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1 Introduction

The objective of the CityMobil project is to contribute to a more effective organisation of urban transport, resulting in a more rational use of motorised traffic with less congestion and pollution, safer driving, a higher quality of living and an enhanced integration with spatial development. In order to achieve this objective advanced concepts for advanced road vehicles and passengers are developed. Further more new tools for managing the urban transport are introduced and barriers that are in the way of large-scale introduction of automated systems are removed.

In the first sub-project of CityMobil (SP1) those advanced concepts and tools are validated and demonstrated in a number of different European cities under different circumstances. Therefore three large-scale demonstrators have been chosen which will present real implementations of innovative new concepts. These three innovative concepts will be implemented in the city of Heathrow, Rome and Castellón.

Concerning the Rome Demonstration, CTS will be implemented in the main car-park that will take the costumers from the car-park to the main entrance of Rome Exhibition.

In this deliverable the yearly progress concerning the Rome demonstrations is described. The main achievement of the Rome Demonstration in this years' period are:

- The Rome data collection for the ex-ante analysis;
- The selection of the partner that will implement the CTS in the P1 car park, Robosoft;
- On 28th of May 2007 Municipality of Rome assigned to ATAC the management of the New Rome Exhibition parking areas;
- The definition of the requirements needed for the CTS certification;

The Rome Demonstrator has faced many problems and for this reasons a budget reduction and a totally new DoW were needed. The budget reduction was asked by the project consortium because of the reduction of the demonstration size. Indeed the link to the train station, previously planned, will not be realized within the project. The new DoW was needed because of the entrance in the Rome demonstration partnership of Robosoft and ATAC and mainly because of the problems and delay faced by the Rome Demonstration.

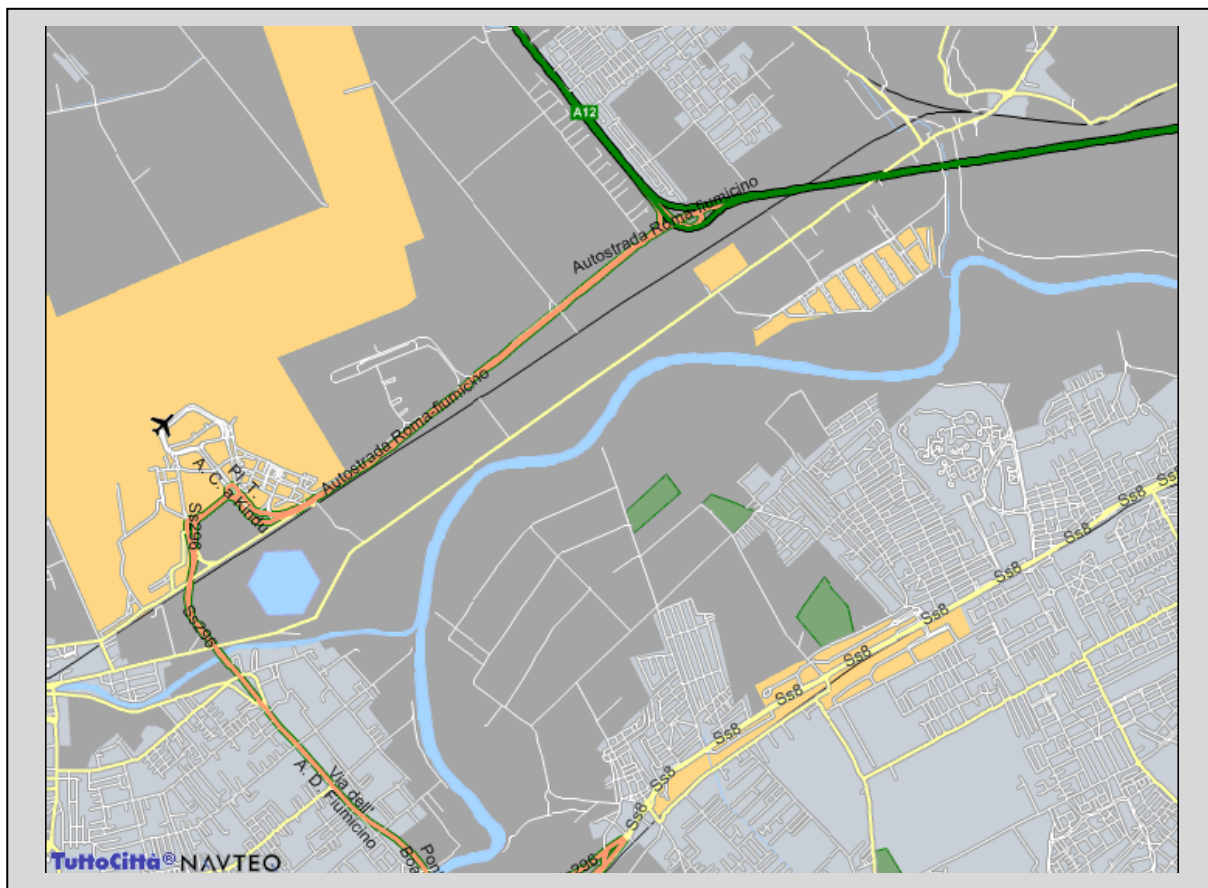
2 Rome Demonstration

Rome has built a new exhibition centre to replace the old one. The old one is currently inside Rome with big problems of parking, public transport and with a limited exhibition area. The new one aims to become one of the important European exhibition areas.

It will be located in the direction of Fiumicino airport (the main international airport of the city) on the west side of the city, 3 km outside of the outer ring road and 16 km away from the city centre, along the airport highway and railway link.

The new exhibition area is on the lower side of the airport highway and railway link and it is shown in Figure 2.1, whereas the new building for the Rome exhibition centre is shown in Figure 2.2. Around a 1.5 km long central corridor, each block represents an exhibition stand of 72 by 12 metres each.

Figure 2.1 The area where the new exhibition is being built



In front of the building, there is a car-park with about 2500 car-slots.

The transport system that will be the core of the Rome demonstration will serve the car-park with two objectives:

- To improve visitors' accessibility to the buildings, for people coming both by car and by train;
- To eliminate the shuttle, needed to serve the farthest car-slots.

A further objective in the longer term is to demonstrate the financial viability of automated systems for providing an effective feeder transport service; if successful, similar systems are

expected to cover the feeder public transport needs for the new housing currently under construction along the railway and toward the airport.

With respect to the initial design, the car-park in front of the building has been re-designed in order that a “Cybercar” network can be built inside it. Its aim is to pick-up the visitors once they have parked their private cars and to bring them to the building entrance. On the return trip a “Cybercar” drives them to their car-slots.

Figure 2.2 New building for Rome exhibitions



The car-park capacity with the present design is 2500 car-slots. Visitors park their cars in the slots without any order searching for a free place at their arrival. However there are parking zones inside the car-park about 600-700 metres distant from the building entrance, meaning that some people would need to walk for more than 10 minutes to reach the exhibition, and to return to their cars. In such cases, it is common experience in Italy, to park illegally in the proximity of the entrance rather than use parking spaces. In order to avoid this problem, the car-park has been re-designed introducing a “Cybercar” network inside it to pick-up visitors once they have left their cars and to bring them to the building entrance. Once they finish their visit inside the building, the “Cybercar” returns them near to their cars.

These features contribute to the achievement of four different objectives:

- Improvements in transport performance.
- Increased public acceptance of public transport services.
- Proof of financial viability.
- Demonstration of the technical maturity of the technology.

2.1 Meetings with the Italian Ministry of Transport

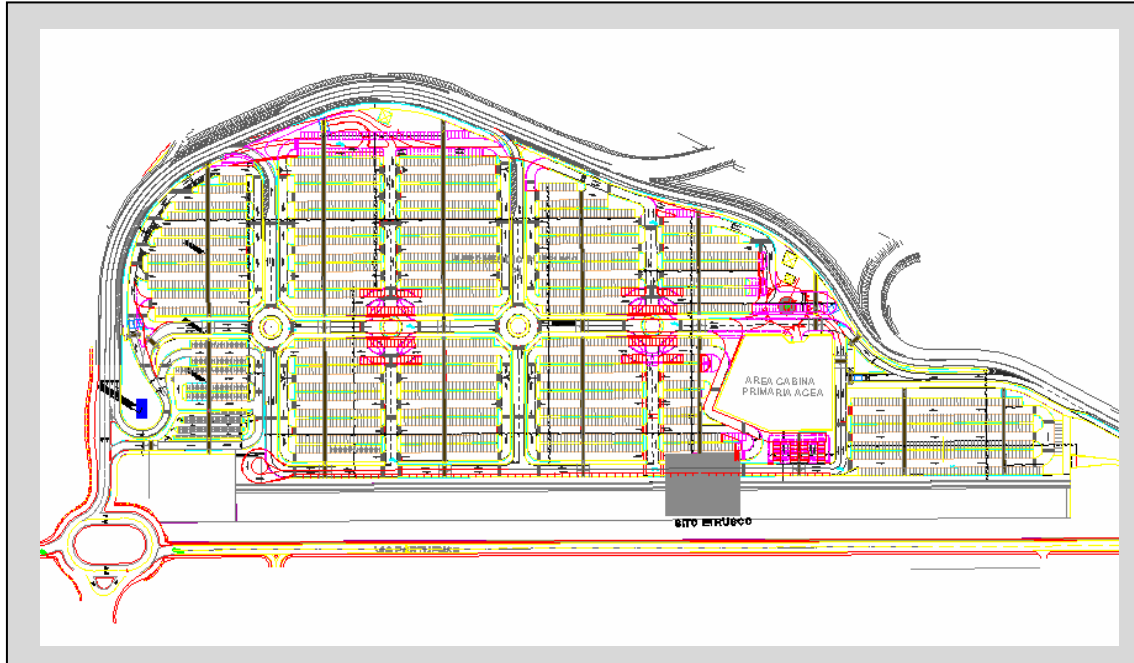
The CTS network reported in the previous DoW is shown in Figure 2.3.

The main features of the previous CTS network were:

- A “car corridor” around the car-park to allow car owners to reach the slots, which they have been addressed at the car-park entrance gate;

- A central “Cybercar corridor” from the left to the right with five vertical joined corridors to serve all the car-park as reported in Figure 2.3;
- Car-slots for impaired mobility people cars near the entrance of the building.

Figure 2.3 New car-park structure after the insertion of the CTS



In this configuration the “Cybercar” were segregated and the maximum allowed speed was 30 km/h (according to CyberMove results, see reference list).

Unfortunately many features of this proposed approach should be changed. First of all the cars entering in the P1 car park will not be addressed to a specific car slot but to a specific car-park sector. Indeed to verify that each car would park in its specific slot was not practically possible. But the major changes can be addressed to the three meetings that the Rome demonstration partners had with the person responsible for the certification of the Italian Ministry of Transport. The requirements set out in these meetings were very clear:

1. The CTS has to be totally segregated and no interaction with pedestrians or other vehicles will be possible at the first stage.
2. The stop doors will be implemented. Once the Cybercars will enter the stop the stop door will be opened and closed when the Cybercar will leave the stop.
3. At the first stage no interaction between Cybercars will be possible.

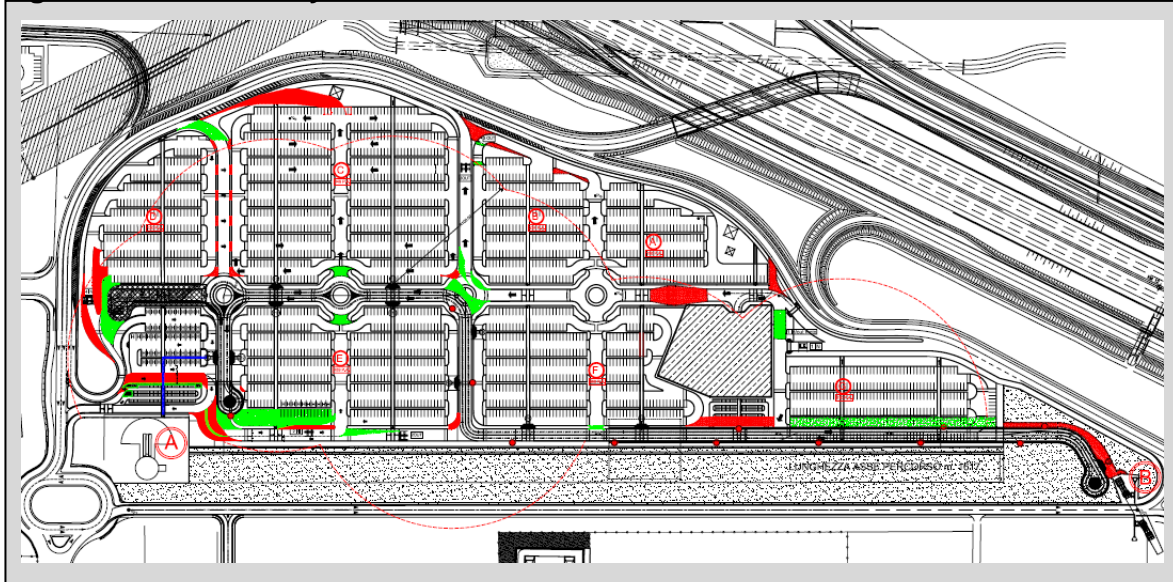
Each of these requirements has different impact on the CTS design. The 1st means that the CTS track has to be totally segregate with a small fence and no pedestrian crossing would be possible. For this reason a track that allows to pedestrian to reach the exhibition entrance without using the system is needed. The 2nd requirement means that no roundabout can be inserted in the CTS track and no overtaking manoeuvres would be possible among the Cybercars. For this requirement in the first stage on-demand service will not be possible.

According to the requirements from the Ministry of Transport the new Cybercar corridor proposed by the Rome partners has a total length of about 1.620 m., it includes 12 CTS stops and the large majority of the parking places are within 100 m. distance from a CTS stops. Two of the stops are located close to the east and north entrances of the New Rome Exhibition. The CTS corridor also includes 12 emergency exits, within a maximum distance of 70 m.

The new CTS layout is shown in Figure 2.4 New CTS layout.

In this configuration the Cybercars is segregated and the maximum allowed speed is 30 km/h (according to CyberMove results).

Figure 2.4 New CTS layout



During the same meetings a step by step certification approach has been defined. The three certification steps defined are:

- Certification of a fixed frequency service CTS. No interactions allowed among the Cybercars;
- Certification of an on demand service CTS. Interactions allowed among the Cybercars such as overtaking manoeuvres.
- Certification of a pedestrian crossing on the CTS track.

This approach is anyway able to provide a CTS working and opened to the public with the 1st certification step.

2.2 Rome data collection for the ex-ante analysis

According to the Rome demonstration evaluation plan defined by SP5 surveys have been run on six different days on Rome New Exhibition. These surveys were needed to define the situation before the CTS implementation and evaluate its technical, social and financial viability.

The surveys were run in the following six days that were chosen on the basis of the expected attendance to have a representative sample of high (more than 10.000 costumers in a days), medium (less than 10.000 costumers in a days) and low (less than 5.000 costumers in a days) daily attendance to the Rome Exhibition. The days chosen are:

- 30/09/2007 – from 10.00 a.m. to 7.00 p.m. (low expected attendance).
- 04/10/2007 – from 10.00 a.m. to 8.00 p.m. (high expected attendance).
- 07/10/2007 – from 10.00 a.m. to 9.00 p.m. (high expected attendance).
- 12/10/2007 – from 10.00 a.m. to 6.00 p.m. (low expected attendance).
- 27/10/2007 – from 10.00 a.m. to 9.00 p.m. (medium expected attendance).
- 28/10/2007 – from 10.00 a.m. to 9.00 p.m. (medium expected attendance).

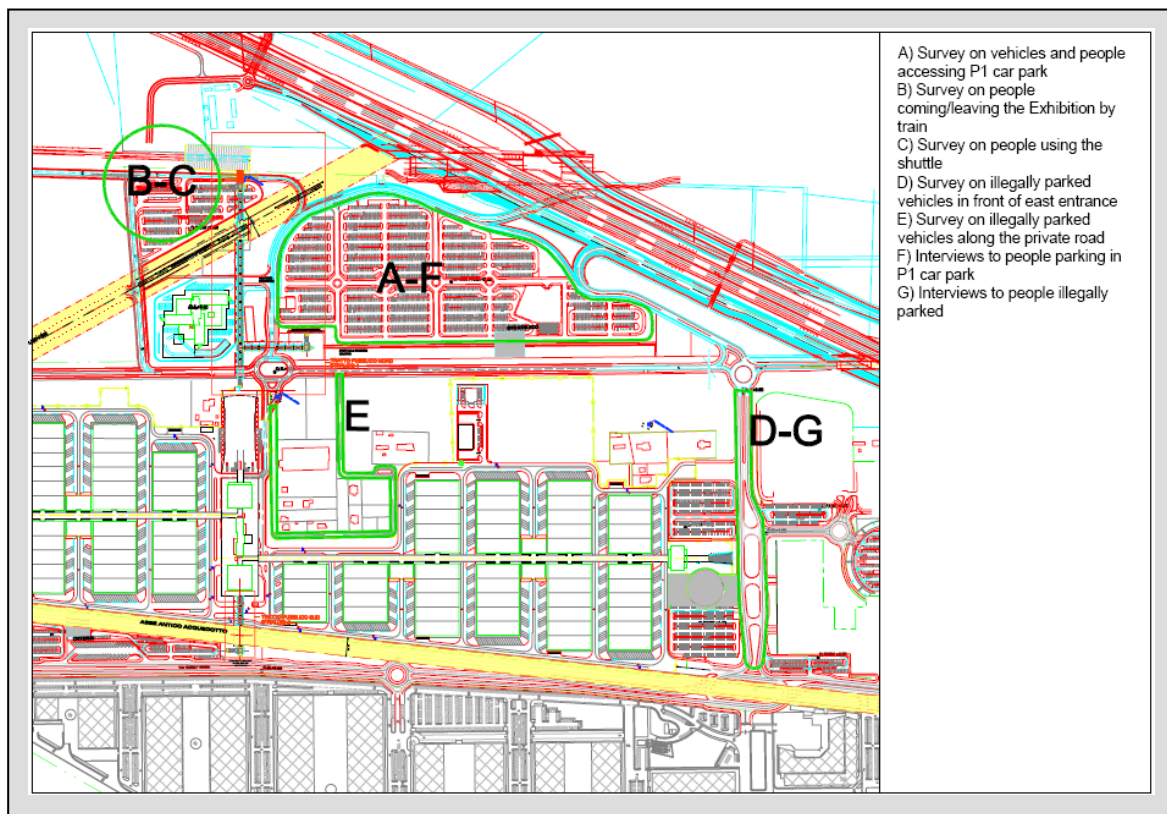
Unfortunately on 12/10/2007 there were few costumers going to the Rome New Exhibition and another date had to be chosen. For this reason on the 01/12/2007 the surveys were run again.

The surveys run on each date were:

- A. Survey on vehicles accessing/leaving P1 car park;
- B. Survey on people coming/leaving the Exhibition by train;
- C. Survey on people using the shuttle to reach the Exhibition from the Train station and vice versa;
- D. Survey on vehicles illegally parked in front of the east Exhibition entrance;
- E. Survey on vehicles illegally parked in the private road;
- F. Interviews to the people parking in P1 car park;
- G. Interviews to the people illegally parked

In Figure 2.5 the sites of each survey are shown and in next paragraphs each survey run is explained.

Figure 2.5: sites of the surveys



During the survey a large amount of data were collected and 323 interviews were collected. All the data collected for the ex-ante Rome Demonstration data collection are available on Deliverable 1.3.5.1.

2.3 Problems experienced in this second year

Concerning the general work plan of the Rome Demo there is a strong delay. This delay it is due to the administrative and legal problems faced by the demonstration.

The first problem faced was the reduction of the demonstration length. In the first DoW the link with the train station was planned but for technical problems this link had been removed. For this reason the Rome Demonstration budget has been reduced of the 20%.

On 28th of May 2007 Municipality of Rome assigned to ATAC the management of the New Rome Exhibition parking areas, included the implementation and the management of CTS in P1 car-park.

On 31st of July 2007 ATAC published a qualification procedure for CTS makers on the European Official Journal to select all the CTS makers able to implement the system in P1 car-park. The qualification procedure closed on 28th of September and two firms, Robosoft and Spijkstall, answered to the qualification procedure and both of them satisfied the requirements set out in the qualification procedure by ATAC.

After the pre-qualification procedure ATAC could not issue the call for tender for the Rome Demonstration implementation because this procedure was not compliance with the rules of the "Guide to financial issues relating to Indirect actions of the sixth Framework programmes – version 2/2005" because subcontracting is a derogation to the general rules and core elements of the project, such as the implementation of the CTS in P1 car-park, can not be subcontracted.

To overtake this problem I.T. Ingegneria dei Trasporti, as coordinator of the Rome demonstration, agreed with the consortium as follow:

- ITR would send the two candidates the terms of reference with the description of the CTS that would be implemented in the P1 car park of the New Rome Exhibition.
- The suppliers must present, on or before 15 January 2008, their technical-economic offer for the implementation, homologation, and management of the CTS, up to the conclusion of the CityMobil project, to I.T. Ingegneria dei Trasporti and to the Consortium coordinator. The technical-economic offer must include a declaration that the supplier commits to delivering the first two vehicles by 1st November 2008.
- ATAC, as project partner, would support the supplier in the certification process and would carry out the civil works for the inclusion of the CTS in the P1 car park of the New Rome Exhibition.
- During the project the supplier would receive from the project up to 35% of the eligible costs sustained in the realization of the Rome demonstration.

On 21st of December IT Ingegneria dei Trasporti, according to the procedure agreed with Consortium Board, sent to the two candidates, Robosoft and Spijkstaal, a request for a technical-economic quote for the implementation, certification, and management of the CTS up to the conclusion of the CityMobil project in P1 car-park of the New Rome Exhibition.

On 15th of January Robosoft sent to the Project Coordinator and to IT Ingegneria dei Trasporti, a technical-economic quote for the implementation, certification, and management of the CTS up to the conclusion of the CityMobil project.

In the meeting of 28th of January the Project Board decided to agree with the proposal from Robosoft for the Rome Demonstration and accepted the new budget proposed by IT Ingegneria dei Trasporti where a 20% of funding reduction was reported.

The last problem faced by the Rome Demonstration was the financial Robosoft problems. Robosoft was not able to provide all the 6 vehicles without any warranty from ATAC that the vehicles would be bought at the end of the project. Unfortunately ATAC could not buy or commit to buy a not certified system. For this reason the last work program agreed by the Rome partners with to consortium is as follow:

- Robosoft will provide two vehicles before the end of 2008 and support the CTS certification;
- ATAC as project partner will provide the civil work for the CTS implementation and support CTS the certification.

- Rome Municipality will coordinate the certification process and support the coordination of the Rome Demonstration;
- ITR will coordinate the Rome Demonstration; manage the CTS, supported by Robosoft and run the data collection for the Rome Demonstration evaluation.

When the two vehicle CTS will be certified ATAC will get out of the project consortium and publish the call for tender for a 6 vehicles CTS. The full 6 vehicles CTS implementation is expected for month 54, six month before the project end.

In spite of all the problems faced by the Rome Demonstration a lot of work has been run mainly on the CTS certification aspects. The Rome Demonstration partners had three meetings with the person responsible for the certification of the Italian Ministry of Transport and for the CTS certification some requirements have been defined.

- The CTS has to be totally segregated and no interaction with pedestrians or other vehicles will be possible at the first stage.
- The stop doors will be implemented. Once the Cybercars will enter the stop the stop door will be opened and closed when the Cybercar will leave the stop.
- At the first stage no interaction between Cybercars will be possible.

2.4 Adaptations of work and time plan

The problems faced by the Rome Demonstration have caused many deviation from the original work plan, but with the last DoW, now under final review by the consortium, the Rome Demonstration partners are confided that a full 6 vehicles CTS will be implemented in the New Rome Exhibition parking area before the end of the project. The new DoW clearly define all the deliverables and milestone of the Rome Demonstration and will help the consortium the follow the progress of the Rome Demonstration.

3 Sources

3.1 Reference List

CYBERMOVE CONSORTIUM, 2004, a. Ex-ante Evaluation, Deliverable D2.3a&6.2b of CyberMove project

CYBERMOVE CONSORTIUM 2004, e. Final evaluation report, Deliverable D6.3 of CyberMove project

CITYMOBIL CONSORTIUM 2005, Rome data collection for the ex-ante evaluation analysis, Deliverable D1.3.5.1 of CityMobil project

ANNEX A