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Leisure Sustainable Mobility in Rome: Tiber Personal Rapid

Tiber Personal Rapid Transit

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Tber TPR for Rome City Vision Competition

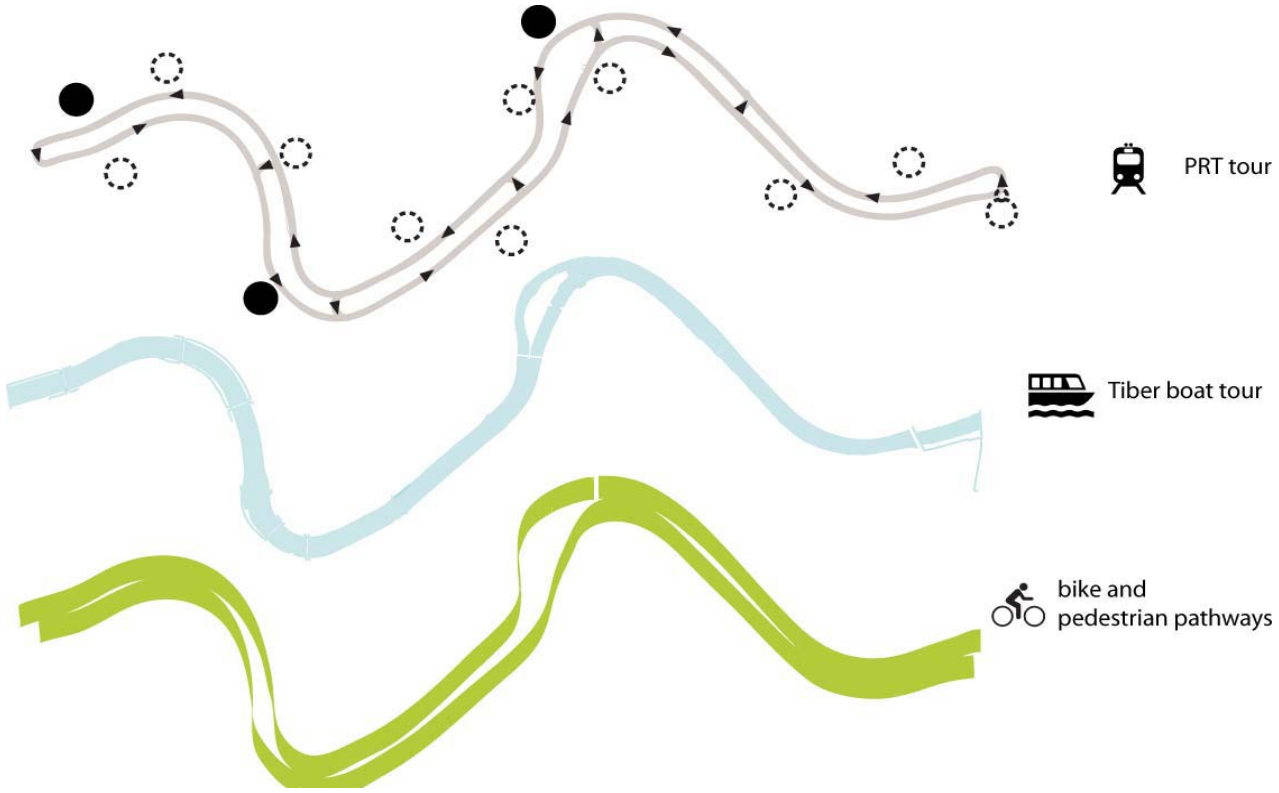
The project "Tiber Personal Rapid Transit" have been presented by the author at the Rome City Vision Competition[1] 2010, an ideas competition, which challenges architects, engineers, designers, students and creatives individuals to develop visionary urban proposals with the intention of stimulating and supporting the contemporary city, in this case Rome.This International Competition had three aims:

1. to stimulate research in urban planning and civic vitalization.
2. to encourage and promote progressive ideas from the emerging generation of designers.
3. to stimulate the scientific development in the field of architecture by means of a critical reflection and discussion.

Through innovative ideas and methodologies which can improve the connection between the historical, present, and future city, the Cityvision competition aimed to foster a critical evolution of architectural historiography. The Italian city of Rome manifests a consistent absence of Contemporary Urban Planning and relatively ineffective architectural intervention. The objective of the competition was to drive imagination, by the use of new materials, echo-technologies, and territorial organizations for a future vision of the city of Rome. Globalization, environmental concerns, the future historiography of the city, adaptability and emerging digital practices are some of the elements that should be taken into consideration.

The Tiber PRT proposal tries to answer the competition questions with the definition of a provocative idea: a Personal Rapid transit System on the Tiber river banks. The project is located in the central section of the Tiber river and aims at the renewal of the river banks with the insertion of a Personal Rapid Transit infrastructure. The project area

L'articolo descrive il progetto Tiber Personal Rapid Transit presentato dall' autore al concorso internazionale di progettazione Rome CityVision, nel quale era richiesto di sviluppare proposte visionarie per la città di Roma in grado di stimolare e supportare lo sviluppo della città contemporanea attraverso idee e metodologie innovative in grado di generare una connessione tra la città storica, quella del presente e quella futura.
Il progetto proposto ha l'obiettivo di riscoprire e rivitalizzare il ruolo centrale, da un punto di vista spaziale, d'uso e simbolico, che il fiume ha sempre avuto fin dalla comparsa dei primi insediamenti, conservandosi ininterrottamente fino al periodo della prima dotazione industriale di Roma.
Nel corso dell'ultimo secolo il disuso in cui il fiume è stato confinato ha determinato una distanza dalla città che tuttavia, paradossalmente, ha consentito di conservare un ingente patrimonio (approdi, banchine, impianti idraulici, aree verdi, resti archeologici, edifici industriali dimessi, ecc.) i sottratto alle grandi distruzioni dello sviluppo edilizio del dopoguerra. Un patrimonio che reclama oggi di essere riqualificato per consentire alla città di riappropriarsi del suo fiume.
Il PRT ha come obiettivo la riqualificazione e rivitalizzazione delle sponde del fiume Tevere mediante un sistema di trasporto leggero automatizzato. Tale sistema si sviluppa lungo gli argini del fiume e prevede la realizzazione di dieci stazioni collocate in punti di grande interesse storico e paesaggistico. L'area di progetto comprende l'area del fiume Tevere dalla stazione Trastevere RFI fino a Piazza del Popolo in un'area con spiccate caratteristiche turistiche e mira a favorire l'utilizzo delle sponde del fiume come luogo di passeggio e di aggregazione. L'obiettivo del progetto è quello di un rinnovamento nell'utilizzo delle sponde del fiume Tevere che permetta di riconnettere le parti a Est e Ovest della città. L'innovativo sistema di trasporto leggero segna il passaggio dalla città storica alla città del futuro e si propone di rivitalizzare un segmento della città sottoutilizzato. Il PRT inoltre aggiunge una nuova tipologia di trasporto nel carente sistema di rete metropolitana cittadina. I turisti e i cittadini possono viaggiare lungo le sponde del fiume in veicoli vetrati raggiungendo le principali destinazioni della Roma antica e godendo degli splendidi scorci sulla città storica. Il progetto sviluppa un ambiente libero da auto per favorire l'utilizzo pedonale degli argini con la costruzione di un sistema leggero di trasporto pubblico di piccoli veicoli automatizzati che si muovono su binari realizzati lungo i muri di contenimento del Tevere. Il sistema Tiber PRT offre un servizio di trasporto con dieci differenti stazioni dislocate in corrispondenza delle più importanti attrazioni turistiche del centro della città, come l'Isola Tiberina, il Circo Massimo e Castel SantAngelo, ed è progettato per garantire uno spostamento senza soste intermedie alla destinazione che i singoli utenti hanno selezionato.



One of the main strategy proposed is the transformation of the riverbanks into intermodal transport channels, integrating new ligh rail transit corridors with cycling and pedestrian pathways.

include the riverbank of Tiber from Rome Transtevere RFI station to Piazza del Popolo, an area where main touristic and leisure attractions are located. The intervention area is actually no used by the city users and residents and constitute itself a strong barrier in the heart of the historic city.

The urban contexts and the project aims

The proposed project aims to rediscover and revitalize the central role, from a spatial, use and symbolic point of view, that the Tiber river has always had ever since the appearance of the first settlements, keeping them continuously until the period of first industrial facilities in Rome.

The Twentieth century degradation and abandonment of the Tiber riverbanks, as is known, occurred not only after the exclusion of the riverbed implemented with the construction of the Savoy embankments, but mainly a result of the profound changes in ways of living and of the main functions moving that has progressively marginalized fluvial activities (Rossi 1987).

Over the last century, the disuse and oblivion into which the river was confined had determined a distance from the city but, paradoxically, allowed to keep a huge wealth of urban materials (docks, piers, plumbing, green areas, archaeological remains, abandoned industrial buildings, etc.) that have been subtracted to the great destruction of property development after the war (Ievolella 1996). A heritage that today claim to be upgraded in order to enable the city to reclaim its river.

The decision to locate the project on the Tiber starts from the need to deal with the separation of the city from its river, identifying a set of actions that provoke new urban relationships:

– spatial relations: starting from the assumption that the walls are an unavoidable necessity for the flood safety of the river, it should take them as elements able to enhance the river areas and to improve the visual relationship between the level of the river and adjacent to the city (platforms, slopes, bridges);
– infrastructural relations: one of the main obstacles to a reconstruction of the separation of city / river Tiber is in the transformation of the riverbanks into intermodal transport channels, integrating new ligh rail transit corridors with cycling and pedestrian pathways.
– functional relationships: a key to the success of the river improvement is the ability to build an integrated new touristic activities network. The presence of a rich archaeological heritage, from Roman times to the

The futuristic and elevated transit solution of the riverbanks will revitalize an abandoned segment of the city center and will stimulate new mobility behaviuors of city users and tourists.

Industrial Archaeology, to the most important architectural and settlement elements can, together with environmental resources, characterize the quality of the river as a linear attractor.

– ecological relationships: the rediscovery of the river as a green corridor, is one of the essential objectives of the project and is combined with the preservation and enhancement of the environmental connections.

The design phases

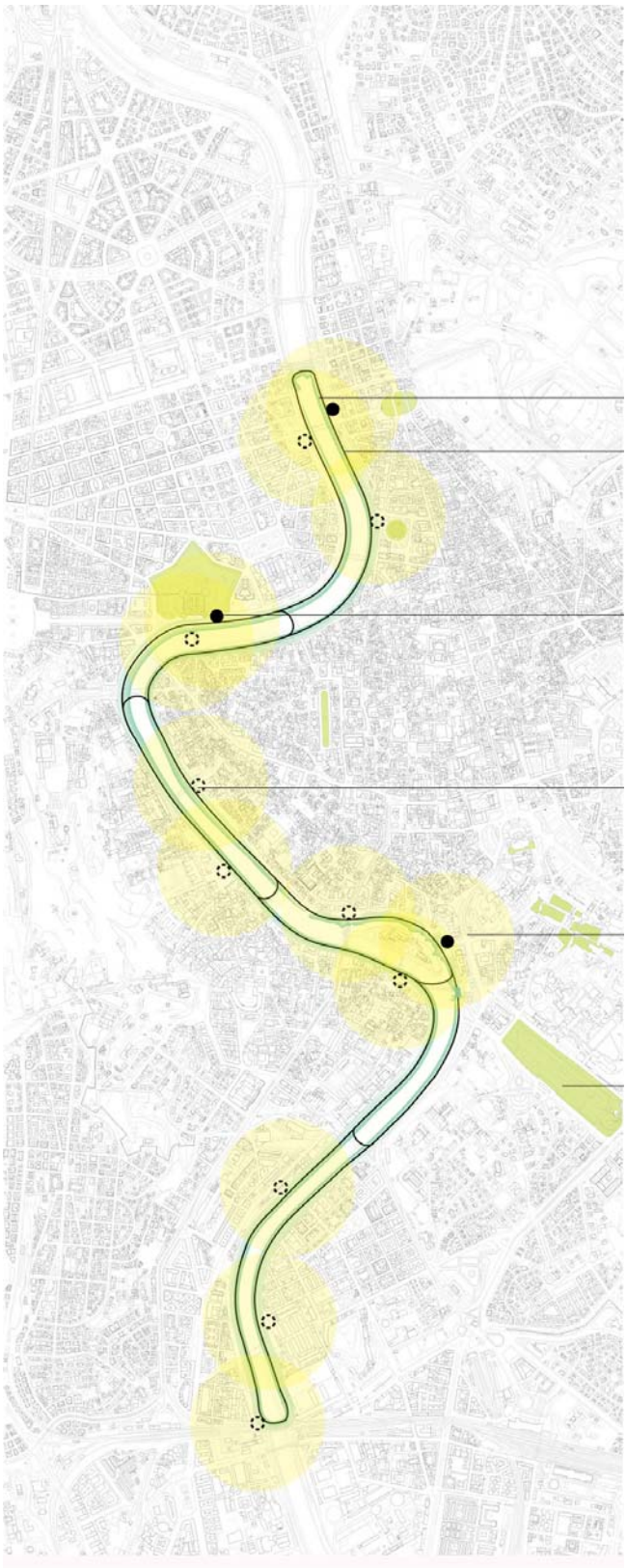
The project definition occured through several phases also oriented at better interpreting the urban needs and the Planning strategies of the Rome municipality (Comune di Roma 2004; AA. VV. 2002; Basta et al 1998). The several steps can be articulated as follow:

1) Analysis of design issues in similar contexts of national and international on the theme of urban light transport system linked to river areas (Woodbridge 1991; Nouvel 2010).
2) Investigation and detection of components of the ecological network that other projects and plan identifies as a basis for environmental regeneration of urban land, investigated in the reservoir of the Tiber River as part of the emerging environmental system. The network includes the parks and urban green areas and devices connected to river system, and is related to the new Rome Master Plan PRG Ecological Network.
3) Identification and study of the complex network of archaeological, historical, monumental and industrial archeology, taking into account the role that historically the river has played in the secular process of urbanization of the riverbed.
4) Identification and study of the transport infrastructure elements (linear and nodal) in order to connet the new Personal Rapid Transit into the exsisting rail and buses network.
6) Development of the project proposal.

The project description

The project proposes a transit oriented renewal of the riverbank, with the objective of reconnecting and sewing east and western city centers. Besides the new innovative transport infrastructure in the true heart of the city is a symbol of the passage from the historical to the future city.

The futuristic and elevated transit solution of the riverbanks will revitalize an abandoned segment of the city center and will stimulate new mobility behaviors. The tourists and city



The proposed project aims at revitalising the central role of the Tiber riverbanks, starting from the need to deal with the separation of the city from its river, identifying a set of actions that create new urban relationships.

users will travel in glazed PRT vehicles reaching the main destinations of the ancient Rome and enjoying a wonderful view on the historic city.

The main goals of the project are:

– To stimulate sustainable mobility behaviors in the historic city centre.
– To revitalize the abandoned river bank in the centre
– To “guide” and “travel” Rome residents and tourists towards a new prospective for living and seeing the ancient city.

The theme of urban and architectural design of the project is to transform the city / river distance into a resource for the city, through an approach that tends to re-engage the river in its development dynamics. A central theme is the linear architecture of the river reservoirs to be requalificated. The project adopts an integrated enhancement hypothesis able to get both:

– the viability of the reservoir for a linear continuous use of such waterways, pedestrian and tranit corridors.
– the enhancement of spatial identities associated with the different segments of the river.

A second aspect concerns the verification of the conditions of viability on artificial linear paths for pedestrians and cyclists through :

– rehabilitation of existing paved surfaces degraded or infested by wild vegetation.
– the discrete placement of new pavement for bicycles and pedestrians with disabilities.
– the recovery, expansion and retrofitting of existing stairs and ramps link between the share of the river and the road, including mechanized systems in corrispondence with the PRT stations.
– the creation of new architectural descents in corrispondence with the PRT stations, also characterized by the use of innovative materials and light lifting and solutions in case of flood.
– the creation of architectural review for connecting the discontinuous sections of wharf through mobile gangways;The project develops a car-free and a pedestrian-friendly environment along the river banks with the construction of a public transport system powered by alternative energy sources.

The Tiber PRT is a personal automated transport system, a public transportation system comprising small, automated vehicles on a network of specially-built guide ways along the riverbanks. Tiber PRT systems offer a point-to-point service in several station located in the major touristic attraction of the city centre (as Circo Massimo, Isola Tiberina, Castel Sant’Angelo) and is designed to make a nonstop journey to the destination individual users have selected, and bypass intermediate stations, which are on separate tracks, running parallel to the main track and accessed via switches and offer faster end-to-end journey times than other forms of transit.

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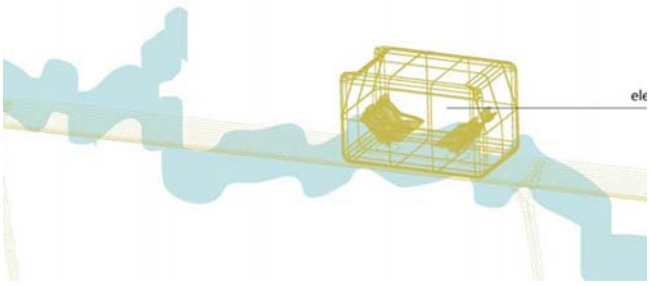
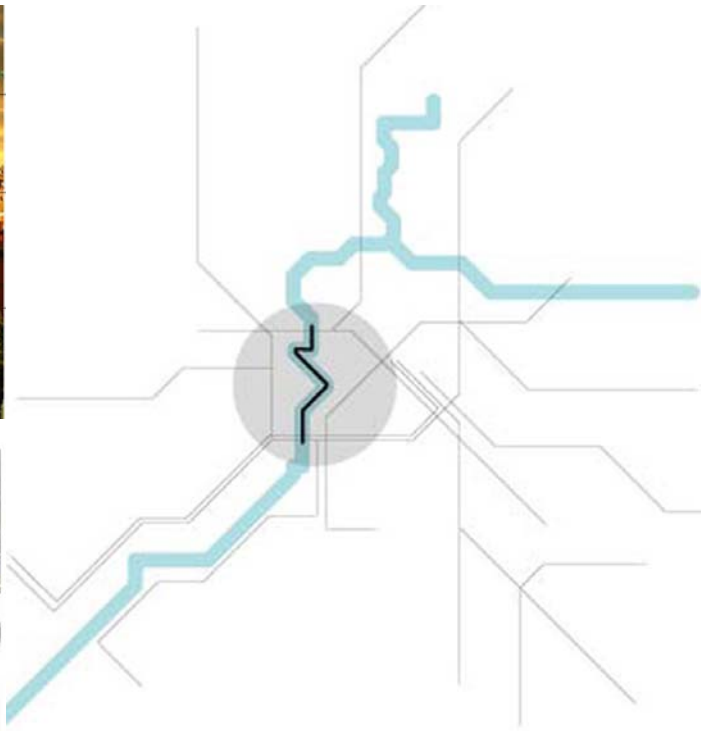
The elevated dedicated guide ways are located along the two riverbanks, at 10 meters over the streets level.
Stations are close together, and located on side tracks so that through traffic can bypass vehicles picking up or dropping off passengers and connects with elevators the three mobility stages: pedestrian environment at the water level, traffic and pedestrian environment at the street level and elevated transit level.
Two different typology of station are proposed:

– Main station: are constituted by a “column” shape building with a steel and glass structure. In main stations edifices also restaurants and shopping area are located and at the top level is situated a green panoramic terrace, where tourists and PTR travelers can enjoy beautiful views on the river.
– PRT stops: are simple steel and glass structures mainly made by an elevator that connects the PTR vehicles and the pedestrian and bike pathways at the river level.

Tiber PRT consist of small very light four passenger vehicles, running on elevated guide ways fixed at the riverbank, under computer control.





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Tiber PRT vehicles are powered by electricity and uses on-board batteries, recharged at stops. This increases the safety, and reduces the complexity, cost and maintenance of the guide ways. As a result, Tiber PRT guideways resembles a sidewalk with curbs and is very inexpensive to construct.
Personal Rapid Transit is most energy efficient urban mass transit system that has been devised and uses less than one third the energy per passenger mile of automobiles and public transit. PTR is an urban eco- technology itself, as produces no pollution at the point of use as it is completely powered by electricity.

Notes

[1] City Vision competition is organized every year by the magazine CITYVISIONmag, which is a permanent lab that aims to develop a concept of architecture that is truly contemporary (http://www.cityvision-mag.com).

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Image references

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