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**ADMINISTRATION AND COORDINATION OF THE
CASTELLÓN DEMONSTRATION**

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1 Executive summary

This document is the first one of a series of yearly documents that will report the administrative and technical management of the Castellón Demonstrator (one of the three large demonstrators of CityMobil project).

The Castellón demonstrator will implement a hybrid transport system connecting the cities of Castellón – the university and the city centre – and Benicassim, situated on the seaside. Benicassim is situated in one of the fastest growing areas in the Valencia region. In order to keep up with this growth, thousands of new houses are being built and public transport is a key part of the new infrastructures to be developed. In this context, a number of interventions are planned, among which the current pilot plays a key role.

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2 Introduction

The Castellón demonstrator, which is the object of this document, is (together with Rome and Heathrow) one of the three large demonstrators to be developed during the CityMobil project. The main goal of this project is to achieve 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”.

To achieve this main goal, during the project, several integrated traffic solutions will be developed, for example: advanced concepts for innovative autonomous and automated road vehicles for passengers and goods; solutions that will try to provide mobility in an efficient, safe and economic manner.

The CityMobil project will demonstrate and validate these solutions in several European cities, with two kind of demonstrators: small scale demonstrators and large scale demonstrators. Both types of demonstrations are studied in the first one of the five subprojects in which CityMobil project is structured:

- SP1 Demonstrations and City Studies
- SP2 Future Scenarios
- SP3 Technological Issues
- SP4 Operational Issues
- SP5 Evaluation

The next section describes the characteristics and features of the Castellón demonstrator.

3 Castellón Demonstrator

The objective of the Castellón Demonstrator is the implementation of a hybrid transport system connecting the cities of Castellón – the university and city centre – and Benicassim, in the seaside.

3.1 System Description

As shown in the figure below, the proposed system is structured around two corridors, with more than 40 kilometres, in which a reserved platform for the public transport vehicles will be built. On this platform a hybrid system of guided bus/tramway will be used. This system has been selected to combine the cargo capacity, accessibility, speed and regularity of a railway-based solution with the flexibility, adaptability and smaller costs of a road-based system. The vehicles will travel through a reserved platform, although in some stretches of the itinerary they will circulate through shared infrastructure. At intersections, the bus/tramway will be given priority over the private traffic. The vehicles to be used are hybrid vehicles with electrical traction and a guidance system to assure the greatest accessibility at the stops and to allow the circulation and operation in sections where they will have to share the roadway with the private vehicles.



Fig.1 Area map with planned system trajectory

This demonstrator will provide considerable flexibility in operations. A suitably adapted bus/tramway could travel on a guideway where this is available but could also travel on any other part of the road network as required, something especially useful in the city centre, so the guided bus/tramway system to be implemented in the demonstrator provides a lower cost alternative to light rail while having the advantages of dedicated rights of way.



Fig.2 Example of a dedicated lane segregated from the normal traffic

The next figure shows an example of the structure of the dedicated lane and how it makes use of the space available.

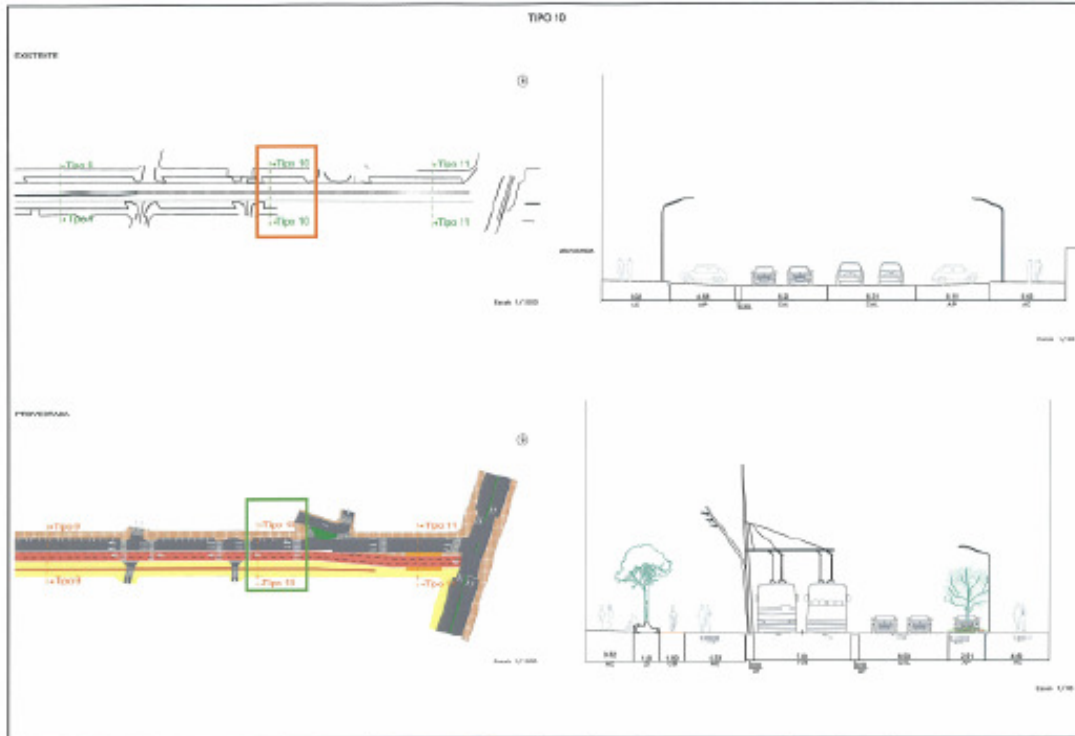


Fig.3 Road cross section and use of space.

Guided vehicle systems involve taking the steering of the bus away from the bus driver for all or, as in the case of Castellón, part of the route. In doing so, they eliminate the need to allow for any lateral movement of the bus within a lane of traffic. A bus is generally approximately 2.5 m wide, but a bus lane is usually 3.75 m or even 4 m wide to allow for this lateral movement. A guided bus system, therefore, provides opportunities to implement dedicated bus ways where road space is in short supply and, hence, where conventional bus lanes could be impractical. Furthermore, it also provides opportunities –by means of automated docking- to improve physical access to the bus by minimising the vertical and horizontal gaps between the bus stop and the bus.

The Castellón demonstration will make use of electrical traction vehicles with guidance systems to circulate over a reserved platform. The vehicles will be powered through a tramway catenary, having in addition another secondary power supply system –possibly battery based- to be used in the historical centre of the city, where it is not possible to have an aerial power supply system.



Fig.4 Electrical traction vehicles

3.2 Site Description

The first line of the advanced transport system – northern corridor - will provide service to the University Jaime I, the historical centre of the city, the important settlements in the seaside and the beach in Benicàssim, an important tourist resort located 20 kilometres north. The layout of this line will connect therefore the main centres of mobility: University, Intermodal Station, historical centre, commercial centres, Port and beaches. In a second phase, a second line – southern corridor, not foreseen within the current scope of CityMobil - will also connect the south of the metropolitan area (Almassora, Vila-real, Burriana).

The next figure shows the Demonstrator trajectory in the city of Castellón:



Fig.5 Demonstrator trajectory

3.3 Management of the Castellón Demonstrator

The Castellón demonstrator is one of the three big demonstrators of the CityMobil project, and it is included into the first Sub-Project of the project.

In order to tackle the work to be done in this demonstrator, 8 work packages have been defined, where the work is structured as follows:

- WP.1.4.1: Demonstration project management
- WP.1.4.2: Specifications and adaptation of vehicles
- WP.1.4.3: Design and implementation of IT-systems
- WP.1.4.4: Design and construction of infrastructure
- WP.1.4.5: Economical analysis and impact assessment
- WP.1.4.6: Operation, service and maintenance
- WP 1.4.7: Demonstrator data collection
- WP.1.4.8: User needs and awareness action

The timeline of these work packages is the following:

SP	Name	Year 1				Year 2				Year 3				Year 4				Year 5				
		Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1,4	Castellon demonstration																					
1.4.1	Demonstration project management																					
1.4.2	Specification and adaptation of vehicles																					
1.4.3	Design and implementation of IT-systems																					
1.4.4	Design and construction of infrastructure																					
1,4,5	Economical analysis and impact assessment																					
1.4.6	Operation, service and maintenance																					
1.4.7	Demonstration data collection for evaluation																					
1.4.8	User needs and awareness actions																					

These work packages and the work package 1.4 itself have several links among them and with other work packages and sub-projects of the CityMobil project. These links are shown and clarified in the next diagram.

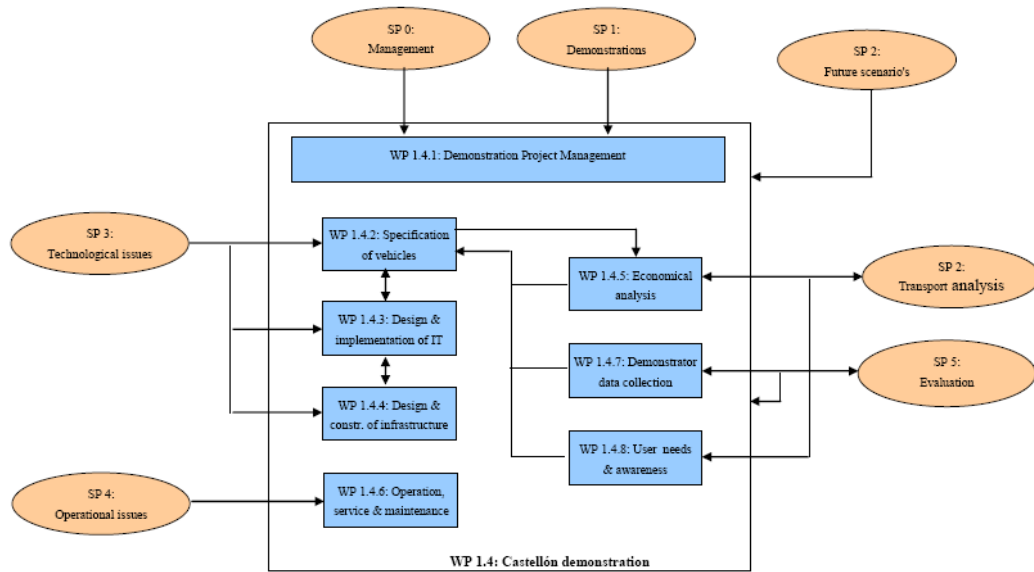


Fig.6 Castellón Demonstrator structure and links with other Sub-projects

Each of these workpackages is described in more detail in CityMobil (2006).

The progress in each of these workpackages over the period 1st May 2006 to 30th April 2007 will be described below.

The following subsections will only describe the work done in the workpackages, which have been active within this period:

3.3.1 Demonstration project management

This work package will coordinate the cooperation between the other work packages and have the administrative responsibility of the demonstrator.

The main objective of the WP 1.4.1 is to ensure efficient administrative, financial and technical management of the Castellón demonstrator and it will also organize all the necessary work and legal issues for contract management in the demonstrator, and will carry out the overall technical management and execution of the project. It will closely follow-up the project progress, co-ordinate the quality assurance functions, provide continuous risk assessment and in case of problems, it will initiate the required corrective actions in co-operation with the concerned partners.

The main outputs from this work package are the following deliverables and milestones.

Deliverable	Month due	Achieved
D.1.4.1.1: Administration and Coordination of the Castellón demonstration	M18	Yes

Milestone	Month due	Achieved
M.1.4.1.1: Demonstrator analysis and review of objectives	M18	Yes

3.3.2 Specification and adaptation of vehicles

The objective of the WP 1.4.2 is to specify the kind of vehicles for the demonstration in Castellón. This WP consists of design, documentation and laboratory tests necessary for the adaptation and integration of automated buses/tramway in the demonstrator of Castellón. More detailed aims of the work package are to get solutions for the integration of the vehicle and IT technology, to find the necessary technologies of safety concerning the vehicles and prepare a plan for testing of critical vehicle components.

The outputs settled for this work package are as follows:

Deliverable	Month due	Achieved
D.1.4.2.1: Specification of vehicles	M12	No
D.1.4.2.2: Adapted vehicles	M18	No

Milestone	Month due	Achieved
M.1.4.2.1: Selection of critical technical solutions	M12	Yes
M.1.4.2.2: Vehicles adapted and ready for the demonstrator	M18	Yes

As shown in the previous tables, the deliverables on this work package are not yet finished, this is due to a delay in receiving the necessary inputs from the GVA, the entity in charge of the development of the Castellón Demonstrator.

3.3.3 Design and implementation of IT-systems

WP 1.4.3 will develop and carry out the design, implementation and testing of the IT-applications required in the Castellón demonstration. This work package is structured into three tasks:

- Requirements definition
- High level functional specification
- Detailed design and prototype implementation

The work done in these three tasks will produce the following outputs:

Deliverable	Month due	Achieved
D.1.4.3.1: Specification of vehicles	M12	Yes

3.3.4 Design and construction of infrastructure

The aim of WP 1.4.4 is to develop and build the infrastructure used by the vehicles in the Castellón demonstrator, including its integration with the environment.

The work package includes the selection of the guideway alignment, the definition of the landscaping of the guideway alignment into the cityscape, the design of the stations and the planning and construction of the guideway.

The outputs of this work package are as follows:

Deliverable	Month due	Achieved
D.1.4.4.1: Design of dedicated lane infrastructure	M9	Yes

Milestone	Month due	Achieved
M.1.4.4.1: Preliminary engineering plans	M6	Yes
M.1.4.4.2: Analysis of the noise, emissions and landscape	M9	Yes

3.3.5 User needs and awareness actions

The objective of WP 1.4.5 is to evaluate the socio-economical impacts of the Castellón demonstration and define an impact assessment framework. An impact assessment framework, tailored for the ex ante assessment, is specified on the basis of a literature survey and expert interviews. Economic aspects, level of service, environmental effects, social impacts, traffic safety impacts, impacts on land use and urban form, and impacts on image and the attractiveness of the area are included. After the implementation of the Castellón demonstration the indicators will be modified for the ex post assessment, which will provide knowledge and experience from the implementation phase. The work in this WP will be complementary to and coordinated with SP5 cross-site evaluation.

The analysis of the user needs and awareness actions has been compiled through focus groups.

The output of this work package is as follows:

Deliverable	Month due	Achieved
D.1.4.8.1: Analysis of the user needs and preferences (pre implementation)	M12	Yes

Milestone	Month due	Achieved
M.1.4.8.1: Initial focus group research results	M12	Yes
M.1.4.8.2: Pre implementation focus group results	M11	Yes

4 Current status and next steps

4.1.1 Status of the Castellón Demonstration

The Castellón Demonstrator is in an advanced state. The design of the platform was finished in January 2007, and the dedicated lane should be operative for commercial use soon. 17 candidates applied to the tender to build the infrastructure needed and FCC-LUBASA won the tender. The first stretch of the dedicated lane infrastructure (the stretch linking the University with the Rio Seco River with 6 stops and 25m long per 3 m wide) was finished in August 2007.

The requirements of the IT systems to be implemented in the system were also analysed in January 2007. And the selection of the vehicles had been done on October 2006. The chosen vehicle was the Irisbus-IVECO. Some of these vehicles have already been purchased and are available since March 2007.

ENQ and GVA have maintained several meetings in order to define the IT systems to be included in the demonstrator (TFT at the University and the Transport Interchange, Real time information at the stops)

4.1.2 Comparison with time schedule and next steps

No major deviations from the working plan can be seen at current time, but, as specified in sections above, some of the documents are delayed.

The time schedule for work over the next six months includes the follow up of the work developed within WP1.4.2 (vehicles), WP1.4.3 (IT systems) and WP1.4.4 (Infrastructure).

5 Conclusions

The Castellón Demonstrator plays an important role in CityMobil project, as it is one of the demonstrators where the concepts studied and developed through the project will be demonstrated, tested and validated.

Up to now, all the technical milestones of the Castellón Demonstrator planned for the first 12 months have been achieved. This is also true for the first 12 months deliverables, with the only exceptions of D.4.2.1 and D.1.4.2.2. These two deliverables are under preparation, awaiting some inputs from GVA.

6 Glossary

Reserved platform: Special lane where only the automated buses are allowed to drive. This lane is differentiated by a different road colour, and is physically separated of other kind of lanes.

7 Sources

7.1 Reference List

In the following a summary of citing references is given. For a more detailed description please refer to the citing references guide that has been submitted with this document.

CityMobil Annex I: Description of work (2006)

Zlocki A (2007) 6 month progress report concerning the demonstrations Deliverable D.1.1.1

7.2 Databases

The CityMobil web site <http://www.citymobil-project.eu/>