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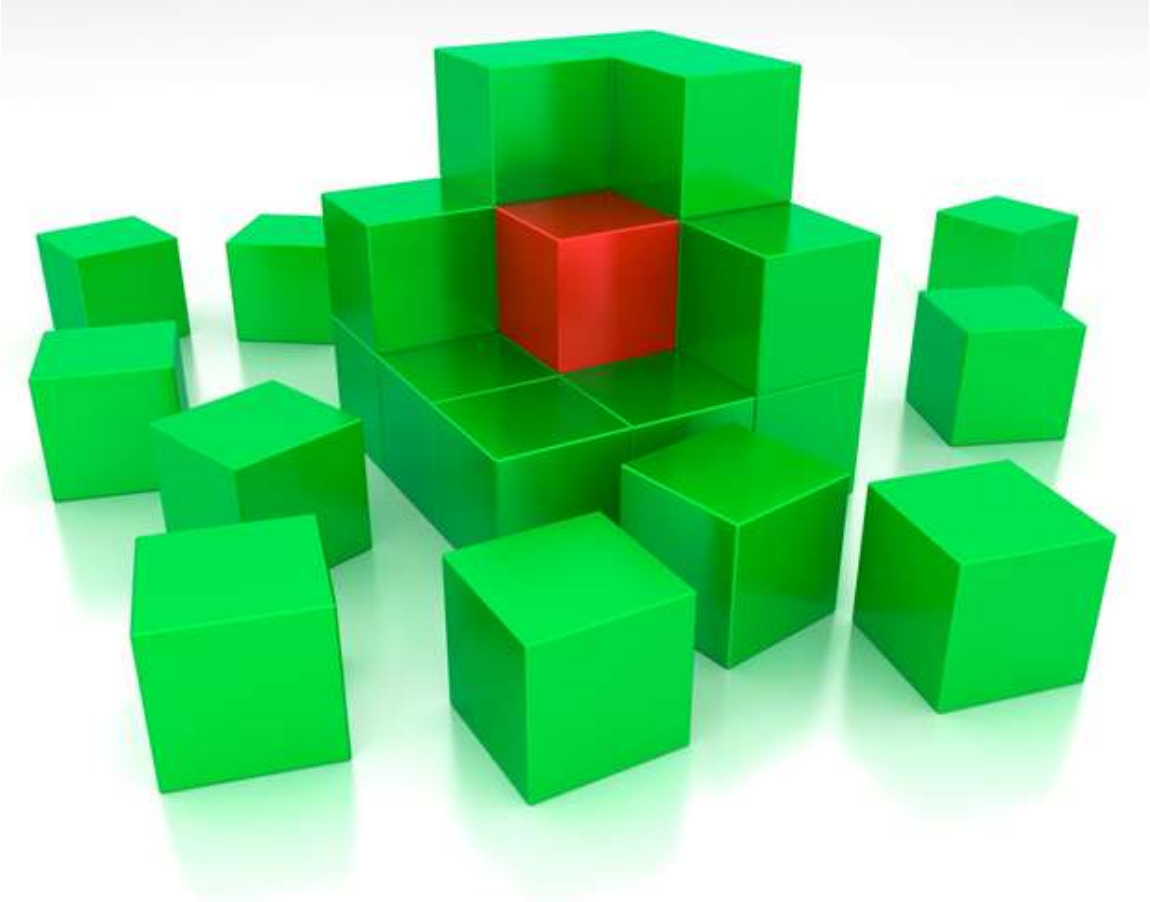
Sector Specific Inventory & Institutional Strengthening for PPP Mainstreaming

Directorate of Urban Land Transport

Prefeasibility Report for Developing a Public Bicycle Sharing Scheme in Mysore on PPP Basis



Submitted By
Deloitte Touche Tohmatsu India Private Limited

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ACRONYMS

BOOT	Build Own Operate Transfer
BOT	Build Operate Transfer
BMR	Bangalore Metropolitan Region
CTTP	Comprehensive Traffic and Transportation Plan
DBFOT	Design Build Finance Operate and Transfer
DULT	Directorate of Urban Land Transport
FDI	Foreign Direct Investment
GoI	Government of India
GoK	Government of Karnataka
IDD	Infrastructure Development Department
MIS	Management Information System
PPP	Public Private Partnership
UDD	Urban Development Department
ULB	Urban Local Body
EOI	Expression of Interest
RFQ	Request for Qualification
RFP	Request for Proposal

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1 Executive Summary

1.1.1 Karnataka has emerged as a key State with knowledge-based industries such as IT, biotechnology and engineering. It is the science capital of India with more than 100 Research and Development (R&D) centres, and a preferred destination for multinational corporations with more than 650 such companies. Such all-round developments trigger the need for well-developed social, physical and industrial infrastructure, part of which can be built through Public Private Partnership (PPP).

1.1.2 Since PPP concept is relatively new and the implementing officers require necessary insight, orientation and assistance, Infrastructure Development Department (IDD), Government of Karnataka is keen to strengthen the project development process in the Directorate of Urban Land Transport (DULT) for implementing infrastructure projects through PPP. IDD has therefore engaged Deloitte Touche Tohmatsu India Pvt. Ltd. (DTTIPL) to provide consultancy services in this regard.

1.1.3 Among the wider ambit of services, the engagement intends to arrive at sector-wise inventory, undertake pre-feasibility studies and develop a procurement plan for selection of Transaction Advisor (TA) / Technical Consultant for projects to be taken up for bidding. The information on projects that are generated out of this process shall be initially marketed through workshops before they are bid-out with the assistance of respective Transaction Advisors.

1.1.4 This pre-feasibility report presents a preliminary analysis on viability and project structure of undertaking a Public Bicycle Sharing (PBS) Scheme in Mysore on PPP basis. It contains a brief summary of bicycles sharing industry in India, broad overview of challenges faced in urban transport sector in Mysore, case studies of similar schemes in India and abroad, summary of interactions with stakeholders, broad market assessment and indicative environmental and social benefits. The report analyses the project viability for various scenarios, recommends a broad project structure and highlights an approach to take this project forward till execution.

1.1.5 **Project Outline** - A PBS system provides a fast, convenient and flexible transportation option for shorter distance trips. PBS extends the spread and quality of conventional transportation options at a comparatively low cost. It enhances the aesthetics and overall charm of tourist destinations. Bicycle usage has a positive effect on the environment. It is especially beneficial in areas suffering from dual problems of pollution along with traffic congestion. A PBS scheme promotes a healthier lifestyle and is also a good way to make the citizen environmentally conscious.

1.1.6 The recommended PBS scheme consists of a fleet of bicycles, a network of automated docking stations to store and access the bicycles, a user registration system, a maintenance program and a bicycle redistribution mechanism. The system shall be funded by a mix of subscription revenues and general public revenues, including revenues derived from the sale of advertising rights and branding. The locations of docking stations have been selected in consultation with various stakeholders in order to maximize access to selected target segments.

1.1.7 **Project Analysis and Recommended Structure** - This pre-feasibility report conducts a broad demand and cost estimation for the project. It refers to various Indian and International studies and wide ranging discussions with various stakeholders to arrive at an appropriate tariff mechanism. Constraints placed by existing laws, regulations and

policies (including proposed new advertisement policy) have been considered to develop appropriate revenue and cost streams for the project. Different scenarios have been developed considering the advertisement potential of each site. The project has been analysed based on various metrics including its Project IRR, Equity IRR, and Debt Service Coverage Ratio. The following results were obtained in this analysis:

Project IRR (Post Tax)	14.33%
Equity IRR	16.30%
Average Debt service coverage ratio	1.41
Total Project Cost	Rs. 2.80 Cr

1.1.8 For executing this project, a BOT based structure has been recommended and elaborated in this report. This report also enumerates various risk factors in executing this project. The last section of the report highlights the way ahead for successful implementation of this project.

2 Introduction

2.1 Project Idea

2.1.1 The term Public Bicycle Sharing (PBS) System describes a network of bicycles distributed across an urban area, available for public access from docking stations. Public bicycles can be picked up at any station and returned to any other station in the network area, making them appropriate for point A to point B travel. PBS is designed to encourage short utilitarian trips and for encouraging the use of environment-friendly, cheaper and convenient travel techniques compared to motorized transportation. At the same time, PBS can also be targeted at tourists and leisurely bicycle trips.

2.1.2 A bicycle share program is defined by its low cost and high concentration of stations. Public bicycles differ from typical bicycles in their heavier construction for durability, and the use of proprietary parts to reduce theft. The bicycles are designed to accommodate a range of body types and users. The bicycles feature integrated, light reflectors as well as space for carrying personal items and a locking mechanism. The primary purpose of PBS is not to generate profit through user fees, but rather to enhance existing transit options; therefore membership rates and use fees are kept as low as possible.

2.1.3 PBS can be viewed as a complement to the existing public transit network, at a comparatively low cost. When located close to transit interchanges, commercial areas, tourist areas or universities, PBS might act as the first and last leg of a transit journey.

2.1.4 PBS is being embraced as a form of sustainable transportation over 125 cities. The general trend globally has been that even though such projects have not been financially attractive, Urban Local Bodies have supported such schemes. This is due to the fact that marginal cost of investment in PBS is generally set off by an equal or higher marginal benefits. These benefits can come in the form of transportation benefits to the people of the community, and health and environmental benefits that improves regional quality of life.

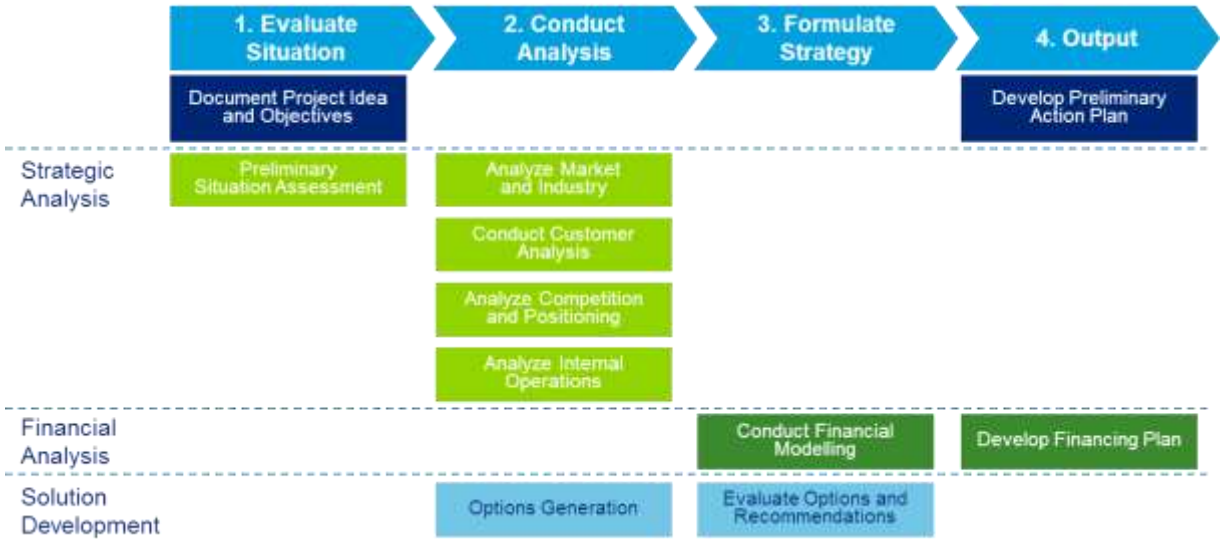
2.2 Approach & Methodology

During the course of this prefeasibility analysis, Deloitte has undertaken the following tasks:

S. No.	Steps By Step Approach	Broad Methodology
1	**Project Inception**	Meetings with key officials of IDD, DULT, MCC and other stakeholders
2	**Macro overview of Mysore:** Insights on demographic profile, tourism, connectivity & linkages, upcoming & planned developments.	Secondary Research, discussions with the ULB
3	**Location Analysis:** Location and its zonal configuration and	Site Visits, Press/Document Review, stakeholder interactions and secondary

S. No.	Steps By Step Approach	Broad Methodology
	analysis, identification of potential sites for docking stations, connectivity, accessibility, upcoming & planned developments in the vicinity	research
4	**Market Assessment** Identification of target segments, identifying the revenue potential from rentals, sponsorships, and advertisements.	Secondary research and interactions with potential concessionaires and other stakeholders
5	**SWOT Analysis**	Based on the understanding gathered from the above steps
6	**Facility Planning and the Base Project Cost Estimation**	Based on the market data, broad technical specifications and stakeholder inputs
7	**Development of Base Financial Model** : Base project cost, options for revenue generation, assumptions on financial structuring	Discussion with the Stakeholders and market insights
8	**Preliminary assessment of PPP options and Final Recommendation on Project Structuring**	Based on financial analysis, sectoral PPP best practices and market insights

Methodology for conducting the prefeasibility



2.3 Study of earlier reports in this sector in the relevant area

2.3.1 No studies related to Public Bicycle Sharing in Mysore were available in the public domain. However, we understand that, realising the importance of promoting Non-Motorised Transport (NMT), the Mysore City Corporation has proposed to conduct a detailed study to analyse the demand/potential for launching PBS in the city. The terms of reference for the same have already been finalised and have been sent to the Ministry of Urban Development, Government of India for approval. Once the study is completed, the same can be read complementary to this report.

3 Sector Profile

3.1 Sector Overview

3.1.1 A well-developed urban transport infrastructure is essential for the movement of people and enabling trade between people. Urban Land Transport provides a comprehensive distribution and delivery network across the city and enables easier interactions outside.

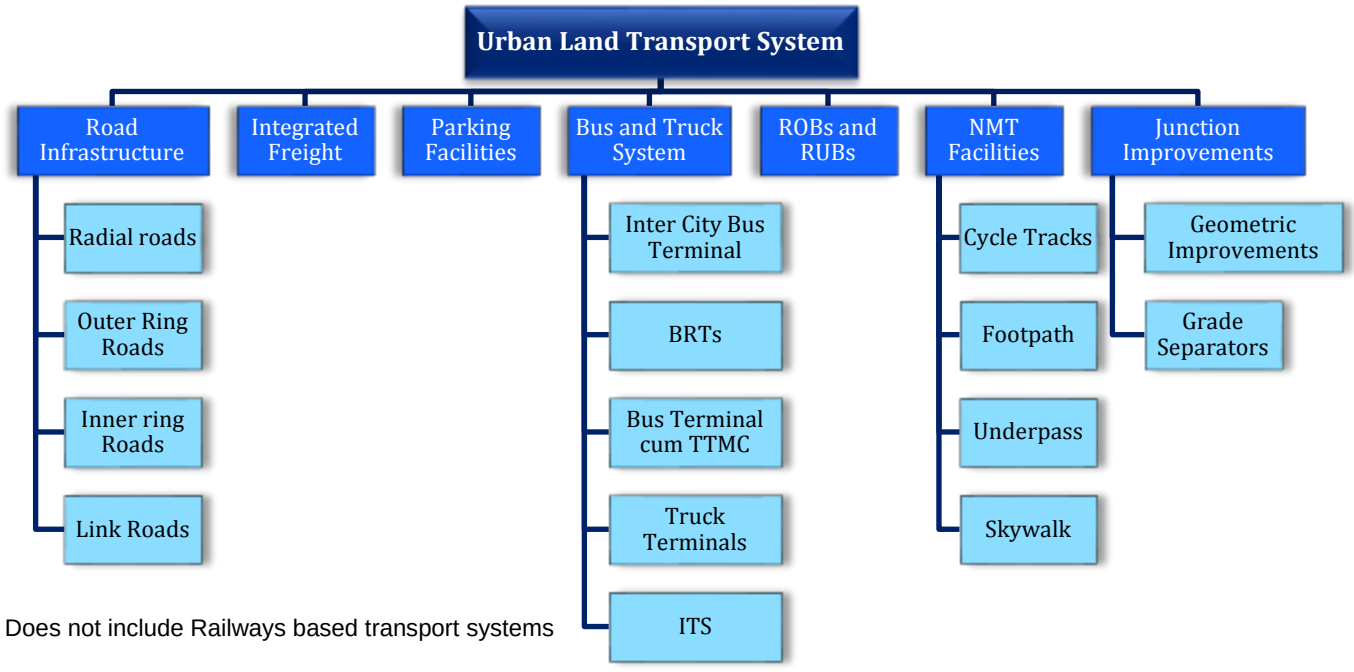
3.1.2 The improvement of land transport in the urban sector is essential in order to enhance sustainability in urban transportation. The major reason for the deterioration of the same is due to inability to control urban sprawl. Rapid urbanization in the State of Karnataka demands a free flow of traffic in order to avoid bottlenecks to development of trade, transport and the entire urban infrastructure.

3.1.3 Urban transportation is organized in three broad categories:

a) **Collective Transportation (public transit):** The purpose of collective transportation is to provide publicly accessible mobility over specific parts of a city. Its efficiency is based upon transporting large numbers of people and achieving economies of scale. It includes modes such as buses, trains, metros and monorails.

b) **Individual Transportation**: Includes any mode where mobility is the outcome of a personal choice and means such as automobiles, walking, **cycling** and motorcycles. As per the Comprehensive Traffic and Transportation Plan (CTTP) of Mysore, cycles account for 10% share of the total trips in Mysore and the city plans to further promote cycling as a viable mode of transport.

c) **Freight Transportation:** As cities are dominant centres of production and consumption, urban activities are accompanied by large movements of freight. These movements are mostly characterized by delivery trucks moving between industries, distribution centres, warehouses and retail activities as well as from major terminals such as ports, railway stations, distribution centres and airports.



3.2 Industry Overview

3.2.1 Bicycle ownership (30-50%) in Indian cities is much higher than ownership of cars (3-13%) and two-wheelers. Bicycle use in Indian cities varies from 7-15% in large cities to 13-21% in medium and small cities[1]. Its high ownership, low cost and easy use attributes make it a desirable mode of transport for students and low income workers. Therefore, bicycle use in India is primarily utility use with the bicycle users being captive riders. Most of the medium and large cities in India have about 56% to 72% trips which are short trips (below 5km trip length), offering a huge potential for bicycle use.[1]

3.2.2 Various policy level plans have been formed to encourage bicycle usage in India. The tenth Five-Year Plan (2003-07) and National Urban Transport Policy (NUTP, 2005) provided guidelines for regional and city level policy. They acknowledged the fact that there are non-motorized commuter groups with mobility and safety concerns which needs to be addressed by encouraging the construction of segregated rights of way for bicycles. Taking into consideration the above factors, 63 cities in India have been given funds by the National Government to upgrade their infrastructure, under the aegis of the Jawaharlal Nehru Urban Renewal Mission (JNNURM). Since all new City Mobility Plans are required to comply with the NUTP guidelines with a focus on "equitable allocation of road space" and an emphasis on non-motorized transport, cycle inclusive planning has gained importance. Accordingly, the Mysore city Comprehensive Traffic and Transportation Plan (CTTP) provides due emphasis on Non-Motorized Transportation (NMT) and has proposed more than 125 kilometres of dedicated NMT tracks.

3.2.3 Even though PBS is quite popular around the world with more than 125 cities implementing PBS schemes, such a trend has not taken off in India. This might be due to the fact that Indian cities are generally thought to be non-conducive to pedestrians and bicycle riders because of weather and transport characteristics. However, some initiatives in this regard have been started in some cities. The first to implement such a scheme was Delhi; with the first rent-a-bicycle stand coming up at the Vishwavidyalaya Metro station near Delhi University North Campus with seven bicycles in October 2007. Moreover as a preparation for Commonwealth games, 0.8 per cent of Delhi's transport budget was dedicated to NMT infrastructure thus promoting PBS further.

3.2.4 In addition to Delhi, recently Pune has been given the tag 'City of Cycles' by the Pune Municipal Corporation (PMC). In order to address the issue of congestion and pollution, PMC created an ambitious policy on improving bicycle infrastructure and cycling[2]. The PMC has signed an agreement with ***I-ce*** to carry out its Bicycle Partnership Programme. Pune has also developed nine bicycle tracks. PMC would soon be constructing a 117-km cycle track along the Bus Rapid Transit System (BRTS). Similarly, Jaipur is another city which may soon get a dedicated bicycle track to promote cycling. The bicycle sharing scheme will be implemented under Public Private Partnership (PPP).

[1] http://www.bikepartners.nl/index.php?option=com_content&task=blogsection&id=16&Itemid=143

[2] TRIPP - IIT Delhi & CIRT - Pune, 2008

3.3 Regional Profile

Location of Mysore in Karnataka

3.3.1 **Mysore** is a city in the Indian State of Karnataka, and the administrative seat of Mysore District, one of the largest districts in Karnataka. Mysore was the former capital of the Kingdom of Mysore and is located at a distance of 140 km from Bangalore, the State capital. It covers an area of 128.42 Sq. Km. having City Municipal Corporation since 1977. Mysore, the cultural capital of the State, has many educational, commercial, administrative centres and heritage monuments.

3.3.2 Mysore city, known for its heritage buildings, palaces and popular tourist spots, is expected to get a heritage city brand shortly. Ambavilas Palace**,** the main palace of Mysore is one of the **most visited monuments in India**, even beating Taj Mahal. Mysore is a tourism hot spot and also acts as a base for other tourist places in the vicinity of the city. The city receives the maximum number of tourists during the **Dasara festival** which signifies the triumph of good over the evil and the worship of Devi Chamundeswari is celebrated with much pomp and glory as a State festival.

3.3.3 Mysore has a huge student base which is one of our major target groups. The University of Mysore was established in 1916. This was the sixth university to be established in India and the first in Karnataka. The university caters to the districts of Mysore, Mandya, Hassan and Chamarajanagar in Karnataka. About 127 colleges (having a total student population of 53,000) are affiliated with the university.

3.4 Travelling in Mysore

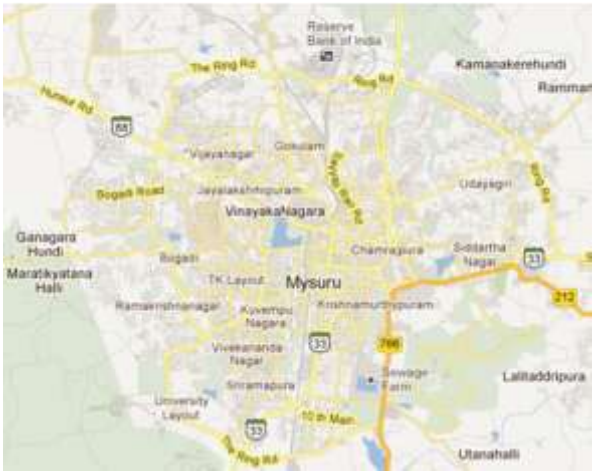
3.4.1 Mysore has intercity and sub-urban public bus transportation. The system run by KSRTC operates from newly renovated 'City Bus Stand', located in the heart of the city and connects to most major sections of the city. Auto-rickshaws and Taxis are also available for intra-city commute. Tonga's (horse drawn carriages) are also available, but are becoming rare.

3.4.2 The network of roads and streets in Mysore follows a hub and spoke mechanism with arterial roads originating from the centre of the city i.e. the Palace area. There are 48 main roads in the Mysore city covering a total length of around 58km. The road networks of Mysore city is in a gridiron fashion with numerous parallel roads “grinding” the city. And then there are some 5 radial roads, all originating from Mysore palace which is the focal point of the city. These radial roads are essentially the highways that connect Mysore with neighbouring towns and cities.

3.4.3 Almost all these highways intersect the Outer Ring Road at some point (about 5km from city centre). For example at the north most point the Outer Ring Road intersects the Bangalore Mysore highway (SH 17) near the Colombia Asia Hospital. Further west, the Outer Ring Road crosses the KRS Road after GRS Fantasy Park.

3.4.4 Recently, Mysore is one of the nine Indian cities which has been selected by the Centre for a pilot project to develop infrastructure for cycling and promote eco-friendly, non-motorized transport aimed at minimizing carbon emissions. The city is expected to get NMT friendly infrastructure such as dedicated cycling lanes, and signage. As an initiative towards this trend, Infosys has kept bicycles for commuting inside its campus in Mysore.

Mysore Map



3.4.5 A dedicated cycle track is already being developed in Mysore. The first cycle track has come up on Lalitha Mahal Road, which has high traffic density. Work on the 4-km long track has been completed, and will be expanded further. The track would be expanded from Lalitha Mahal Road till Bannur Road (about 4 km). Later, the track would be developed till Vani Vilas Double Road (4 km). The total length of the track as proposed in the CTTP is more than 125 km.

3.5 Issues relevant to this study

3.5.1 The CTTP report has identified some of the keys challenges facing the transport sector in Mysore. A few issues affecting NMT in Mysore, as presented in the CTTP and discussed with relevant stakeholders are presented in this section.

3.5.2 The heritage core of Mysore is located fairly close to the central business district. There is a high density of traffic in the area as most people tend to use motorised transport to approach it. This hampers the aesthetics of these heritage sites and reduces their marketability towards tourists.

3.5.3 Usage of motorised vehicles also increases air and noise pollution in the vicinity of these sites. In order to tackle this issue, there is a need to promote the use of Non-Motorised Transport.

3.5.4 Inadequate carriageway of radial roads at various locations creates traffic congestions leading to bottleneck situation along the network. There is a need to reduce the frequency of use of motorized vehicles for short distances.

3.5.5 Further it has been mentioned in the CTTP Report that Cycles account for 10% share of the total trips in Mysore, which is less than the national average of 15.9% for cities of the same size. There is a need to encourage the use of bicycles in the city.

4 Project

4.1 Description of the Project

4.1.1 We understand that the Mysore City Corporation (MCC) wants to implement a Public Bicycle Sharing (PBS) Scheme in the city. The project aims to recreate interest in eco-friendly non-motorised modes of transport, particularly cycling, under a clean city concept. In this regard, various initiatives have already been undertaken/ proposed including development of dedicated cycling tracks around the city. This study now aims to conduct a preliminary analysis of viability of implementing a Public Bicycle Sharing scheme in Mysore at three locations on PPP basis.

4.1.2 It is proposed that this scheme will use modified unisex bicycles. This shall enable brand recognition for the scheme/sponsors. Modifying the bicycles will also reduce the risks of theft of bicycles. The Public Bicycle Sharing scheme shall have docking stations installed at locations of interest to the target segments to ensure accessibility of bicycles. Docking stations are proposed at major public transit interchange points (City Bus Terminal, KSRTC Bus Terminal, etc.) as well as institutions with high footfalls (tourist attractions, university etc.).

4.1.3 The options of periodical user subscriptions as well as one time usage are both explored in this study. Various alternate revenue streams such as sponsorship and advertisements/hoardings have also been proposed.

4.2 Project Components

4.2.1 The project is envisaged to have the following components:

Bicycles: For a scheme like this to be successful, the bicycles should be of a high quality, comfortable and resistant to breakdown. Since the bicycles will be used by multiple users, they are envisaged to be neutral and unisex in design. The bicycles can be modified to introduce branding space and ensure visibility on the roads. The bicycles should be designed to accommodate a range of body types and users. They should feature integrated, light reflectors as well as space for carrying personal items and a locking mechanism. The bicycles should also have space for accessories like medical kit, cycle repair kit and GPS tracking system.

Docking stations: A dock is a space where a bicycle can be parked and digitally locked. It is proposed to have multiple number of docking stations at easily accessible locations and high density to encourage use of this scheme. The docking station shall have a maximum capacity of 12 docks along with sheds and advertisement panels.

Supplementary facilities: The docking stations may be supplemented by providing a manual ticketing counter. Tourist information centres can be integrated with this facility to enhance the user experience. Facilities for helmet and other equipment renting may also be integrated with this facility at each docking station.
In order to promote modal shift in transport, car and two-wheeler parking facilities can also be integrated with this scheme. The operator might look at creating separate IT and infrastructure maintenance facilities.

Commercial facilities: The docking stations can also be further supplemented with commercial facilities like food stalls, ATMs etc. as an additional revenue stream. However, based on discussions with the stakeholders, it was decided that commercial facilities at government provided sites should be minimized. Also, since many selected sites shall be located at or near heritage buildings, commercial activities should not be allowed over there. Hence, this component has not been considered for the project.

4.3 Locations of Docking Stations

4.3.1 This scheme is aimed at three distinct target segments:

1. Tourists
2. Students
3. Working Professionals

Therefore, the sites for the docking stations should be located at places with the highest visibility and access to these three segments.

4.3.2 Accordingly, the following locations were selected in consultation with the Mysore City Corporation for developing docking stations:

Coverage of Docking Stations

City Centre

S. No	Location
a	Brindavan Gardens
b	Balmuri
c	Ranganthittu Bird Sanctuary
d	Srirangapatna
e	Chamundi Hills (Foot)
f	Chamundi Hills (Top)
g	Lalith Mahal Palace
h	Ganapathi Sachchinanda Ashram
i	Iskcon Temple
j	Vontikoppal
k	Railway Museum
l	Railway Station Parking Lot
m	Indira Gandhi National Museum
n	St. Philomena Church
o	KSRTC Bus Stand (Mofussil)
p	Karanji Lake
q	Wax Museum
r	Mysore Zoo
s	Mysore Palace Parking Lot
t	City Bus Stand
u	Jaganmohan Palace
v	Directorate of Tourism
w	Crawford Hall
x	Kukkarahalli Lake

The sites at these locations shall be provided by government to the concessionaire for the entire concession period. A brief description of these locations is given in Annexure A.

4.4 Interaction with Stakeholders

4.4.1 During the course of this assignment, the consultants interacted with a mix of stakeholders regarding different aspects of this assignment. The team was also asked to refer to the minutes of 'Consultation Meeting for promotion of Cycling in Indian cities' called by the central Ministry of Urban Development. Select inputs received are grouped and summarized below:

Lessons from Existing Schemes elsewhere

- The scheme should be started with a critical mass of docking stations so as to attract potential users.
- While the development of NMT tracks is important, it should be linked to the implementation of a PBS scheme.
- It is important to link bicycle sharing to other existing modes of public transport. This will enable them to function as effective feeder services.
- IT systems and GPS systems customized for bicycle sharing already exist and various operators have their proprietary systems.
- Travel characteristics of users of Atcag scheme of Bangalore were observed for one day. The analysis showed that the average usage of bicycles per trip was close to 20 mins and the maximum usage was only 46 mins. This scheme has been discussed in detail in Annexure D.

Initiatives in Pipeline

- A detailed study to analyse the demand potential for launching PBS has already been proposed by the MCC and the terms of reference for the same have been finalised with the selected consultant. The same have been sent to MoUD for their approval.

Guidelines and Inputs for Analysis

- Considering the socio economic characteristics of typical travellers in Mysore, it was recommended that the proposed scheme should primarily target tourists and students.
- During interactions with stakeholders, it was discussed that the level of commercial exploitation of land provided by the government should be minimized. Representatives of Deputy Mayor, Mysore were also of the view that since most of the sites provided would be next to heritage buildings, commercial development at these sites should be avoided.
- Locations of Docking Stations in the city were selected in consultation with the Superintending Engineer, MCC. Encumbrance free sites at these locations would be provided by MCC for the duration of the concession.
- Tariff structure for the Atcag scheme was shared with the team by BBMP. The same can be used for the purpose of this analysis. Also, since one of the target segments for this scheme would be tourists, there is potential for increasing the daily tariff.
- Rates for ground rent and advertisement tax charged by MCC were shared with the team. A list of restricted zones where hoardings are not allowed was also shared.

4.5 Public needs & Planning Considerations

4.5.1 The CTTP of Mysore has identified certain transport infrastructure requirements to adhere to the heritage and aesthetics of the city. It identifies the environmental benefits of Non-Motorised Transport and recommends various measures to stimulate the usage of Bicycles in Mysore.

4.5.2 As per the CTTP, bicycles account for 10% of total trips in the city of Mysore. However, this is much less than the national average of 15.9% for similar cities.[3] Some of the major issues identified for bicycle users include lack of road access, concerns for safety and a general negligence to their needs. Certain measures in this regard have already been undertaken, including the development of dedicated NMT tracks.

4.5.3 Moreover, the integrated transport plan for the city promotes usage of public transit and encourages cycling through development strategies and transport system integration. The plan envisages a high degree of self-containment and work-home proximity. In addition, the plan envisages an integrated public mass transport system. The development proposed for transport system would promote cycling as the preferred first/last mile connecting mode for public transit.

4.5.4 Additionally, Mysore being a heritage city attracts a high number of tourists. Most of these tourists tend to use motorised transport to approach the heritage sites, many of which are located fairly close together. In order to reduce air and noise pollution in the vicinity of these sites, there is a need to promote the use of Non-Motorised Transport. A Public Bicycle Sharing scheme is a forward looking step in this regard.

4.6 Case Studies for similar projects in India/ world

4.6.1 As discussed in previous sections, various initiatives have been undertaken internationally to encourage PBS. A few examples of such initiatives are discussed in Annexure D of this report

[3] http://nctr.usf.edu/jpt/pdf/JPT%208-1%20Singh.pdf

5 Market Assessment

5.1 Opportunities & Demand Estimation

5.1.1 As discussed before, this scheme intends to have three distinct target segments:

1. Tourists
2. Students
3. Working Professionals

5.1.2 It can be sighted from international experiences that bicycle sharing schemes are quite popular among tourists. Most large-scale urban bicycle sharing programs utilize numerous bicycle checkout stations, and operate much like public transit systems. Like bike rentals in Goa which is hugely popular among tourists, particularly international tourists, representatives of tourism industry in Mysore also seem to be quite enthusiastic about introduction of a PBS scheme in the city.[4]

5.1.3 As per the proposed plan, majority of the locations of the docking stations are at tourist locations, many of which are conveniently located within short distances of each other. Such short distances can be traversed by walking or using public transit or by cab bookings done for a day which have a tendency to exploit tourists, majorly the foreigners in terms of prices charged. Comparatively, cycling is a faster mode with respect to walking. It is also an environment-friendly mode and is therefore usually preferred by foreigners.

5.1.4 According to statistics computed by the Mysore Palace Board based on the sale of tickets for entry into the Mysore palace, number of tourists visiting Mysore is as follows[5]:

(in Million)

	2001	2002	2003	2004	2005	2009	2010
Tourist Inflow	1.61	1.43	1.65	1.83	2.06	2.71	3.15

5.1.5 As can be observed, this figure has seen a constant growth rate of over 10% over the past 10 years. Assuming the same growth rate to be prevailing, the tourist inflow in 2012 should be around 3.84 million, or a daily footfall of about 10,500 tourists.

5.1.6 Mysore is also a major hub for educational institutions. The Mysore University encompasses 122 affiliated colleges and 5 constituent colleges at the undergraduate level, for an aggregate of about 53,000 students. The university also has multiple post graduate and doctorate level programs being offered to over 3500 students at a time.[6] This is in addition to the diploma and certificate level courses offered in the university.

[4] http://www.hindu.com/2010/09/29/stories/2010092959300300.htm
[5] http://www.ipmslindia.com/pdf/Mysore%20City%20Report.pdf
[6] http://www.uni-mysore.ac.in/

5.1.7 For the purpose of calculating the project financials, we have assumed the following after discussions with relevant stakeholders:

Peak Number of subscribers per Bicycle	
Annual Subscription	10 Subscribers per Bicycle
Daily Subscription	2 Subscribers per Bicycle

5.1.8 As discussed in section 4.3, the project is envisaged to have docking stations at 24 locations of importance to these target segments. Each station would be built with a capacity of 12 bicycles which rolls 288 bicycles on the street per day.

5.1.9 An assumption of 10 annual subscriptions per bicycle means that at its peak, the system shall attract around 2880 annual subscriptions. This is around 5% of the total student population in the city. In addition, annual subscriptions shall also be taken by working professionals for first/last mile connectivity to their workplace and places like City Bus Stand, KSRTC Bus Stand, and Railway Station. An evaluation of bicycle usage characteristics of PBS systems across the world shows that these systems tend to have around 10 to 15 annual subscribers per bicycle.[7] Hence, an assumption of 10 subscribers per bicycle has been taken.

5.1.10 Daily subscriptions are generally taken for leisure activities, usually by tourists. We have assumed a daily subscription of 2 per bicycle which gives a total of 576 daily subscriptions. As per discussions above, this is around 5.7% of the total tourist footfall in the city of Mysore. Daily subscriptions shall also be taken by Mysore citizens with infrequent travel requirements. This assumption has been discussed with the Mysore City Corporation and other stakeholders.

5.1.11 Further, it has been assumed that the membership levels would take some time to reach their full potential. The assumption for number of subscriptions per bicycle is:

	Year 1	Year 2	Year 3	Year 4
Number of registrations per bicycle	60%	75%	90%	100%

5.2 Tariff Fixation - User

5.2.1 A key factor in establishing the feasibility of a PBS scheme on PPP basis is to understand its revenue potential. A PBS scheme is presented as a viable and healthy alternative to motorized transport. Therefore, the tariff structure for this scheme shall adhere to the following guiding principles:

1. It should be accessible and affordable to all segments of the society.
2. It should encourage short, frequent usage and should discourage extended duration use.
3. It should encourage long term commitment to the scheme, while also catering to the demands of the one-time user.

[7] http://www.itdp.org

5.2.2 A review of the subscription tariffs of similar schemes all over the world presents the following data:

	Bangalore	Paris	London	Barcelona
Annual Subscription				
Registration	Rs. 500 (Free Usage of Rs. 300 at registration)	€ 29 (approx. Rs. 1943)	£ 45 (approx. Rs. 3690)	€ 44 (approx. Rs. 2948)
First 30 mins	Nil	Nil	Nil	Nil
30 - 60 mins	Nil	€ 1.00 (approx. Rs. 67)	£ 1 (approx. Rs. 82)	€ 0.30 (approx. Rs. 20)
60 – 90 mins	Rs. 5	€ 1.00 (approx. Rs. 67)	£ 3 (approx. Rs. 246)	€ 0.30 (approx. Rs. 20)
90 – 120 mins	Rs. 5	€ 2.00 (approx. Rs. 134)	£ 2 (approx. Rs. 164)	€ 0.30 (approx. Rs. 20)
Security Deposit	Nil	€ 150 (approx. Rs. 10,050)	Nil	€ 0.30 (approx. Rs. 20)
Daily Subscription				
Registration	NA	€ 1.70 (approx. Rs. 114)	£ 1 (approx. Rs. 82)	NA

*1 € = Rs. 67 approximately

1 £ = Rs. 82 approximately

5.2.3 After examining the above data and in accordance with the guiding principles described at the beginning of this section, the following fare structure has been used as an input to the revenue projections:

Mysore Public Bicycle Sharing Scheme	
Annual	
Registration	Rs. 500
1st Hour	Free
2nd Hour	Rs. 5
3rd Hour	Rs. 10
Every Subsequent Hour	Rs. 20
Daily	
Registration	Rs. 30
1st Hour	Free
2nd Hour	Rs. 5
3rd Hour	Rs. 10
Every Subsequent Hour	Rs. 20
Increase in Tariff	
5% per year	

5.2.4 This fare structure is intended to encourage frequent, short duration usage by promoting a low annual registration fee and making the first hour free. Longer duration use is discouraged by the rapidly escalating rates for additional hours. Daily subscription rates have been set to target tourists, and simultaneously encourage frequent users to switch to Annual subscription.

5.2.5 Additionally, it is proposed to promote the usage of safety accessories, like helmets. Rental facilities for the same are proposed at each docking station. Tariffs for such facilities have been assumed to be 10% of rent of bicycle, while it has been assumed that only 30% of subscribers would avail these facilities.

5.3 Tariff Fixation – Advertisement and Branding

5.3.1 An important source of revenue for the concessionaire in this PPP arrangement shall be advertisement and branding revenue from docking stations and bicycles. Advertisement potential would be present at the docking stations in form of hoardings (Annexure C).

5.3.2 The current advertisement policy of Mysore imposes charges on hoardings under two heads:

1. Ground rent for the use of public space is levied on hoardings in public land. Differential ground rent is applied depending on the zone (Rs 7000, 5000 and 3000 for standard size of 10 ft x 20 ft). However, the new proposed advertisement policy of Mysore restricts the placement of hoardings in Zone A. Also, hoardings on private property are not charged ground rent.
2. Advertisement Tax is same for all hoardings irrespective of their location and ownership.

5.3.3 As discussed in a latter section on Structuring and Packaging of the System, the government shall provide land at appropriate sites to the concessionaire for the period of the concession. This will also transfer the right of collection of ground rent from government to the concessionaire. However, the government shall retain the right to collect advertisement tax.

5.3.4 The locations selected for docking stations are frequented mainly by tourists and students. These target segments are very attractive to advertisers. These sites will also be located at highly visible places to attract more eyeballs.

5.3.5 The advertisement panels at docking stations shall compete with MCC provided spaces for hoardings. Therefore, the same ground rent rates have been assumed to calculate the project financials.

5.3.6 Branding revenue per bicycle has been assumed as Rs.250 per bicycle per year.

5.3.7 An escalation in these rates of 5% per annum has been assumed.

6 Project Financials

6.1 Scenarios

6.1.1 As discussed previously in section 4.3, 24 locations were selected where docking stations for PBS scheme can be placed. The analysis considers the projected incomes and expenditures to the operator, pertaining to the scheme in the following three scenarios:

- **Scenario 1:** Development and operation of a PBS scheme at all 24 locations
- **Scenario 2:** Development and operation of a PBS scheme only at the locations with potential for advertisement revenue.
- **Scenario 3:** Development and operation of a PBS scheme at the locations where advertisements (hoardings) have been restricted as per the new Advertisement policy of Mysore City Corporation.

6.1.2 Accordingly, the following locations were considered in the scenarios:

S. No	Location	Scenario 1	Scenario 2	Scenario 3
1	Jaganmohan Palace	√	X	√
2	Ganapathi Sachchinanda Ashram	√	√	X
3	Karanji Lake	√	X	√
4	St. Philomena Church	√	X	√
5	Kukkarahalli Lake	√	√	X
6	Chamundi Hills (Foot)	√	√	X
7	Chamundi Hills (Top)	√	√	X
8	Lalith Mahal Palace	√	X	√
9	Mysore Palace Parking Lot	√	X	√
10	Vontikoppal	√	√	X
11	KSRTC Bus Stand (Mofussil)	√	X	√
12	City Bus Stand	√	X	√
13	Ranganthittu Bird Sanctuary	√	√	X
14	Balmuri	√	√	X
15	Srirangapatna	√	√	X
16	Iskcon Temple	√	√	X
17	Railway Museum	√	√	X
18	Mysore Zoo	√	√	X
19	Wax Museum	√	√	X
20	Indira Gandhi National Museum	√	√	X
21	Crawford Hall	√	X	√

S. No	Location	Scenario 1	Scenario 2	Scenario 3
22	Railway Station Parking Lot	√	X	√
23	Directorate of Tourism	√	X	√
24	Brindavan Gardens	√	√	X

6.1.3 The analysis for these scenarios is done from the point view of the concessionaire.

6.2 Cost Estimation

6.2.1 The viability of any PPP project depends greatly on the level of capital investment involved for executing the project. The cost of setting up a PBS system depends greatly on the size, scale and facilities provided. Unfortunately, Public Bicycle Sharing systems are a fairly new phenomenon in India and no comparative large scale system on a viable PPP mode is operational in India.

6.2.2 A review of the capital cost estimates of some of the major PBS schemes around the world presents the following data[8] [9]

	ATCAG, Bangalore	Bixi, Montreal	New York	Washington DC	Lyon	Paris
Total Capital Cost per Bicycle (in US $)	1500	3000	3600	3600	4500	4400

6.2.3 The above capital costs are inclusive of bicycle purchase, docking station equipment and construction, license or purchase of the back-end system used to operate the equipment, member access cards, purchase or rental of maintenance and distribution vehicles, and installation.

6.2.4 Clearly it can be observed that the stated cost of implementing the Atcag scheme is either half of that of comparative schemes, or less than that. A breakup of costs of some of these schemes is presented below:

Place	Cost of Bicycle	Cost of Docking Station	Particulars of Docking Station
Bangalore (ATCAG)	Rs. 8000	Rs 8,01,314 and Rs 6,51,314	Docking Station with 12/6 shared-bicycle docking capacity, 8/6 private bicycle parking racks, shade structure, advertisement panels and security cabin.
Paris (Velib System)	US $1300	US $3100 per Bicycle	Three-speed bicycles, always-on LED lighting powered by a fronthub dynamo, a locking system and a front bicycle basket.

[8] http://www.un.org/esa/dsd/resources/res_pdfs/csd-19/Background-Paper8-P.Midgley-Bicycle.pdf
[9] Preliminary Assessment Report for Implementation of Atcag Bicycle Sharing Scheme in Bengaluru

6.2.5 Based on the above observations and discussions with stakeholders like BBMP, the following assumptions were taken for analysing this project:

Mysore Public Bicycle Sharing Scheme	
Land for Docking Stations	
To be provided by government	
Docking Station, IT infrastructure and other fixed infrastructure	
Capital Cost	Rs. 7,50,000/- per site
Initial Maintenance Cost	3% of Capital cost
Increase in Maintenance Cost	5% every year
Useful Life of the infrastructure	15 years
Bicycles	
Initial Cost of each Bicycle	Rs. 8000
Increase in cost per year	5%
Initial Maintenance costs[10]	10%
Increase in Maintenance costs	5% every year
Useful Life of each Bicycle	5 years
Administrative Costs	
Field Manpower Cost*	Rs. 90,000 per Docking Station
Administrative Manpower Cost*	Rs. 9,60,000
Increase in Salaries	5% per year

* Manpower cost for 24 Docking Stations. This will reduce proportionately in case of reduction in docking stations

6.3 Viability Assessment

6.3.1 The following parameters were taken for conducting the viability assessment:

- **Concession Period:** Since the life of fixed infrastructure has been assumed as 15 years, the concession period has also been taken as 15 years.

[10] Includes Insurance cost

- **Debt: Equity Ratio:** A Debt: Equity ratio of 70:30 has been assumed.
- **Interest on Term Loan:** Interest rate of 13% on term loan has been assumed.
- **Loan Tenure and Moratorium Period:** Loan term of 10 years with a 2 year moratorium has been assumed
- **Income Tax and Minimum Alternate Tax rate:** Income Tax of 33.99% (including education cess) and Minimum Alternate Tax rate of 20% has been assumed. It has been assumed that tax credit for operating loss can be carried forward for 5 years.
- Investments in bicycles till the 6th year have been funded through proportional debt and equity while subsequent investments in bicycles have been funded via internal accruals.

6.3.2 Keeping these assumptions in mind, the following inputs for each scenario have also been considered:

(All figures in Rs.)

	Scenario 1	Scenario 2	Scenario 3
Annual Concession Fee	0	100,000	0
One time government support	0	0	500,000
Per Site Annual Lease rent to government	0	5,040*	0

* Based on a site area of 35 ft. x 8 ft. assuming lease rental of Rs. 1.5 per sq. ft. per month.

The key financial indicators for each scenario which are described in the above sections are as follows:

	Scenario 1	Scenario 2	Scenario 3
Project IRR (Post Tax)	14.33%	14.06%	13.90%
Equity IRR	16.30%	15.73%	15.56%
Average Debt service coverage ratio	1.41	1.39	1.38
Total Project Cost	Rs. 2.80 Cr	Rs. 1.63 Cr	Rs. 1.17 Cr

6.4 Financial support required from Government

6.4.1 Scenarios 1 and 2 do not envisage any funding support from the government. Scenario 3 envisages a one-time upfront funding support of Rs. 5,00,000.

6.5 Recommended Scenario and Sensitivity Analysis

6.5.1 Based on above analysis, it is observed that the equity IRRs for all three scenarios are quite comparable. However, Scenario 1, i.e., Docking Stations at all 24 locations, has the maximum coverage for the scheme in the city. It also does not require any budgetary

support from the government. Therefore, this scenario is recommended for implementation.

6.5.2 Sensitivity Analysis of Scenario 1 has been conducted with respect to the Capital Costs, Operation and Maintenance Costs, and the Revenue envisaged. Results for the same are presented below:

Capital Cost Sensitivity

Indicator	Increase in Capital Costs						
	30%	20%	10%	0%	-10%	-20%	-30%
Project IRR (Post Tax)	9.62%	11.06%	12.53%	14.33%	16.28%	18.65%	21.40%
Equity IRR	7.38%	10.03%	12.79%	16.30%	20.17%	25.04%	30.89%
Average DSCR	1.08	1.17	1.28	1.41	1.57	1.76	2.01

Tariff Sensitivity

Indicator	Increase in Tariff						
	30%	20%	10%	0%	-10%	-20%	-30%
Project IRR (Post Tax)	22.84%	20.15%	17.34%	14.33%	11.00%	7.18%	2.58%
Equity IRR	34.73%	28.52%	22.44%	16.30%	9.94%	3.19%	-4.34%
Average DSCR	2.13	1.89	1.65	1.41	1.17	0.91	0.65

Operation and Maintenance Costs Sensitivity

Indicator	Increase in Operation and Maintenance Costs						
	30%	20%	10%	0%	-10%	-20%	-30%
Project IRR (Post Tax)	9.14%	10.91%	12.58%	14.33%	15.91%	17.52%	19.03%
Equity IRR	6.73%	9.81%	12.88%	16.30%	19.53%	23.02%	26.43%
Average DSCR	1.03	1.15	1.28	1.41	1.54	1.66	1.78

6.5.3 It can be observed that the project returns are highly sensitive to revenue. This indicated the importance of regulating the fare structure. It also highlights the significance of a detailed demand survey before the scheme can be implemented.

7 Statutory & Legal Framework

7.1 Applicable laws and policies

7.1.1 The Karnataka Municipal Corporation Act, 1976

The Act provides for creation of Municipal Corporation in the State of Karnataka. It confers certain powers on Mayor and the deputy Mayor. It specifies the obligatory and specific functions of the corporations. It also provides for strengthening the administrative machinery of the corporations.
The Corporation has the power to plan, design, construct, operate and maintain all public roads and related infrastructure in the city.

7.1.2 Karnataka New Infrastructure Policy, 2007

Clause 27 of this policy outline the process of procurement of public good under the ambit of the Karnataka Transparency in Public Procurement (KTPP) Act (Act 29 of 2000), or under a “Swiss Challenge” format. This act lays out the stages of procurement process, the possible award criteria as well as the process for evaluation of proposals submitted suo-moto by private parties.

7.1.3 National Urban Transport Policy, 2006

The NUTP envisions a focus on movement of people and goods as the paradigm of transport planning leading to equitable allocation of road space with priority to public transport and non-motorized transport. The NUTP stresses on improvement of NMT transport infrastructure with a specific focus on safety concerns of cyclists and pedestrians. It encourages the cities to explore the possibility of a PBS.

7.1.4 Additionally, the Ministry of Urban Development is preparing to develop standards as per the following headings:

- National Policy for promotion of Cycling in Indian cities
- Toolkit for Public Bicycle Scheme projects
- Product design and specifications for the Public Bike Schemes in India
- Financing mechanism for Public Bicycle Schemes

7.2 Legal & Regulatory framework

7.2.1 Recommendation of the 11th and 12th Finance Commission

The 11th and 12th Finance Commission had recommended certain reforms in the taxation structure of states. These include reforms in the structure of excise, land taxes, Octroi/entry taxes etc. These recommendations provide scope to implement enabling features in the state taxation policy for public non-motorised transport projects, like waiver of excise duty etc.

7.2.2 Existing and proposed Advertisement Policies of Mysore City Corporation

The existing Advertisement Policy of MCC divides the city into three zones for A, B and C for the purpose of charging Advertisement levies. These levies have two components – Ground rent for the use of public space is levied on hoardings in public land, and an advertisement tax is levied on all advertisements. The ground rent follows a differential structure according to the zone, while the tax is uniform throughout the city. Hoardings on private property are not charged ground rent.

The proposed new Advertisement Policy of MCC restricts hoardings in the vicinity of the following areas:

- K. R. Circle
- From Gandhi Square to Chamraj Circle
- Bangalore – Nilgiri Road Five Lights Circle to Ramaswami Circle
- Ashoka Road
- JLB Road, Railway Circle to Mon Jois Circle
- Irwin Road
- Palace Surround
- Sayyaji Road from Vishveshwarayya Circle to Madhava Rao Circle)
- Gandhi Square to D Devraj Urs Road
- Heritage Building Roads

8 Indicative Environmental & Social Benefits

8.1 Environmental Benefits

8.1.1 Mysore, being a heritage city, requires special attention in integrating its traffic with the city cultural aspects. Already there are plans underway for improving its heritage core. The city has been selected under JnNURM mission to ensure that urbanization takes place in a dispersed manner.

8.1.2 As per the CTTP, Mysore city has been suffering from dual problems of pollution along with traffic congestion. The CTTP also mentions that pollution caused by automobiles in the city centre was perceived to be higher than in other areas of Mysore. The Karnataka State Pollution Board has also pointed out that the dust content in air in the city centre is abnormally high.

8.1.3 A Public Bicycle Sharing scheme would advance the vision of reducing air pollution in the heritage city by encouraging modal shift towards non-motorized transit. It shall provide an alternative non-polluting mode of public transport. PBS would also reduce the level of noise pollution in Mysore.

8.1.4 A Public Bicycle Sharing scheme would help in reducing the consumption of precious fuel and would therefore reduce transport related carbon footprint in the city.

8.1.5 A PBS scheme would also help reduce traffic jams in Mysore. It would decongest the city centre as there would be an alternate from using roads for public transit. It will help in making Mysore environmentally attractive for tourists and citizen alike. A PBS scheme will therefore assist in achieving the goal of making Mysore a model sustainable community.

8.2 Social Benefits

8.2.1 Internationally, the prices of fossil fuels have generally been increasing over the decades. With depleting resources and increasing costs of extraction, this trend is unlikely to change. However, as discussed above, a PBS scheme helps encourage modal shift towards non-motorized transit. Thus, it would help reduce dependencies on fossil fuel for travel needs.

8.2.2 A PBS scheme would promote a healthier lifestyle, especially amongst the youth. It would provide a safe, simple and fun way to perform exercise. It is also a great way to make the citizen environmentally conscious.

8.2.3 Having cyclists around the city centre and heritage sites would also improve the aesthetics of the city. It provides better infrastructure for tourists to explore the city and is usually an important factor in deciding their itinerary.

8.3 Economic Benefits

8.3.1 A Public Bicycle Sharing Scheme would have multiple revenue sources. Besides the rental revenues, it would provide an opportunity for sponsorship, advertisements and commercial development at the docking stations.

8.3.2 A PBS scheme would affect the tourist inflow in the city and hence directly and indirectly boost the economy around such an infrastructure due to increase in retail sales and other commercial activities.

8.3.3 A PBS scheme would also help the economy by generate related jobs at the docking stations. It would promote the bicycle industry and its ancillaries.

9 Structuring and Packaging of the System

9.1 Background

9.1.1 Project structuring and packaging involves distribution of risks and returns efficiently and reduces the total cost of financing. The art of effective project structuring requires balancing the interests of the diverse stakeholders, and optimal capital structuring. This is then converted into contracts that clearly define the roles, responsibilities, and risks allocated to each partner.

9.2 Benefits of executing this project on PPP mode

9.2.1 Involvement of private enterprises in execution of a project has various financial and non-financial benefits. In case of a public bicycle sharing scheme, the benefits extend to both the government as well as the end users.

9.2.2 PBS Systems worldwide operate on propriety technologies which have been developed and perfected over the course of time. Executing this project on PPP would allow an efficient mechanism for this knowledge to be adopted by the government.

9.2.3 Secondly, a PPP structure would allow for diversification of risks and optimal allocation of the same between all concerned stakeholders. It would also allow the private sector to bring in operational as well as managerial efficiencies in the system.

9.2.4 Additionally, since PBS is a scheme which is specifically targeted at certain user groups, a PPP structure would be beneficial for marketing the scheme to these groups.

9.2.5 Finally, a PPP structure would also reduce or defer the financial burden of public asset development on the government.

9.3 Development of structuring alternatives

9.3.1 In the present development plan, the costs of the project have been divided into two categories:

- Capital Costs, including cost of land, docking stations, IT infrastructure and bicycles
- Operations and Maintenance cost, including maintenance cost of the system

The following two alternatives were considered for this project structuring:

9.3.2 Alternative 1:

The first alternative is a **Build-Operate-Transfer (BOT) based structure**. They key characteristic of such a structure is that the Mysore City Corporation (MCC) shall transfer all risks & rewards associated with the project to a private concessionaire. Complete concession contract of the project would be awarded to one private concessionaire and MCC would transfer sites at mutually agreed locations to the concessionaire for the concession period. Responsibility of development of civil infrastructure as well as procurement of bicycle fleet lies with the concessionaire. Funding for all capital requirements would be arranged by the concessionaire. During the term of the

concession, all rewards of the project are transferred to the concessionaire in lieu of an optional concession fee payable to government. All assets are transferred to MCC on the completion of concession term.

9.3.3 Alternative 2:

The second alternative is an **Engineering Procurement Contract based structure.** In this structure, MCC shall procure all assets from a single/multiple contractors and operate them on its own. It shall retain the ownership of all the assets. Funding for the project shall have to be arranged by the MCC. All risks including technology risk shall have to be borne by MCC.

9.3.4 From the above sections, it can be seen that PBS schemes have yet to be implemented in India at a large scale. Therefore, the government authorities do not have experience in implementing such a scheme. Furthermore, technologies associated with implementing such a scheme, including bicycle tracking systems, have been patented and are already available with various private organisations throughout the world. Hence, it has been concluded that **Alternative 1** is most suitable for this project.

9.4 Project Structure and Risks Mitigation Strategy

Risk	Impact	Indicative Risk Mitigates	Risk Bearer
Completion Risk			
Delay in Site identification, acquisition and allocation	Medium	Site identification and acquisition before start of bid process	Public – MCC
Cost Over-run	Low	Fixed Cost contracts Stringent Selection parameters	Private – Concessionaire
Regulatory risk (Incl Delay in Approvals)	Medium	Concession Agreement Partial Risk guarantees	Public – MCC
Technology Risk	Medium	Proven technologies	Private – Concessionaire
Design and Engineering Risks	Medium	Technical and Engineering Studies	Private – Concessionaire
Operating Risk			
Operational & Maintenance Risk	Low	O&M Contracts Periodic Maintenance Professional Management	Private – Concessionaire / O&M Contactor
Security (Incl Theft, Vandalism etc.)	High	Insurance	Private – Insurance Company
Revenue Risk			
Demand Forecast	High	Detailed Demand Assessment Study	Private - Concessionaire
User Charges / willingness to pay	Medium/High	Target Segment Surveys, Group Discussions, Cost benefit analysis	Private - Concessionaire
Facility Augmentation	Low	Sensitivity Analysis	Private – Concessionaire

Supplementary Facilities	Low/Medium	Contractual Protection	Public – MCC
Sovereign Risk			
Macroeconomic Risks	Medium	Real price contracts	Private – Concessionaire
Political & Legal Risks	Low	Political Risk Insurance Concession Contract	Private – Insurance Company Public – MCC/Karnataka Government (Risk Sharing)
Financial Risk	Low to Medium	Loan Syndication	Private – Financial Institutions
Force Majeure Aggregate	Medium	Insurance Cover	Private – Insurance Company Private – Concessionaire / O&M Contactor

10 Way Ahead

10.1.1 The project as analysed above prima facie seems to be viable to be implemented on PPP basis. The above sections recommend certain detailed studies to be undertaken before taking the project to the next stage, i.e. invitation of tenders.

10.1.2 The concerned agencies/authorities should freeze the project design in terms of components, facilities, its PPP structure and the sites that will be made available for the development. However, the exact area required may depend on the bid parameter/business plan submitted by the developer.

10.1.3 A detailed demand survey and project report should be prepared to unlock the full potential of the project.

10.1.4 Also, a qualified transaction advisor should be engaged to further develop and market the project and select a suitable concessionaire.

10.2 Support Required from the Government

10.2.1 The following support is required from various governmental agencies in the recommended project structure:

- Encumbrance free land at mutually agreed sites at the locations selected above.
- Permissions to erect hoardings at the docking stations (wherever permissible under the new advertisement policy)

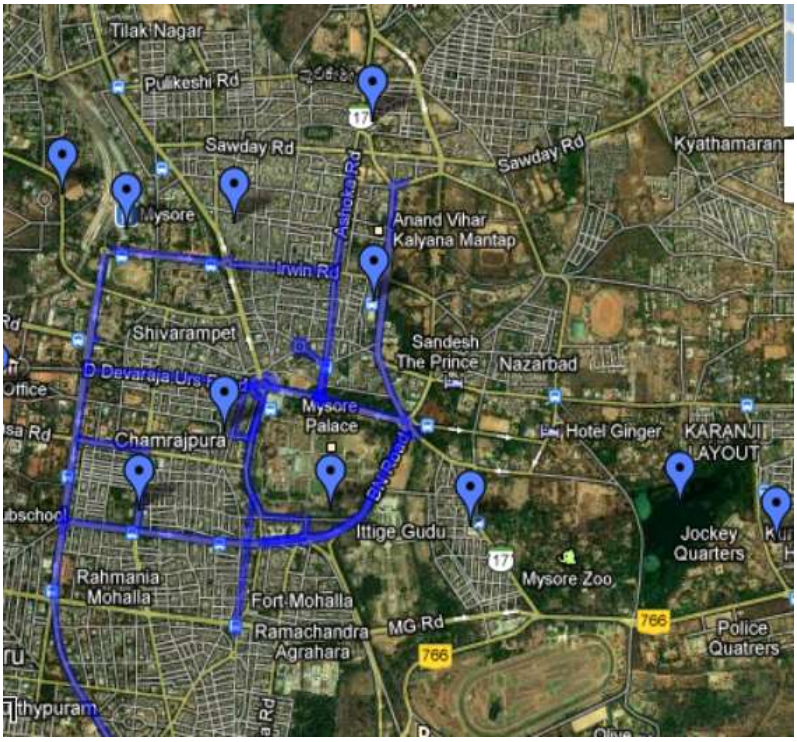
10.2.2 Governmental agencies can also assist the proposed scheme by:

- Exempting excise duty on bicycles for this scheme
- Focusing on improving the safety of bicycle users.
- Developing the NMT tracks as recommended in the CTTP.
- Introducing Vocational Training courses for bicycle mechanics

Annexures:

Annexure A: Location Details

The city centre of Mysore includes the Mysore palace, Directorate of Tourism, Jaganmohan Palace, St.Philomena's Church, Mysore Zoo, Railway Station, Railway Museum, KSRTC Bus Stand, Indira Gandhi National Museum, Wax Museum, Karanji Kere, Vontikoppal, City bus stand and the Ganapathi Sachchinanda Ashram. This is centrally located in Mysore and majorly of all the arterial roads spread out from the Mysore Palace location. All of these sites are distanced by 1 to 5kms from each other. Tourists can cycle down to one location from another and plan their tour accordingly and leave their cycles at the destination of their wish if there is a docking station at that location. All the major hotels and bus stations, temples and schools are located in this total area which makes it a place to promote cycling easily. It is the central part of the city and bicycling would reduce congestion by reducing short distance motorized journeys.



The Mysore Palace is a major tourist destination and is one of the most visited tourist site in the world. Making a docking station here would be strategically good since it is surrounded by many other major tourist destinations. To cater to tourist requirements and promote the scheme at the same time, another docking station is proposed at the tourist information centre. The biggest tourist destination in Mysore is Mysore Palace at a distance of 1.1 km along the Lakshmi Vilas Road. The Lakshmi Vilas Road also leads to the Jaganmohan Palace and Art Gallery after crossing a stretch of 800m.The KSRTC bus stand is distanced just at 1.7km from the Mysore Palace and 1km from the St.Philomena's Church. On the way the famous Mysore Sarees Emporium is located on the Nilgiri Road where tourists can do their bit of shopping.

The **Ranganthittu Bird Sanctuary** is located 16 kilometres north of Mysore. It is a small sanctuary covering an area of just 67 km² and comprises six

islets on the banks of the Kaveri River, each of which is a host to a vast range of both flora and fauna. For the past several years, Ranganathittu has remained the most preferred destination for winged guests known to come from across the globe during every nesting season. Introducing bicycle as a mode of transit here can be a major move towards protecting the environment from the burning of fossil fuels as well as noise pollution. Moreover it would have a positive impact on the greenery as well as the birds and animals dwelling here. Cycling can be promoted here to create environment awareness and it can be easily advertised as an environment friendly scheme. Making a provision for cycling would promote this place more as a picnic location since children as well as elders can use it as an additional leisure activity.

Another docking station is proposed at Srirangapatna, a small town of great religious, cultural and historic importance close to Mysore. The town is famous for its many temples, the most popular of which is the Sri Ranganathaswamy Temple. The summer palace of Tipu Sultan, another tourist attraction, is also located nearby.

The Brindavan gardens are located to the north of Mysore and are spread across an area of 60. The garden is laid out in 3 terraces which contain water fountains, trees, foliage plants and flowering plants.

The PBS Scheme shall be positioned here as environment-friendly scheme which goes in tune with the location and shall also assist the tourists in obtaining a better view of the gardens and its surroundings. They can cycle along the Krishnarajasagar dam located to the south of the Garden. The dam is 3 kms long and is located at the confluence of the rivers -Cauvery, Hemavati and Lakshmanathritha. The lake that is formed by the dam is one of the largest in India. Tourists who stay around Brindavan Gardens can cycle in the evenings, especially around 7p.m when the garden is all illuminated. The Gardens are strategically located close to Krishnaraja Sagara Station and the Karnataka Engineering Research Station. The Research Station has an Engineering Staff College and the students here can avail the cycling facility at the gardens as a leisure activity.

Balmuri Falls and Edmuri Falls are two small waterfalls close to the Brindavan Gardens. These are a hot-spot for students and nature lovers and weekend getaway hunters from Mysore and Bangalore. Balmuri Falls are the creation of the check dam constructed on river Cauvery. The total length of the check dam is 1.6 Km & at a particular spot in the Balmuri, there is step of about 6 feet from which creates the effect of a mini-waterfall. There is also an ancient Ganesha temple in the vicinity.

Considering that the falls have beautiful sight-seeing, tourists can enjoy it by cycling around the location as well as children can avail it as a fun activity especially those who come to picnic at this location. Balmuri falls also has a soothing climate and people come here for picnics and the surroundings are perfect to cycle.

Another tourist's favourite to have a docking station is the Mysore Zoo which is located at 2.3kms away from Mysore Palace. The zoo is a must-see for children who would enjoy cycling as an additional fun activity. Moreover the Karanji Kere is 1.6km down the NH766 and Thandi sadak Road. People jog around the lake in the evenings. Hence a docking station here would be an additional facility to the locals and the tourists to keep a good health as well as a way to enjoy the lush green surroundings. Tourists can visit the regional museum of natural history on its banks which have exhibits of biological diversity, ecology and geology. The Wax Museum which is 1.7kms to the east on the Thandi Sadak Road is proposed to have a docking station. Based on music and musical instruments, this, one-of-its kind in the world wax museum exhibits over 100 life-size wax statues and over 300 musical instruments categorised in various bands and stage settings. Even the Mysore Race Club is located about 2.3kms from the palace.

Further, the Ganapathi Sachidananda Ashram, located 4.2kms from the Mysore Palace will also have a docking station. This is the seat of the Avadhoota Datta Peetham in Mysore. It also has the Viswam Museum inside the Ashram. The JSS Mutt and Harishchandra Ghat are two other locations near to the Ashram where visitors can go. Except the Lalitha Mahal Palace, all the three locations are possible to be used to advertise the scheme.

The next site is majorly the Mysore Campus area and comprises the docking stations at Crawford Hall, Kukkarahalli Kere, Iskcon temple and Srirampura. The Kukkarahalli Lake also known as Kukkarahalli Kere is located 3.8 kms from the Railway Station. It adjoins the Manasgangotri (University of Mysore), the Kalamandir (Rangyana) and the Central Food Technological Research Institute (CFTRI) campus (separated by the Hunsur Road). It provides lung-space to the city. In order to preserve the lake ecosystem, the lake has been beautified with more floras. It is also visited by many migratory birds. The CFTRI, Mysore is 3.1kms down the Hunsur Road. The students would get an easy access to the cycling and sightseeing in a good weather around the lake. Further the Kukkarahalli Lake is surrounded by the bank employees' colony, anthropological survey of India, SJCE boys' hostel, Christ high school on its western end which makes it another reason to have a docking station which will be successfully availed by the students and children in these areas. The Mysore University is located to its east about 3.1 kms down the Hunsur and Campus Road. Tourists should visit the Folklore Museum in the University of Mysore Campus which exhibits over 6500 folk art and crafts from all over the state of Karnataka. The Crawford Hall is located right next to the University of Mysore and has a docking station. The Vishwamanawa International University Hostel, Maharaja College and Oriental Research Centre are located at a distance of 700 m, 600m and 1.6km individually from the Crawford Hall along the Ramavilasa Road, The JSS Law College, BGS Apollo Nursing College is as well located approximately 2 kms away from the Crawford hall. Introducing Cycling at this location would be highly successful owing to the dominance of several colleges and college facilities. The University basketball court, hockey court and swimming pool are located around the Crawford hall and students can easily cycle around to the destinations and also cycle down to the lake as a recreation. They can also cycle down along the Hunsur Road to the cultural centre, Kalamandira. It is also a destination for visitors during Dussehra. Visitors can cycle down from any of the above locations to this place. Another major docking station site is

at the Iskcon temple which is visited by followers from all over the world. And since they are strong supporters of environment-friendly moves, introducing cycling as a mode of transport would be highly welcomed and well used and also can be highly advertised. It is 3.5kms from the Crawford Hall. Student followers can easily avail the system by picking up a bicycle at one station and dropping it at another.

The next site for docking station is one the major tourist attraction after Mysore Palace especially for the foreigners. It is the Chamundi Hills which was named after Goddess Chamundeshwari. This site includes the Chamundi Hill top and Chamundi hill foot and also the Lalitha Mahal Palace.The main Chamundi Hill is about three kilometers east of Mysore and there is a 12 km road leading to the top of the hill. The height of the hill is about 3489 feet above the sea level. There are to be two docking stations, one at hill top and another at the foothills. Another tourist destination to have a docking station is the Lalitha Mahal Palace. The Lalitha Mahal is the second largest palace in Mysore. It is located near the Chamundi Hills, east of the city of Mysore.

Annexure B: Indicative Site Selection Guidelines

The selected sites near the recommended locations should have the following characteristics:

1. Should serve an area with high pedestrian volumes
2. Should have high visibility
3. Should be easily accessible
4. Should not restrict the flow of pedestrians
5. Should not positioned against buildings for maintenance reasons
6. Should have access to proposed NMT tracks/road

Annexure C: Indicative Docking Station Guidelines

Docking Station Capacity

	Paris	Lyon	Barcelona	Rennes
Number of Bicycles	20,600	3,000	1500	200
Number of Stations	1,450	250	100	25
Number of Bicycles per Station	14	12	15	8

Average docking station capacity should depend on the footfall at the location, visibility of the site and propensity of visitors to utilize the system. We have assumed an average capacity of 12 bicycles per docking station for our analysis as the locations have been selected specifically based on the footfall of target segments.

Docking station components:

The docking stations are proposed to have the following components:

1. Bicycle Docks – Bicycles are proposed to be parked parallel to each other. Each bicycle is proposed to have 2.5 ft x 6 ft. of space for parking.
2. Ticketing/Information Kiosk – A space of 5 ft x 5 ft shall be allocated adjacent to the Bicycle docks for a Ticketing/Information Kiosk.
3. Advertisement Panel Boards – Facility for advertisement panel boards elegantly integrated into the Docking stations without spoiling the aesthetics of the Docking Station. There are three Advertisement Panels proposed; a 5 ft x 35 ft. panel facing the bicycles and two 5 ft x 5 ft panels enclosing the docking station from either side.
4. Temporary Roof – The docking station is proposed to have a temporary roof to protect it from the weather.

Annexure D: Case Studies for similar projects in India/ world

As discussed in previous sections, various initiatives have been undertaken internationally to encourage PBS. A few examples of such initiatives are discussed in Annexure D of this report

ATCAG Scheme, Bangalore

- ATCAG was launched on a public scale at Bangalore on 18th October 2011 at three locations in the CBD (Central Business District) in association with the Bruhat Bengaluru Mahanagara Palike (BBMP) and DULT, Govt. of Karnataka. It has been introduced in Bangalore recently as an alternative and sustainable mode of public transport in order to reduce carbon emissions and to avoid congestion. The ATCAG aims to serve the need of the public for the last-mile connectivity for other public transport such as the BMTC and Metro, while providing Bangaloreans with a green mode of transport.
- The pilot launch, for duration of 3 months from November 2011 to January 2012, was to demonstrate the viability of such a system in an urban environment. Three systems were put up at the park adjacent to War Memorial on FM Cariappa road, Utility Bilding Complex in front of Fame Shankarnag theatre and at Anil Kumble Circle.
- The private operator, Kerberon Automation, has now proposed a PPP arrangement for expanding this scheme. As per the proposal, the scheme would be extended to 100 docking stations throughout the city. The private party would be given a right to place advertisements at the docking stations. The user charges proposed are quite nominal and have been detailed further in section 5.2. The pre-feasibility report recommends a user charges revenue sharing arrangement with the government.
- The pilot project received an overwhelming response from the public with more than 400 registrations in the first three months.

Dublinbikes

- In September 2009 Dublin City Council (DCC) launched Dublinbikes, a facility whereby members of the public can join a public bicycle scheme to avail of bicycles to travel around the city. The main objective of the scheme was to increase cycling in the city as part of the Council's commitment to making Dublin City more attractive & sustainable.
- The Scheme is seen as an integrated transport alternative which has improved linkages and accessibility within the city centre.

- The private partner for this scheme was JC Decaux who was selected after a public tender. The scheme uses 450 French-made unisex bicycles located at 40 bike stations around Dublin city centre that will be maintained and operated by JC Decaux for 15 years.
- In return, JC Decaux was given the permission to erect advertising panels (and sell the advertising space) in specific locations on DCC property. While JCD was given the concession to the site, they then had to separately obtain planning permission.
- The scheme works primarily on a membership basis. These services were started by keeping the common user in mind. Therefore, the rentals for these bikes are nominal (free for the first 30 minutes).

Success Story:

- The scheme has proved extremely popular with the public and is generally regarded as being a massive success. By December 2010 Dublinbikes had over 30,000 annual subscribers - greatly in excess of the 5,000-10,000 envisaged at the launch of the scheme.
- Furthermore, vandalism and theft that was predicted has not occurred - only one bike was not returned and this was recovered the following day.
- Such has been the success of Dublinbikes that DCC has developed a longer term strategy for the scheme with plans to expand the Scheme to 5,000 bikes and 300 stations over the next 5 years.
- The scheme seemed to have a clear vision. It was designed to appeal to regular users who could use it as a viable transport alternative in the city centre. It also appeals to short term visitors and its registration system allows for this with the short term subscription. The network was selected with the objectives in mind.
- Considerable time and effort was spent on deciding where to locate stations so that they would appeal to the maximum numbers of users but also stations tend to be in brightly lit, visible locations which helps to reduce vandalism;
- Subscription Fees are extremely low. At €10 per annum the subscription fee is set at a level which appeals to a very wide range of people; and Scheme registration is straightforward and the system is well maintained. The user feedback seems to be very positive.

BIXI Public Bicycle Sharing scheme

- **Bixi** is a public bicycle sharing system developed and owned by the Public Bike System Company (PBSC) of Montreal. It was launched on May 12, 2009 to create a modular bicycle sharing system for the city. After the implementation of the system in Montréal, Bixi began expanding within Canada and around the world. It has generated revenue of CAD 51million (as of FY 2011) and a net income of CAD 1.5 million (as of FY 2011). This system started with 3000 bicycles and 300 stations located around Montreal's central core and it expanded to 5,000 bicycles and 400 stations later that summer. Bixi marked its one-millionth ride on October 26, 2009. BIXI has an annual ridership of 4,174,917 as reported in 2011 and a total of 405 docking stations.

- **Operation:** Users can rent a bike using a subscriber key (a "Bixi key") obtained through a long-term online subscription (30 days or annual) or an access code provided by the pay station (24-hour access). Pay stations are touchscreen-operated and only accept credit cards. A button is used to notify Bixi mechanics of defective bicycles.
- The Bike Docks are made from aluminium. The modular docking stations are formed by a combination of group of four docks which are modular themselves. Maintenance and repair of the system is simplified thanks to a removable module present in every docking station which contains the locking system and all critical components that allow the system to function. In case of repairs, this module can be replaced with an identical one immediately, reducing the down-time of the system. The locking system is based on an energy efficient actuator used in the medical sector.
- **Rates:** Rates differ by city. In general, users need to take out a subscription, which allows the subscriber an unlimited number of free trips shorter than a given time (generally 30 min). A trip that lasts longer than this incurs additional charges, on an increasing price scale. The increasing price scale is intended to discourage long trips, which helps keep the bikes in circulation.
- Montreal's BIXI system experienced some initial difficulties less than two months after its introduction in 2009, with damage and vandalism to some of the bikes. It was reported on July 5, 2009 that one in five bikes had been damaged and 15% of bike racks are defective.
- Despite such challenges, the Bixi system has been very well received and PBSC has extended this system to other countries like the US, UK and Australia.

London Cycle Hire System:

- The Barclays Cycle Hire System, launched on July 30, 2010 in London is the largest such system in the UK. It is a PPP arrangement conceived by Transport for London (TfL). As per the tender documents, the scheme was envisaged to be completed in three lots:

  1) **Design and Build of the Cycle Hire Scheme** – this was to include “the design of bicycles, docking points, registration terminals, initially for a fleet of 6,000 bicycles across approximately 400 docking stations, with the possibility of future expansion to allow for additional numbers of bicycles and other assets and/or additional sites and/or different geographical areas.” The contract was for 6 years, with options to extend the duration for up to a further 2 years.

  2) **Operation and Maintenance** - “To include the operation and maintenance of all the cycle hire assets (including the bicycles, docking stations and registration terminals), redistribution of the bicycles to meet customer demand, provision of a customer service centre, revenue collection, user communications and marketing”. Again, it was envisaged that the operation and maintenance contract would run for 6 years, with options to extend the duration for up to a further 2 years.

  3) **Sponsorship** – the tender provided that the Cycle Hire Scheme may be supported through sponsorship arrangements. Bidders may be invited to act as sponsors either themselves or by including a sponsor within their consortium.

- The first two contracts were awarded to M/s Serco Group plc. The contracts were valued at approximately £140m over their six year term, split between installation and operation of the scheme. Barclays bank was awarded sponsorship rights to the London scheme. Barclays agreed to pay TfL £25m over five years. The sponsorship deal entitles Barclays to name the scheme, design the bikes' branding space and brand accompanying marketing and communications material. The bank's corporate insignia is also stamped on maintenance support vehicles and uniforms.
- At first Barclays Cycle Hire was open only to members. As of December 2010, casual users may now subscribe at the terminal using credit cards. The rates for membership and one time usage are quite nominal (free for the first 30 minutes).

Success Factors:

- Barclays Cycle Hire is now transforming the way that people make short trips around central London, and has become the most sustainable and environmentally-friendly form of public transport ever seen in the British Capital.
- The scheme is integrated with other modes of public transit, thereby adding first and last mile connectivity to the utility of the scheme.
- Barclays Cycle Hire is slated for expansion in time for the 2012 London Olympics. The scope of the expansion will include an additional **2,000** bicycles taking the streets in the areas east of the central boroughs. Currently it operates with 6000 bicycles and 400 docking stations.

Delhi Cycle Hire System

- The "Planet Greenbike" initiative was launched in October 2009 in Delhi. It currently serves along the BRT corridor from Ambedkar Nagar to Moolchand. It was recognized as the best NMT project under "Excellence in Urban Transport-2010". Currently it is operating with 100 bicycles in the whole system.
- **Planet Green Bikes** intends to encourage people to use cycles, in order to develop an eco-friendly environment near Metro Station and at the BRT Corridor in Delhi by discouraging petrol/diesel driven vehicles on roads. **Planet Green Bikes** also intends to launch Cycle Shelters along with Sub Shelters forming a network all over Delhi that allows people to hire and return a bicycle from different places in Delhi. It is proposed to provide eco-friendly and economical alternative travel solutions to the commuters of Delhi.
- **Rules for Renting Cycle:** A compulsory photo ID proof (Voters ID Card / Driving License or original passport) has to be submitted and the mobile number has to be given at the time of taking the cycle. In case of any physical damage to the bicycle, the rider is charged. Moreover in case the cycle is not returned within 24 hours, the police are reported.
- **Rate Structure:** Minimum Rent is Rs.10 for 4 Hours and every extra Hour is charged at Rs.5. The annual membership fee is Rs.100

Response from the people: Each bike station has an average of 11 customers every day. The average rental time for the vehicle is 174 minutes (nearly 3 hours).

Annexure E: Financial Summary for Selected Alternative

Profit and Loss Account

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 8	Year 10	Year 15
INCOME								
One time Government Support	-							
Total Rental revenue	4,648,320	6,100,920	7,687,159	8,968,352	9,416,770	10,901,088	12,018,450	15,338,926
Advertisement Revenue	78,400	82,320	86,436	90,758	95,296	110,317	121,624	155,227
Branding Revenue	72,000	75,600	79,380	83,349	87,516	101,311	111,696	142,555
Rental of Accessories	139,450	183,028	230,615	269,051	282,503	327,033	360,553	460,168
Total	**4,938,170**	**,441,868**	**8,083,590**	**9,411,510**	**9,882,085**	**11,439,749**	**12,612,323**	**16,096,876**
EXPENDITURE								
Maintenance of Bicycles	230,400	230,400	230,400	230,400	230,400	230,400	230,400	230,400
Operations and Maintenance of Docking Stations	540,000	540,000	540,000	540,000	540,000	540,000	540,000	540,000
Manpower Costs	3,120,000	3,276,000	3,439,800	3,611,790	3,792,380	4,390,153	4,840,144	6,177,387
Annual Concession Fee and site lease rent	-	-	-	-	-	-	-	-
Interest on Term loan	1,847,664	1,847,664	1,732,185	1,501,227	1,270,269	822,686	271,573	(0)
Depreciation	945,000	873,200	809,841	753,733	703,865	902,362	752,213	885,808
PROFIT BEFORE TAXATION	**(1,744,894)**	**(325,396)**	**1,331,364**	**2,774,359**	**3,345,171**	**4,554,147**	**5,977,992**	**8,263,281**
Provision for Taxation :	-	-	266,007	943,005	1,137,024	1,547,955	2,031,920	2,808,689
PROFIT AFTER TAXATION	**(1,744,894)**	**(325,396)**	**1,065,358**	**1,831,355**	**2,208,148**	**3,006,193**	**3,946,073**	**5,454,592**

Cash Flow Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 10	Year 15
A. CASH FLOW FROM OPERATING ACTIVITIES								
Net Profit before tax and extraordinary items	(1,744,894)	(325,396)	1,331,364	2,774,359	3,345,171	3,216,433	5,977,992	8,263,281
Adjustments for:								
Depreciation	945,000	873,200	809,841	753,733	703,865	1,100,456	752,213	885,808
Interest	1,847,664	1,847,664	1,732,185	1,501,227	1,270,269	1,306,901	271,573	(0)
Taxes Payable	-	-	266,007	943,005	1,137,024	1,093,266	2,031,920	2,808,689
Cash generated from operations	**1,047,770**	**2,395,468**	**3,607,383**	**4,086,315**	**4,182,282**	**4,530,525**	**4,969,860**	**6,340,400**
Net cash from operating activities (A)	**1,047,770**	**2,395,468**	**3,607,383**	**4,086,315**	**4,182,282**	**4,530,525**	**4,969,860**	**6,340,400**
B. CASH FLOW FROM INVESTMENT ACTIVITIES:								
Purchase of Fixed Assets	(20,304,000)	-	-	-	-	(2,940,553)	-	-
Cash from investment activities (B)	**(20,304,000)**	**-**	**-**	**-**	**-**	**(2,940,553)**	**-**	**-**
C. CASH FLOW FROM FINANCING ACTIVITIES:								
Interest/Finance charges on borrowings	(1,847,664)	(1,847,664)	(1,732,185)	(1,501,227)	(1,270,269)	(1,306,901)	(271,573)	0
Increase / (Decrease) in Owners Equity	9,091,200	-	-	-	-	882,166	-	-
Increase / (Decrease) in Long term Loans	14,212,800	(14,212,800)	-	-	-	2,058,387	-	-
Cash from financing activities (C)	**21,456,336**	**(16,060,464)**	**(1,732,185)**	**(1,501,227)**	**(1,270,269)**	**1,633,651**	**(271,573)**	**0**
Net Increase/(Decrease) in Cash & Cash equivalents (A+B+C)	**2,200,106**	**(13,664,996)**	**1,875,198**	**2,585,088**	**2,912,013**	**3,223,624**	**4,698,286**	**6,340,400**
Cash and Cash Equivalents (Opening Balance)	-	2,200,106	(11,464,891)	(9,589,692)	(7,004,604)	(4,092,591)	8,828,158	36,194,508
Cash and Cash Equivalents (Closing Balance)	**2,200,106**	**(11,464,891)**	**(9,589,692)**	**(7,004,604)**	**(4,092,591)**	**(868,967)**	**13,526,445**	**42,534,907**

IRR Calculation

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 10	Year 15
Profit After Tax	0	-1744894	-325396	1065358	1831355	2208148	2123168	3946073	5454592
Add back depreciation	0	945000	873200	809841	753733	703865	1100456	752213	885808
Total Cash inflows	0	-799894	547804	1875198	2585088	2912013	3223624	4698286	6340400
Share Capital	6091200	0	0	0	0	882166	0	4789851	0
Loan Repayment	0	0	0	1776600	1776600	1776600	1776600	2119664	0
Total Cash Outflows	6091200	0	0	1776600	1776600	2658766	1776600	6909515	0
Net Cash inflows	-6091200	-799894	547804	98598	808488	253247	1447024	-2211229	6340400
Equity IRR	**16.30%**								

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 10	Year 15
PBT	0	-1744894	-325396	1331364	2774359	3345171	3216433	5977992	8263281
Add back depreciation	0	945000	873200	809841	753733	703865	1100456	752213	885808
Add back Interest expense	**0**	1847664	1847664	1732185	1501227	1270269	1306901	271573	0
Total Cash inflows	0	1047770	2395468	3873390	5029320	5319306	5623791	7001779	9149089
Cash outflows	20304000	0	0	0	0	2940553	0	4789851	0
Net flows (pre tax)	-20304000	1047770	2395468	3873390	5029320	2378753	5623791	2211929	9149089
Net flows (post tax)	-20304000	1047770	2395468	3607383	4086315	1241729	4530525	180009	6340400
Project IRR (pre tax)	**18.56%**								
Project IRR (post tax)	14.33%								

Annexure F: Terms of Reference for Technical Consultant

Scope of Services finalised by Mysore City Corporation

The following terms of reference for technical consultant has been finalised by the Mysore City Corporation to analyse the demand/potential for launching PBS in the city:

Draft Terms of Reference for the Study to analyse demand/potential for launching PBS and preparing project REPORT for PBS and the BIKING NETWORK in MYSORE CITY.

Introduction: The study would cover the relevant conceptual issues in developing biking solutions to the mobility needs of Mysore city.

The study will define the deliverables schedule and the key interventions needed from different stake holders including government agencies to further the project.

A detailed timeline and refined specifications of inputs will be made. The following information will form the basis of the proposed study

- City Development Plan-for vision and strategic orientation, city information etc.
- Master Plan and Zonal Plans-for physical planning details.
- Common Mobility Plan-for transport centric information, understanding the major transport needs and existing/proposed solutions
- Existing transport network details.
- Any transport surveys (time delay at major junctions. average speed etc.)

The following additional Surveys/studies will be done:

- City's preference to biking, biking clubs, demand assessment etc.
- Neighbourhood level assessment of mobility needs
- Assessment for co-ordination with the existing public transport system.
- Rapid studies of international best practices corresponding to the typology of the city.
- Training needs assessment of municipal institutions, vendors etc.
- Scoping for PPP and other opportunities.

The Report will include:

- Vision of the exercise: that is interpreting the complimentary engagement of biking as means to supplement the reach of transport network to doorsteps of city dwellers in the context of the city. Additionally, interpreting biking as a city asset and culture, supporting the economic potential and efficiency of the transport network of the city.
- SWOT Analysis of Mysore as a context for Biking solutions: This feature will involve a study of terrain, traffic networks, historical and current preferences and need for biking and the roadblocks that need to be addressed to make biking a success.
- International Case Studies: Based on the SWOT, studying international cases with officials to identify solutions to the problems faced in the city context and best practices

in using biking as a potential for city development (e.g. Enhanced Tourism potential, less load on mass transport/MT, increased mobility and leisure centered businesses etc.)

- Conceptual Frameworks for integration of mobility solutions: That is generation and exploitation of demand, management and financing approaches etc., specific to the context of Mysore.
- Timelines for subsequent deliverables and priority actions.

Timeline:

The duration for preparing the project report is 2 months.

Additional tasks to be undertaken by Technical Consultant

Additionally, the scope of services to be provided by the technical consultant may include:

1. ***Environment, Social and Economic impact assessment***

i. The Consultant shall undertake environment impact assessment of the Project as per provisions of the Applicable Laws on environment protection and identify the positive impacts of this project.

ii. The Consultant shall also identify the social and economic benefits of the project.

2. ***Preliminary designs of project facility and services***

The Consultant shall arrive at the preliminary designs of various components of the Project keeping in view the requirements of the Authority and the scope of services described in this TOR. The site layout and preliminary designs shall be supplemented with explanatory drawings, technical specifications, charts, and notes as necessary.

3. ***Preparation of Preliminary Cost Estimates***

The Consultant shall work out indicative BOQ of various components and prepare cost estimates of the Project with a break up of cost for each component separately.

4. ***Establishing the Financial Viability of the Project***

Detailed financial analysis is required to be undertaken by the Consultant. The Consultant shall provide the estimated development costs, operation and maintenance costs, demand forecast, revenues etc. as part of its financial analysis and appraisal of the Project. The Consultant shall, also provide an assessment of the financial viability of the Project with a view to estimating the likely IRR over an appropriate concession period.

5. ***Establish and detail a viable PPP mode of implementation.***

The Consultant shall identify the service capabilities of the private sector for contribution towards this project and thereafter establish an appropriate PPP mode for implementing the project.

The scope of work indicated above is indicative and not exhaustive. There may be need for flexibility during the assignment as more information about the project emerges and what is feasible and most effective. This can be discussed and mutually agreed during the course of the assignment

Annexure G: Terms of Reference for Transaction Advisor

Scope of Services

1. *Physical Packaging*

i. Identifying issues that could have commercial and financial implications.

ii. Assist the Authority Preparation of the project implementation schedule.

iii. Examine the overall viability of the current way of packaging and suggest mechanisms to strengthen the same.

2. *Strategic Packaging*

i. Assist the Authority in conducting risk assessment by: (a) identifying the allocation of risks; (b) proposing changes in the risk allocation that will make the project more attractive to the private sector without significantly increasing the liabilities on the Authority.

ii. Assist and suggest framework for the bidding package in consideration of a variety of specific factors including: (a) the requirements for a fixed time schedule performance parameters (b) the terms for early termination.

iii. Define the project concept, establish project parameters and identify issues in developing the project. The obligations of project and those of Authority would be crystallized.

3. *Investment Packaging*

i. Assist the Authority in developing financial model for the Project to improve the financial / commercial viability of the project;

ii. Assist the Authority in estimating the financial impact of various provisions in the project agreement.

iii. Assist the Authority in optimizing the project structure under various implementation options; and estimate the values of basic bidding criteria, for evaluation of the reasonableness of the financial proposals.

iv. Assist and guide the Authority in developing the business plan under the selected project structure and a cash flow model to maximise the return to the Authority.

4. *Process Packaging*

i. Finalisation of bidding documents.

ii. Finalise the bidding process, the qualification parameters and the criteria for evaluation of proposals in consultation with Authority.

iii. Assist the Authority in finalization of the RFP and in consultation with Authority.

iv. Assistance in addressing bidders' queries

v. Assistance in evaluation of RFP proposals

5. Delivery System Packaging

i. Suggest appropriate Dispute Resolution Mechanism within the Agreements.

ii. Assist the Authority in ensuring obtaining all undertakings, submissions and warranties from the selected bidders.

The scope of work indicated above is indicative and not exhaustive. There may be need for flexibility during the assignment as more information about the project emerges and what is feasible and most effective. This can be discussed and mutually agreed during the course of the assignment