



COMUNE DI FIRENZE

CENTRO STORICO DI FIRENZE - PATRIMONIO MONDIALE UNESCO

Il referente



Firenze, 28/01/2015

All' Ufficio Patrimonio Mondiale UNESCO
Segretariato Generale - Servizio I Coordinamento e
Studi,
Ministero dei Beni e delle Attività Culturali e del
Turismo
Via del Collegio Romano 27
00186 ROMA

oggetto: trasmissione State of Conservation del Centro Storico di Firenze World Heritage
site n.174

Gentilissimi con la presente si trasmette la nota ed il relativo allegato in riferimento allo
State of Conservation del Centro Storico di Firenze.

La relazione è in lingua inglese.

Con l'auspicio di un vostro sollecito inoltro del materiale al Centro del Patrimonio Mondiale
si inviano i più cordiali saluti.

Il referente

dott. Carlo Francini



Site Manager



Florence, 28/01/2015

State of Conservation for UNESCO site n. 174 "Historic Centre of Florence".

Site Manager Technical Note

Regarding the States of conservation of the World Heritage property "Historic Centre of Florence" (Italy)

- Ref: **CLT /WHC/149/IT / AS/KR (5 February 2014);**
- Ref.: **CL T/HER/WHC/7368/IT/AS/KR (16 June 2014),**

it is worth to clarify the current state of conservation of the "Historic Centre of Florence".

1. Mass Tourism

The management of tourism in the "Historic Centre of Florence" has always been an important issue for the control and management system referred to the UNESCO site. In particular, the Planning Committee and the Site Manager have been active in this issue through the development of research projects, such as the Visitor Management in collaboration with *Istituto Superiore sui Sistemi Territoriali per l'Innovazione* (SiTI), aimed at establishing criteria for the management of sustainable tourism. There is a full awareness about the risks linked to mass tourism. That is confirmed by the new Statement of Outstanding Universal Value which sees mass tourism as a threat to the integrity of the site.

However, a real menace to the Outstanding Universal Value of the "Historic Centre of Florence" is far away from the current situation of the site. Being aware of this risk, the new Management Plan, which scheme has been approved by the Municipality of Florence, will be equipped with appropriate control tools and alternative proposals which can relieve the tourist presence within the site.

Referring to the resources devoted to the preservation of the site's element we would like to confirm and highlight:

- what underlined in the Second Cycle Periodic Report;

- the presence of several national and international sponsors, which contribute to the conservation of Florentine monuments in full accordance and harmony with the competent authorities;
- the presence of several restoration campaigns¹ constantly held for the maintenance of the integrity and authenticity of the World Heritage elements of the "Historic Centre of Florence".

About the warning regarding the "urban space or the natural environment", it is necessary to highlight that some interventions - as the tram line project and the pedestrianization of a large part of the Historic Centre - have contributed to decrease the congestion and greenhouse gasses pollution in the area of the Historic Centre Area.

2. Tram line

The real impacts the tram line project has on the World Heritage Area have to be underline and clarified. We would like to draw the attention to the report, already sent in 2009, which is related to a similar State of Conservation. Comparing with what communicated in that report, the LINE 2 route has been changed by substantially reducing the impact of the infrastructure on the Historic Centre. As a matter of fact, the project received the approval from the Committee for Landscape of the Municipality of Florence and by the Superintendence; the landscape at the side of the *Fortezza da Basso* was the subject of a special session of the Committee of The Ministry of Heritage and Cultural Activities (MIBAC). In conclusion, the project, which saw five project phases (preliminary phase, definitive phase, definitive inspection phase, executive phase and executive inspection phase), can be considered to all intents and purposes respectful towards the artistic heritage of the Historic Centre, considering also the limited interaction with it.

About the referendum it is necessary to point out that it was a non-binding consultation, and that only 130,000 of 366,000 inhabitants in 2008, equivalent to 35%, decided to intervene. Among them, only 75,000 people (20.5%) showed a negative opinion. The administration took into consideration this result, inferring the following considerations:

- about 75% of inhabitants was in favor or not concerned, therefore it was considered correct to proceed with the implementation of the project;
- the opposition to the project, about 20% of the population, led to a further review of some important choices, bringing to important route changes.

Regarding the track and its link to the World Heritage Area, it is necessary to highlight the project *Alternativa al Centro Storico*, which changes and limits the impact of the infrastructure on the World Heritage Area. *Alternativa al Centro Storico* became essential after the approval by the Ministry of Infrastructure and Transport of the final revised project, which was already approved by the City Council with Resolution 857 (21.12.2007). On January 26, 2010, with 428 votes / 211FI / 2, the

¹ In the official website of "La Soprintendenza per i Beni Architettonici, Paesaggistici, Storici, Artistici ed Etnoantropologici per le province di Firenze, Pistoia e Prato", it is possible to gain more information regarding ongoing restorations in Florence: <<http://www.sbap-fi.beniculturali.it/index.php?it/107/restauri-in-corso-beni-architettonici>>.

Inter-ministerial Commission expressed favorable opinion on the final revised project about Line 2 and Line 3. In particular, in relation to Line 2, the Inter-ministerial Commission reserved the right to express its opinion on the same Line connection with *Piazza della Libertà*, following the presentation by the Municipality of Florence of an alternative solution to the tram line passage in the area of the Cathedral Dome. This alternative will be able to keep the costs, the value, the functional and tramway transport system purposes unaltered.

The Municipality of Florence undertook the task, required by the Ministry, of identifying and evaluating all the possible solutions for the connection of the Historic Centre. There were identified five possible alternatives to the tram line passage in the *Piazza del Duomo*, which have been compared, through a multicriteria analysis, with the referential scenario provided by the final revised project. The chosen scenario is characterized by a routing in *via Valfonda*, a crossing in *Piazza Bambini e bambine di Beslan* and in *viale Lavagnini*, and it resumes the previously identified track up to *Piazza San Marco* (Figure 1).

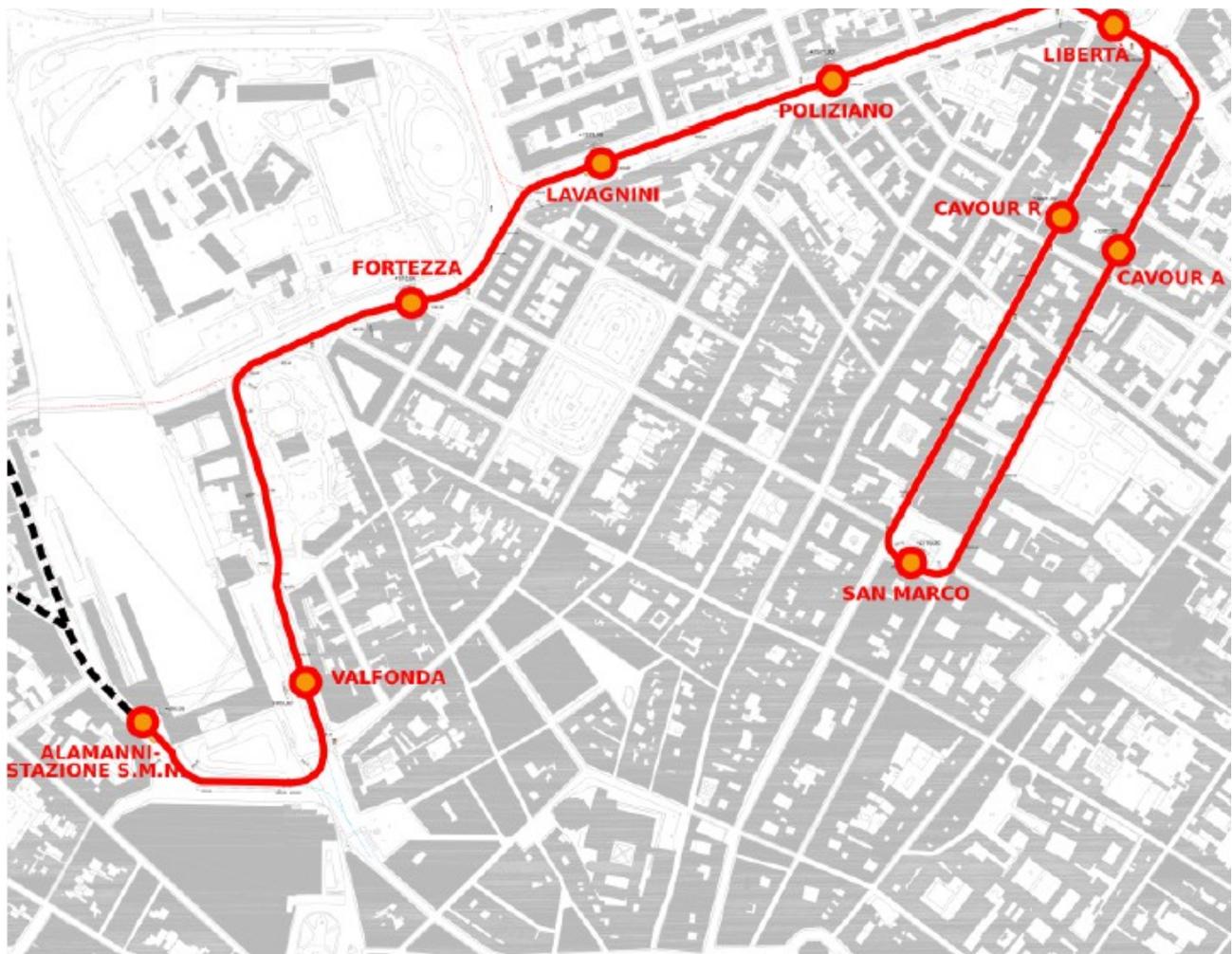


Figure 1: Mapping of *Alternativa al Centro Storico*



Figure 2: Scenario of *Alternativa al Centro Storico*

It is necessary to underline that the project, approved by the City Council with Resolution 197 (07.07.2014), gained a positive opinion by both the Ministry of Infrastructure and Transport and the Superintendence.

The intervention in progress is considered to all intentions and purposes an improvement towards the artistic and monumental heritage as it will result in a reduction of congestion and greenhouse gasses pollution in the area of the Historic Centre Area.

For further information please refer to the detailed project report, submitted by the Superintendence for Cultural Heritage and Activities with the note 7898 (12/06/2009), which is attached to this document.

Regarding the state of conservation of the Orthodox Church, it is necessary to highlight that the Church is not located in the Historic Centre Area. Moreover the designers and technicians who are carrying out the tram line work were made aware of this issue.

The Administration spoke about this theme, meeting the representatives of the religious community on several occasions and planning the more adequate monitoring and intervention activities for safeguarding the integrity of the monument.

Site Manager

A handwritten signature in black ink, appearing to read 'Carlo Francini', written in a cursive style.

dott. Carlo Francini

Attached

RELAZIONE_Firenze_tramvia_per_trad_en.doc



MINISTRY FOR
CULTURAL
HERITAGE
AND ACTIVITIES

**REGIONAL DIRECTORATE
FOR TUSCAN CULTURAL
AND NATURAL HERITAGE**



FLORENCE
Municipality

**OFFICE OF THE HISTORIC CENTRE, UNESCO
WORLD HERITAGE SITE**

Florence's tramway network and its UNESCO World Heritage site Historic Centre.

1. FLORENCE'S TRAMWAY NETWORK

The city's expansion and the territory-wide spread of industrial and living structures have produced the so-called metropolitan area, with a resulting increase in transportation, especially private.

Given the complexity of the transport system (as a result of the aforementioned urban expansion) and associated phenomena (such as atmospheric and acoustic pollution, congested facilities) and as a result of mobility studies, Florence's Municipal Administration (like that of many Italian and European cities) has identified the construction of rapid mass transport as a solution towards creating a sustainable mobility system based on strengthening public transport capable of offering a useful alternative or enhancement to private transport.

In addition to the above-mentioned situation on the ground, strong and growing pressure from the international tourist sector should be taken into account (7-8 million tourists/year).

Studies have pointed to a tramway network in the Florentine Area, which on completion will be approximately 40km long and will link Florence's Historical Centre with the half-ring road system, to the main urban centres as well as the main neighbouring municipalities of the Metropolitan Area.

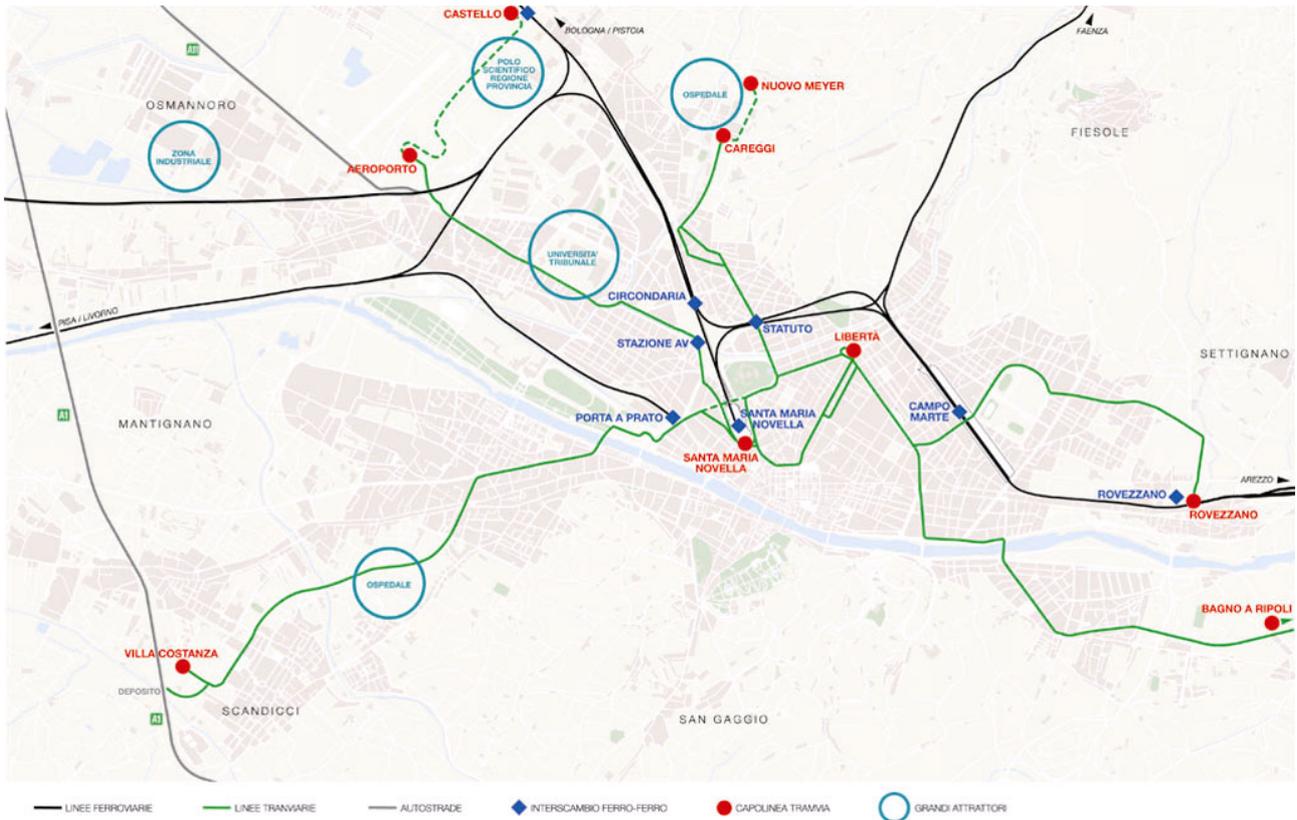
In this perspective, the tramway system would be the primary transport system given that it is:

- economically competitive, (technologically advanced, does not require onerous investment and the administrative costs of which ensure accessible costs for all citizens);
- with a high transportation capacity;
- fast, safe and comfortable;
- non-polluting and quiet, such as to protect the quality of the environment.

Moreover, Florence's tramway system, in order to properly serve the metropolitan area, was studied within an approach involving an efficient integrated public service that interconnects with a range of interchange hubs on the surface and underground rail networks as well as with the extensive bus network; this makes it possible not only to reorganise mobility serving a few urban "big attractions" and services (hospitals, airport, universities) but also to advance wide urban areas and reduce acoustic and atmospheric pollution.

In keeping with these guidelines, the Municipal Administration approved the following programme of works.

- First: Florence S.M.N.-Scandicci tram line
- Second: Peretola-Piazza Libertà tram line
- Third: Careggi-Viale Europa tram line with branch line in Rovezzano.



Furthermore, the tram system has been classed with priority national infrastructure projects by the Tuscan Region.

Line 1, built via public procurement, is currently underway with approximately 80% of the work complete.

The overall cost of the first stage of lines 2 and 3 comes to €379,587million. Completion of work and start of operations are set for 2012.

Completion of the tram system contemplates (in addition to the completion of the second stage of line 3, for which the pre-design phase is underway) further developments to routes in Sesto Fiorentino Municipality (University Science Park) as per Memorandum of Understanding of 6 December 2002 and Bagno a Ripoli Municipality as per the Memorandum of Understanding signed on 13 June 2008.

Annex 1 contains the technical description of the project.

2. SUMMARY DESCRIPTION of THE PROJECT

Line 1

Florence S.M.N. - Scandicci



The tram line (7,720 metres long with 14 stops; *tram set length 32m; tram set width 2.4m; tram set capacity 202*) leaves from Scandicci, also the location of the depot-repair shop for the entire tramway network. Having crossed the Greve River, the line enters the territory of Florence Municipality. The route enters the Historic centre from Via Jacopo da Diacceto, to then reach Santa Maria Novella Railway Station, which will also be the passenger interchange with Line 3.1.

The system is equipped with the latest facilities for reducing pollution from vibrations, noise, stray currents, etc. in addition to being completely silent and free of noxious gas emissions.

Redevelopment and environmental mitigation work on the territory include, in brief summary, the re-greening and grassing of the tramway bed and paving (such as sound absorbing, pervious coated asphalt, etc.), new pedestrian and cycle paths, public lighting, as well as refurbishment of Piazza Vittorio Veneto and the improvement of the banks of the Arno.

Completion of work and start of operations are set for 2009.

Line 2

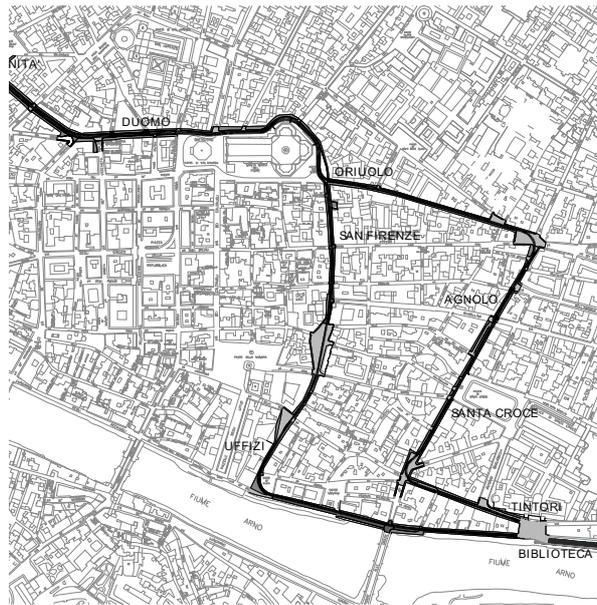
(Peretola – P.za Beccaria) currently Peretola – P.za Libertà

The second tram line which is the specific subject of the application (length: **7,200m** *number of stops 18; tram set length 32 m; tram set width 2.40 m; tram set capacity 202; n. 5 engineering works*) has its terminus in the vicinity of Peretola Airport, which is adjacent to the A11 motorway exit, and crosses the entire Novoli quarter, serving the businesses of the Tuscan Region and university campus in the former Fiat area, to then interconnect with the location of the new High Speed Station and before reaching S.M. Novella Station.

The stretch inside the historic centre begins in Piazza Unità Italiana, fundamentally reorganising the traffic.

Changes to the route on the stretch concerned.

By Decree of the Ministry for Transport of **30 July 1999**, Florence Municipality was allocated 115 billion Italian lira for the building of line 2 which, at the time, left from Peretola, arrived in P.za Stazione and continued on around the Duomo and then on towards via dell'Oriuolo on the outgoing journey until P.za Beccaria and made its return journey from via del Proconsolo.



On **24 January 2000**, its pre-design was approved, via C.C. deliberation n. 16/14.

Following the Services conference of 26 July 2000 and the closure of proceedings associated with the environmental impacts assessment procedure, the definitive design was approved **by deed of the Local assembly n. 1244 of 27 October 2000**. The general assumptions for the preliminary design were developed during the preparatory stage for the definitive design.

Successively, following observations by the Architectural Heritage Board (Soprintendenza ai Beni Architettonici), the definitive project was modified and approved by new deed of **15 October 2002**.

- The main changes concerned the route that, particularly as regards the Historic centre, now contemplates the crossing of the Historic centre from Piazza Duomo towards Via Martelli, continuing on in Via Cavour, Piazza San Marco and terminus at the park-and-ride site in the Parterre in Piazza della Libertà.



Other partial changes were successively made on other stretches in the line.

Taking into account the specificity of the project and the features of the sites in question, the Board required the advisory opinion of the technical and scientific committee for Architectural and Natural Heritage (Comitato tecnico-scientifico per i Beni Architettonici e Paesaggistici) which made its declaration at the sitting of 12.02.2007.

The executive design, which must include all requests made within the scope of the various services conferences as well as the provisions introduced into the final reports for the environmental impacts assessments procedures, is currently being drawn up.

An extract of the report annexed to the environmental prefeasibility study submitted for final EIA assessment on the themes of Noise and Vibrations is reproduced in **annex 2**. A forward-looking analysis of noise/vibration levels has shown that noise levels introduced by the passing of the tram in areas surrounding the tramway (street-lines) do not in any point exceed the maximum rating set by Prime Ministerial Decree of 14/11/97.

Line 3

Fortezza - Careggi



The tram line crosses high population- and industrial-density zones and will be connecting the first and the second Line taking its place as a functional part of the tram system.

In particular, the following will be interconnected: (a) Careggi Hospital, of a regional and national level; (b) the FS Statuto Station and the residential area of the same name; (c) Fortezza da Basso (exhibition centre of regional and national interest), connected via the Second Tram line to Peretola Airport, to the new High Speed Station, as well as to S.M. Novella Station and thus to the Historic centre.

As can be seen from this summary report, the plan is part of a strategic choice by the Florentine Administration which, in line with the tendencies by now enacted for many years in numerous Italian cities and in Europe's major centres, contemplates a substantial reduction in private mobility providing instead a quality, integrated, public system. Considering, on the one hand objective difficulties, contingent and structural, in obtaining public resources, and on the other the innovative tendency, in developing economic strategic initiatives for the Country, to use the latest public-private partnership tools, the Florentine Administration has decided to give the go-ahead to the design and building of the second and third line via the option of project finance. In particular, following the beginning of construction on the first line (which, it should be remembered, is being built entirely with public funds and according to the procedures of integrated procurement) the constitution of a Franchise, Tram DI FIRENZE, the purpose of which is to design and build lines 2 and 3 and, more importantly, manage the entire system under a thirty-year concession.

Following the initiating by the Administration of a public procedure for the receipt of bids aiming for construction and management of the projects, it became possible to sign the Concession Contract between the Lessor (Florence Municipality) and the Lessee (Tram di Firenze S.p.A.) which, in brief, contemplates:

- reviewing the definitive designs;
- drawing up executive designs and construction supervision
- construction of the works
- management of the system (including line 1).

With reference to the commitments assumed in the aforementioned deed, Tram di Firenze has drawn up a first revised version of the definitive designs.

The definitive revised design was approved in the Services conference of 20.12.2007.

3. THE OPINIONS OF THE MINISTRY FOR CULTURAL HERITAGE AND ACTIVITIES

Florence's Architectural and Natural Heritage Board (Soprintendenza per i beni architettonici e paesaggistici), based on the expression of opinions by the Ministry's competent technical and scientific committee, and Tuscany's Architectural and Natural Heritage Board, each for its own respective sector, have carefully examined the plan in question, validating all its aspects and laying down the binding terms and conditions, mentioned at the start and reproduced below:

- Services Conference of 26.07.2000

On this occasion the "*Peretola-High Speed Station- S.M.N. Station -Historic centre- Piazza Beccaria Tram line II definitive design*" was presented, which contemplated a route that differed from that of the current plan, which would have included a wider route crossing the historic centre contemplating transit even alongside the Duomo and along via del Proconsolo.

The Architectural and Natural Heritage Board expressed a favourable opinion provided that:

"1. The choice of paving in the historic centre must be that shown in the annex entitled 'Table of paving';

2. Any variation such as those apparently contemplated by the phrase: 'although compatible with the technological choice taken for the electrical powering of the tram sets', is subject to further clearance by this Board;
3. As shown in the draft design, a ground-level power supply system is not problem-free and is considered as being at the experimental stage. It should be recalled that this clearance exclusively permits the use of ground power. No shelters of any kind nor advertisement panels must be placed on stops in the historic centre."

The Archaeological Heritage Board has expressed a favourable opinion provided that, for certain stretches along the route, the site concerned by the tramway should be pre-emptively searched for any archaeological remains, with non-destructive methods, at the expense and responsibility of the Contracting body and, in any case, where digs take place, that these be monitored by specialised staff.

- Services Conference of 24.07.2003

On this occasion the "Peretola-Piazza della Libertà Tram line Definitive design II" was presented.

The Architectural and Natural Heritage Board expressed a favourable opinion on the route, with the reserve of "ad hoc verification of the placing of the piling including at the level of the Battistero, which must in any case be completed taking into account the surrounding historical and architectural features" and hoping "that at the construction stage the possibility of alternative solutions be checked where technology consents their effective application, particularly in the stretch overlooking the Battistero". Finally, it specified "that the executive design must in any case contemplate types of paving and items of equipment (furnishings and stops) which must be subjected to further assessment by the Board, including the location of the stops".

The Archaeological Heritage Board, not having intervened at the meeting of the Services conference, did not indicate any further conditions, those being issued in the previously released opinion to be understood as confirmed.

- Opinion of the technical and scientific committee of 12.02.2007

The definitive design, particularly as concerns paving and posts for power supply to be contemplated in the Historic centre, was sent to the Ministry to obtain the opinion of the competent Technical and scientific committee.

The Committee, in its sitting of 12.02.2007, expressed a favourable opinion provided that "the guarantees requested be complied-with, by the Protective body, so that the impact of the tramway itself be contained as much as possible" consisting of:

- a) no specific **separatori di sede**;
- b) no stop at the Battistero;
- c) a very reduced speed for the tramway in the city historical area;
- d) the application of the necessary measures to contain vibrations;
- e) the least possible alteration to existing paving, without reducing it;
- f) lastly, the most important element, no overhead power lines (with associated posts, electrical cables, etc.) in the vicinity of the Duomo and Battistero".

In fact, thanks to new technical possibilities (battery power for stretches that are not extremely long), a few graphic representations of the definitive design illustrated the

possibility of introducing batteries into motor coaches to avoid overhead power supplies.

With this same opinion, the technical and scientific committee also recommended to the Municipality that it assess the possibility of "*using shorter and lighter tram sets*" and contemplated that that complying with the guarantees described above be verified at the executive design stage and in the successive completion of the work.

- Services Conference of 20.12.2007

On this occasion the "*Definitive revised design for II (Peretola-Piazza della Libertà) and III (Careggi-Fortezza 1° lotto) Tram line - Varianti*" was presented.

The Architectural and Natural Heritage Board expressed a **general** favourable opinion **on the route presented** requesting the following:

"since the plan takes the form of a 'definitive' summary, all problems regarding the route contemplated must be expressed in detail and on a point-by-point basis at the executive stage , that is:

- *STOPS: executive design including technical and electrical furnishings, and whatever else the Board may deem necessary.*
- *ENGINEERING WORKS: executive design that contemplates construction details, use of materials and finishing and anything else that the Board shall consider necessary.*
- *A special extension must be reserved for areas concerning monumental buildings and those subject to environmental protection*
- *Design drawings must contain: RELIEF, DESIGN, OVERLAP (yellow-red) including also an indication of existing and planned furnishings (street lighting, pavements, lay-bys, advertising facilities, etc.).*
- *RENDERING nodal points of the project and anything else the Board shall deem necessary, for the purpose of releasing clearance for the executive design.*

The Archaeological Heritage Board confirmed the favourable opinion expressed via note protocol n. 22211/07, "*other than providing that the methods of archaeological digs must be applied where, during the course of the execution of the works , any archaeological structures appear*" and referring back to "*the executive design phase the identification of any samples from digs for a preliminary assessment*".

4. STATE OF EXECUTION

As regards line 1 (Scandicci - Florence Santa Maria Novella) at the construction stage for certain hubs, crucial to the impact constituted by the tramway on urban portions of cultural and natural interest (Parco delle Cascine, Porta a Prato and Santa Maria Novella Station) have been the subject of changes in terms of furnishings, materials and the position of the **castello elettrico** at the behest of the competent Architectural and Environmental Heritage Board. In particular the terminus planned for in front of Santa Maria Novella Station was brought back by approximately 40 metres from the original design, as a result of the preliminary test digs which brought up architectural vestiges dating from the XIV-XV centuries belonging to the Santa Maria Novella complex.

During the drawing up stage for the executive design for line 2, the competent Architectural and Environmental Heritage Board was asked to make preliminary test

digs along the stretch between via Cerretani and piazza San Marco and some further work on the technological structures for infrastructure facilities.

Furthermore the Board itself, within the framework of technical meetings has requested that executive design take into account problems associated with the supply of goods to access roads and the transit of emergency services.

For line 3, currently being studied are solutions regarding routes around Fortezza da Basso and Santa Maria Novella Station.

In **annex 3** are current photos of tramway line 1

5. UNESCO SITES MANAGEMENT PLAN

Construction of the tramway network has been included in the "Florence Historic Centre" UNESCO Sites **Management Plan**, drawn up by the Historic Centre UNESCO World Heritage Site Section of the Florence Municipality Culture Department and approved by the Local assembly on 7 March 2006.

The premise to Chapter V – *Socio-economic study* of the Plan contains the assertion (page 45):

"A socio-economic study of the territory provides an up to date perspective of the city and takes into consideration the principal changes that have taken place over the last few years in the centre of Florence.

*The reduction in the population resident in the Historic centre, **traffic congestion** and increased human pressure are problems that require careful analysis before proceeding with defining lines of action and identifying operational strategies".*

In Paragraph V.7 – *Accessibility and usability of the heritage*, in relation to the subject of internal mobility (pages 52-53), the Plan states that:

"Traffic is a problem that the public authorities are forced to face and struggle with on a daily basis in order to ensure a satisfactory level of quality of life for their citizens" and that "studies and research [were initiated] to plan policies aiming towards resolving, or at least countering, this worsening phenomenon.

*In particular, over the last few years, Florence Municipality has set the following plans in motion", among which the "**Construction of tramways to connect Florence's Historic centre with the inner ring road and neighbouring municipalities and to reduce the number of trips made in private motorised vehicles**".*

In Part Three – *Objectives and strategies* (pages 69-71), it is contemplated that "the *Management Plan shall find concrete application through a series of **Action Plans** to identify the operational aims and strategies to implement in order to sustain the integrity and development of sites", among which is the "**Action Plan for mobility and the environment**" (page 78), which "pursues the goal of improving traffic and accessibility to Florence's Historic centre and its bordering areas. Facing the prickly problem of traffic and the resulting atmospheric pollution is a significant challenge to confront in order to ensure the conservation of the site and to favour a sustainable and balanced development of Florence's Historic centre. The four plans identified [...] offer necessary and fundamental solutions for adapting the city, and its infrastructures, to changes in today's society and to guarantee citizens a satisfactory level of quality of life".*

The Action Plan for mobility and the environment includes, among other plans, the one concerning the building of the **Tramway** (page 79), regarding which the Plan mentions the state of execution and the time schedule of works, precisely describes the routes for all **three tram lines** contemplated and, particularly, for line 2, reports that *"line 2's route commences at Peretola Airport, crosses all the Novoli quarter, reaches Santa Maria Novella Station and **passes through the city Historic centre, taking passengers to piazza del Duomo, to then continue along via Cavour and arrive in piazza della Libertà**".*

6. CONCLUSIONS

The row that has arisen around the project for a Florentine tramway, especially concerning aspects related to the crossing of the Historic centre at the level of piazza del Duomo, are of a strictly technical nature, together with a significant ideological element.

Firstly it should be observed that the ideal choice would have been the one involving pedestrianisation of the Historic centre, at least for several large, mostly significant sections currently subject to intolerable pressure from traffic, public and private, utterly incompatible with the protection of monuments and the enjoyment of urban public spaces by locals and the many tourists present in the city.

Wholesale pedestrianisation, fiercely opposed by certain categories of business and perhaps by the locals themselves, would presuppose an efficient surrounding system of park-and-ride sites and an ideal public transport network using electric vehicles.

The Municipal Administration has only partially pursued such a choice, favouring that of a tram system on rails.

A further alternative, other than that which was later selected, might have contemplated an outer rail ring, along the circuit of the inner ring roads, which retrace the route of the ancient city walls, and an internal network via small electrical buses.

In this manner the crossing of the historic centre by the tramway would have been avoided, encountering minor problems in inserting this infrastructure within the historical urban fabric, but surely with a reduced capacity for movement.

The Municipal Administration, on the basis of operational assessments of the traffic flows involved, economic assessments of the system's profitability and, also, technical ones on the number of electrical vehicles, necessarily small in size, which would have been necessary to deal with the number of users of the public transport services, has opted for a tramway project.

The route that is most disputed is that of line 2, which leaves from Peretola Airport, crosses the Novoli quarter, reaches Santa Maria Novella Railway Station and runs through the Historic centre, running along the Battistero in piazza del Duomo, along via Martelli, via Cavour, piazza San Marco and via Lamarmora, until it reaches Piazza della Libertà.

The main fear is that of risks to monument conservation, particularly in the Battistero and Palazzo Medici Riccardi, which might feel the impact of any vibrations sent out by the passing of the tram.

Many concerns have furthermore been expressed with regards to problems of visual intrusion and dirt, which might derive from the presence of the tram system facilities and equipment (overhead power lines and associated supporting posts, shelters and furniture for stops, signage and **separatori di sede**).

Lastly, the length of the tram sets, calibrated on the basis of the numbers of passengers, has received much criticism, being compared to out-and-out trains.

The plan has been carefully considered by all the competent bodies and verifications have been made on the conditions of compatibility of the various works associated with the building of the tramway for the purposes of safeguarding the archaeological heritage (by means of preventive enquiries), the safety of the monuments from vibrations (via use of isolated elastic and/or absorbent structures), the visual protection of monuments (ensured by the absence of poles, overhead power lines,

shelters, advertising hoardings), the elimination of **separatori di sede** (made possible by the reduced speed).

Therefore, the supervisory authorities, in their own assessments, concerned themselves primarily with ensuring that the infrastructural and permanent aspects did not go against the requirement to protect monuments and sanitation in the Historic centre.

As regards the assessment of the compatibility of the presence of the tram while it is transiting within the monumental Historic centre, it was judged that the tram was not visually much more disfiguring, compared to the impact of the very numerous city buses and the very many motor-vehicles currently present.

Furthermore trams are certainly significantly less dangerous for the safekeeping of the historical decorative materials and display, as they do not discharge any polluting emissions onto marble or stone such as to cause the formation of black layers or sulphation, and are thus in sum less damaging for the conservation of monuments.

This naturally only if conditions given are fully complied-with, including the complete pedestrianisation of the areas of the Historic centre concerned by the tramway crossing.

In **annex 4**: tramway line 2 rendering and route.