

## **Preamble**

The Municipality of Trieste wishes to promote a bike-sharing system on its municipal territory. The system shall make traditional and pedal-assisted bicycles available to users at various pick up and return points for short rides in town or within a given area.

This project intends to achieve multiple objectives: the use of non-polluting means for sustainable mobility to reduce private vehicular traffic and, at the same time, to increase the use public means of transport (buses, tramways, etc.) by offering an integrated mode of transport to cover the distance between the stop of a public means of transport and the user's final destination. Furthermore, bicycles are an alternative mode of transport for proximity travels.

This action is aimed at improving town accessibility in general by encouraging the use of a means of transport that is not yet largely used in Trieste, while improving quality of life and a healthy lifestyle.

As it happens in other Italian and European towns, the bike-sharing system is one of the tools available to municipalities for reducing road congestion and pollution (air, noise, etc.).

In particular, this project provides for the implementation of a system comprising 9 pick up and return points, called "*bike – sharing*" – *public bicycle sharing service (cultural tourist route)*, to be located at various neuralgic sites in Trieste (see plans). The locations chosen for these pick up and return points shall ensure good accessibility to the municipal territory by both tourists and citizens. The main points of natural, cultural and historical interest shall be privileged and connected with education, service and leisure centres.

## **Terminology**

Pick up and return point:

physical location where the public bicycle sharing service shall be offered to users. It shall include an info-terminal and various bays where bicycles shall be picked up and returned.

Bicycle bay:

each bay where a bicycle shall be picked up and returned.

## **1. System operation**

Bicycles shall be locked to bays at the various pick up and return points. They shall be unlocked by using two systems: electronic card or identification number. Bicycles shall be returned to any bay of any pick up and return point. The use of the system shall be subject to a rate. This is aimed at encouraging the use of bicycles for a short time only so that they can then be made available to other users.

### **1. Access to the service**

The service shall be user-friendly and easy-to-use so that it can be promptly accessed by the largest number of people. The service shall be accessed by identification number (to be obtained from a website through an app for mobile devices by providing credit card details) or by electronic card (to be obtained from information and support points set up by the Municipality of Trieste by providing personal details).

### **2. Operating hours**

The service shall operate 24 hours a day, 7 days a week throughout the year to offer an alternative mode of transport also when the public service is suspended and an increased control of equipment by users also during the night.

### **3. Rates**

The bike-sharing system rates shall be defined at a later stage and directly notified to the Contractor so that the management software can be programmed.

### **4. Users**

The service shall be available to both citizens and tourists. The minimum age to use the service is 14 years.

## 2. Locations for pick up and return points

The locations for pick up and return points have been selected by taking into account modal interchange points, sites of historical, artistic, cultural and natural interest as well as education and leisure centres.

Nine sites have been identified. They are mainly located in the town centre. Globally, pick up and return points shall include 148 bicycle bays. The bicycles made available to users shall be roughly 92, out of which 83 traditional bicycles and 9 pedal- assisted bicycles (the minimum number of bicycles is 92; the minimum number of pedal-assisted bicycles is 9; these minimum requirements can be increased when submitting the technical offer).

The number of bicycles to be allocated to each pick up and return point has been determined by taking into account user flows from/to modal interchange points, sites of historical, artistic, cultural and natural interest as well as education and leisure centres in the immediate proximity. However, these figures are given for ease of reference only. As a matter of fact, since pick up and return points are mobile facilities, they may be moved to any other location according to needs.

The system shall include the pick up and return points listed in the table below.

The precise location of each point may be slightly varied according to needs and functional requirements. However, the area to be covered shall remain the same.

The precise number of bays may also be varied according to the type of facility proposed by the Contractor. However, the overall number of bays shall not be lower than 148.

<b>Pick up and return point</b>	<b>Name and location</b>	<b>No. of bays</b>	<b>No. of bicycles</b>
A	Piazza Libertà – Railway Station (Trieste Centrale)	24	15
B	Piazza Oberdan – Tramway Station	16	10
C	Via del Teatro Romano	20	12
D	Riva del Mandracchio	14	8
E	Piazza Hortis	16	10
F	Via Ottaviano Augusto - Riva Grumula	16	10
G	Viale Miramare - Piazzale XI Settembre	16	10
H	Viale XX Settembre - “Rossetti” Theatre	14	9
I	Via Cumano	12	8
		<b>Tot. 148</b>	<b>Tot. 92</b>

For the precise location of pick up and return points, please see the relevant plans.

### 3. Service requirements

The system shall meet the following requirements:

#### **BICYCLES**

Bicycles shall comply with the manufacturing and functional characteristics laid down in art. 68 of the Italian Traffic Rules. Their manufacturing features shall minimise the chance of vandalism and removal of loose parts; this aspect shall be duly described in the technical/descriptive report enclosed with the offer.

The bicycle selected for the system shall:

- Be made of easily replaceable mechanical parts;
- Be easy to use;
- Be customisable with reference to colours, graphics, logos chosen by the Contracting Authority;
- Be equipped with a locking device firmly attached to the frame to secure it to the bay;
- Be made of salt corrosion-resistant materials;
- Be certified according to UNI EN 14764 “City and trekking bicycles – Safety requirements and test methods”.
- The bicycle shall have the following characteristics:
- Frame sizes for young people and adults (both males and females);
- Painted metal frame;
- Aluminium parts (handlebar, levers, pedals, bells, etc.);
- 26”- 28” wheels;
- Explosion-proof tires;
- Gear with at least 3 options;
- Easy-to-clean basket to avoid waste accumulation;
- Durable and highly protective plastic mudguards;
- Front and rear brakes;
- Antiskid pedals;
- Ergonomic and waterproof grips;
- Ergonomic seat with antitheft system with adjustable height and waterproof surface;
- Ergonomic handlebar;
- Kickstand;
- Full front and rear lights to be always on when the bicycle is running (dynamo fitted into the hub);
- Special keys shall be used to disassemble hubs and wheel nuts for wheel removal prevention;
- Stainless screws and bolts;
- Serial number.

Furthermore, electric bicycles shall be equipped with:

- 250 W electric engine;
- 36 V and 12 AH lithium-ion battery built in the frame;
- Antitheft locks and screws;

- Display showing battery charge.

Electric bicycles shall be recharged by battery replacement or through the locking device.

The Contractor shall submit any and all certifications required to prove quality and suitability for use of the main materials used for this supply.

## **PICK UP AND RETURN POINTS**

Pick up and return points shall be made of modules, i.e. bicycle bays. Each bicycle bay shall contain at least one bicycle. The bays of each pick up and return point shall be arranged according to different configurations (one or two rows, etc.) to adapt to the characteristics of the sites where they are located (e.g. irregular covering, etc.). In general, pick up and return points shall properly and harmoniously fitted into the urban layout taking into account the local architectural and landscape features.

Bicycle bays shall:

- Enable the bicycle to be firmly locked; bays shall have no parts that can be used to lock other bicycles that do not belong to the bike-sharing service fleet;
- Have a height not exceeding 110 to minimise their visual impact on the architectural setting;
- Be made of materials (e.g. steel) properly protected against weathering agents (special attention shall be paid to salty environments) to ensure durability and resistance to vandalism;
- Be directly activated by electronic cards and other options offered by the Contractor (e.g. identification number) for locking/unlocking the bicycle.

The technical solution chosen for setting up pick up and return points shall minimise land impairment, thus ensuring more flexibility and reducing installation and restoration costs.

## **INFO-TERMINALS**

Each pick up and return point shall include an info-terminal to display at least the following elements:

- Map of the area,
- Map of pick up and return points,
- Rules for use of the system (e.g. rates, where to subscribe, terms and conditions for subscription, etc.),
- Useful information, phone and web contacts.

The provision of other types of information by info-terminals (e.g. situation of neighbouring pick up and return points in terms of number of bicycles or number of free bays at each pick up and return point) shall be regarded as an improvement during the tendering procedure.

Info-terminals shall monitor and report on pick up and return points and may include electronic equipment and systems for data transmission to the central control room.

Info-terminals shall preferably be equipped with a lighting system to make information readable also in the night-time.

The information on the bike-sharing service shall be displayed on an outdoor digital device. It shall be written at least in Italian and English and shall be clearly and quickly readable for users.

This information module shall be made of painted and coated materials resistant to weathering agents.

Each info-terminal shall accommodate the electricity meter (alternatively, the electricity meter may be installed in other cabinets in close proximity having a similar appearance and colour).

## **ACCESS TO THE SYSTEM**

Bicycles shall be unlocked by two systems: special electronic card and identification number (or similar system).

Cards shall have the following characteristics:

- *Microchip*, whose number shall uniquely identify the user; this card may be compatible with readers of other services;
- *Serial number*;
- *Distinctive graphics and colours of the service and the Municipality of Trieste.*

The duplication of cards shall be prevented.

Furthermore, a method shall be devised to deduct the amount for the use of the bike-sharing service from the card.

Users shall buy their identification numbers via Internet or app by providing their credit card details.

## **DATA TRANSMISSION SYSTEM**

Real time data transmission shall be based on a UMTS communication system (this requirement is mandatory) (the use of a Wi-Fi system shall be taken into consideration as an improvement) to be implemented with copper or optical fibre connections. To this end, the support structures for info-terminals, stands, etc., hosting the data transmission system shall include copper or optical fibre cable ducts that no further actions are required after the completion of works for connecting the system.

The system shall send data on the use of bicycles to a processing centre on a daily basis for statistical purposes. On the basis of this information, the Municipal Authority shall plan service development. Routers/modems shall use standard SIM cards (no fixed IP) to be supplied by the Contracting Authority.

The structure containing the data transmission system shall include an active device (switch/router), which may also be incorporated in the system itself (e.g. the same that manages UMTS and Wi-Fi), to connect the system at any time through (Ethernet) copper cables or media converters for single-mode/multi-mode fibre connections.

## **MANAGEMENT SYSTEM REQUIREMENTS**

The management system shall have the following features:

- Entering/updating of user personal details;
- Acquisition of data on the use of bicycles over 24 hours to obtain an origin/destination matrix of movements (information on the number of movements from pick up and return point “X” to pick up and return point “Y” during the day);
- Detection of tampering/faults of bicycles and pick up and return points;
- Generation of data on failure to return bicycles;
- Mapping of bicycles in use and length of use;
- Mapping of points at which bicycles are picked up;
- Recognition of rejected bicycles and improper lock warning;
- Rate calculation on the basis of pick up and return data.

The Contracting Authority shall directly and autonomously acquire the data above from the management system.

Acquisition of the following additional data shall be regarded as an improvement of the minimum requirements above:

- Daily use report for each bicycle (data on pick up and return at the various points with times, length of use, user ID, etc.);
- Kilometres run by each user;
- Kilometres run by each bicycle to plan routine maintenance;
- Number of users accessing the system (based on each pick up and return point);
- Web viewing of bicycles (for traditional and pedal-assisted bicycles respectively) and available free bays at each pick up and return point.

The system shall not require the installation of dedicated PC software applications. It shall be accessed by the Contracting Authority via Internet through the most common web surfing browsers (Explorer, Chrome, Firefox, Safari, etc.). Access shall be protected by passwords or high-level authentication systems. In particular, appropriate security standards shall be adopted for credit card transactions.

The software system shall have the following features:

- Management of all installed pick up and return points;
- Web, app and front office access by users.

The Municipality of Trieste shall use the information system (software + related applications) supplied by the Contractor free of charge throughout the useful life of the bike-sharing system. The same shall apply to the applications through which users are granted access to the system.

Maintenance/technical support both for the first two years and the following ones shall include all system updates and fixes in case of faults as well as all consulting and training activities. Maintenance/technical support fees for the activities above shall be included in the supply for the period stated under the technical offer (at least two years).

The Municipality of Trieste shall be granted access to the system administration console for all non-substantial changes (e.g. changes to rates, operating hours, locations or links to institutional websites that provide instructions for use, etc.).

## **LOCKING OF BICYCLES OUTSIDE PICK UP AND RETURN POINTS**

Suitable systems shall be designed to lock bicycles during stops made outside pick up and return points (e.g. antitheft cables).

### **4. Integration into the urban setting and special requirements**

The pick up and return points shall be spread over the municipal territory of Trieste. Given the functional and visual impact of those elements on the urban setting, special attention shall be paid to their overall design and manufacturing quality in terms of both active and passive safety and aesthetics so that design, size and materials do not impair the prevailing architectural and aesthetical features in the areas involved in this project. In this regard, since various pick up and return points shall be set up in the town centre as well as in areas subject to special requirements pursuant to Legislative Decree no. 42/2004, special attention shall be paid to their aesthetical design to ensure consistency with existing urban design and street

furniture. Furthermore, they shall be installed in compliance with the requirements and guidelines issued by the Superintendence of architectural and landscape heritage.

For the precise requirements to which the areas involved are subject, please see the relevant plan.

## **5. Service communication, information and promotion**

The bike-sharing service shall be advertised and supported by suitable information tools aimed at users such as:

- General and targeted communication plan for various categories of users (users of buses, trains, parking facilities, students, etc.) also aimed at promoting the use of bicycles;
- Launch campaign on the start of the new service (press releases, media advertising, website, etc.);
- Promotional actions based on lower rates for launching the service and, thereafter, during certain periods, for encouraging people to use it;
- Creation of a map showing pick up and return points, cycle paths and cycle and pedestrian routes, stopping places devoted to bicycles and completed by modal interchange points, bus and taxi routes and cultural and tourist points;
- Creation of a dedicated website for the bike-sharing service project where users can view real time information on the number of bicycles available at each pick up and return point, temporarily out-of-service pick up and return points, if any, and other useful information and can check, through an authentication system, the information on the number of bicycles they have picked up and returned, their length of use, remaining credit balance, etc.;
- Real time updates for users on the state of service;
- Free toll number for information, reporting and suggestions.

## 6. Financial framework

<b>A) WORKS, SUPPLIES, SERVICES</b>	
AMOUNT OF WORKS	₪ 43,200.00
SUPPLY	₪ 270,300.00
SAFETY COSTS	₪ 2,500.00
<b>B) AVAILABLE SUMS</b>	
B1) VAT ON A)	₪ 69,520.00
B2) TECHNICAL AND DESIGN COSTS	₪ 2,850.00
B3) CONTINGENCIES	₪ 822.13
B4) IVA ON B2) AND B3)	₪ 807.87
VAT	₪ 70,327.87
<b>TOTAL AMOUNT</b>	<b>₪ 390,000.00</b>

## 7. Duration of the Contract

This Contract will have a duration of **150 calendar days** from signing.

For the whole length of works, the Company shall grant access to pedestrians to all entrances along the streets involved in the project. The works provided for by the project shall be carried out in high traffic areas (vehicles and pedestrians). In particular, the public transport service shall be ensured in terms of both transit and travel times in the areas involved in the project. Furthermore, during the execution of works, access to local residential and commercial buildings, shops and public offices, if any, shall always be granted.