la vitesse des automobilistes.

> Friday 22nd July 2011

pont des catalans

Toulouse innove pour réduire la vitesse

TOULOUSE/Ça y est, leur proposition est passée du projet à la réalité. Étudiants en cinquième année à l'INSA, une école d'ingénieurs toulousaine, Arnaud Arsuffi et Audrey Traisnel avaient conçu une série d'aménagements visant à obliger les voitures à ralentir. Ce matin, en compagnie de Bernard Marquié, adjoint au maire à la réglementation de la circulation et à la gestion du stationnement et de la fourrière, les étudiants ont présenté à la presse le fruit de leur créativité, qui a coûté en tout et pour tout 8000 euros à la municipalité. Au bout du pont des Catalans, où, entre 2006 et 2010, 17 personnes ont été blessées, et trois ont trouvé la mort, la route a été en partie refaite. Les bandes de signalisation ont été repeintes grâce à une peinture « visibilité de nuit par temps de pluie » et des billes de verre dites « olophanes » ont été fixées en bordure de la route et entre les deux voies, reflétant ainsi la lumière des phares des voitures. D'autres propositions, zones 30, la réduction de la taille des voies, lignes d'effets visuels n'ont pas été retenues par les techniciens de la mairie. Arnaud et Audrey ont travaillé de concert avec la mairie de Toulouse et l'association Vélo de Toulouse. Et ils ont réussi ! Selon les calculs faits par les étudiants au moyen d'un radar pédagogique, la vitesse a été réduite en moyenne de 3,9 km/h. Pourtant, l'histoire n'est pas finie, car ce projet s'inscrivait dans la participation à un concours lancé par l'Union européenne. Reste à voir s'ils en sortiront gagnants.

Bernard Marquié, Arnaud Arsuffi et Audrey Traisnel hier matin sur le Pont des Catalans. /Photo DDM, Thierry Bordas

161-151-155-152-156-153

A.9 – Details of the results according to driving directions

> Vehicles in each range of speed

	BEFORE IMPLEMENTATION			AFTER IMPLEMENTATION			
	Direction		Total/Average	Direction		Total/Average	Radar camera
	Avenue Séjourné	Allée Charles de Fitte		Avenue Séjourné	Allée Charles de Fitte		
Number of vehicles	577	561	**1138**	399	405	**804**	**2755**
Vehicles/hour	897	632	**1530**	665	780	**1445**	**-**
Average speed	55,22	55,90	**55,56**	52,86	54,38	**53,62**	**-**
<30 km/h	0,35	0,36	**0,35**	0,25	0,99	**0,62**	**5,23**
30-40 km/h	1,04	6,60	**3,78**	4,01	2,96	**3,48**	**6,24**
40-50 km/h	26,17	25,31	**25,75**	36,09	24,14	**30,06**	**34,52**
50-60 km/h	48,01	44,56	**46,31**	43,86	49,01	**46,46**	**38,62**
60-70 km/h	18,89	18,72	**18,80**	12,53	19,46	**16,02**	**12,74**
70-80 km/h	3,81	3,57	**3,69**	1,75	2,71	**2,24**	**2,25**
80-90 km/h	1,21	0,53	**0,88**	1,25	0,74	**0,99**	**0,40**
>90 km/h	0,52	0,36	**0,44**	0,25	0,00	**0,12**	**-**
<50 km/h	27,56	32,26	**29,88**	40,35	28,08	**34,16**	**45,99**
>50 km/h	72,44	67,74	**70,12**	59,65	71,92	**65,84**	**54,01**

> Average speeds (Unit : km/h)

	BEFORE IMPLEMENTATION			AFTER IMPLEMENTATION			Δ
	Direction		Total/Average	Direction		Total/Average	
Weekdays and time	Avenue Séjourné	Allée Charles de Fitte		Avenue Séjourné	Allée Charles de Fitte		
Friday 22:00-23:30pm	55,52	57,44	**56,49**	51,85	54,02	**52,94**	**3,55**
Saturday 12:00-13:30pm	56,57	56,75	**56,66**	55,25	54,77	**55,01**	**1,65**
Saturday 15:00-16:30pm	53,17	56,31	**54,74**	52,76	54,55	**53,65**	**1,09**
Sunday 13:30-15:00pm	55,63	53,09	**54,36**	54,17	51,57	**52,87**	**1,49**
Average day	55,12	55,38	**55,25**	54,06	53,63	**53,85**	**1,41**
Average day and night	55,32	56,41	**55,87**	52,96	53,83	**53,39**	**2,48**