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MOBILITÀ

SOCIETÀ UMBRA DI TRASPORTO PUBBLICO LOCALE

CiViTAS

Cleaner and better transport in cities



RENAISSANCE

PERUGIA • BATH • SZCZECINEK • SKOPJE • GORNA ORYHOVITSA

CIVITAS PLUS

International Meeting on Road Safety and Marking

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Perugia, Sala della Vaccara

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THE CIVITAS INITIATIVE
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EUROPEAN UNION

M5.3 – Improvement of bus stops environment

Purpose and action of the measure

To use a combination of amenities at bus stops to improve the efficiency of bus travel and safety of PT customers and citizens:

- Paved customers waiting areas
- Bus shelters
- Pedestrian access to the bus stop
- Road signs and marking
- Landscape features



M5.3 – Improvement of bus stops environment

Purpose and action of the measure

- The extended urban transport system is comprehensive of 1.431 bus stops and shelters
- The number of bus stops of the core urban transport system is about 600
- Out of them, **24 bus stops** have been jointly identified for intervention with the Municipality officers



Methodology for implementation

Research and development

Identification of bus stops and area – SAFETY AUDIT

Technical project plan at each stop

Demonstration

Practical implementation of the works

Monitoring the works

Evaluation

User needs analysis and understanding of user requirements

Verify the technical effectiveness of the measure

Assess the effectiveness with regard to safety and user satisfaction (customer satisfaction and focus group)

Dissemination

Local awareness of the measure



Who is involved in the measure?

Main stakeholder has been the **Municipality of Perugia** - the staff of the technical planning office, involved in the execution of the technical implementation process and in the direction of works:

- Strict connection between Umbria Mobilità and the Municipality in the creation of a new environment at the bus stops
- Facilitation in getting permissions for the works
- **Mediation for using private spaces**

Other key stakeholders have been the **PT customers (high school and university students, workers, retired people)** which have been involved through dedicated focus groups for assessing the impact of the measure (in itinere evaluation) and will be involved in June 2012 for the ex-post assessment



Synergies with the project “Più Sicurezza”

- Cooperation among the Municipality of Perugia, Umbria Mobilità (APM before the merging process) and the Dipartimento di Idraulica, Trasporti e Strade (DITS) of Rome University Sapienza on “Bus stops crash statistics and analysis” and co-financed by the Umbria Region
- The activity has been finalised to safety improvement of both bus stops and bus stops access pedestrians walks



Key messages of this presentation

Safety Implementation is the focus for all Umbria Mobilità operational, planning, and strategic decisions. Rather than think of it as a single priority, UM through the M5.3 implementation is renewing the efforts to create a culture of safety in all UM employees and endeavours.

Cooperation and Coordination Need among stakeholders during the design/modifications of bus stops and their amenities to address possible effects of bus stop location and design on bus operations and traffic flow as well as community integration.

Collecting and Analysing information towards the creation of database for information, monitoring and management purposes of the safety parameters.

Stimulating increased customers participation in the decision making process through ad hoc focus groups and awareness campaigns.



Ex-ante evaluation: the identified criticalities

Renaissance and Più Sicurezza

Objective: to acknowledge information based on the PT customers point of view about the safety perception at the bus stop and during the way to or from the bus stop (Più Sicurezza). In particular:

- The presence of bus stops with a higher level of risk
- If the ways to or from the bus stops are perceived as unsafe by the PT customers
- The reasons of such perceptions.

Actions:

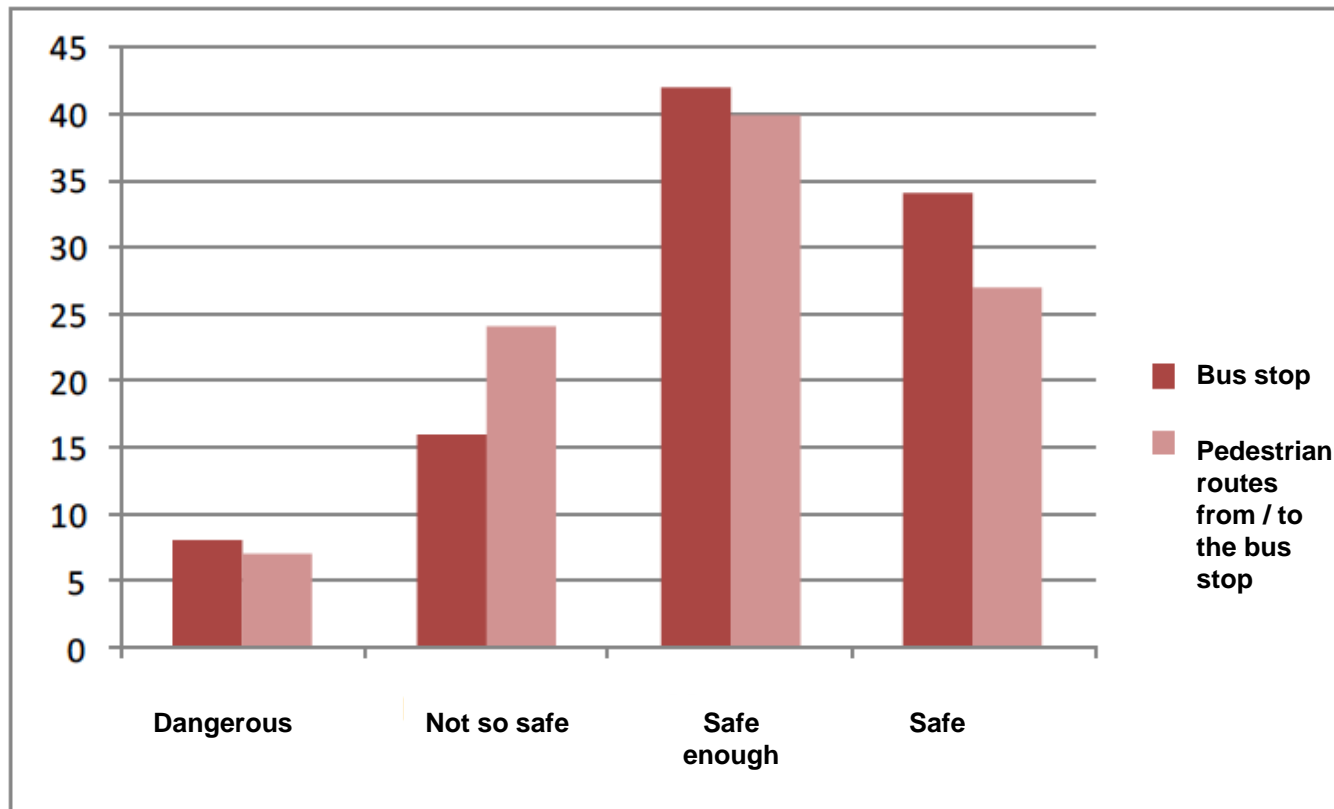
- Desk research
- technical inspections to the sites (safety audit)
- Customers' interviews on safety perception at the bus stop
- Customer satisfaction and focus groups



Ex-ante evaluation: the identified criticalities

Renaissance and Più Sicurezza

Main results



Source: Progetto Più Sicurezza, Analisi delle fermate del TPL Agosto 2010, DITS Sapienza università di Roma

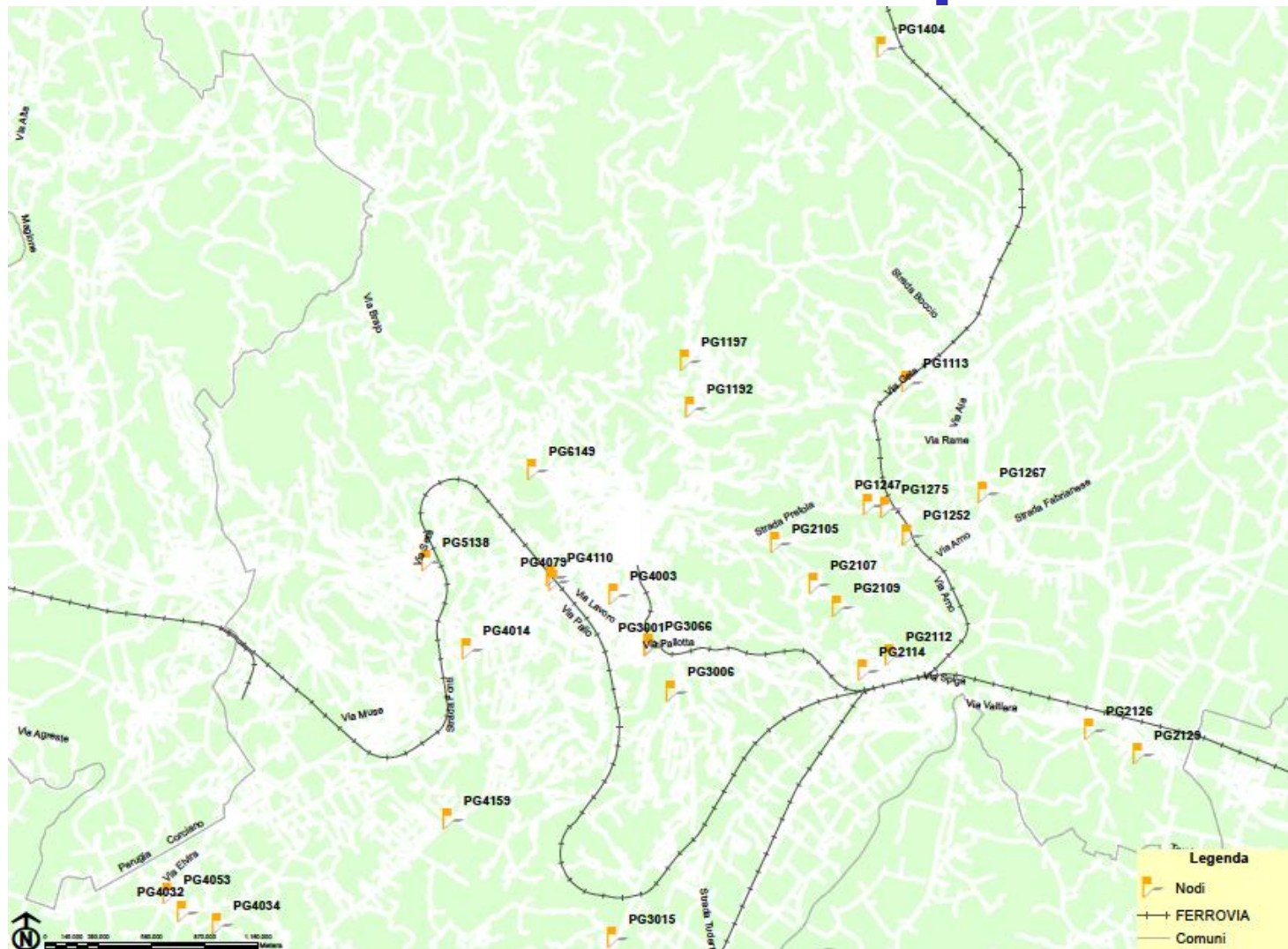


Main criticalities affecting the bus stops

- Bus stops placed on the road just after an intersection
- Inadequate or lack of road signs and or marking
- Bus stops located nearby a bend that limits pedestrians visibility that are crossing the road to access the bus stop.
- Inadequate or lack of waiting area with limited access due to obstacles on the walk way or for the absence of the pedestrians way to the bus stop
- High speed of the vehicles nearby the waiting area
- Dangerous getting on and off the bus
- Lack of night visibility due to insufficient lighting



Location of the bus stops



4 Renaissance & Più Sicurezza case studies

4 out of 24 bus stops with main criticalities:

- Inadequate PT customers waiting areas
- Missing shelters
- Missing pedestrian access to the bus stop and road signs

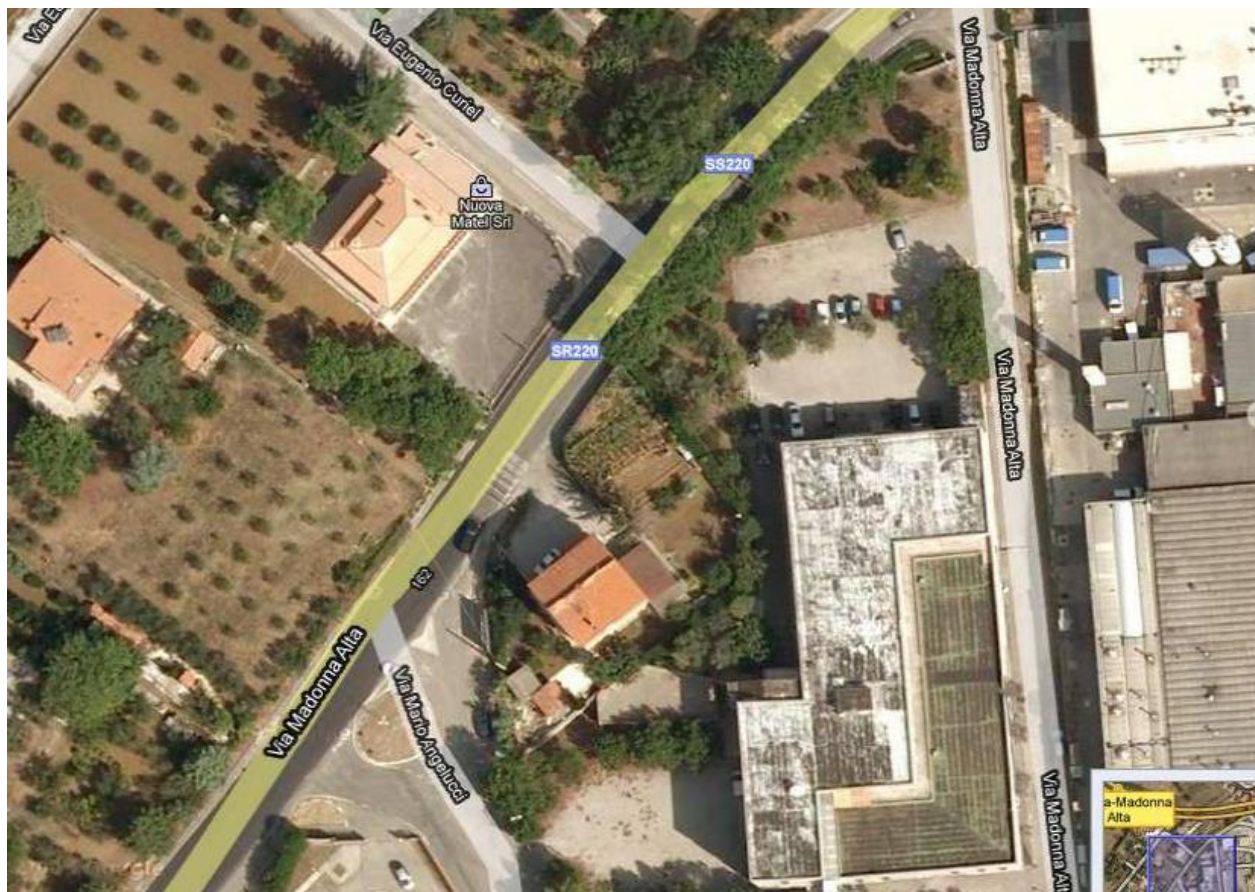
Four main phases:

- 1) Localisation of the bus stops to be audited
- 2) Customers' interviews
- 3) Analysis of the safety perceptions
- 4) Technical Planning



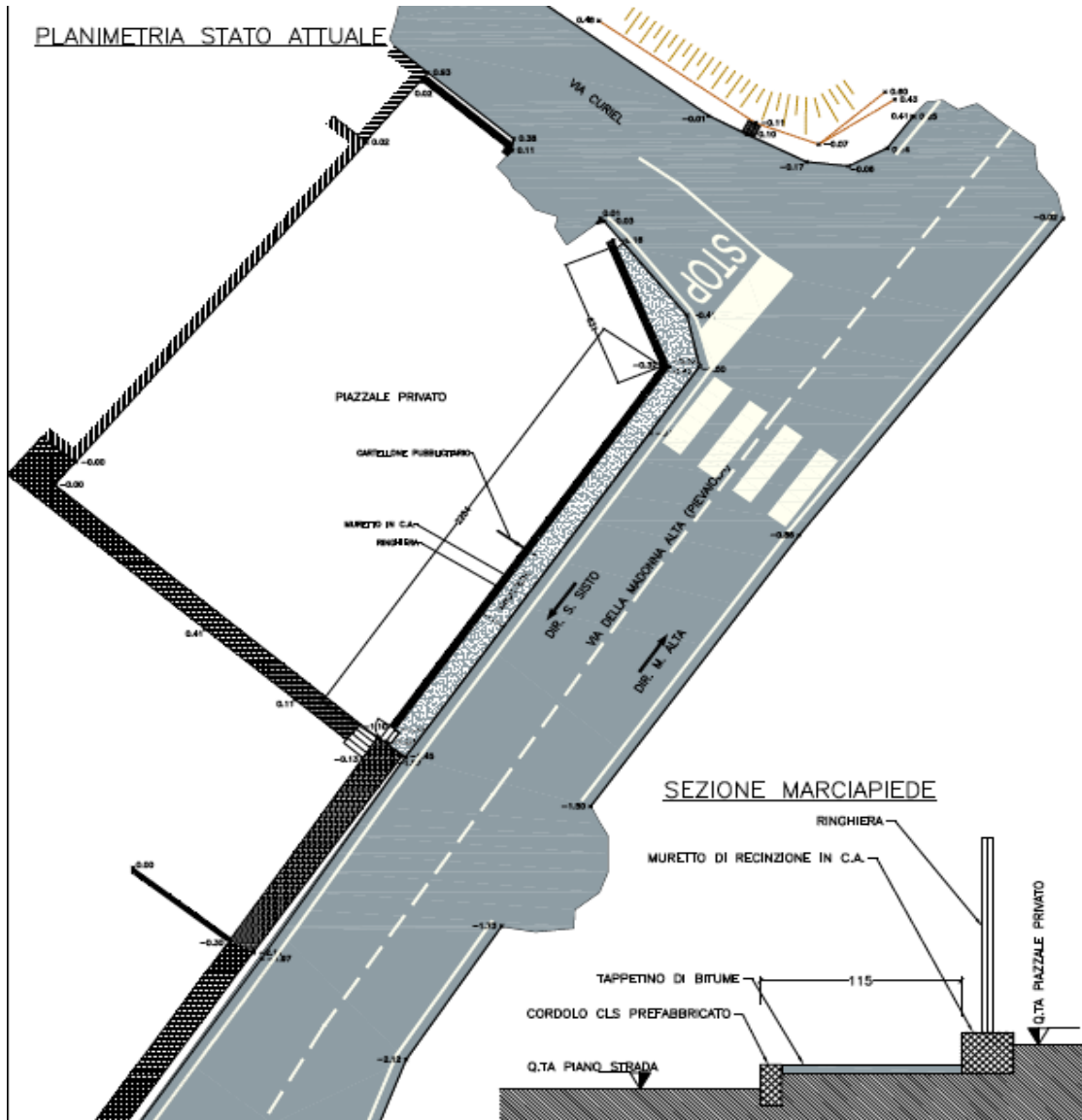
Case study n. 1

PG4014 – Madonna Alta



Case study n. 1 - Ex-ante status

PLANIMETRIA STATO ATTUALE



Key features:

- 24 bus routes
- Waiting area on the street
- Located just after the road intersection



Case study n. 1 – Ex-ante analysis

SAFETY AUDIT

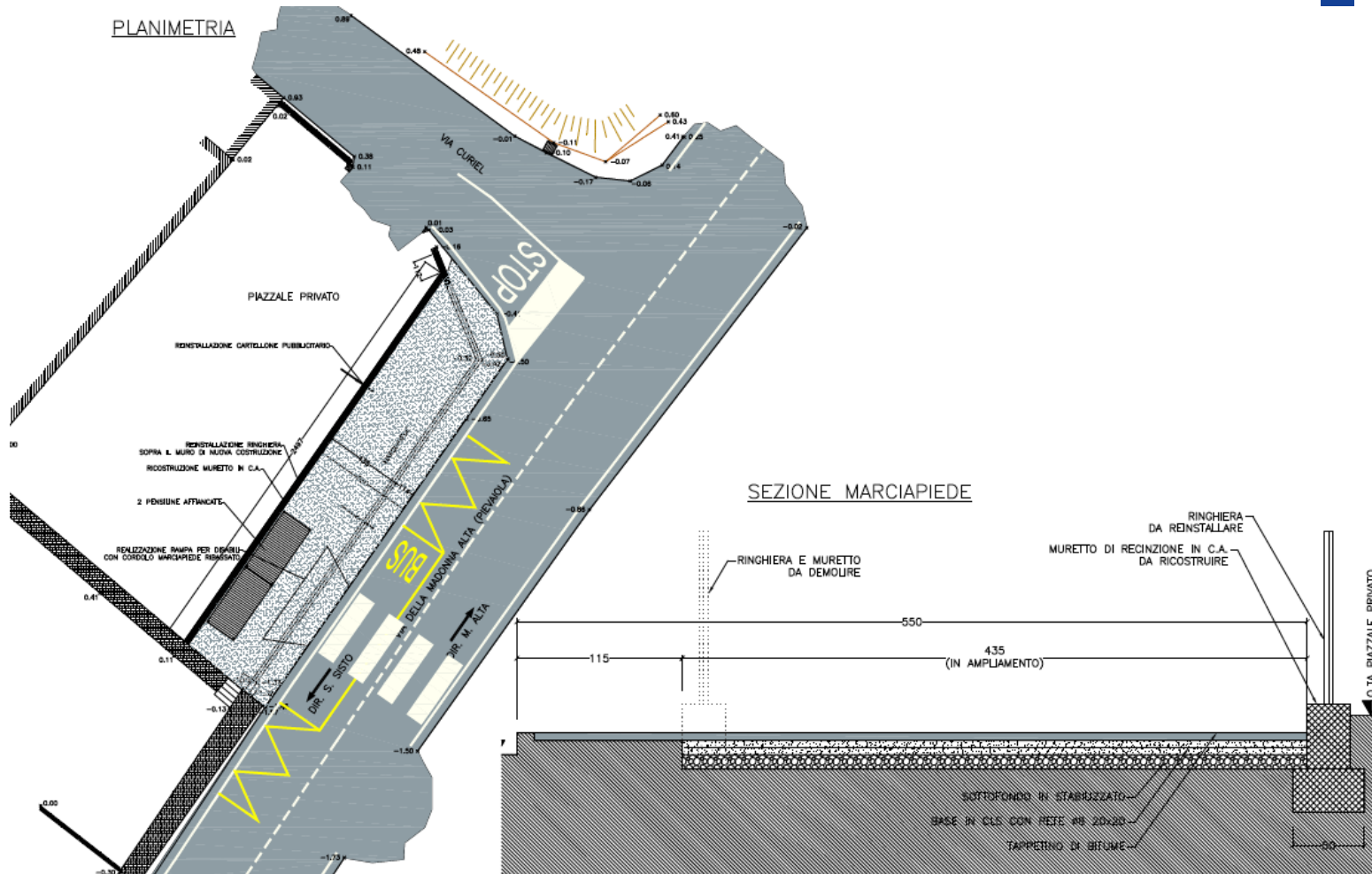
- The bus arriving at the bus stop is an obstacle to the visibility for private cars. Absence of the bus shelter.
- Narrow waiting area inadequate to host bus customers. This bus stop is serving two main high schools of Perugia. Presence of obstacles on the waiting area
- Pedestrian Crossing nearby a bend and next to an intersection. Pedestrian walk partially present.
- Difficulties in getting on and off the bus due to the small waiting area.
- Absence of road signs and marking identifying the bus stop
- The bus stop sign is turned towards the road, creating difficulties to the customers that may go on the road to read the bus scheduling

INTERVIEWS WITH THE PT CUSTOMERS

Shared perception of risk by the customers, due to the high speed of private vehicles and to the narrow waiting area. Another major identified criticality concerned the difficulties in crossing the road.



Case study n. 1 - Technical planning

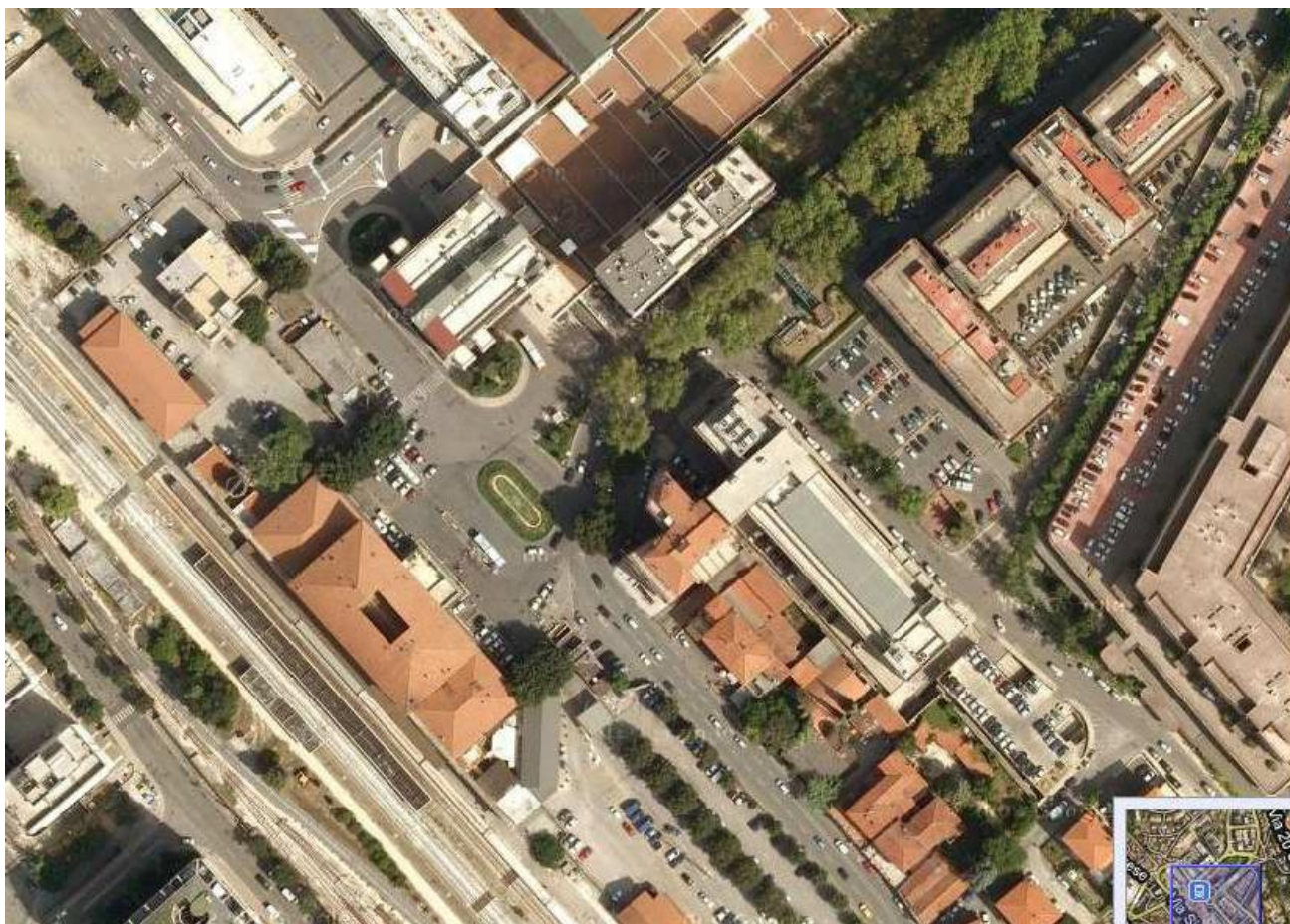


Case study n. 1 - Ex-post pictures



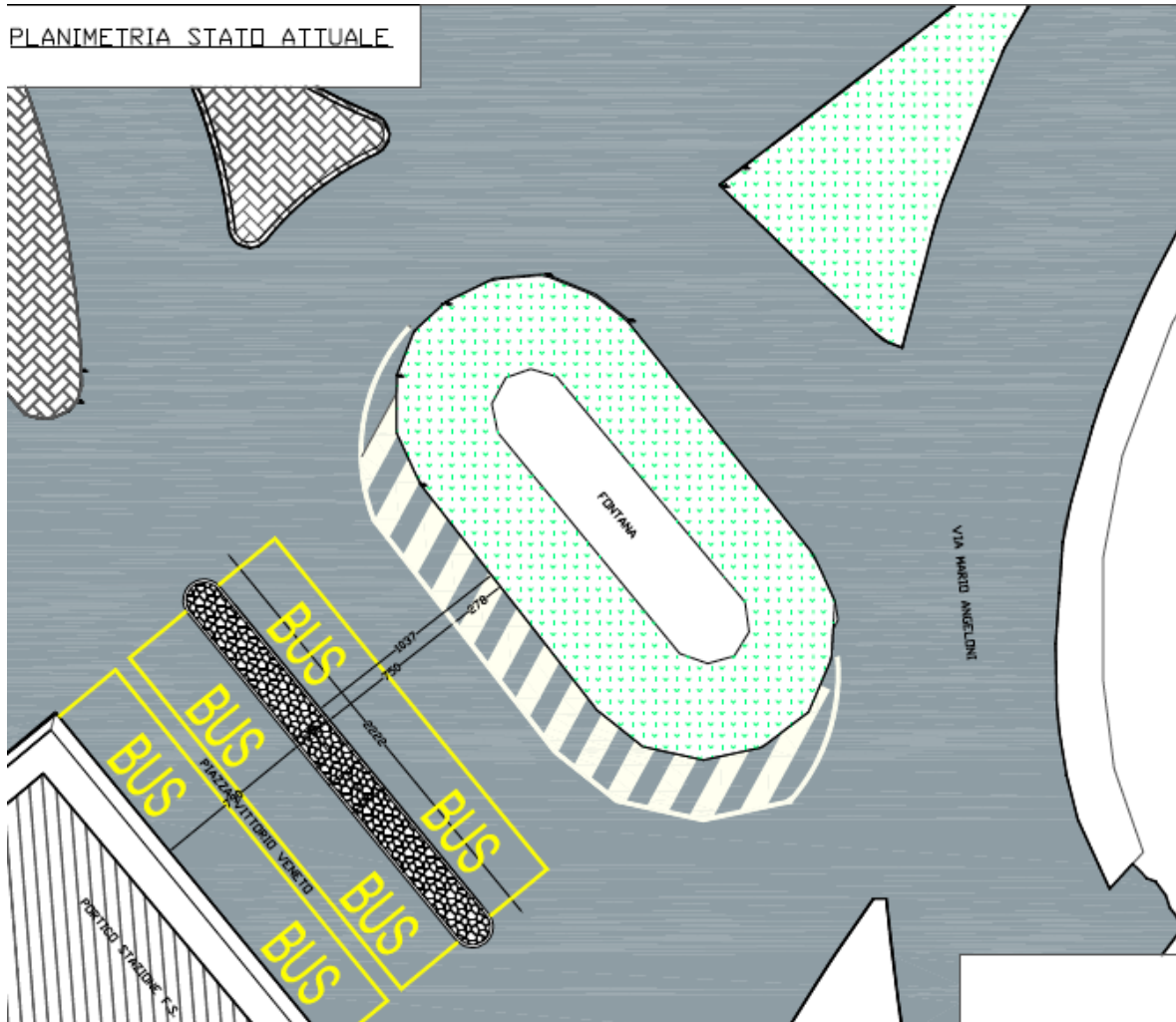
Case study n. 2

PG4079 – Fontivegge – Train Station



Case study n. 2 - Ex-ante status

PLANIMETRIA STATO ATTUALE



Key features:

- 43 bus routes
- Small waiting area
- Absence of the pedestrian crossing



Case study n. 2 - Ex-ante analysis

SAFETY AUDIT

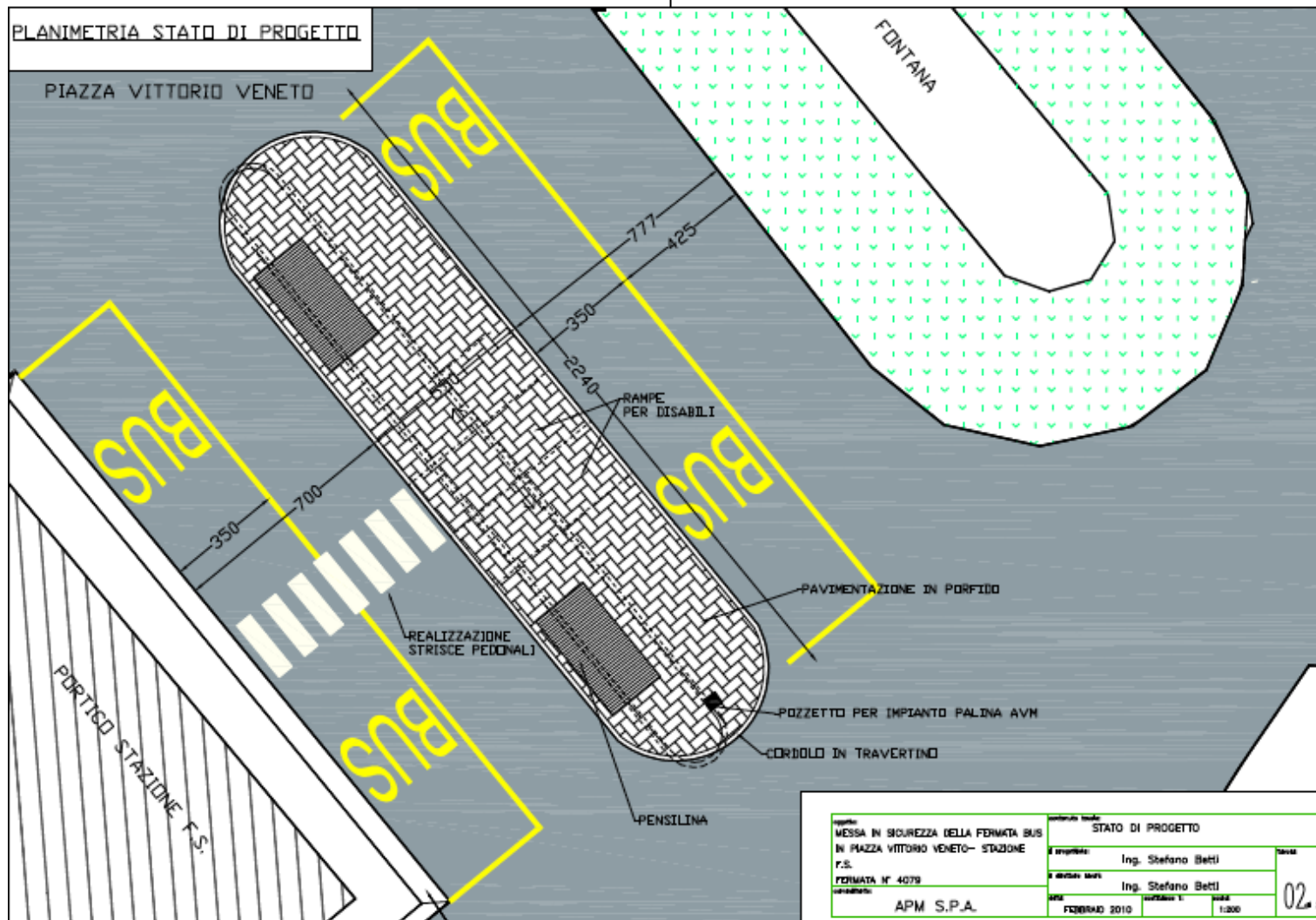
- Absence of the bus shelter and of pedestrian crossing
- The bench on the waiting area is an obstacle to the pedestrian flow on the area. Presence of subsidence impeding the access to customers with reduced mobility
- Absence of pedestrian walks for accessing and leaving the bus stop waiting area
- Presence of barriers making scarcely visible the PT customers on the waiting area
- Absence of road marking identifying the bus stop and of pedestrian crossing. The bus stop sign is turned towards the road, creating difficulties to the customers that may go on the road to read the bus scheduling
- Difficulties in getting on and off the buses when all the three bus waiting areas were occupied

INTERVIEWS WITH THE PT CUSTOMERS

Shared perception of risk by the PT customers, due to the speed of vehicles and to the small waiting area. Another major identified criticality concerned the difficulties in crossing the road.



Case study n. 2 - Technical planning



Case study n. 2 - Ex-post pictures

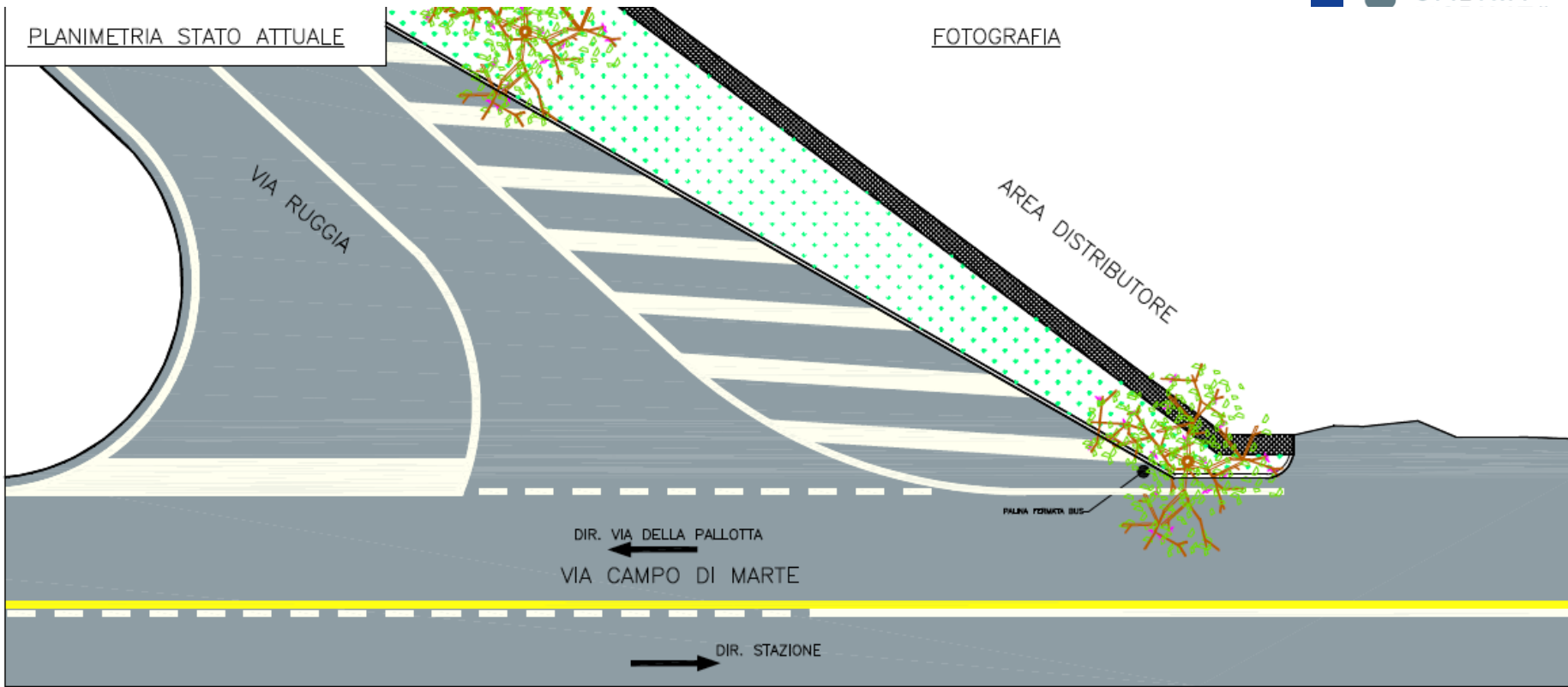


Case study n. 3

PG4183 - Via Campo di Marte



Case study n. 3 – Ex-ante status



Key features:

- 5 bus routes
- Waiting area on the road
- In proximity of the road intersection



Case study n. 3 - Ex-ante analysis

SAFETY AUDIT

- A – Inappropriateness of the bus stop location. The only pedestrian crossing is 150 m far from the bus stop. In case of crossing in front of the bus stop makes the pedestrians not visible to vehicles. Absence of the bus shelter.
- B – The waiting area is on the road and very narrow.
- C – Several subsidence make the waiting area uncomfortable and may lead the pedestrians to move to even more risky areas
- D – Inadequate lighting and bus stop not visible
- E – PT customers visible only if waiting on the road
- F – The limited waiting area makes difficult to get on and off the bus.
- G – Inadequate road marking identifying the bus stop.

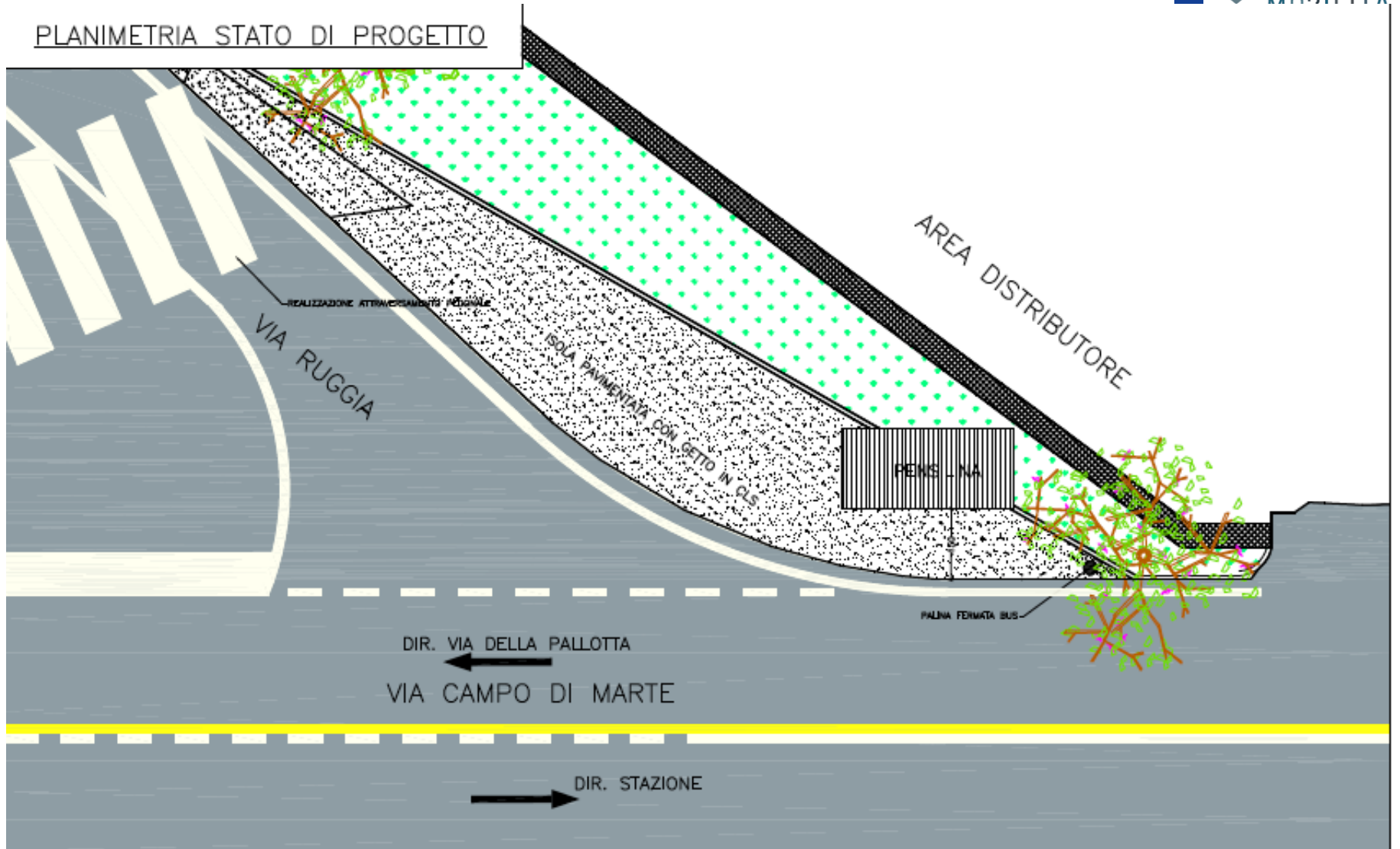
INTERVIEWS WITH THE PT CUSTOMERS

Shared perception of risk by the PT customers, due to the need of waiting the bus on the road and to the speed of vehicles. Another major identified criticality concerned the difficulties in crossing the road.



Case study n. 3 - Technical planning

PLANIMETRIA STATO DI PROGETTO

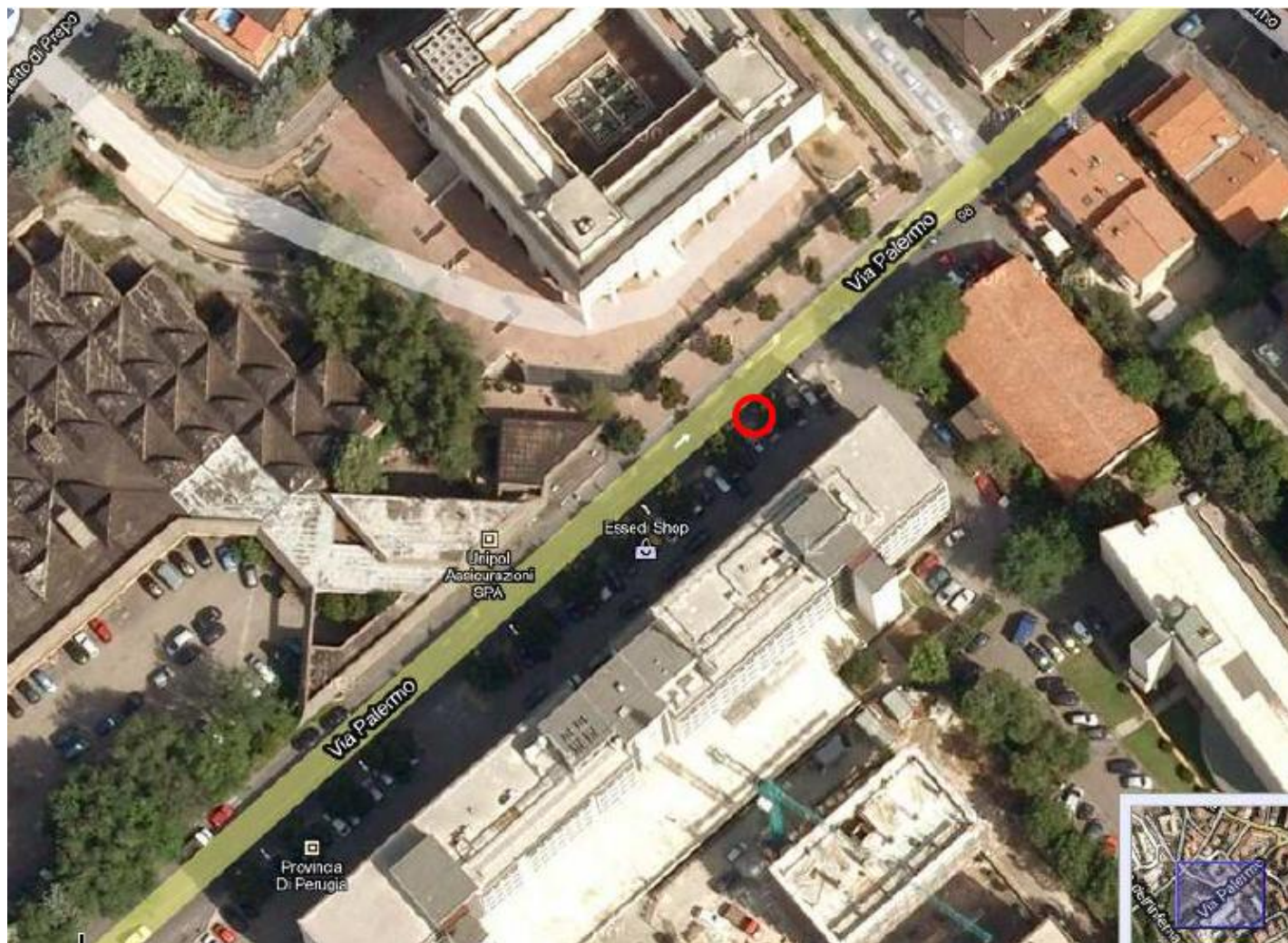


Case study n. 3 – Ex-post pictures



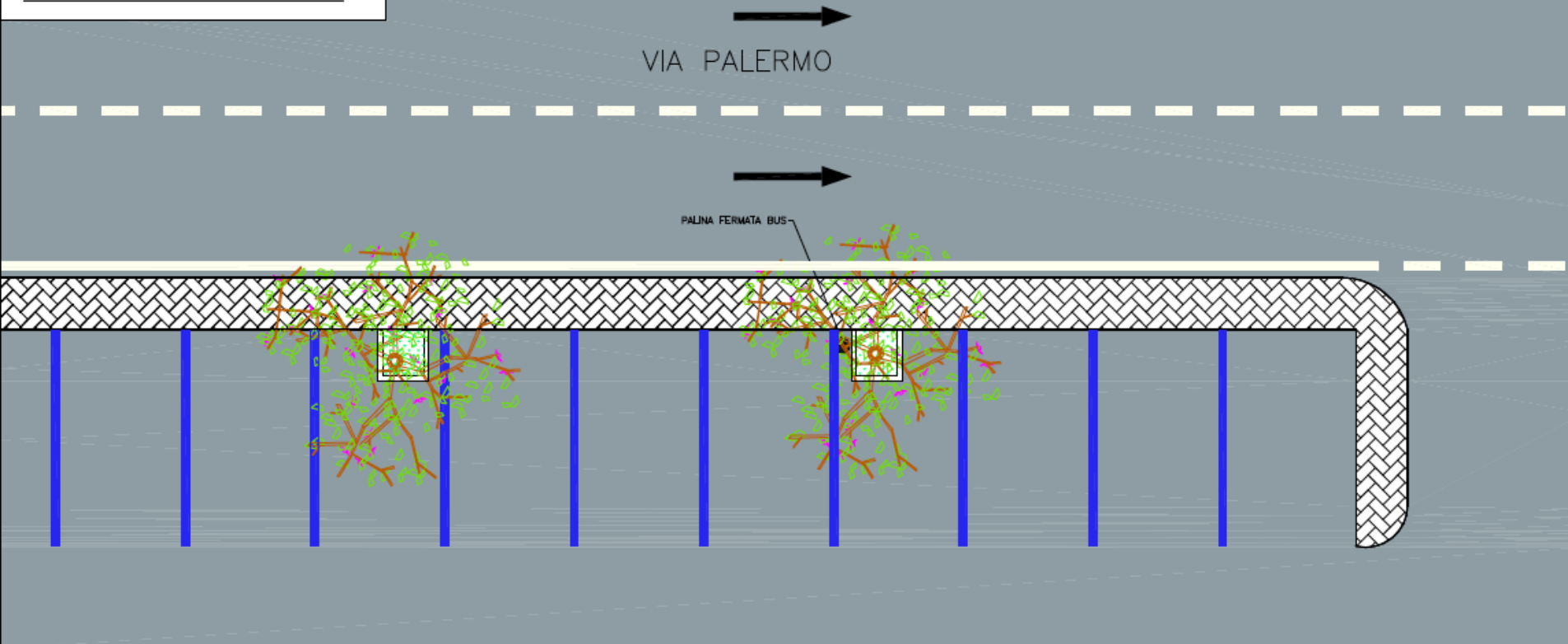
Case study n. 4

PG4232 - Via Palermo



Case study n. 4 – Ex-ante status

PLANIMETRIA STATO ATTUALE



Key features:

- 3 bus routes
- Waiting area on the side walk
- Absence of bus shelter



SAFETY AUDIT

A – Absence of the bus shelter

B-F – The waiting area is narrow and inadequate for facilitating PT customers getting on and off the bus.

D – Inadequate lighting and bus stop not visible

G – Inadequate road marking identifying the bus stop.

INTERVIEWS WITH THE PT CUSTOMERS

Shared perception of risk by the PT customers, due to the speed of vehicles on the road. Another major identified criticality concerned the difficulties in crossing the road.



Case study n. 4 - Technical planning

PLANIMETRIA STATO DI PROGETTO

VIA PALERMO

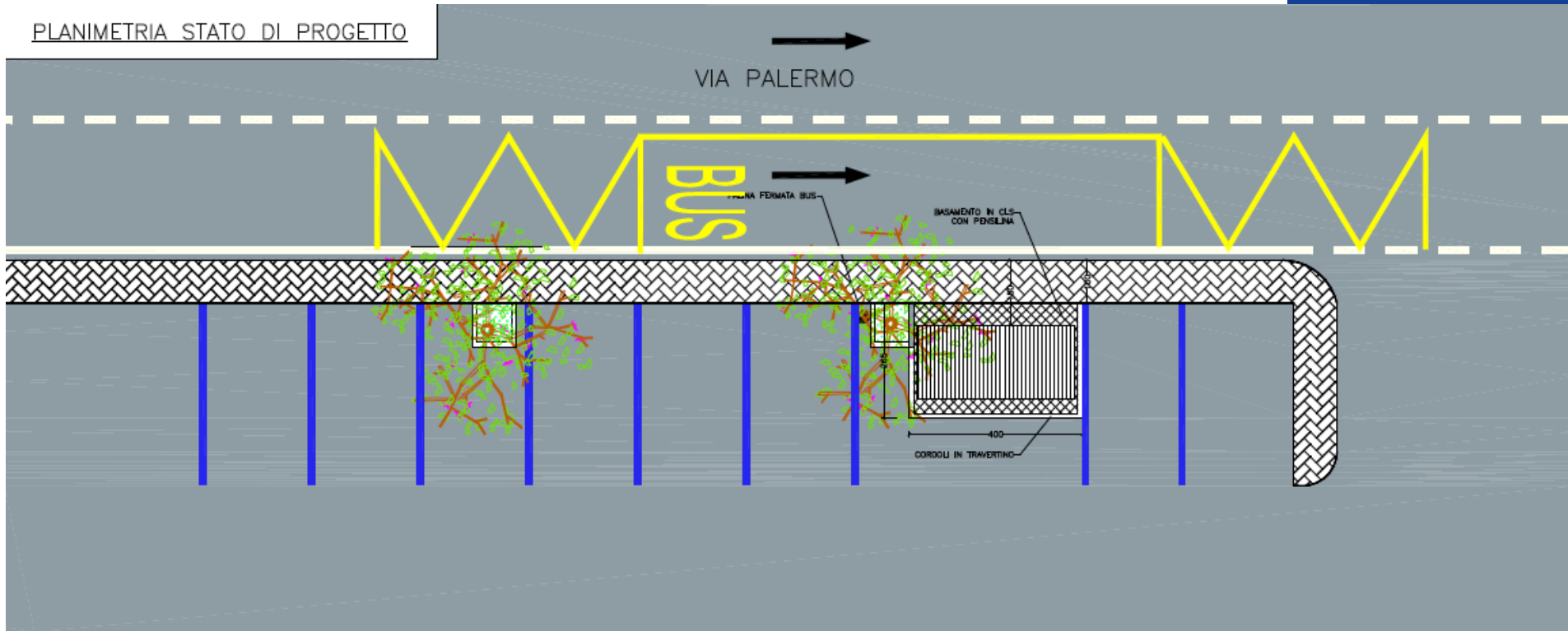
BUS

PIANINA FERMATA BUS

IMBASAMENTO IN C.L.S.
CON PENSILINA

CORDOLI IN TRAVERTINO

400



Case study n. 4 – Ex-post pictures



Conclusions

Two main different channels for collecting responses to the interventions:

INTERNAL FEEDBACK

The Umbria Mobilità inspectors are collecting positive feedbacks about the enhancement of the bus stops environment from the PT customers

CUSTOMER SATISFACTION & FOCUS GROUPS

The customer satisfaction and the focus group with the PT customers that will serve for the purposes of the ex-post assessment will be implemented starting from the third week of May 2012 and up to mid June 2012.



Thank you

